Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 1/23/2019 12:22:51 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Lubetsky, Jonathan [Lubetsky.Jonathan@epa.gov]
Subject: Revised draft of answers to QFRs
Attachments: dshcwRLSO2019.01.22 - PROGRAM OFFICE DESIGNATED - ALL QFRs Wheeler 01.16.2019 cw2 5.07.docx

All,

Attached is the latest draft of the QFR responses. It is in the form of an RLSO that reflects all of the changes made to the document that Clint had circulated earlier today, incorporating those revisions made by Bill, Clint, Justin, and Sarah. We'll be adding responses to the RFS-related questions tomorrow.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Molina, Michael [molina.michael@epa.gov]
Sent: 7/17/2018 6:25:31 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Leopold, Matt (OGC) [Leopold.Matt@epa.gov]; Wheeler, Andrew [wheeler.andrew@epa.gov]
Subject: Re: TP on gliders

We are good with this.

MM

Sent from my iPhone

> On Jul 17, 2018, at 1:20 PM, Schwab, Justin <Schwab.Justin@epa.gov> wrote:

Deliberative Process / Ex. 5

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 7/17/2018 4:44:52 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: Fwd: Letter from House Chairman Lamar Smith to Acting Administrator Wheeler on EPA actions on gliders
Attachments: Rep Smith et al letter to Acting Adminisrator, gliders, 7.12.2018.pdf; ATT00001.htm

For situational awareness

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

Begin forwarded message:

> **From:** "Charmley, William" <charmley.william@epa.gov>
> **To:** "Grundler, Christopher" <grundler.christopher@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Cook, Leila" <cook.leila@epa.gov>
> **Cc:** "Burch, Julia" <Burch.Julia@epa.gov>, "Sutton, Tia" <sutton.tia@epa.gov>
> **Subject: Letter from House Chairman Lamar Smith to Acting Administrator Wheeler on EPA actions on gliders**
>
> Chris –
>
> Late last week we received the attached letter from House Representative Lamar Smith and three other US House Representatives regarding the EPA November 20, 2017 test report on glider vehicle emissions based on the emissions testing we conducted here at NVFEL. This letter is on behalf of the Committee on Science, Space and Technology.
>
> In this letter, the Committee states that *"Specifically, the Committee has concerns regarding the scientific integrity and validity of a recent study conducted by the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan"*.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

We will be following up with Ben and Julia to see what we need to do in order to support EPA in being responsive to this request. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Thanks
Bill

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 8/14/2018 6:53:41 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: Draft Response to Congressional on Glider Testing
Attachments: Draft glider response, v2.docx; Rep Smith et al letter to Acting Adminisrator, gliders, 7.12.2018.pdf

Bill—
I understand from Bill that he sent the attached to you while I was away. We remain eager to answer the questions about this testing. Did you have any comments? (I also attach the incoming for your reference)

Thanks

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 7/12/2018 12:51:25 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
CC: Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: FW: For Review: OAR Weekly Report

Latest draft below…

OAR Weekly Report – July 13, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 7/5/2018 7:51:37 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Re: Tweet

Deliberative Process / Ex. 5

Sent from my iPhone

On Jul 5, 2018, at 12:48 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Deliberative Process / Ex. 5

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Harlow, David
Sent: Thursday, July 5, 2018 3:46 PM
To: Woods, Clint <woods.clint@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: RE: Tweet

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Woods, Clint
Sent: Thursday, July 5, 2018 3:43 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>;

Harlow, David <harlow.david@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: Tweet
Importance: High

https://twitter.com/realDonaldTrump/status/1014956568129892352

<image001.png>

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Johnson, Laura-S [Johnson.Laura-S@epa.gov]
Sent: 6/8/2018 5:04:44 PM
Subject: Weekly Repot June 4-8, 2018
Attachments: Weekly Report June 4 through 8.docx; Weekly Report June 4 through 8.pdf

Importance: High

Good afternoon,

Attached is the report for the week of June 4-8, 2018.

Enjoy your weekend!

Sincerely,
Laura

Laura S. Johnson | U.S. Environmental Protection Agency
Special Assistant, Office of the Administrator | Cell (202) 819-4941
Office (202) 566-1273 | johnson.laura-s@epa.gov

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/8/2018 12:57:13 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Haman, Patricia [Haman.Patricia@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]; Davis, Matthew [Davis.Matthew@epa.gov]; Thundiyil, Karen [Thundiyil.Karen@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – June 8, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Wright, Rhonda [Wright.Rhonda@epa.gov]
Sent: 6/7/2018 9:25:47 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Woods, Clint [woods.clint@epa.gov]
CC: Clarke, Deirdre [clarke.deirdre@epa.gov]; Mcquilkin, Wendy [Mcquilkin.Wendy@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; South, Peter [South.Peter@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Millett, John [Millett.John@epa.gov]; Henigin, Mary [Henigin.Mary@epa.gov]; Rush, Alan [Rush.Alan@epa.gov]; Scoville, Pat [Scoville.Pat@epa.gov]; Lee, Raymond [Lee.Raymond@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Eagles, Tom [Eagles.Tom@epa.gov]; Sutton, Tia [sutton.tia@epa.gov]; Iglesias, Amber [Iglesias.Amber@epa.gov]; Cortelyou-Lee, Jan [Cortelyou-Lee.Jan@epa.gov]; Burch, Julia [Burch.Julia@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Morris, Joseph [Morris.Joseph@epa.gov]; Nazmi, Niloufar [Nazmi.Niloufar@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Lubetsky, Jonathan [Lubetsky.Jonathan@epa.gov]; Stevens, Katherine [stevens.katherine@epa.gov]; Welderufael, Miriam [welderufael.miriam@epa.gov]; Veal, Lee [Veal.Lee@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Kurpius, Meredith [Kurpius.Meredith@epa.gov]; Ashley, Jackie [Ashley.Jackie@epa.gov]; Thundiyil, Karen [Thundiyil.Karen@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Johnson, Laura-S [Johnson.Laura-S@epa.gov]; Haman, Patricia [Haman.Patricia@epa.gov]; Davis, Matthew [Davis.Matthew@epa.gov]
Subject: OAR Regulatory Report and Weekly for June 7, 2018
Attachments: OAR Regulatory Report 6-07-2018.docx; OAR Weekly June 7.docx

Hello everyone,

Attached you'll find this week's OAR regulatory report that goes through September 6, 2018, and the OAR weekly report.

Thank you,

****

Rhonda Wright
Special Assistant
U.S. Environmental Protection Agency
Office of Air and Radiation
Immediate Office of the Assistant Administrator
Room 5409G, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Office: (202) 564-5437
Cell: (202) 365-6008

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/7/2018 7:27:09 PM
To: DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Millett, John [Millett.John@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: RE: For Review: DRAFT OAR Weekly Report

Ok thanks. Deliberative Process / Ex. 5

Josh

From: DeLuca, Isabel
Sent: Thursday, June 07, 2018 1:20 PM
To: Lewis, Josh <Lewis.Josh@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Harlow, David <harlow.david@epa.gov>; Wright, Rhonda <Wright.Rhonda@epa.gov>; Millett, John <Millett.John@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>
Cc: Atkinson, Emily <Atkinson.Emily@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>
Subject: RE: For Review: DRAFT OAR Weekly Report

In this week's report or next, we could mention the Deliberative Process / Ex. 5

On June 22,2018, EPA will hold a public hearing on its proposed denial of five petitions submitted under section 126 of the Clean Air Act. The state of Delaware submitted four of these petitions, and Maryland submitted one. The hearings will be held at EPA HQ in Washington, DC.

From: Lewis, Josh
Sent: Thursday, June 07, 2018 11:30 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Harlow, David <harlow.david@epa.gov>; Wright, Rhonda <Wright.Rhonda@epa.gov>; Millett, John <Millett.John@epa.gov>; DeLuca, Isabel <DeLuca.Isabel@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>
Cc: Atkinson, Emily <Atkinson.Emily@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>
Subject: For Review: DRAFT OAR Weekly Report

John/Isabel: any events/announcements/etc. you want to flag this week?

OAR Weekly Report – June 8, 2018

Deliberative Process / Ex. 5

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Deliberative Process / Ex. 5

e)

Upcoming Major Decisions and Events

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/5/2018 5:06:58 PM
To: Bodine, Susan [bodine.susan@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]
Subject: Draft NAA request
Attachments: naamem.docx

Susan,

Bill asked me to send you the attached.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/5/2018 4:51:20 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Woods, Clint [woods.clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Gliders NAA request
Attachments: naamem.docx

Bill,

I have draft a request for a [redacted] Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/5/2018 1:40:21 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Woods, Clint [woods.clint@epa.gov]
Subject: Fwd: Glider No Action Assurance

FYI.

Sent from my iPhone

Begin forwarded message:

> **From:** "Brooks, Phillip" <Brooks.Phillip@epa.gov>
> **Date:** July 5, 2018 at 9:38:18 AM EDT
> **To:** "Harlow, David" <harlow.david@epa.gov>
> **Cc:** "Fogarty, Johnpc" <Fogarty.Johnpc@epa.gov>
> **Subject: Glider No Action Assurance**
>
> David
>
> John and I have been tasked with working on this. I understand the goal is Deliberative Process / Ex. 5
>
> Deliberative Process / Ex. 5
>
> Thank you.

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 7/5/2018 1:07:31 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
Subject: For review: Weekly Report

A few things to note/discuss at 9:30...

- OAQPS is reporting that the woodheaters ANPRM has been uploaded for OMB review. Let's check in at 9:30 on status of woodheaters proposal.

Deliberative Process / Ex. 5

OAR Weekly Report – July 6, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Johnson, Laura-S [Johnson.Laura-S@epa.gov]
Sent: 5/25/2018 7:35:20 PM
Subject: Weekly Report for May 21-25, 2018
Attachments: Weekly Report 5.24.2018.docx; Weekly Report 5.24.2018.pdf

Good afternoon,

Attached is the weekly report for the week of May 21-25, 2018.

Enjoy your holiday weekend.

Sincerely,
Laura

Laura S. Johnson | U.S. Environmental Protection Agency
Special Assistant, Office of the Administrator | Cell (202) 819-4941
Office (202) 566-1273 | johnson.laura-s@epa.gov

Message

From: Wright, Rhonda [Wright.Rhonda@epa.gov]
Sent: 5/24/2018 9:04:18 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – May 24, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

****

Rhonda Wright
Special Assistant
U.S. Environmental Protection Agency
Office of Air and Radiation
Immediate Office of the Assistant Administrator
Room 5406E, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Office: (202) 564-5437
Cell: (202) 365-6008

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 5/4/2018 12:37:34 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – May 4, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Millett, John [Millett.John@epa.gov]
Sent: 6/7/2018 4:31:57 PM
To: Lewis, Josh [Lewis.Josh@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: RE: For Review: DRAFT OAR Weekly Report

Deliberative Process / Ex. 5

From: Lewis, Josh
Sent: Thursday, June 07, 2018 11:30 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Harlow, David <harlow.david@epa.gov>; Wright, Rhonda <Wright.Rhonda@epa.gov>; Millett, John <Millett.John@epa.gov>; DeLuca, Isabel <DeLuca.Isabel@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>
Cc: Atkinson, Emily <Atkinson.Emily@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>
Subject: For Review: DRAFT OAR Weekly Report

John/Isabel: any events/announcements/etc. you want to flag this week?

OAR Weekly Report – June 8, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Brennan, Thomas [Brennan.Thomas@epa.gov]
Sent: 6/6/2018 10:46:49 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; schoaf.john@epa.gov; Atkinson, Emily [Atkinson.Emily@epa.gov]
Subject: Re: Science Advisory Board Staff Office - post-SAB meeting request

Sounds great.

Sent from my iPhone

On Jun 6, 2018, at 6:04 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

> Hi Tom. Yes, I'd like to get together. I think it is fine to invite Tom. I'd like to include Mandy, Clint, and John Schoaf. Emily, can you help find a time? Thanks.
>
> _____
> Bill Wehrum
> Assistant Administrator
> Office of Air and Radiation
> U.S. Environmental Protection Agency
> (202) 564-7404
>
> On Jun 6, 2018, at 11:23 AM, Brennan, Thomas <Brennan.Thomas@epa.gov> wrote:
>
>> Hello Bill,
>>
>> I am writing you to give you a quick update on the SAB meeting last week and map out some initial next steps. The Board did express interest in looking at 5 OAR items from the regulatory agenda:
>>
>> 1) Review of the 2016 Oil and Gas New Source Performance Standards for New, Reconstructed, and Modified Sources;
>> 2) Review of the Clean Power Plan;
>> 3) Review of the Standards of Performance for Greenhouse Gas Emissions from new, Modified, and Reconstructed Stationary Sources: Electric Generating Units;
>> 4) Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles; and,
>> 5) Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits.

Deliberative Process / Ex. 5

I look forward to hearing back from you on a potential meeting time and working with you and OAR on these matters.

Regards,

Tom Brennan
Acting Director, Science Advisory Board Staff Office
US Environmental Protection Agency

Desk # 202 564 6953
Mobile # 703 581 9300

Message

From: Burton, Tamika [burton.tamika@epa.gov]
Sent: 5/11/2018 5:19:30 PM
Subject: Weekly Report 05.11.2018
Attachments: Weekly Report 05.11.2018.pdf; Weekly Report 05.11.2018.docx

Importance: High

Good Afternoon,
Please see the attached weekly report for this week.

Have a great weekend!

Tamika Burton
Staff Assistant to the Deputy Administrator
Immediate Office of the Administrator
MC 1104A Room 3412 WJC North
(202) 564-4771 (d)
(202) 507-3630 (c)
burton.tamika@epa.gov

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 5/11/2018 1:05:51 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – May 11, 2018

Hot Topics

Deliberative Process / Ex. 5

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Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 6/27/2018 2:18:15 PM
To: DeLuca, Isabel [DeLuca.Isabel@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: Re: Bill's calendar 6/11/18-6/22/18

Isabel,

Looks fine to me. Thanks.

Sent from my iPhone

On Jun 27, 2018, at 10:05 AM, DeLuca, Isabel <DeLuca.Isabel@epa.gov> wrote:

> Hi Bill,
> Your calendar from 6/11/18-6/22/18 is due to the Office of Web Communications this week. I've pasted it below for your review. Please let me know if you have any questions or concerns.
>
> Many thanks,
> Isabel

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6/22/2018

Deliberative Process / Ex. 5

Message

From: Wright, Rhonda [Wright.Rhonda@epa.gov]
Sent: 5/24/2018 1:31:55 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: For review: DRAFT OAR Weekly Report

Good Morning everyone. Please review and share with me any edits you may have. I plan to send this out the "Weekly Report Group" by **COB TODAY**. Thank you!

OAR Weekly Report – May 24, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

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Rhonda Wright
Special Assistant
U.S. Environmental Protection Agency
Office of Air and Radiation
Immediate Office of the Assistant Administrator
Room 5406E, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Office: (202) 564-5437
Cell: (202) 365-6008

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/3/2018 8:33:32 PM
To: Bodine, Susan [bodine.susan@epa.gov]; Traylor, Patrick [traylor.patrick@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]
Subject: Revised draft of OAR programmatic statement
Attachments: Programmatic Statement Gliders Rev 0 CLEAN.docx; Programmatic Statement Gliders Rev 0 RLSO.docx

Susan,

Bill asked that I send this along to you. Attached is both a redline and clean copy of the latest version of the OAR "statement." The revisions reflect, among other thing, some good input we've received from both OTAQ and OGC.

Please be aware that, at the moment, this version does not take account of that which is set forth in your email from 4:17 p.m. this afternoon. Rather, this version only reflects certain of our (*i.e.*, OAR's) own further thinking and the aforementioned staff review.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 5/10/2018 6:01:43 PM
To: Lewis, Josh [Lewis.Josh@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Millett, John [Millett.John@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
Subject: Re: For review: DRAFT OAR Weekly Report

This is good by me. Thanks!

Sent from my iPhone

On May 10, 2018, at 1:07 PM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:

I'll send to the 3rd floor tomorrow am with any edits/additions you have…

OAR Weekly Report – May 11, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Millett, John [Millett.John@epa.gov]
Sent: 6/19/2018 6:13:07 PM
To: Harlow, David [harlow.david@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: RE: Daily Caller: Emails Suggest EPA Officials Colluded with Lobbyists to Thwart Trump's Agenda, 6/19/18

Gotcha – which is why I said the article would have turned out "differently," not necessarily better. Just wanted you all to be aware in case it comes up . . . thanks again.

From: Harlow, David
Sent: Tuesday, June 19, 2018 1:33 PM
To: Millett, John <Millett.John@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>
Subject: RE: Daily Caller: Emails Suggest EPA Officials Colluded with Lobbyists to Thwart Trump's Agenda, 6/19/18

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Millett, John
Sent: Tuesday, June 19, 2018 1:16 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>
Subject: FW: Daily Caller: Emails Suggest EPA Officials Colluded with Lobbyists to Thwart Trump's Agenda, 6/19/18

Hi Bill and David – making you aware of this article about OTAQ's work to get gliders to test. The reporter had reached out directly to OTAQ staff last week, and staff provided responses through the comms chain (OTAQ, to me) to the press office. But it looks like the answers (sent to OPA on the 12th) and the report itself never made it to the reporter.

The proposed responses are pasted below the article. I'd expect that the article would have turned out differently if they'd had them. I'll flag for folks downstairs. Happy to discuss, and glad this hasn't happened too often in the past.

Thanks –

John

From: Birgfeld, Erin
Sent: Tuesday, June 19, 2018 11:31 AM
To: Millett, John <Millett.John@epa.gov>
Subject: FW: Daily Caller: Emails Suggest EPA Officials Colluded with Lobbyists to Thwart Trump's Agenda, 6/19/18

See below. OPA clearly never responded with the information we provided to refute all the errors in the JunkScience blog.

From: Hassell, Emily
Sent: Tuesday, June 19, 2018 10:27 AM
To: AO OPA Individual News Clips <AO_OPA_Ind_News_Clips@epa.gov>
Subject: Daily Caller: Emails Suggest EPA Officials Colluded with Lobbyists to Thwart Trump's Agenda, 6/19/18

Daily Caller
http://dailycaller.com/2018/06/18/emails-suggest-epa-collusion-lobbyists-trump/
Emails Suggest EPA Officials Colluded with Lobbyists to Thwart Trump's Agenda
By Michael Bastasch, 6/19/18, 2:12 AM

An attorney and junk science blogger uncovered emails suggesting lobbyists and Environmental Protection Agency (EPA) officials coordinated on an effort to preserve regulations on used truck engine manufacturers.

"The purpose, of course, was to embarrass and intimidate the Trump EPA into aborting the rollback of the Obama EPA rule," JunkScience.com publisher Steve Milloy told The Daily Caller News Foundation.

Through a Freedom of Information Act (FOIA) request, Milloy obtained emails between two lobbyists at Volvo Group North America, and high-ranking officials in Ann Arbor, Mich., where EPA's vehicle emissions testing lab is located.

"The emails show that Volvo lobbyists were working to supplying EPA staff with glider trucks so that rogue EPA staff could dishonestly 'test' glider emissions and issue a damning report that could be waved about at a public hearing on the proposed rule rollback," Milloy said.

Volvo opposes repealing regulations on glider kits — new truck bodies that use refurbished engines and are substantially cheaper to buy than trucks with new engines. Volvo and other truck engine makers joined environmentalists in lobbying the Obama administration to regulate glider kits in 2016.

The Trump administration EPA is working towards repealing the glider kit rule, but bureaucratic delays have slowed the repeal process. Milloy said the emails he uncovered show career EPA officials colluded with business interests to thwart the repeal effort.

"Based on my research, I believe that the reason Volvo trucks and the rest of the new truck industry fears gliders is that honest and real world tests of gliders versus new trucks would show that gliders perform comparably well if not better than new trucks in terms of emissions," Milloy said.

"This would expose the new truck industry as an illegal cartel pushing evermore stringent emissions regulations so they can force customers to buy evermore expensive engines," Milloy said.

The emails concern a study put out by EPA officials in late 2017, showing that glider kits emitted much more pollution than new engines. However, the study bore no official EPA markings, was never peer-reviewed and was done without the knowledge of senior staff in D.C.

EPA never released the study, but somehow Volvo lobbyist Susan Alt obtained a copy of the research findings, which she touted during a December 2017 public hearing on EPA's proposal to repeal regulations on glider kits.

Volvo and other opponents of repealing regulations that limit glider kit manufacturing also held up the study as evidence repealing the glider rule would increase pollution, endangering public health.

However, emails show that Steve Berry, director of regulatory affairs at Volvo Group North America, coordinated with EPA official Angela Cullen on obtaining glider engines for the mysterious agency study glider kit opponents have held up to push back against repealing regulations.

EPA tested two glider engines for its 2017 study — both of which were procured with help from Berry, emails show. The Volvo lobbyist got helped EPA obtain two re-manufactured engines from Fitzgerald, a leading glider kit manufacturer.

Volvo's Alt also turned up in Milloy's FOIA request, sending an October 2017 email to William Charmley, EPA director of assessment & standards division, that had letters from dealerships on "the pervasiveness of [g]lider sales across America." Alt's email included a letter to EPA Administrator Scott Pruitt and another that "even lists some of the companies they have lost sales to gliders [sic]."

Neither Charmely nor Cullen responded to TheDCNF's request for comment, including questions about why they did not contact Fitzgerald to obtain a refurbished engine to test. Berry also did not respond to a request for comment.

Fitzgerald petitioned the Trump administration last year to repeal regulations on their industry put in place by the Obama administration. Cash-strapped companies turned to cheaper glider kits in recent years that are about 25 percent cheaper than trucks with new engines.

The Obama administration, however, wanted to end what they saw as a loophole in the Clean Air Act that allowed used engines to be sold without having to comply with current regulations.

Obama-era regulations forced Fitzgerald to cut glider kit production from 3,000 units to 300 units by the end of the year. The company announced a third-round of layoffs in mid-June.

EPA did not respond to TheDCNF's request for comment. Volvo Group North America did not respond to TheDCNF either.

Question 1: Where did the idea for the study originate?

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Carroll, Carly [Carroll.Carly@epa.gov]
Sent: 6/1/2018 4:58:41 PM
Subject: Weekly Report 06.01.18
Attachments: Weekly Report 06.01.2018.docx; Weekly Report 06.01.2018.pdf

Good afternoon,
Please find the weekly report for the week ending 06.01.18 attached.

Have a wonderful weekend.

Best,

Carly Carroll
Special Assistant to the Deputy Administrator
U.S. Environmental Protection Agency
(202) 564-2769
carroll.carly@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/3/2018 8:07:07 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Woods, Clint [woods.clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: OTAQ and ARLO edits on Policy Statement Related to Gliders

Will do.

Sent from my iPhone

On Jul 3, 2018, at 4:06 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

> David - Once you have a revised draft that reflects all of the input we've received Deliberative Process / Ex. 5
>
> Deliberative Process / Ex. 5
>
> Thanks.
>
> _____
> Bill Wehrum
> Assistant Administrator
> Office of Air and Radiation
> U.S. Environmental Protection Agency
> (202) 564-7404
>
> On Jul 3, 2018, at 3:36 PM, Harlow, David <harlow.david@epa.gov> wrote:
>
> Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Schwab, Justin
Sent: Tuesday, July 3, 2018 3:15 PM
To: Harlow, David <harlow.david@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Moulis, Charles <moulis.charles@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Carrillo, Andrea <Carrillo.Andrea@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>
Subject: RE: OTAQ and ARLO edits on Policy Statement Related to Gliders

ATTORNEY CLIENT COMMUNICATIONS

Attorney Client / Ex. 5

From: Harlow, David
Sent: Tuesday, July 3, 2018 3:04 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>; Moulis, Charles <moulis.charles@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Carrillo, Andrea <Carrillo.Andrea@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: OTAQ and ARLO edits on Policy Statement Related to Gliders

All,

Attached is redline of the "statement," which reflects the revisions and comments we received from OTAQ and OGC.

Attorney Client / Ex. 5

Attorney Client / Ex. 5

Also reflected in this version are some edits/thoughts from Clint, and Bill's edits, prompted by his earlier discussion with Susan.

Again, I thank you for your good (and quick!) assistance on this.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Grundler, Christopher
Sent: Tuesday, July 3, 2018 12:13 PM
To: Harlow, David <harlow.david@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: OTAQ and ARLO edits on Policy Statement Related to Gliders

David—

Pls see attached edits with explanatory comment bubbles. These are designed to make

Deliberative Process / Ex. 5

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 7/3/2018 1:13:16 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Samulski, Michael [samulski.michael@epa.gov]
Subject: Fwd: Further thoughts:Re: Following up Friday's Discussion on Marine Tier 4

Bill—FYI, see below. Samulski weighs in on your question about Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

Begin forwarded message:

From: "Samulski, Michael" <samulski.michael@epa.gov>
Date: July 3, 2018 at 8:33:21 AM EDT
To: "Grundler, Christopher" <grundler.christopher@epa.gov>
Subject: RE: Further thoughts:Re: Following up Friday's Discussion on Marine Tier 4

Chris,

Talking with Jean Marie, we agree with your response. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Mike

****
Michael Samulski
U.S. Environmental Protection Agency
Office of Transportation and Air Quality
Director, Large Marine and Aviation Center
1 (734) 214-4532
samulski.michael@epa.gov
****

From: Grundler, Christopher
Sent: Monday, July 02, 2018 4:46 PM
To: Samulski, Michael <samulski.michael@epa.gov>
Subject: FW: Further thoughts:Re: Following up Friday's Discussion on Marine Tier 4

Thoughts?

_____
Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

From: Grundler, Christopher
Sent: Monday, June 25, 2018 8:34 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Further thoughts:Re: Following up Friday's Discussion on Marine Tier 4

Bill:

Deliberative Process / Ex. 5

Let us know if you'd like us to give both approaches more thought, or proceed with one or the other

---
Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

On Jun 25, 2018, at 6:47 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Hi Chris, It is not clear to me why both rules would take the same

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Thanks.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Grundler, Christopher
Sent: Monday, June 25, 2018 4:51 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Following up Friday's Discussion on Marine Tier 4

Bill,

Deliberative Process / Ex. 5

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/2/2018 5:06:20 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: New draft of gliders statement
Attachments: dshRev3RLSOGliders Programmatic Update_Draft.docx; dshRev3RLSOGliders Programmatic Update_Draft.pdf

Attached is a redline, reflecting my implementation of Justin's proposed edits, as well as a couple of additional things that struck me as a good idea at the moment I was typing them up.

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/2/2018 3:50:06 PM
To: Schwab, Justin [Schwab.Justin@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: RE: Further revised draft of "programmatic update" on gliders

Justin,

I thank you for these. I will incorporate your edits in my next turn-around of the document.

To address your bubbled comments, some reaction/responses:

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Attorney Client / Ex. 5

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Attorney Client / Ex. 5

Attorney Client / Ex. 5

Again, thanks for your rapid (and, as always, cogent) review.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Schwab, Justin
Sent: Monday, July 2, 2018 11:18 AM
To: Harlow, David <harlow.david@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: RE: Further revised draft of "programmatic update" on gliders

Please find redline attached.

From: Harlow, David
Sent: Monday, July 2, 2018 10:38 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: Further revised draft of "programmatic update" on gliders

All,

Here is a further draft, revised to reflect the edits Bill provided me a short while ago. Attached is a redline version, a clean version, and a .pdf of the redline (for Mandy's benefit should she be reviewing this on her phone).

Please pass along to me any edits you may have on this. Once we're happy with the draft, I will be sending it along to Susan Bodine for her awareness.

Thanks.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Schwab, Justin [Schwab.Justin@epa.gov]
Sent: 7/2/2018 3:17:38 PM
To: Harlow, David [harlow.david@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: RE: Further revised draft of "programmatic update" on gliders
Attachments: EDIT dshREV2Gliders Programmatic Update_Draft (V1).docx

Please find redline attached.

From: Harlow, David
Sent: Monday, July 2, 2018 10:38 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: Further revised draft of "programmatic update" on gliders

All,

Here is a further draft, revised to reflect the edits Bill provided me a short while ago. Attached is a redline version, a clean version, and a .pdf of the redline (for Mandy's benefit should she be reviewing this on her phone).

Please pass along to me any edits you may have on this. Once we're happy with the draft, I will be sending it along to Susan Bodine for her awareness.

Thanks.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 7/2/2018 12:48:38 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Revised draft of "programmatic update" on gliders
Attachments: dshREV2Gliders Programmatic Update_Draft (V1).pdf; dshREV2Gliders Programmatic Update_Draft (V1).docx

Buoyed by Bill's email from Friday night, I have let my imagination run riot and have revised the "update." A redline is attached here as a .pdf so that it can reviewed on one's phone. (In my experience, at least, one cannot review redlined changes to a Word document on one's phone.) The Word document is also attached.

This will still need refinement, of course, but I think we're closer.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 7/1/2018 2:58:47 PM
To: Harlow, David [harlow.david@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Re: Draft statement on gliders

This is a really good start, will be great with Bills additions. I'll send some general typo edits when I get back to my computer today. I just got off the phone with Justin- looping him in to help as well. He knows not to spend a lot of time editing until Monday's version is circulated.

Deliberative Process / Ex. 5

Talk soon,
Mandy

Sent from my iPhone

On Jun 29, 2018, at 9:10 PM, Harlow, David <harlow.david@epa.gov> wrote:

> Got it. We can turn this around straight away, given that direction, for Monday. Armed with the
>
> Deliberative Process / Ex. 5
>
> Sent from my iPhone
>
> On Jun 29, 2018, at 8:51 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:
>
> > Thanks David and Alex. Three things:
> >
> > Deliberative Process / Ex. 5
> >
> > Thanks.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Jun 29, 2018, at 8:03 PM, Harlow, David <harlow.david@epa.gov> wrote:

Bill and Mandy,

Attached is a draft of what Alex and I have come up with on gliders. I don't know if it comes close

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

<dshREVGliders Programmatic Update_Draft (V1).docx>

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/15/2018 11:53:40 AM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Haman, Patricia [Haman.Patricia@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]; Davis, Matthew [Davis.Matthew@epa.gov]; Thundiyil, Karen [Thundiyil.Karen@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – June 15, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Palich, Christian [palich.christian@epa.gov]
Sent: 6/14/2018 8:53:29 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Fwd: No Action Letter Request
Attachments: No Action Request_FGK_1.pdf; ATT00001.htm

FYI from Corker on Gliders.

Christian R. Palich
Deputy Associate Administrator
Office of Congressional Affairs
C: 202.306.4656

Sent from my iPhone

Begin forwarded message:

> **From:** "Haley, John (Corker)" <John_Haley@corker.senate.gov>
> **Date:** June 14, 2018 at 4:44:20 PM EDT
> **To:** "Christian R. Palich" <Palich.Christian@epa.gov>
> **Subject: Fwd: No Action Letter Request**
>
> Hi Christian,
>
> I wanted to pass along this letter from a constituent company to the Administrator. Thanks!
>
> Best,
> John
>
> Begin forwarded message:
>
> > **From:** Jon Toomey <jtoomey@fitzgeraldtrucksales.com>
> > **Date:** June 14, 2018 at 2:53:50 PM EDT
> > **To:** "Haley, John (Corker)" <John_Haley@corker.senate.gov>
> > **Subject: FW: No Action Letter Request**
> >
> > Hi John,
> >
> > Any chance you could forward this letter on to EPA. We are trying to get a no action assurance letter issued to hold us over while the final rule is implemented.
> >
> > Thanks again for all the support!
> >
> > Jon

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 6/14/2018 7:02:15 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Letter from Fitzgerald Glider Kits to Administrator Pruitt, requesting a "no action assurance"
Attachments: No Action Request_FGK.pdf

A short while ago, one of Fitzgerald's counsel sent me a courtesy copy of this, which is addressed to the Administrator. I pass it along to you for your immediate awareness.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

June 14, 2018

The Honorable Scott Pruitt
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, D.C. 20004
Dear Administrator Pruitt,

As you know, on November 16, 2017, the Environmental Protection Agency (the "EPA") proposed a rule to repeal those provisions of the Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, 81 Fed. Reg. 73,478 (Oct. 25, 2016), which relate to glider vehicles, glider engines, and glider kits. The comment period for the proposed rule closed on January 5, 2018, and we understand that the EPA has every intention of adopting a final rule on this matter.

We are writing to request that the EPA issue a no action assurance letter related to the applicability of the provisions of 40 C.F.R. § 1037.635, which include, among other things, an annual production "cap" on the number of glider vehicles, glider engines, and glider kits that can be manufactured or assembled.

Specifically, we ask that the EPA issue a no action assurance letter clarifying that no action will be taken against any company meeting the following requirements:

(1) The company produced or is now producing glider vehicles in 2018;

(2) The company either has already reached, or will reach in 2018, the applicable production "cap" specified in the interim provisions of 40 C.F.R. § 1037.150(t); and

(3) The company introduces into U.S. commerce in 2018 glider vehicles in an amount that exceeds the "cap" applicable to it under 40 C.F.R. § 1037.150(t).

A no action assurance is appropriate where it is clearly necessary to serve the public interest. This standard is easily met here. The glider kit and truck industry is facing financial ruin due to the annual production cap under 40 C.F.R. § 1037.150(t). The strain on the industry grows worse with every day that passes without a final rule repealing the Phase 2 Rule's provisions on glider vehicles, glider engines and glider kits. In the last three weeks alone, hundreds of American workers in the industry have been laid off. The glider kit and truck industry will cease to exist in short order without meaningful relief.

The current public health losses are significant here, as hundreds of employees have been laid off and thousands more layoffs are expected. The elimination of the glider industry will impoverish

the tens of thousands of American workers, consumers and families who depend on this industry. The public health and welfare are in jeopardy and, short of the publication of a final rule repealing the Phase 2 Rule's glider provisions, a no action of assurance letter is the only remedy currently available.

In addition to serving the public interest, a no action assurance letter is appropriate because the EPA's recent response to a FOIA request concerning the agency's testing of two glider vehicles in October 2017 have raised a serious question of impropriety. Documents produced by the EPA show not only that senior career EPA officials conducted the tests at the behest of Volvo Trucks, the most vocal critic of the glider industry, but also that Volvo Trucks supplied the glider vehicles that were tested. These documents are evidence that Volvo Trucks, and perhaps even certain senior career EPA officials, were targeting the glider industry at the same time that the agency was working on a proposed rule to repeal the Phase 2 Rule's glider provisions. These efforts have caused substantial financial harm to glider assemblers. Furthermore, Volvo Trucks' close involvement in the EPA's glider emissions testing calls into question the integrity of certain career EPA officials who were involved in the rulemaking process.

Given the current harm to public health and welfare, we respectfully ask that a no action of assurance be issued immediately to provide much needed relief to the glider industry.

Sincerely,

Tommy C. Fitzgerald
Founder and CEO
Fitzgerald Glider Kits, LLC.

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 5/3/2018 3:08:09 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Welderufael, Miriam [welderufael.miriam@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
Subject: For Review: DRAFT OAR Weekly Report

OAR Weekly Report – May 2, 2018

Hot Topics

Deliberative Process / Ex. 5

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/1/2018 1:55:15 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Haman, Patricia [Haman.Patricia@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – June 1, 2018

Hot Topics

Deliberative Process / Ex. 5

Message

From: Shoaff, John [Shoaff.John@epa.gov]
Sent: 6/1/2018 12:17:50 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Culligan, Kevin [Culligan.Kevin@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Charmley, William [charmley.william@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Hockstad, Leif [Hockstad.Leif@epa.gov]; Lubetsky, Jonathan [Lubetsky.Jonathan@epa.gov]
Subject: FYI - Compilation of SAB Mtg Trade Press Articles as of 8 AM

InsideEPA

Daily News

SAB Votes To Review EPA's Science, Emissions Rules In Sign Of 'Rebuke'

May 31, 2018

EPA advisers have voted to review the science underlying agency rules aimed at rolling back a suite of Obama administration's greenhouse gas and emissions regulations, as well as a controversial proposal to require that major rules be based on publicly available science, decisions that environmentalists say amount to a “sharp rebuke” of Administrator Scott Pruitt's deregulatory agenda.

At a May 31 meeting, EPA's Science Advisory Board (SAB) voted to endorse a series of recommendations from SAB workgroups urging the full board to consider the science behind pending EPA plans to scale back light-duty vehicle GHG standards, the agency's proposal to scrap production limits on high-emitting glider trucks, EPA's plan to reconsider new source performance standards for oil and gas operations, EPA's planned repeal of the Clean Power Plan, the agency's retreat from GHG requirements for new and modified power plants, and EPA's science data rule.

The planned reviews, which impose a new level of scrutiny on key prongs in the Trump administration's deregulatory agenda, mark what may be the first instance of SAB oversight of agency regulations since the practice was instituted by the Obama administration.

And they comes despite suggestions by some current advisers that SAB consider deferring on issues including the power plant rules amid promises of clearer EPA communication with the board.

And in the case of the light-duty vehicle regulations, the move turned aside suggestions that SAB might want to defer a review until EPA and the Transportation Department issue a proposal in the coming weeks.

“We can say it merits review, and then at a later date, it we decide there is not much to review, we can sunset that review instead of deferring,” one SAB member said.

While the board voted to review the rules, SAB members did not rule out sunsetting their review if more information becomes available that allays their concerns.

Nevertheless, the move is significant because the meeting marked SAB's first gathering since Pruitt removed a host of board members who had received agency grant funds and replaced them with state and industry officials – including a new chair, Michael Honeycutt – who were widely viewed as being more supportive of the administrator's deregulatory agenda.

As such, the board's decision is already winning praise from environmentalists. “The leadership of the board was chosen by Pruitt himself, so their decision today is a sharp rebuke of his leadership and this dangerous [science rule] proposal,” Ana Unruh Cohen, managing director of government affairs at the Natural Resources Defense Council, said in a statement.

"Pruitt's decisions fly in the face of science, the law, and the desires of the American people, and he will continue to be met with resistance in the courts, in the streets, and among his own advisers," John Coequyt, Sierra Club's global climate policy director, said in a separate statement.

Such statements underscore environmentalists' broader concerns with Pruitt's deregulatory agenda and his efforts to craft science to justify it, including his selection of science advisers as well as the proposed science rule, which they fear will undercut the use of studies containing private health data that the agency has long used to justify strict air quality and other rules.

SAB Frustration

Several SAB members expressed signs of frustration on the quality of EPA communication to date on its planned rules as well as the science underlying those rules.

"We make a request to EPA for information and we get really hardly anything in return," SAB member Chris Frey of North Carolina University said at one point, echoing others present that this does not necessarily mean the science behind EPA's regulations is flawed but that SAB wants to err on the side of examining the issues.

"My general sense is in any of these recommendations for review is, if there comes a point where EPA is responsive and has identified the science products that they are going to develop or use, and has convinced the [SAB] that they have already obtained or are implementing an appropriate review process, then I think we can step out of it," Frey said.

But prior statements from the SAB workgroups recommending review – as well as statements by SAB officials at the meeting – also made clear that they harbor significant concerns.

The move to review the agency's repeal of rules on high-emitting glider trucks, for example, which combine a new chassis with used engines, comes after an SAB workgroup in its recommendations blasted the apparent science underlying the rule as "dubious."

Similarly, the workgroup that recommended review of the science data rule strongly criticized the plan, charging it will undermine rules' integrity and was developed without adequate review.

"The proposed rule does not include any assessment of the impact of data restrictions on existing or future regulatory programs. Without access to the restricted data, regulatory programs could become more or less stringent than they otherwise would be, with consequences for both regulatory costs and benefits," the workgroup said.

SAB also discussed, but ultimately decided to spurn, proposals to hold off on reviewing several of the stationary source GHG rules, despite remarks from EPA officials present downplaying the extent to which the agency will need to rely on novel science.
For example, EPA's Kevin Culligan walked the panel through EPA's view that the agency was not using novel "influential" science information that would require such review.

With respect to EPA's new power plant rule, for example, Culligan said the main issue in play in that rule is a previous determination on whether carbon capture and storage (CCS) represents the best system of emissions reduction for new coal plants – an issue that he characterized as mostly a policy decision.

"Ultimately the way we look at it is, while there is science information that goes into it, the question . . is really a policy decision," Culligan, said, citing policy issues including the appropriateness of requiring CCS in areas of the country where it may not be viable due to lack of sequestration opportunities.

But such views failed to win over the SAB.

And the vote in support of reviewing the science rule was widely assumed to be inevitable – even by SAB chair Honeycutt.
"Does anyone think we should not review this?" he said during the discussion of the science rule. "This might be the quickest decision ever." – *Doug Obey* (dobey@iwpnews.com)

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184208

SAB Chair Honeycutt Dodges Tough Questions On EPA Science Policies

May 31, 2018

Michael Honeycutt, the new chair of EPA's Science Advisory Board (SAB), dodged tough questions from reporters on EPA's “secret science” policy, review of major EPA rulemakings and related issues at the first panel meeting since his appointment, but he reaffirmed his skepticism of the Obama administration's decision to tighten the ozone ambient air standard.

Speaking to reporters on the sidelines of the May 31 meeting in Washington, D.C., Honeycutt -- appointed by EPA Administrator Scott Pruitt to head the independent committee -- faced pointed questions over his views on several controversial policy issues, but largely demurred with his answers.

Honeycutt is toxicology director at the Texas Commission on Environmental Quality (TCEQ), the state's environmental regulator, and is known for his doubts over Obama-era air quality regulations and the science underpinning them.

Reporters asked Honeycutt, for example, if SAB should be consulted on Pruitt's proposed science policy that precludes the agency from relying on studies to set regulations when the underlying data are not publicly available. Democratic lawmakers and others say EPA should have consulted various science advisors at the outset, and fear the policy will be used to bar use of science that could otherwise help justify stricter regulations.

SAB work groups have also called for the full panel to review several key rulemakings through which the Trump administration is aiming to undo Obama-era rules on greenhouse gases emissions from power plants, the oil and gas sector, and trucks and cars.

“It is not for me to say right now” whether SAB should review the science policy, Honeycutt told reporters, noting that the issue was still under discussion by the panel. “We have guidelines for what constitutes significant science” worthy of review. “We follow process.”

While he declined to answer questions, he later voted to approve workgroup recommendation that the full SAB review the proposed science rule, as well as the various GHG measures.

Asked about another Pruitt policy that prohibits scientists serving on SAB and other advisory panels from receiving EPA funds, but allows those funded by industry to serve, Honeycutt said, “that is not for me to speak to. That is really not my call.”

On his views regarding fine particulate matter (PM2.5) pollution's health impacts, he said, “it depends on who you talk to.” There are some studies that show associations with health effects, and those that don't, he said. “You have to look at data as a whole. You don't necessarily look at individual studies by themselves.”

He denied having claimed that PM2.5 could under some circumstances be beneficial to health. “I haven't said that,” he said.

PM2.5 is widely regarded as the most harmful air pollutant in terms of damage to public health, and reductions in PM2.5 drive much of the estimated benefits of many EPA air rules. EPA has stated its goal to complete review of the 2010 Obama PM2.5 standard of 12 micrograms per cubic meter by 2020 -- but that process has only just begun.

'Different Viewpoints'

Asked about Pruitt's prior criticisms that there is a cultural problem at EPA, with too little representation of industry viewpoints and Midwestern or Southern states, Honeycutt demurred. “There are a lot of different viewpoints in science,” he said. “We are here to give advice to the administrator.”

But on one issue, Honeycutt was clear. He has long criticized EPA's ozone national ambient air quality standard (NAAQS) of 70 parts per billion (ppb) as too tough. EPA tightened the standard in 2015 down from the 75 ppb limit set in 2008 by the George W. Bush EPA. “I think lowering the standard from 75 ppb to 70 ppb won't get you much” in terms of health benefits, he said. “We think 75 ppb is still protective.”

This view contrasts with that of EPA's top air experts on the Clean Air Scientific Advisory Committee (CASAC), which advises EPA on how to set the NAAQS. CASAC twice unanimously recommended that EPA set the ozone standard at a level between 60 ppb and 70 ppb. EPA has committed itself to completing a review of the ozone standard in 2020, and is still weighing a reconsideration of the standard. -- *Stuart Parker* (sparker@iwpnews.com)

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EENews/Climate Wire

EPA

Advisory board to review Pruitt's science overhaul

Scott Waldman, E&E News reporter

Published: Friday, June 1, 2018

EPA's Science Advisory Board is ideologically divided over many science-based decisions made by the agency in the last year, but you might not know it from the board's first meeting after it was significantly reworked by Administrator Scott Pruitt.

At its first meeting after an eight-month hiatus, the SAB had a cordial first dive into policies that would have dramatic effects on vehicle emissions, the science used in regulations and the ability of super-polluting trucks to evade clean air rules.

There were no fireworks at the public meeting, which was mostly attended by journalists, advocacy groups and EPA employees.

However, at the end of the five-hour meeting in a room with little air conditioning on a muggy day in Washington, D.C., board members did disagree, very politely, over whether to defer some regulatory reviews and about the merits of a proposed rule to limit the science used by the agency to craft regulations.

The latter issue, which the group voted to review, has received extensive blowback, including 120,000 public comments in just a month, according to EPA.

"There is a real lack of clarity in how you would unroll this and actually apply it," said Alison Cullen, a professor at the University of Washington and a member of the board.

Stanley Young, a statistician and frequent critic of well-established air pollution studies that have been extensively peer-reviewed and replicated, said he supports the science rule. He suggested air pollution researchers behind groundbreaking studies may be guilty of misconduct.

"This is a sticky issue. It's been well-discussed in the literature, and there are examples where, I would say, mischief has been done," Young said at the meeting.

In the end, the board agree to move forward with its review of the science on a number of EPA actions, including those related to greenhouse gas emissions and science transparency.

Despite the somnolent tone to the proceedings, the Science Advisory Board has experienced a sea change since it last met in person. Gone are a number of academic researchers, leaders in their fields of expertise. Their replacements include researchers allied with and funded by industry, whose work is used to fight against public health regulations. Some are longtime critics of EPA.

At yesterday's meeting at the Washington Plaza Hotel in D.C., 17 new members were at the table, which had a decidedly stronger industry presence.

At the head was the new chairman of the SAB, Michael Honeycutt, who previously served as head toxicologist for the Texas Commission of Environmental Quality and who has said there is evidence that air pollution "makes you live longer."

Among the others at the table were the statistician Young, who has produced work funded by the American Petroleum Institute that says EPA's air regulations are based on faulty science; Kimberly White of the industry group American Chemistry Council; and Robert Phalen, who heads the Air Pollution Health Effects Laboratory at the University of California, Irvine, and has said "modern air is a little too clean for optimum health."

During a discussion of air pollution regulations, industry-affiliated researchers expressed concern about EPA actions. White expressed concern over an "overestimation of risk" at the agency.

Don van der Vaart, a Pruitt appointee who questions mainstream climate science and is the former secretary of the North Carolina Department of Environmental Quality, questioned air emissions data, saying, "Emissions data is always wrong; the question is, how wrong, and can you do anything about it?"

Young asked whether companies subject to more stringent pollution regulations would have the ability to dispute them and said the review of some research would depend on one's perspective about whether carbon dioxide and air pollution are bad.

In September, the SAB requested that Pruitt join its meeting. He was not in attendance.

About two dozen people spoke during the meeting's public comment period, almost all in opposition to the science overhaul plan and the proposed rollback of vehicle fuel efficiency standards.

"The core science/policy problem with EPA's proposal is that it elevates what it calls 'transparency' above all other attributes of a published study as a criterion for assessing its value," said John Bachmann, a former EPA official who worked in the agency's air office in North Carolina. He is not a member of the board. "Thus, a study that has been replicated many times may be excluded from consideration, while one that uses an inferior database that is publicly available would be considered."

One theme that fired up some board members was their complaint that they're not getting enough scientific information from EPA to back up its decisions.

Christopher Frey, an engineering professor at North Carolina State University, said an SAB working group asked the agency for more information but was rebuffed. He said the board should send a "nastygram" to the agency, because it has typically been deficient in providing information for review, not just during Pruitt's tenure but stretching back into the Obama administration, as well.

"We make a request to EPA for information, and we get hardly anything in return," he said.

Jeanne VanBriesen, director of the Center for Water Quality in Urban Environmental Systems at Carnegie Mellon University, said the board's work has been significantly affected by the lack of response from the agency. She said reviewing the science behind the rulemaking would "light a fire" under EPA officials and that deferring would unnecessarily delay actions for months.

"We mean something when we defer," she said. "We mean there isn't information to have been reviewed. There is information to be reviewed here; we were not provided it, that's a very different case."

Bloomberg Environment

News

Climate Rollbacks, Science Rule to Get EPA Science Advisers Review

Posted May 31, 2018, 7:38 PM

By Abby Smith

- Science Advisory Board votes nearly unanimously to review EPA revisions to five Obama-era climate rules
- Panel also will scrutinize EPA efforts to restrict agency science

EPA Administrator Scott Pruitt's plans to revise five Obama-era climate regulations—and his efforts to limit the types of science the agency can use—will get the scrutiny of the agency's science advisers, the full panel voted May 31.

The Science Advisory Board, which counsels the Environmental Protection Agency on the science it uses, will move forward with vetting the scientific and technical analysis underpinning the EPA's plans to rewrite several greenhouse gas regulations.

Those include: the agency's review of the Obama administration's carbon limits for new and existing power plants, its reconsideration of methane limits for new oil and gas wells, its plans to rewrite fuel economy standards for passenger cars, and its proposal to eliminate emissions limits for so-called glider trucks.

The panel also voted to take up a review of the EPA's proposal barring the use of scientific research including data that isn't or can't be made public.

The Science Advisory Board voted nearly unanimously that all six proposals merit further review.

It is a crucial step in the process, but the reviews may not all follow the same steps, Thomas Brennan, acting director of the

Science Advisory Board staff office, told reporters on the sidelines of the May 31 meeting.

A work group of several panel members recommended review of the regulations, citing potential technical flaws and gaps in the scientific basis.

Seeking Better Response From Staff

The science advisers will now engage further with EPA staff. Several Science Advisory Board members argued that they didn't receive enough information from the agency about the planned regulations upfront.

"We make a request for information, and we haven't gotten much in return," said Chris Frey, an engineering professor at North Carolina State University and a member of the work group that recommended the rules for review. He and other members of the advisory board stressed the need for better response from EPA staff.

Michael Honeycutt, chairman of the board and toxicology director at the Texas Commission on Environmental Quality, offered at one point to speak with EPA air chief Bill Wehrum to urge him to make staff available to discuss the agency's regulatory rollbacks with the science advisers.

Brennan told reporters that the science panel's reviews are likely to run at different paces. The panel could decide to combine reviews of regulations that deal with the same issues, he added.

For example, several members of the board suggested combining review of the EPA's plans to repeal carbon limits for existing power plants, known as the Clean Power Plan, with efforts to rewrite the companion limits for new power plants.

Advocates Urge Rigor

Nearly two-dozen environmental advocates and scientists urged the science advisers to take up the reviews, sharply criticizing the lack of scientific and technical basis for the EPA's determination to revise Obama-era fuel economy standards and its plans to repeal emissions limits on glider trucks.

Advocates also urged the Science Advisory Board to rigorously examine the EPA's science transparency proposal.

The board needs to "ensure EPA follows the law and uses the best available scientific information as it makes regulatory decisions that will affect the health and welfare of all Americans," David McCabe, a scientist with the Clean Air Task Force, told the panel.

To contact the reporter on this story: Abby Smith in Washington at asmith@bloombergenvironment.com

To contact the editor responsible for this story: Rachael Daigle at rdaigle@bloombergenvironment.com

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/14/2018 5:44:04 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: For review: DRAFT OAR Weekly Report

Let me know if you want to say anything specific about the timing of the RFS proposal...or just leave it as it is below (as a package currently at OMB for review)

OAR Weekly Report – June 13, 2018

Hot Topics

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Burton, Tamika [burton.tamika@epa.gov]
Sent: 6/29/2018 8:44:45 PM
Subject: Weekly report 6.29.2018
Attachments: 6.29.2018.pdf; Weekly Report 6.29.2018.docx

Importance: High

Good Afternoon,
Please find the Weekly Report for the week ending 6.29.2018.

Have a great weekend!

Tamika Burton
Staff Assistant to the Deputy Administrator
Immediate Office of the Administrator
MC 1104A Room 3412 WJC North
(202) 564-4771 (d)
(202) 507-3630 (c)
burton.tamika@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 6/13/2018 5:23:02 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: FW: NAA documents
Attachments: NAArequest.docx; revNAA.docx

Bill,

For your awareness.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Harlow, David
Sent: Wednesday, June 13, 2018 1:22 PM
To: Ringel, Aaron <ringel.aaron@epa.gov>
Subject: NAA documents

As we discussed.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 4/27/2018 12:16:52 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – April 27, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 5/21/2018 9:57:21 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: FW: SAB Review of the Regulatory Agenda Materials for the May 31 meeting

FYI – For SAB meeting later this month, the SAB workgroup has "nominated" the following actions for consideration for full review by the Board (note that we are the only program office with regulatory actions that the workgroup thinks merits review):

- Strengthening Transparency in Regulatory Science
- Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles
- Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits
- Strengthening Transparency in Regulatory Science
- Review of the 2016 Oil and Gas New Source Performance Standards for New, Reconstructed, and Modified Sources
- Review of the Clean Power Plan
- Review of the Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Generating Units

---

From: Shoaff, John
Sent: Friday, May 18, 2018 6:50 PM
To: Woods, Clint <woods.clint@epa.gov>
Subject: Fwd: SAB Review of the Regulatory Agenda Materials for the May 31 meeting

Clint,

Here's the recent incoming and additional details for the SAB mtg and discussion of reg actions including fall 2017. Can discuss further next week. Best,

John

Sent from my iPhone

On May 18, 2018, at 4:49 PM, Carpenter, Thomas <Carpenter.Thomas@epa.gov> wrote:

Dear Colleague,

Attached are links to the Memoranda from an SAB Work Group on the planned actions in the regulatory agendas posted on the SAB website. The SAB will be discussing the Work Group's recommendations and determining whether the SAB wishes to provide advice or comment on the planned actions on May 31, 2018 at 3:15pm. The memoranda and a draft agenda are attached for your convenience. Also attached is the "best practices" memorandum outlining participation in discussion on planned actions with the SAB.

To facilitate the discussion please let me know the point person from your office for the planned actions, and how they will attend (via phone or in person). The meeting is at Washington Plaza at Thomas Circle

Best
Tom

Thomas Carpenter
Designated Federal Officer / Sr. Biologist
US EPA Science Advisory Board, MC 1400R
1200 Pennsylvania Avenue, NW
Washington DC 20460
ph 202 564 4885 Fax 202 565 2098

Meeting Materials

Category	Meeting Material
Committee-Developed or Provided Background Material	Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Ag Actions and their Supporting Science in the Fall 2017 Regulatory Agenda. (PDF, 80 pp., 91 bytes)
Committee-Developed or Provided Background Material	Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Ag Actions and their Supporting Science in the Spring 2017 Regulatory Agenda. (PDF, 74 pp., bytes)
Committee-Developed or Provided Background Material	Preparations for Chartered Science Advisory Board (SAB) Discussions of Proposed Rule: Strengthening Transparency in Regulatory Science RIN (2080-AA14). (PDF, 5 pp., 88,410

<WkGrp_memo_2080-AA14_final_05132018.pdf>

<SABWkGrpSpring2017Att+ABC.pdf>

<WG_Memo_Fall17_RegRevAttsABC.pdf>

<Best Practices for EPA Engagement with the Science Advisory Board March 2015.pdf>

<draft+SAB+meeting+agenda_5_16_18.pdf>

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 5/31/2018 3:42:11 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
Subject: For Review: DRAFT OAR Weekly

I'll send forward first thing tomorrow. Edits before then welcome. Motiva and 126 will drop off (assuming they get signed today).

OAR Weekly Report – May 31, 2018

Deliberative Process / Ex. 5

Message

From: Carroll, Carly [Carroll.Carly@epa.gov]
Sent: 5/18/2018 3:30:23 PM
Subject: Weekly Report 05.18.18
Attachments: Weekly Report 05.18.2018.docx; Weekly Report 05.18.2018.pdf

Hello,

Please find the weekly report for the week ending 05.18.18 attached.

Have a wonderful weekend.

Thank you,

Carly Carroll
Special Assistant to the Deputy Administrator
U.S. Environmental Protection Agency
(202) 564-2769
carroll.carly@epa.gov

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 6/25/2018 11:15:30 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: Following up Friday's Discussion on Marine Tier 4

Bill—

Deliberative Process / Ex. 5

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

On Jun 25, 2018, at 6:47 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Deliberative Process / Ex. 5

I defer to Mandy on whether these timeframes (and the possibility of no action assurance) might Deliberative Process / Ex. 5

Thanks.

_____

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Grundler, Christopher
Sent: Monday, June 25, 2018 4:51 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Following up Friday's Discussion on Marine Tier 4

Bill,

Deliberative Process / Ex. 5

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Appointment

From: Microsoft Outlook [MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@usepa.onmicrosoft.com]
Sent: 6/13/2018 4:22:44 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Meeting Forward Notification: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 - **Deliberative Process / Ex. 5**

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM

Recurrence: (none)

Your meeting was forwarded

Carrillo, Andrea has forwarded your meeting request to additional recipients.

Meeting

Briefing on HD GHG Phase 2 glider program

Meeting Time

Friday, 15 June 2018 09:30-10:30.

Recipients

Stahle, Susan

Srinivasan, Gautam

Schwab, Justin

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

Sent by Microsoft Exchange Server

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 5/18/2018 1:03:16 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – May 18, 2018

Hot Topics

Deliberative Process / Ex. 5

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/29/2018 1:09:19 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Haman, Patricia [Haman.Patricia@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]; Davis, Matthew [Davis.Matthew@epa.gov]; Thundiyil, Karen [Thundiyil.Karen@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – June 29, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 5/30/2018 8:45:00 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: RE: SAB Follow Up

Sounds good – Feedback from the SAB Staff Office is that they will not provide an opportunity for OAR to provide initial comments. Current list of public commenters: https://yosemite.epa.gov/sab/sabproduct.nsf//80611EDAC6CABA1385258297007513C1/$File/list_of_speakers_20180531.pdf

---

From: Gunasekara, Mandy
Sent: Wednesday, May 30, 2018 4:30 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Woods, Clint <woods.clint@epa.gov>
Subject: RE: SAB Follow Up

Alternative approach reflected in the attached. I have a 4:30 but will come after to touch base with you both as this certainly warrants further discussion.

From: Woods, Clint
Sent: Wednesday, May 30, 2018 12:12 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>
Subject: RE: SAB Follow Up

Bill,

Not sure if it's helpful, but attached version contains some suggested OGC/OAQPS/OAPPS edits – Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Woods, Clint
Sent: Tuesday, May 29, 2018 8:11 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: RE: SAB Follow Up
Importance: High

Bill,

Attached for your review is a draft cover letter with an attachment providing supplemental information on our regulatory actions for the SAB meeting this week. Apologies for the tight turnaround – Think we need to get a signed copy back to the SAB staff office for distribution by 1:30 PM tomorrow.

Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Woods, Clint
Sent: Friday, May 25, 2018 7:27 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>; Tsirigotis, Peter <Tsirigotis.Peter@epa.gov>; Dunham, Sarah <Dunham.Sarah@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Schwab, Justin <schwab.justin@epa.gov>
Subject: SAB Follow Up
Importance: High

All,

Thanks again for the time yesterday, and my apologies for the delay in following up. For next week's chartered Science Advisory Board meeting, we would like to prepare some supplemental material to be provided on OAR actions identified by the workgroup as "meriting review." In a coordinated effort to actively manage this meeting and the scheduled "SAB Discussions about EPA Planned Actions and their Supporting Science" on the afternoon of May 31, we ask your offices to provide a short, 1-3 paragraph narrative justification regarding the status of each of the five OAR actions identified by the Workgroup (list below) by 2:30 PM Eastern on Tuesday, May 29. This timing will allow us to provide the material to the Board in advance of the meeting. We also need to discuss further having appropriate staff on hand. In addition, we are working with the SAB Staff Office regarding their voting conventions and the structure of this discussion item. In addition, we expect to provide an overarching cover letter which draws upon some of the "institutional arguments" in the attached.

To facilitate your office's efforts (and the quick turnaround), also attached is a list of the actions with a summary of the rationale for review provided by the Work Group and the updated Spring 2018 unified agenda listings. These descriptions

Deliberative Process / Ex. 5

Below is list of actions identified:
From Workgroup Assessment of Fall 2017 Regulatory Agenda

- Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles
- Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

From Workgroup Assessment of Spring 2017 Regulatory Agenda
- Review of the 2016 Oil and Gas New Source Performance Standards for New, Reconstructed, and Modified Sources
- Review of the Clean Power Plan (also see Workgroup Assessment of Fall 2017 Regulatory Agenda on State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units)
- Review of the Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Generating Units

Thanks in advance!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 4/26/2018 1:56:21 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Millett, John [Millett.John@epa.gov]; Welderufael, Miriam [welderufael.miriam@epa.gov]
Subject: For Review: OAR Weekly Report

I'll be sending to the 3rd floor first thing tomorrow. I'll update rule package info if any of them move to a different stage in review/signature process.

OAR Weekly Report – April 27, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Appointment

From: Microsoft Outlook [MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@usepa.onmicrosoft.com]
Sent: 6/13/2018 4:15:45 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Meeting Forward Notification: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 + Personal Phone / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM

Recurrence: (none)

Your meeting was forwarded

Hengst, Benjamin has forwarded your meeting request to additional recipients.

Meeting

Briefing on HD GHG Phase 2 glider program

Meeting Time

Friday, 15 June 2018 09:30-10:30.

Recipients

Grundler, Christopher

Cook, Leila

Hengst, Benjamin

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

Sent by Microsoft Exchange Server

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 5/17/2018 3:22:23 PM
To: Lewis, Josh [Lewis.Josh@epa.gov]
CC: Wright, Rhonda [Wright.Rhonda@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: Re: For review: DRAFT OAR Weekly Report

Deliberative Process / Ex. 5

Sent from my iPhone

On May 17, 2018, at 11:17 AM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:

> Edits welcome. In particular on gliders…we've had it in a holding pattern for about a month under the heading of "moving soon to OMB." Happy to keep it there or to move/delete as appropriate.

OAR Weekly Report – May 18, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Carroll, Carly [Carroll.Carly@epa.gov]
Sent: 5/4/2018 2:30:46 PM
Subject: Weekly Report for 05.04.18
Attachments: Weekly Report 05.04.2018.docx; Weekly Report 05.04.2018.pdf

Good morning,
Please find the weekly report for the week ending 05.04.18 attached.

Have a wonderful weekend.

Thank you,

Carly Carroll
Special Assistant to the Deputy Administrator
U.S. Environmental Protection Agency
(202) 564-2769
carroll.carly@epa.gov

Appointment

From: Microsoft Outlook [MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@usepa.onmicrosoft.com]
Sent: 6/13/2018 4:02:03 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Meeting Forward Notification: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 **Personal Phone / Ex. 6**

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM

Recurrence: (none)

Your meeting was forwarded

Charmley, William has forwarded your meeting request to additional recipients.

Meeting

Briefing on HD GHG Phase 2 glider program

Meeting Time

Friday, 15 June 2018 09:30-10:30.

Recipients

Parsons, Christy

Orlin, David

Kataoka, Mark

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

Sent by Microsoft Exchange Server

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/28/2018 2:14:37 PM
To: DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Millett, John [Millett.John@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: For Review: OAR Weekly Report

Written for sending tomorrow am (hence the "TODAY" in the CSAPR action)

OAR Weekly Report – June 29, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Kataoka, Mark [Kataoka.Mark@epa.gov]
Sent: 6/25/2018 7:06:03 PM
To: Carrillo, Andrea [Carrillo.Andrea@epa.gov]; Stahle, Susan [Stahle.Susan@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Harlow, David [harlow.david@epa.gov]
CC: Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]; Orlin, David [Orlin.David@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]
Subject: FW: Draft proposed "no action assurance" documents
Attachments: NAArequest.docx; revNAA.docx

Thanks, David; adding Andrea, Sue, and Gautam for ARLO.

Mark M. Kataoka
Attorney
EPA OGC ARLO (2344A)
202-564-5584

From: Harlow, David
Sent: June 25, 2018 2:45 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>; Charmley, William <charmley.william@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Kataoka, Mark <Kataoka.Mark@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>
Subject: Draft proposed "no action assurance" documents

Gentlemen,

Per Bill's earlier email, I am forwarding to you two draft documents. The first is

Deliberative Process / Ex. 5

Attorney Client / Ex. 5

Attorney Client / Ex. 5

As I understand it, based on Bill's previous email, this is on a very short fuse. I thank you in advance for your collective assistance.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 6/25/2018 6:59:54 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Charmley, William [charmley.william@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Woods, Clint [woods.clint@epa.gov]
Subject: Re: No Action Assurance

Got it. **Deliberative Process / Ex. 5**
done so yet

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

On Jun 25, 2018, at 2:07 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Chris and Bill – In conjunction with our new regulatory path forward on the

Deliberative Process / Ex. 5

to you and OGC later today. Please take a look at it and let me know if you have thoughts or suggestions. **Deliberative Process / Ex. 5** Thanks.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 4/25/2018 12:02:31 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
CC: Wright, Rhonda [Wright.Rhonda@epa.gov]
Subject: Status of rule packages

In case this is helpful in talking to OP/OMB. I talked this through yesterday with Bill Nickerson (career office director in OP) so he's aware of all of the moving pieces...and in particular how we're going to go pretty quickly from zero rules at OMB to five

Upcoming Packages for the Administrator's Signature:

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Environmental Law360 [news-alt@law360.com]
Sent: 4/25/2018 7:51:43 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: [SPAM] Pruitt Floats Overhaul To EPA Scientific Review Process

ENVIRONMENTAL.

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TOP NEWS

Pruitt Floats Overhaul To EPA Scientific Review Process

U.S. Environmental Protection Agency Administrator Scott Pruitt on Tuesday proposed a rule that would prevent the agency from promulgating regulations using research that isn't publicly available, mirroring legislation that's advanced in the GOP-controlled Congress but hasn't yet made it into law. Read more »

In Turnabout, Judge Erases Challenge To NM Drilling Permits

A New Mexico federal judge on Monday rejected all challenges by environmental groups and a Navajo tribal group seeking to block the Bureau of Land Management from allowing further drilling in New Mexico's Mancos Shale, after originally saying the groups' National Historic Preservation Act allegations had merit. Read more »

MarkWest Strikes Deal With EPA, Pa. Over Alleged Emissions

MarkWest Liberty Midstream Resources LLC will pay a $610,000 civil penalty, spend $2.6 million on minimizing emissions from its facilities and take on environmentally beneficial projects worth $2.4 million to settle claims it flouted air pollution laws, the U.S. Environmental Protection Agency announced Tuesday. Read more »

EPA Tells DC Circ. New Renewable Fuel Mandates Are Proper

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The U.S. Environmental Protection Agency told the D.C. Circuit on Monday that refiners and a biodiesel trade group were wrong to attack a rule that set the levels of renewable fuel that must be blended into the fuel supply, defending its discretion to calculate mandates. Read more »

LITIGATION

US Energy Firm Targets Poland Over Nixed Wind Farm Deals

Invenergy LLC made good Tuesday on its threat to mount an arbitration claim against Poland for allegedly orchestrating the unlawful termination of the American energy company's long-term wind farm contracts with several state-owned utilities, saying efforts to amicably resolve the dispute have failed. Read more »

Low Bidder Won't Get Contract For NJ Enviro Cleanup

The disqualified low bidder on a contract with the New Jersey Department of Environmental Protection for emergency response services should have already had a subcontractor in place that had a valid license in asbestos removal, a state appellate panel ruled Tuesday in upholding the state's rejection of the bid. Read more »

EXPERT ANALYSIS

Another Take On 'Take-Home' Asbestos Exposure In Calif.

A California appellate court recently upheld a trial court's summary judgment in a secondary exposure asbestos case where the plaintiffs could offer no admissible evidence that the decedent's father worked around asbestos-containing materials. While this opinion is unpublished and uncitable under California rules, its legal theory can apply to other cases, says Theresa Mullineaux of Husch Blackwell LLP. Read more »

State Electric Generator Subsidies Challenge FERC Markets

In recent weeks, regional transmission organizations have attempted to amend their Federal Energy Regulatory Commission tariffs to protect their energy and capacity markets from state subsidies for certain types of power generation. Such subsidies challenge FERC's authority to effectively operate competitive wholesale markets, says Richard Drom of Eckert Seamans Cherin & Mellott LLC. Read more »

LEGAL INDUSTRY

BigLaw's 10 Biggest Revenue Winners And Losers Of 2017

In an otherwise positive year for law firm financials, a few firms stood out in 2017 with more drastic increases and decreases in revenue than the rest of the pack, according to the new Am Law 100 report released Tuesday. Read more »

Skadden's Greg Craig Makes Sudden Exit Amid Mueller Probe

Gregory Craig, a politically connected legal adviser and lead author of a controversial report at play in the Mueller investigation, has left Skadden Arps Slate Meagher & Flom LLP, a firm spokesperson confirmed Tuesday. Read more »

Skadden Partner, Ex-US Atty Fitzgerald Is Repping Comey

Covington & Burling
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Crowell & Moring
DLA Piper
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Husch Blackwell
Jackson Walker
Jenner & Block
Jones Day
K&L Gates
Kasowitz Benson
Katten Muchin
Kent & McBride
Kirkland & Ellis
Latham & Watkins
Locke Lord
Morgan Lewis
Morrison & Foerster
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Thompson & Knight
Vinson & Elkins
Western Environmental Law Center
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COMPANIES

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American Petroleum Institute Inc.
Association of Corporate Counsel
BP p.l.c.
Baker Hughes Inc.

Skadden Arps Slate Meagher & Flom LLP partner and former high-profile Chicago prosecutor Patrick Fitzgerald confirmed to Law360 on Tuesday that he has been part of James Comey's legal team since May 2017, the month the president fired Comey from his position as director of the FBI. Read more »

Feature

Texas Firms See Opportunity In Shunning Merger Frenzy

Texas law firms are operating against a drumbeat of new entrants to the market, competitive lateral hiring and mergers that have swept up several long-established firms, but the stalwarts say their partners and clients prefer independence and say they've got plenty of room to grow and thrive. Read more »

In-House Attys Must Become Data Privacy Pros, Experts Say

In-house counsel must prepare for sweeping new data privacy regimes and gird their organizations against a potential cyberbreach by educating themselves about the technical aspects of cybersecurity and building collaborative relationships with other corporate departments, a panel of experts told corporate counsel at a conference on Tuesday. Read more »

Law Professionals Have Duty To Push Diversity And Inclusion

Diversity and inclusion in the legal ecosystem are global issues, and legal operations professionals have a responsibility and opportunity to promote and develop the topics across their organizations and industry, a panel of women said on Tuesday. Read more »

Senate OKs Trump Pick For 5th Circ. Seat

The Senate has confirmed President Donald Trump's choice for a Louisiana-based Fifth Circuit vacancy, sending Schaerr Duncan LLP partner Stuart Kyle Duncan, a lead attorney in the U.S. Supreme Court's Hobby Lobby case, to the bench Tuesday on a largely partisan vote. Read more »

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Union of Concerned Scientists
United Nations Commission on International Trade Law
Valero Energy Corp.

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Message

From: Vincent, Marc [Vincent.Marc@epa.gov]
Sent: 3/29/2018 2:25:13 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Walters, Margaret [Walters.Margaret@epa.gov]; Hyde, Courtney [Hyde.Courtney@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]
CC: Marusiak, Eleanor [Marusiak.Eleanor@epa.gov]; Burch, Julia [Burch.Julia@epa.gov]
Subject: FYI: OIG Discussion Document - Evaluation of EPA's Heavy-duty Vehicle and Engine Compliance Program Internal Controls
Attachments: Discussion Doc - OIG's Evaluation of EPA's On-road Heavy-duty Vehicle and Engine Compliance Program Internal Controls 3.29.18.docx

Hi All,

As a FYI, OIG has issued the discussion document on their evaluation of the heavy-duty vehicle and engine compliance program. There are 11 recommendations for OAR. The document follows a similar structure as the recently issued OIG draft report on their evaluation of the light-duty program and a few recommendations are similar.

We will work closely with OTAQ to ensure a timely response.

Please let us know if you have any questions.

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Kohler, James
Sent: Thursday, March 29, 2018 8:56 AM
To: Cohen, Janet <cohen.janet@epa.gov>; Bunker, Byron <bunker.byron@epa.gov>; Jackson, Cleophas <jackson.cleophas@epa.gov>; Duncan, Allen <duncan.allen@epa.gov>; Imfeld, Sterling <imfeld.sterling@epa.gov>; Zaremski, Sara <zaremski.sara@epa.gov>; Brusstar, Matt <brusstar.matt@epa.gov>; Haugen, David <haugen.david@epa.gov>; Cook, Leila <cook.leila@epa.gov>
Cc: Burch, Julia <Burch.Julia@epa.gov>; Vincent, Marc <Vincent.Marc@epa.gov>; Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Goldman, Todd <Goldman.Todd@epa.gov>; Mesrobian, Sarah <mesrobian.sarah@epa.gov>; Gilbride, Patrick <Gilbride.Patrick@epa.gov>; OIG DIGreview <OIG_DIGreview@epa.gov>; Belser, Evan <Belser.Evan@epa.gov>; Werner, Jacqueline <Werner.Jacqueline@epa.gov>
Subject: For Review - OIG Discussion Document - Evaluation of EPA's Heavy-duty Vehicle and Engine Compliance Program Internal Controls

Good morning, all!

Attached for your review is the OIG's discussion document on our evaluation of the heavy-duty vehicle and engine compliance program. While comments are not required, should you wish to provide comments, we can either meet to discuss or you can provide written comments (using track changes in Word is acceptable). We ask that any comments be provided to us within 15 days (Friday, April 13th). (You will have another opportunity to comment on the official draft report.)

The findings and recommendations in this document are similar to what was presented at our status update meeting on January 10, 2018.

We appreciate all the assistance OTAQ has provided. Feel free to call me if you have any questions. Thank you!

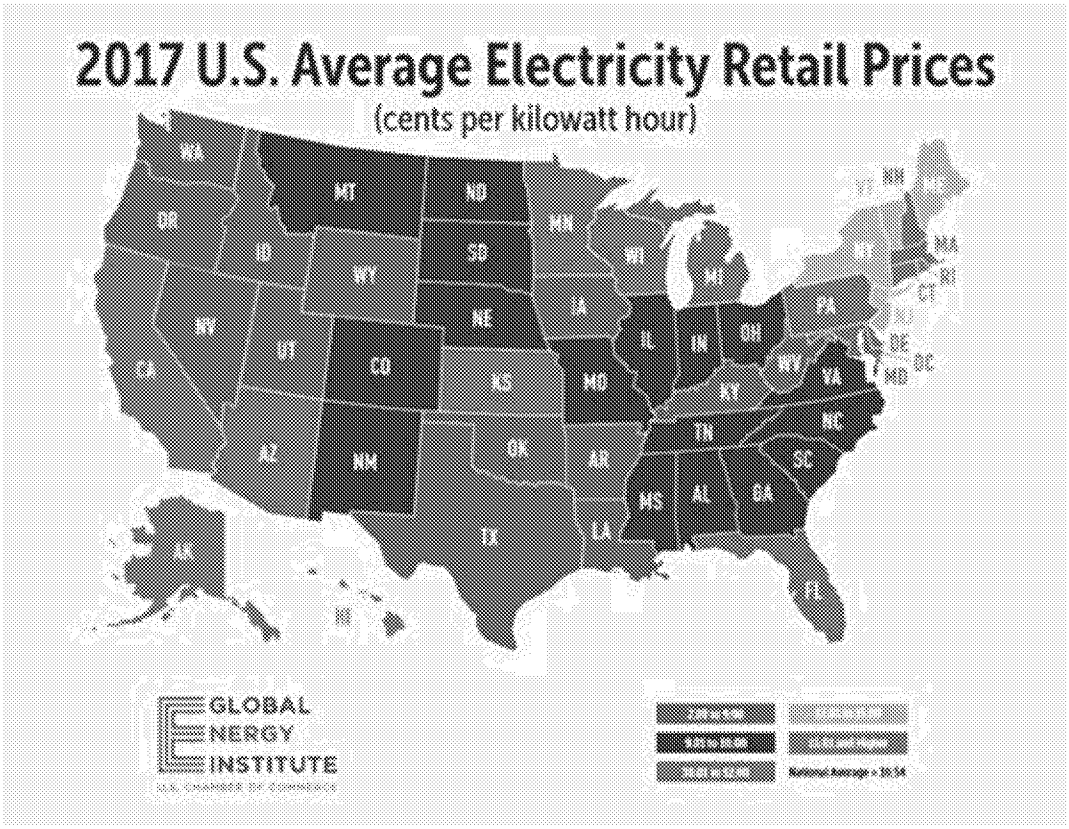
Jim

****
Jim Kohler, P.E.
Project Manager
Office of Inspector General
U.S. Environmental Protection Agency
202-566-1032
****

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 3/27/2018 1:35:00 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Articles of Interest - 3/27/18

- Bloomberg, 3/27/18: California's Ready to Retaliate If Trump Cuts Auto Rules, Sources Say
- Bloomberg BNA, 3/26/18: Faster Air Pollution Permits Prominent on EPA's Agenda
- Climate Wire, 3/26/18: EPA: Pruitt's attack on 'secret science' to affect climate rule
- Inside EPA, 3/22/18: Wehrum Said To Favor Quick Ozone NAAQS Review Over Reconsideration
- Climate Wire, 3/27/18: White House: Meet Trump's new climate guy
- Climate Wire, 3/27/18: CLEAN POWER PLAN: Critics blast rule in coal country
- Gina McCarthy & Janet McCabe, NYT, 3/26/18: Scott Pruitt's Attack on Science Would Paralyze the E.P.A
- Steve Milloy, WSJ, 3/26/18: The EPA Cleans Up Its Science
- New York Magazine, 3/25/18: The Paris Climate Accords Are Looking More and More Like Fantasy
- Inside EPA, 3/26/18: Bolstering IRIS, FY18 Spending Deal Urges EPA To Continue Reform Effort
- Inside EPA, 3/26/18: Pruitt's Bid To End 'Secret Science' Faces Legal, Implementation Hurdles
- Inside EPA, 3/26/18: FY18 Bill Boosts Diesel Cleanup Funds, Raising Questions Over Glider Plan
- Bloomberg BNA, 3/27/18: Pruitt's Open Data Plan Could Limit Usable Research, Critics Say
- EDF, 3/26/18: Environmental Groups Sue to Stop EPA Loophole Allowing Industrial Plants to Turn off Pollution Controls
- Environmental Integrity Project, 3/26/18: New Report Shows Rollback of Federal Air Pollution Control Rule Will Multiply Toxic Emissions
- Senate EPW, 3/22/18: Bipartisan Group of Senators Introduce Bill to Promote Carbon Capture Research and Development
- Washington Post, 3/27/18: The Energy 202: Meet the government insiders quietly shaping Trump's energy and environment agenda
- EDF, 3/22/18: New Oil and Gas Study Shows – Once Again – Industry is Severely Underreporting Methane Emissions
- Journal of Geophysical Research: Atmospheres, 3/2018: Multimodel Surface Temperature Responses to Removal of U.S. Sulfur Dioxide Emissions (pages 2773–2796); Spatial and Temporal Variability and Trends in 2001–2016 Global Fire Activity (pages 2524–2536); The Wintertime Covariation of CO2 and Criteria Pollutants in an Urban Valley of the Western United States (pages 2684–2703)
- U.S. Chamber, 3/26/18: MAP: 2017 Average Electricity Retail Prices



Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 3/16/2018 1:26:11 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: FW: Background document for this morning's 10am glider briefing for AA Wehrum
Attachments: Glider Reconsideration Update for Bill Wehrum - February 2 2018.pptx

This just in from OTAQ. You all should have the 2 page document in folders last night that will serve as the main document OTAQ will walk through at the briefing today

They also wanted to make sure you had a copy of the February 2 briefing document (attached here), in the event a question comes up regarding the details of any of the public comments.

HAROLD ROGERS
5TH DISTRICT, KENTUCKY

COMMITTEE ON APPROPRIATIONS
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SUBCOMMITTEE ON
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SUBCOMMITTEE ON DEFENSE
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Congress of the United States
House of Representatives
Washington, DC 20515–1705

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March 6, 2018

The Honorable Scott Pruitt
Administrator, U.S. Environmental Protection Agency
USEPA William Jefferson Clinton Building (1101A)
1200 Pennsylvania Avenue N.W.
Washington, DC 20004

Dear Administrator Pruitt,

I write to offer my support for the efforts you have undertaken to review a proposed regulation undertaken by the U.S. Environmental Protection Agency (EPA) under the Obama Administration. Over the course of the eight years under President Obama's tenure, EPA was overzealous in its interpretation of our nation's environmental laws, which has had catastrophic effects on our nation's economy – and the economy of coal country in particular. I applaud your efforts to restore some semblance of balance between environmental protection, which is indeed an important and worthy goal, and our nation's economic growth.

Consistent with your efforts to roll back harmful Obama-era regulations, in November 2017, EPA signaled its intent to repeal the emissions standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits. This was based on a proposed interpretation of the Clean Air Act under which glider vehicles would not be found to constitute "new motor vehicles" and glider kits would not be treated as "incomplete" new motor vehicles. I understand that you are currently reviewing a plethora of public comments that were submitted in response to EPA's proposed repeal of this regulation. Repealing this regulation could result in significant job creation in my congressional district, which as mentioned above, has been wrought with economic challenges associated with the previous Administration's War on Coal. Kentucky communities desperately need these jobs, and I ask you to bear this in mind as you move forward with this administrative procedure.

Thank you for your consideration, and please do not hesitate to contact me or my staff at (202) 225-4601 should you have any questions or concerns.

Sincerely,

Hal Rogers

HAROLD ROGERS
Member of Congress

Congress of the United States
Washington, DC 20515

March 27, 2018

The Honorable Scott Pruitt
Administrator
Environmental Protection Agency
Office of the Administrator 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Pruitt:

We stand with you and welcome your continued efforts to streamline environmental regulations and repeal onerous and overreaching rules that the previous administration pushed through which hurt American industry. However, we write to raise concerns with the EPA's proposed rule for repeal of emission requirements for glider vehicles, glider engines, and glider kits. We believe that repealing those requirements will undermine the significant investments made by United States job creators and manufacturers.

We have seen what happens when overreaching and even illegal regulations are issued that go against the intent of the Clean Air Act. Regulations issued under the Clean Air Act must not exceed the authority Congress has provided. We believe that EPA still has the ability to work within this authority of the Clean Air Act to implement clear, concise, and straightforward rules regarding emissions from gliders. Eliminating this rule also runs the risk that a court would impose requirements beyond what the previous administration negotiated with industry, which could undermine the remanufacturing and rebuilding industries resulting in the loss of countless jobs across the United States.

We respectfully ask that you carefully consider the negative impacts if the authority to implement reasonable regulation of gliders is now repealed.

Sincerely,

Mark Sanford
Member of Congress

Evan Jenkins
Member of Congress

Larry Bucshon, M.D.
Member of Congress

Susan W. Brooks
Member of Congress

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Congress of the United States
Washington, DC 20515

David Rouzer
Member of Congress

David Valadao
Member of Congress

Tom Emmer
Member of Congress

David B. McKinley, P.E.
Member of Congress

Jimmy Duncan
Member of Congress

Trey Hollingsworth
Member of Congress

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Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 4/20/2018 12:33:30 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]
Subject: FW: For this morning - response to questions from SAB WG on fall 2017 reg actions
Attachments: SAB Work Group Fact finding Fall 2017 Reg Rev - OAR responses.docx

OAPPS is looking to get back to the SAB this morning, ahead of a call this afternoon. The 10 second digest of the attached is that the work group asked a bunch of detailed Qs about LDVs, gliders, and existing power plant regs, and in response to each of the three we're basically saying, "thanks, we'll keep your questions and thoughts in mind as we proceed with this action."

Let me know if you're good w/ this going forward in writing today

Message

From: Wright, Rhonda [Wright.Rhonda@epa.gov]
Sent: 4/19/2018 12:31:31 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: FW: Draft Glider FRM for OAR leadership review
Attachments: Gliders FRM Draft - 041818.docx

Good morning all,

Please find attached OTAQ's Draft Glider FRM for your review. Per OTAQ's comments below, this draft has been reviewed by OGC.

Thank you,

****

Rhonda Wright
Special Assistant
U.S. Environmental Protection Agency
Office of Air and Radiation
Immediate Office of the Assistant Administrator
Room 5406E, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Office: (202) 564-5437
Cell: (202) 365-6008

From: Sutton, Tia
Sent: Wednesday, April 18, 2018 5:47 PM
To: OAR Briefings <OAR_Briefings@epa.gov>
Cc: Grundler, Christopher <grundler.christopher@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: Draft Glider FRM for OAR leadership review

All,
Attached is a draft of the Glider FRM for Bill, Mandy, and David's review.

The draft was reviewed by OGC, and has been shared with OECA as well. OGC/ARLO will also be sharing this draft of the Final Rule with their leadership concurrent with the OAR leadership review.

Thanks,
Tia

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 5/30/2018 3:52:02 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]
Subject: FW: Submission of CAFE/GHG NPRM Preamble
Attachments: EO12866 LD CAFE CO2 NHTSA 2127-AL76 EPA Preamble 1805XX.docx

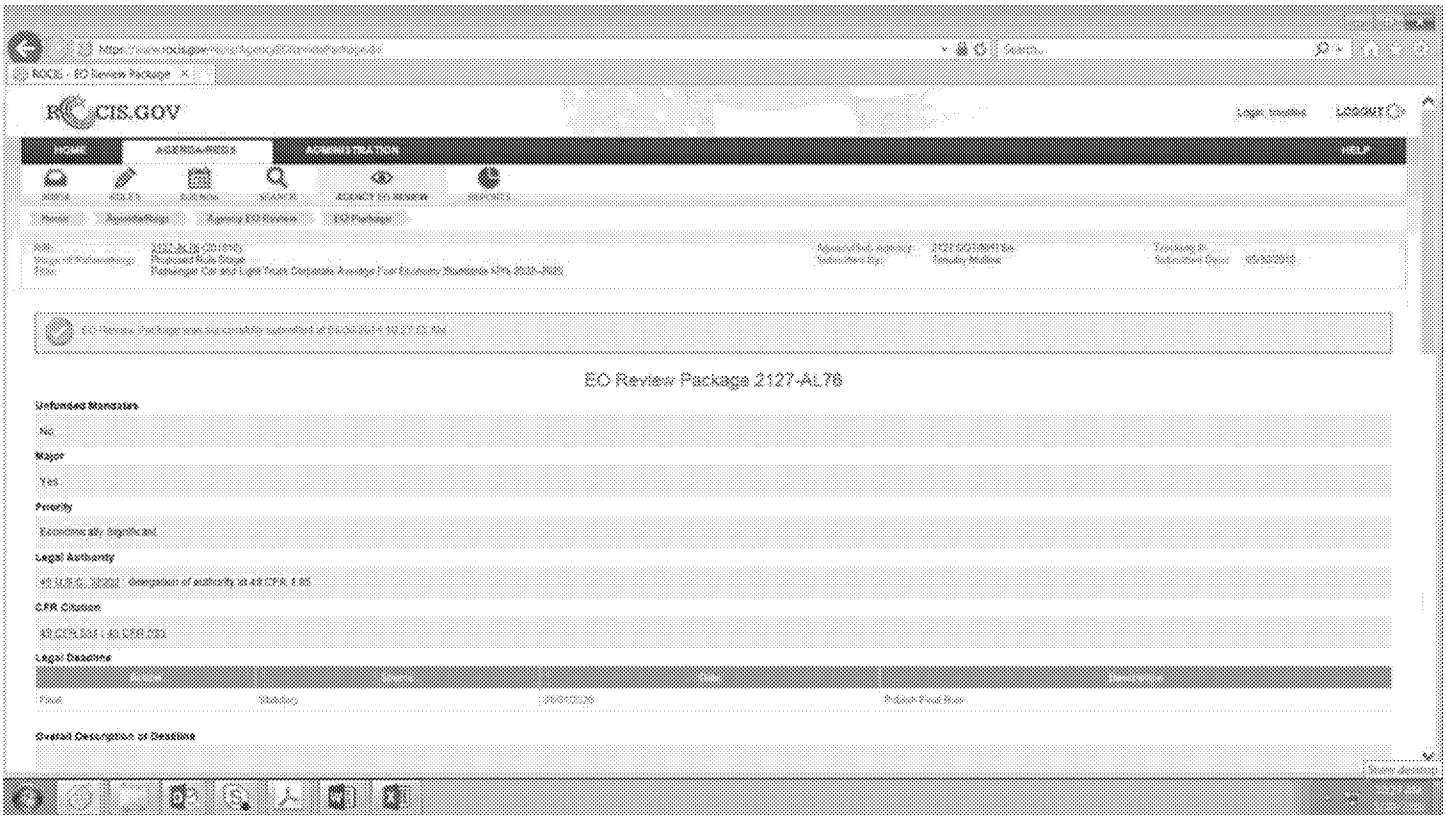
Per the below – DOT uploaded the draft joint proposed rule to OMB this morning. OAR comms is aware and ready with a desk statement, as is OPA.

From: Mullins, Timothy (OST) [mailto:Timothy.Mullins@dot.gov]
Sent: Wednesday, May 30, 2018 10:31 AM
To: 'Theroux, Richard P.' < EOP / Ex. 6 ; Laity, Jim (EOP / Ex. 6 EOP / Ex. 6 ; Achanta, Chandana L. < EOP / Ex. 6 ; Whiteman, Chad S. EOP/OMB EOP / Ex. 6
Cc: Owens, James (OST) <James.Owens@dot.gov>; Morrison, Jonathan (NHTSA) <Jonathan.Morrison@dot.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>; Moss, Jonathan (OST) <jonathan.moss@dot.gov>
Subject: Submission of CAFE/GHG NPRM Preamble

Good morning,
On behalf of both DOT/NHTSA and EPA, I have just submitted the preamble for the agencies' joint rulemaking on the new CAFE/GHG standards (RIN 2127-AL76; RIN-2060-AU09). For convenience, I've attached the document. Please let us know if there are any technical issues with the submission.

Thanks,
Tim

Timothy J. Mullins
Attorney-Advisor
Office of the General Counsel (C-50)
U.S. Department of Transportation
202-366-9038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HELP
EO Review Package 2127-AL78
Unfunded Mandates
No
Major
Yes
Priority
Economically Significant
Legal Authority
CFR Citation
Legal Deadline
Overall Description of Deadline

Message

From: Burton, Tamika [burton.tamika@epa.gov]
Sent: 6/22/2018 3:45:07 PM
To: Appointed Assistant Administrators [Appointed_Assistant_Administrators@epa.gov]; Appointed Associate Administrators [Appointed_Associate_Administrators@epa.gov]; Appointed Deputy Assistant Administrators [Appointed_Deputy_Assistant_Administrators@epa.gov]; Appointed Deputy Associate Administrators [Appointed_Deputy_Associate_Administrators@epa.gov]; Burton, Tamika [burton.tamika@epa.gov]; Carroll, Carly [Carroll.Carly@epa.gov]; Carter, Donnell [Carter.Donnell@epa.gov]; Chancellor, Erin [chancellor.erin@epa.gov]; Cortes, Emilio [Cortes.Emilio@epa.gov]; Darwin, Henry [darwin.henry@epa.gov]; Darwin, Veronica [darwin.veronica@epa.gov]; Dickerson, Aaron [dickerson.aaron@epa.gov]; Falvo, Nicholas [falvo.nicholas@epa.gov]; Fonseca, Silvina [Fonseca.Silvina@epa.gov]; Ford, Hayley [ford.hayley@epa.gov]; HQ-COS [HQ-COS@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Johnson, Laura-S [Johnson.Laura-S@epa.gov]; Leadership_Assistant_Administators [Leadership_Assistant_Administators@epa.gov]; Leadership_Associate_Administrators [Leadership_Associate_Administrators@epa.gov]; Leadership_Deputy_Assistant_Administrators [Leadership_Deputy_Assistant_Administrators@epa.gov]; Leadership_Deputy_Associate_Administrators [Leadership_Deputy_Associate_Administrators@epa.gov]; Leadership_Deputy_Regional_Administrators [Leadership_Deputy_Regional_Administrators@epa.gov]; Leadership_Regional_Administrators [Leadership_Regional_Administrators@epa.gov]; Maher, Karen [Maher.Karen@epa.gov]; McDonald, Carolyn [McDonald.Carolyn@epa.gov]; Molina, Michael [molina.michael@epa.gov]; Sauerhage, Maggie [Sauerhage.Maggie@epa.gov]; Simon, Nigel [Simon.Nigel@epa.gov]; Wheeler, Andrew [wheeler.andrew@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]; Wooden-Aguilar, Helena [Wooden-Aguilar.Helena@epa.gov]
Subject: Weekly Report 6.22.2018
Attachments: 6.22.2018 Weekly Report.pdf; Weekly Report 6.22.2018.docx

Good Morning,

Please see the attached weekly report for this week: 6.22.2018

Have a great weekend!

Tamika Burton
Staff Assistant to the Deputy Administrator
Immediate Office of the Administrator
MC 1104A Room 3412 WJC North
(202) 564-4771 (d)
(202) 507-3630 (c)
burton.tamika@epa.gov

Message

From: Ringel, Aaron [ringel.aaron@epa.gov]
Sent: 6/22/2018 2:58:41 PM
To: Burke, Marcella [burke.marcella@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Harlow, David [harlow.david@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]; Rodrick, Christian [rodrick.christian@epa.gov]
Subject: FW: Congressional letter to EPA OIG on Glider Kit
Attachments: EPA_OIG_6212018.pdf; DailyCaller_EPA_Glider.pdf

FYI, another letter to the OIG on Glider Kits. Along the same lines as the HOGR one I sent yesterday.

-Aaron

From: Podliska, Rick [mailto:Rick.Podliska@mail.house.gov]
Sent: Friday, June 22, 2018 10:57 AM
To: Ringel, Aaron <ringel.aaron@epa.gov>
Subject: Congressional letter to EPA OIG on Glider Kit

Hello Aaron,

I wanted to pass along a congressional letter we sent to the OIG on the Glider Kit issue yesterday. Please find attach the letter and news article referenced.

Thanks,

Rick Podliska
Senior Policy Advisor
Congressman Bill Posey (FL-08)
2150 Rayburn House Office Building
Tel. 202-225-3671

"The purpose, of course, was to embarrass and intimidate the Trump EPA into aborting the rollback of the Obama EPA rule," JunkScience.com publisher Steve Milloy told The Daily Caller News Foundation.

Through a Freedom of Information Act (FOIA) request, Milloy obtained emails between two lobbyists at Volvo Group North America, and high-ranking officials in Ann Arbor, Mich., where EPA's vehicle emissions testing lab is located.

"The emails show that Volvo lobbyists were working to supplying EPA staff with glider trucks so that rogue EPA staff could dishonestly 'test' glider emissions and issue a damning report that could be waved about at a public hearing on the proposed rule rollback," Milloy said.

Volvo opposes repealing regulations on glider kits — new truck bodies that use refurbished engines and are substantially cheaper to buy than trucks with new engines. Volvo and other truck engine makers joined environmentalists in lobbying the Obama administration to regulate glider kits in 2016.

The Trump administration EPA is working towards repealing the glider kit rule, but bureaucratic delays have slowed the repeal process. Milloy said the emails he uncovered show career EPA officials colluded with business interests to thwart the repeal effort.

"Based on my research, I believe that the reason Volvo trucks and the rest of the new truck industry fears gliders is that honest and real world tests of gliders versus new trucks would show that gliders perform comparably well if not better than new trucks in terms of emissions," Milloy said.

"This would expose the new truck industry as an illegal cartel pushing evermore stringent emissions regulations so they can force customers to buy evermore expensive engines," Milloy said. **(RELATED: Is This AP Story Evidence That Global Warming 'Is Making Us Dumb?')**

The emails concern a study put out by EPA officials in late 2017, showing that glider kits emitted much more pollution than new engines. However, the study bore no official EPA markings, was never peer-reviewed and was done without the knowledge of senior staff in D.C.

EPA never released the study, but somehow Volvo lobbyist Susan Alt obtained a copy of the research findings, which she touted during a December 2017 public hearing on EPA's proposal to repeal regulations on glider kits.

Volvo and other opponents of repealing regulations that limit glider kit manufacturing also held up the study as evidence repealing the glider rule would increase pollution, endangering public health.

However, emails show that Steve Berry, director of regulatory affairs at Volvo Group North America, coordinated with EPA official Angela Cullen on obtaining glider engines for the mysterious agency study glider kit opponents have held up to push back against repealing regulations.

EPA tested two glider engines for its 2017 study — both of which were procured with help from Berry, emails show. The Volvo lobbyist got helped EPA obtain two re-manufactured engines from Fitzgerald, a leading glider kit manufacturer.

Volvo's Alt also turned up in Milloy's FOIA request, sending an October 2017 email to William Charmley, EPA director of assessment & standards division, that had letters from dealerships on "the pervasiveness of [g]lider sales across America." Alt's email included a letter to EPA Administrator Scott Pruitt and another that "even lists some of the companies they have lost sales to gliders [sic]."

Neither Charmely nor Cullen responded to TheDCNF's request for comment, including questions about why they did not contact Fitzgerald to obtain a refurbished engine to test. Berry also did not respond to a request for comment.

Fitzgerald petitioned the Trump administration last year to repeal regulations on their industry put in place by the Obama administration. Cash-strapped companies turned to cheaper glider kits in recent years that are about 25 percent cheaper than trucks with new engines.

The Obama administration, however, wanted to end what they saw as a loophole in the Clean Air Act that allowed used engines to be sold without

having to comply with current regulations.

Obama-era regulations forced Fitzgerald to cut glider kit production from 3,000 units to 300 units by the end of the year. The company announced a third-round of layoffs in mid-June.

EPA did not respond to TheDCNF's request for comment. Volvo Group North America did not respond to TheDCNF either.

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Congress of the United States
Washington, DC 20515

June 21, 2018

The Honorable Arthur A. Elkins Jr.
Inspector General
U.S. Environmental Protection Agency
Office of Inspector General
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Inspector General Elkins:

We write today to bring your attention to a very sensitive issue (according to the enclosed media article) that may require an investigation by your office into the conduct of certain career employees at the U.S. Environmental Protection Agency.

It is our understanding that a major original equipment manufacturer (OEM)[1] and its affiliates lobbied the EPA to secure a prohibition on glider trucks in the Phase II Rule[2] in 2016. When EPA Administrator Scott Pruitt repealed the current glider rule[3], career employees at the EPA communicated with the OEM with the intent of eliminating the glider industry. In our opinion, EPA's conduct undermines the current Administration's policies and prevents a repeal of the rule.

For example, the OEM proposed testing the emissions of gliders in 2017. This test was performed unbeknownst to Administrator Pruitt. Over a three-month period, the OEM allegedly located and purchased gliders trucks for the EPA to test. The EPA would purportedly run the emissions testing according to specifications provided by the OEM. We have serious concerns about these testing methods. At the very least, the EPA's testing methods were highly questionable and should not be recognized.

Additionally, your office should review a trade association that opposes glider kits for a potential lobbying violation[4]. Specifically, the trade association's lobbyist who was once a senior employee of the EPA and is on record as being instrumental in the drafting of the Phase II Rule communicated and influenced the EPA less than 10 months from his departure.

Even more troubling, there is a strong possibility that email communications between EPA staff and the OEM may have been deleted. We ask that you use your authority to investigate this potential violation and seize all computer hardware and related software as outlined in the attachments for a deeper forensic investigation into the missing emails.

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[1] Volvo Group North America
[2] *See* 81 Fed. Reg. 73,478 (Oct. 25, 2016).
[3] *See* 82 Fed. Reg. 53,442 (Nov. 16, 2017).
[4] *See* 18 U.S.C. § 207.

PRINTED ON RECYCLED PAPER

We appreciate your attention to this issue. If there are any matters that fall outside the scope of your authority, please let us know as soon as possible so that we can ensure other agencies are properly addressing them.

Sincerely,

Bill Posey
Member of Congress

Brian Babin
Member of Congress

James Comer
Member of Congress

Steve King
Member of Congress

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/22/2018 1:25:10 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Adams, Elizabeth [Adams.Elizabeth@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Haman, Patricia [Haman.Patricia@epa.gov]; Srinivasan, Gautam [Srinivasan.Gautam@epa.gov]; Zenick, Elliott [Zenick.Elliott@epa.gov]; Davis, Matthew [Davis.Matthew@epa.gov]; Thundiyil, Karen [Thundiyil.Karen@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]
Subject: OAR Weekly Report

OAR Weekly Report – June 22, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 6/21/2018 11:46:38 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Fwd: Fall 2017 Reg Agenda SAB Review - completed Letter to the Administrator attached
Attachments: Fall2017RegRevLetter.pdf; ATT00001.htm

Begin forwarded message:

From: "Shoaff, John" <Shoaff.John@epa.gov>
Date: June 21, 2018 at 6:38:00 PM EDT
To: "Woods, Clint" <woods.clint@epa.gov>
Cc: "Hockstad, Leif" <Hockstad.Leif@epa.gov>, "Lubetsky, Jonathan" <Lubetsky.Jonathan@epa.gov>
Subject: Fwd: Fall 2017 Reg Agenda SAB Review - completed Letter to the Administrator attached

FYI 2 if 3 (think there's one more focused on Scientific Transparency. Haven't had a chance to review Spring letter, but this one (Fall) was quite detailed, pulling from WG memos to SAB chair.

Sent from my iPhone

Begin forwarded message:

From: "Carpenter, Thomas" <Carpenter.Thomas@epa.gov>
Date: June 21, 2018 at 6:09:54 PM EDT
To: "Muellerleile, Caryn" <Muellerleile.Caryn@epa.gov>, "Shoaff, John" <Shoaff.John@epa.gov>, "Hockstad, Leif" <Hockstad.Leif@epa.gov>, "Chun, Melissa" <Chun.Melissa@epa.gov>
Cc: "Lamson, Amy" <Lamson.Amy@epa.gov>, "McGartland, Al" <McGartland.Al@epa.gov>, "Kopits, Elizabeth" <Kopits.Elizabeth@epa.gov>, "Munis, Ken" <Munis.Ken@epa.gov>, "Mazza, Carl" <Mazza.Carl@epa.gov>, "Kime, Robin" <Kime.Robin@epa.gov>, "Brennan, Thomas" <Brennan.Thomas@epa.gov>, "Johnston, Khanna" <Johnston.Khanna@epa.gov>
Subject: Fall 2017 Reg Agenda SAB Review - completed Letter to the Administrator attached

All:

The SAB completed the screening of major actions in the Fall 2017 Regulatory and Deregulatory Agenda and forwarded the attached letter to the Administrator for an agency response. The SAB Staff Office posted the letter on its web site. Materials from the review are available on the SAB site at:
https://yosemite.epa.gov/sab/sabproduct.nsf//LookupWebProjectsCurrentBOARD/687166F4746474628525826000 5A6A11?OpenDocument

Tom

Thomas Carpenter

Designated Federal Officer / Sr. Biologist
US EPA Science Advisory Board, MC 1400R
1200 Pennsylvania Avenue, NW
Washington DC 20460
ph 202 564 4885 Fax 202 565 2098

From: Carpenter, Thomas
Sent: Wednesday, January 03, 2018 5:23 PM
To: Muellerleile, Caryn <Muellerleile.Caryn@epa.gov>; Mazza, Carl <Mazza.Carl@epa.gov>; Hockstad, Leif <Hockstad.Leif@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>; Chun, Melissa <Chun.Melissa@epa.gov>
Cc: Owens, Nicole <Owens.Nicole@epa.gov>; Green, Noelle <Green.Noelle@epa.gov>; Sheppard, Tracy <Sheppard.Tracy@epa.gov>; Johnston, Khanna <Johnston.Khanna@epa.gov>; Zarba, Christopher <Zarba.Christopher@epa.gov>
Subject: Fall 2017 Reg Agenda SAB Review - completed templates due 1/24

Greetings,

The Office of Policy identified 9 actions to be considered by the SAB in their evaluation of the supporting science for planned actions based on the protocols developed by EPA. The 9 actions that need a completed template and responsible program office are listed in the table below. Please note that 2 actions are in the long-term action stage of rulemaking. The regulatory agenda no longer has a "pending" agenda status of rulemaking for planned actions. Actions previously listed as pending were classified as "inactive" or moved to another status category.

On March 31, 2015 the Office of Policy distributed the Process and Best Practices for EPA Engagement with the Science Advisory Board in SAB Screening of the Scientific Basis for Major Agency Planned Actions to program offices as an instructional guide. It provides the best practices for developing and sharing information with the SAB for the this process. I have attached a PDF of that document for your convenience. Also attached is a word version of the annotated template for you to complete. None of the actions qualify as a recurring actions.

Please provide your Office's completed templates to me by January 24, 2018. The SAB Staff Office will convene the Work Group after materials are provided.

Please call if you have any questions.

Best,
Tom

Thomas Carpenter
Designated Federal Officer / Sr. Biologist
US EPA Science Advisory Board, MC 1400R
1200 Pennsylvania Avenue, NW
Washington DC 20460
ph 202 564 4885 Fax 202 565 2098

RIN	Title	Agency	Agenda Stage of Rulemaking	Publication	New
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	EPA/OP	Prerule Stage	Fall 2017	Yes
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	EPA/OAR	Prerule Stage	Fall 2017	Yes
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	EPA/OAR	Prerule Stage	Fall 2017	Yes
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	EPA/OAR	Proposed Rule Stage	Fall 2017	Yes
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	EPA/OAR	Proposed Rule Stage	Fall 2017	Yes
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	EPA/OAR	Proposed Rule Stage	Fall 2017	Yes
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	EPA/OCSPP	Proposed Rule Stage	Fall 2017	Yes
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	EPA/OAR	Long-Term Actions	Fall 2017	Yes
2060-AT31	Fuels Regulation Modernization - Phase 1	EPA/OAR	Long-Term Actions	Fall 2017	Yes

From: Muellerleile, Caryn
Sent: Thursday, December 14, 2017 3:52 PM
To: RSC Core <RSC_Core@epa.gov>; RSC Regions Core <RSC_Regions_Core@epa.gov>; Carpenter, Thomas <Carpenter.Thomas@epa.gov>; Germann, Sandy <Germann.Sandy@epa.gov>
Cc: OP-ORPM-Everyone <OPORPMEveryone@epa.gov>
Subject: Fall 2017 Semiannual Agenda & Regulatory Plan

Deliberative Process / Ex. 5

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Online Agenda:
https://www.reginfo.gov/public/do/eAgendaMain

EO 13771 Report/ Regulatory Budget:
https://www.reginfo.gov/public/do/eAgendaEO13771

Press:

https://www.whitehouse.gov/the-press-office/2017/12/14/president-donald-j-trumps-year-regulatory-reform-and-environmental
https://www.epa.gov/newsreleases/epa-releases-annual-regulatory-plan

****

Caryn Muellerleile
Regulatory Management Division
Office of Policy
US Environmental Protection Agency
1200 Pennsylvania Ave NW (1803A)
Washington, DC 20460
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

June 21, 2018

EPA-SAB-18-002

The Honorable E. Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Subject: Science Advisory Board (SAB) Consideration of EPA Planned Actions in the Fall 2017 Unified Agenda of Regulatory and Deregulatory Actions and their Supporting Science

Dear Administrator Pruitt:

As part of its statutory duties, the EPA's Science Advisory Board recently concluded discussions about possible review of the science supporting major EPA planned actions associated with the Fall 2017 Unified Agenda of Regulatory and Deregulatory Actions. The EPA Office of Policy provided notice of the release of this information on December 14, 2017. During its public meeting on May 31, 2018, the SAB discussed whether to review any of the planned regulatory and deregulatory actions in order to provide advice and comment on the adequacy of the scientific and technical basis underlying each, as authorized by section (c) of the Environmental Research, Development and Demonstration Authorization Act.

The SAB focused its attention on nine major planned actions identified by the EPA Office of Policy and published in the *Federal Register*. The SAB convened a Work Group to review the planned actions, conduct fact-finding, and develop recommendations for further consideration by the chartered SAB[1]. At the public meeting, the SAB discussed the Work Group's findings and decided to undertake review of the science supporting two of the actions in the semi-annual Regulatory and Deregulatory Agenda at this time. The SAB also identified one action for which insufficient information was available and deferred a determination until such information is available.

[1] Memorandum: Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Agency Actions and their Supporting Science in the Fall 2017 Regulatory Agenda https://yosemite.epa.gov/sab/sabproduct.nsf//9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf

The SAB notes that three of the nine major planned actions are listed as long-term actions and another three are listed as Pre-Rule Stage actions. The Office of Management and Budget defines long-term actions as planned actions "under development but for which the agency does not expect to have a regulatory action within the 12 months after publication of this edition of the Unified Agenda" and notes that some long-term actions may only have abbreviated information. OMB defines the Pre-Rule Stage as "actions agencies will undertake to determine whether or how to initiate rulemaking. Such actions occur prior to a Notice of Proposed Rulemaking (NPRM) and may include Advance Notices of Proposed Rulemaking (ANPRMs) and reviews of existing regulations." The SAB considered these early stages of rulemaking for the planned actions to facilitate planning and interaction with the Agency and notes that the Board has the option to defer a decision on whether planned actions merit further review until sufficient information is available.

EPA Planned Actions that Merit SAB Review

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77): The SAB finds this action merits further review. The SAB Work Group submitted fact-finding questions regarding the types of analyses that may be used to support the action. The EPA responded that the analyses "could be considered to inform the forthcoming NPRM" and that they would assess these issues as they develop the proposed rule. The EPA also responded that the schedule for the rulemaking addressing model years 2022-2025 light-duty vehicle greenhouse gas (GHG) standards has not yet been announced. The SAB notes that EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation (MTE), including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and Regulatory Impact Analysis (RIA) regarding fuel economy standards to inform a companion rule to the EPA standards. Key questions that merit an SAB review could include but need not be limited to the following:

- What are the barriers (e.g., price, foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel-efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effects, co-benefits or harms in terms of emissions reductions or increases for other pollutants, and costs benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected. A detailed rationale is provided in the Work Group Memorandum [2] and the fact-finding is summarized in Attachment C of that document.

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79): The SAB finds that this action merits review regarding the adequacy of the supporting science. In response to fact-finding questions submitted by the SAB Work Group, the EPA stated that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. The SAB finds issues, such as: i) determining whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles; ii) answering technical questions regarding the impact of emissions from glider vehicles; and iii) identifying and applying suitable methodologies for assessing the effect of the proposed rule on emissions, air quality and public health, are scientific and technical in nature.

Key questions that merit SAB review could include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are the key sources of variability and uncertainty in these rates?
- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the on road heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?
- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks regarding GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those outlined above with adequate peer review, the scope of SAB review could be narrowed or redirected. A detailed rationale is provided in the Work Group Memorandum[3] and the fact-finding effort is summarized in Attachment C of that document.

[2] Ibid.
[3] Ibid.

EPA Planned Actions Awaiting Further Information for SAB Review

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12): The SAB finds that a review of the scientific and technical basis for this planned action should be deferred until more information is available and, at that time, determine if it is appropriate to provide advice and comment. From the information provided by EPA staff and the pre-rule stage status of the action, the SAB finds that there is not enough information to recommend a review of the underlying science at this time. The EPA indicated that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. Depending upon how the action proceeds and the comments on the ANPRM, it may ultimately involve precedential issues and become an influential scientific or technical work product. The SAB also notes that some of the issues presented by the Work Group regarding RIAs may be appropriate for inclusion in this planned action and review by the SAB (see RIN 2060-AT67).

EPA Planned Actions Not Meriting Further SAB Review

State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units (RIN 2060-AT67): This planned action does not merit review by the SAB. While the SAB does not wish to provide advice on this planned action, it does find several aspects of the underlying "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) dated October 2017 to be appropriate for an advisory activity by the Board. Specifically, the RIA makes assumptions that warrant further review, as follows: i) sensitivity analysis assumptions about mortality associated with particulate matter at concentrations below the current NAAQS; ii) calculations of climate change benefits on a US-only basis rather than a global scale; and iii) application of a 7% discount rate to estimate foregone GHG mitigation benefits which extend across multiple generations. These aspects may be appropriately considered under the planned action, *Increasing Consistency, Reliability, and Transparency in the Rulemaking Process* (RIN 2010-AA12) as noted above.

Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68) and *Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)*: These actions do not merit further SAB consideration. These actions undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee (CASAC) and its panels. CASAC is a federal advisory committee and has a statutory mandate under the Clean Air Act to advise the Administrator regarding the National Ambient Air Quality Standards (NAAQS). The Sulfur Oxides Review Panel and the Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur were specifically constituted, in terms of independent scientific expertise, to review the proposed actions, respectively. CASAC completed its review of the Sulfur Oxides NAAQS on April 30, 2018.

National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74): This action does not merit further SAB consideration. While the details of each Residual Risk and Technology Review (RTR) are unique to the sources and pollutants being evaluated, the general approaches and methodologies

employed in EPA RTRs have become standardized, have been employed in numerous previous RTRs, and have been subject to multiple peer reviews over the past 17 years, most recently in 2009. As EPA's RTR methodologies are refined and revised over time, there is a need for periodic peer reviews of the changing methods. The SAB is completing a review of recent revisions to the screening methodologies used to support RTR reviews. Given the extensive past and ongoing peer reviews no additional SAB review is warranted.

Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements (RIN 2070-AK43): This action does not merit further SAB consideration. Per Executive Order 13777, the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues.

Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31): The planned action does not merit further review by the SAB. This long-term action to "streamline and modernize EPA's existing fuels regulations under 40 CFR part 80" is described as "an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones." No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

SAB Requests Improvements in the Descriptions of EPA Planned Actions

The SAB thanks the EPA for providing information for consideration but emphasizes that more complete and timely information is required from the Agency to make recommendations and decisions regarding the science supporting planned actions. To improve the process for future reviews of the semi-annual regulatory agenda, the SAB strongly recommends that EPA enhance descriptions of future planned actions by providing specific information on the peer review associated with the science basis for actions and more description of the scientific and technological bases for the actions. In reviewing the Spring 2017 and Fall 2017 Regulatory Agendas, there were several cases where key information about the planned action, its supporting science and peer review were provided only after specific Work Group requests. The SAB finds that the written responses to fact-finding questions were not comprehensive and participation in the fact-finding teleconference was limited. EPA should provide such information in the initial descriptions provided to the Work Group.

Effective SAB evaluation of planned actions requires the EPA to characterize:

- All relevant key information associated with the planned action;

- The science supporting the regulatory action. If there is new science to be used, provide a description of what is being developed. If the Agency is relying on existing science, provide a short description.
- The nature of planned or completed peer review. To the extent possible, provide information about the type of peer review, the charge questions provided to the reviewers, how relevant peer review comments were integrated into the planned action, and information about the qualifications of the reviewer(s).

The SAB urges the Agency to provide more complete information to support future SAB decisions about the adequacy of the science supporting actions in future regulatory agendas.

On behalf of the SAB, I thank you for the opportunity to support EPA through consideration of the science supporting actions in the Agency's regulatory agenda.

Sincerely,

/S/

Dr. Michael Honeycutt, Chair
Science Advisory Board

Enclosure
(1) Summary of Proposed Actions Considered
(2) Roster of SAB Members

NOTICE

This report has been written as part of the activities of the EPA Science Advisory Board (SAB), a public advisory group providing extramural scientific information and advice to the Administrator and other officials of the Environmental Protection Agency. The SAB is structured to provide balanced, expert assessment of scientific matters related to problems facing the Agency. This report has not been reviewed for approval by the Agency and, hence, the contents of this report do not necessarily represent the views and policies of the Environmental Protection Agency, nor of other agencies in the Executive Branch of the Federal government, nor does mention of trade names of commercial products constitute a recommendation for use. Reports of the SAB are posted on the EPA Web site at http://www.epa.gov/sab.

Summary of Proposed Actions Considered

Proposed actions in the Spring 2017 Unified (Regulatory) Agenda and Regulatory Plan considered by the Science Advisory Board and whether to provide advice and comment on the adequacy of the science supporting the action		
RIN[1]	**Planned Action Title**	**Recommendation**
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	Merits SAB Review
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	Merits SAB Review
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	Defer SAB consideration of the planned action until more information is available
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	Does not merit further SAB review
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	Does not merit further SAB review
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	Does not merit further SAB review
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	Does not merit further SAB review
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	Does not merit further SAB review
2060-AT31	Fuels Regulation Modernization - Phase 1	Does not merit further SAB review

[1]The Regulatory Identification Number provides a hyperlink to the Office of Management and Budget's webpage and information on the planned action provided in the Unified Regulatory Agenda on the OMB website http://www.reginfo.gov/

U.S. Environmental Protection Agency
Science Advisory Board

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Dr. Frederick Bernthal, President Emeritus and Senior Advisor to the Board of Trustees, Universities Research Association, Washington, DC

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Dr. Todd Brewer, Senior Manager, Partnership Programs, American Water Works Association, Denver, CO

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Also Member: CASAC

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Dr. Otto C. Doering III, Professor, Department of Agricultural Economics, Purdue University, W. Lafayette, IN

Dr. Joel J. Ducoste, Professor, Department of Civil, Construction, and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC

Dr. Susan P. Felter, Research Fellow, Global Product Stewardship, Procter & Gamble, Mason, OH

Dr. R. William Field, Professor, Department of Occupational and Environmental Health and Department of Epidemiology, College of Public Health, University of Iowa, Iowa City, IA

Dr. H. Christopher Frey, Glenn E. Futrell Distinguished University Professor, Department of Civil, Construction and Environmental Engineering, College of Engineering, North Carolina State University, Raleigh, NC

Dr. Joseph A. Gardella, SUNY Distinguished Professor and John and Frances Larkin Professor of Chemistry, Department of Chemistry, College of Arts and Sciences, University at Buffalo, Buffalo, NY

Dr. John D. Graham, Dean, School of Public and Environmental Affairs, Indiana University, Bloomington, IN

Dr. Steven P. Hamburg, Chief Scientist, Environmental Defense Fund, Boston, MA

Dr. Cynthia M. Harris, Director and Professor, Institute of Public Health, Florida A&M University, Tallahassee, FL

Dr. Merlin R. Lindstrom, Vice President Technology, Phillips 66 Research Center, Bartlesville, OK

Dr. Robert E. Mace, The Meadows Center for Water and the Environment, Texas State University, San Marcos, TX

Dr. Clyde F. Martin, Horn Professor of Mathematics, Emeritus, Department of Mathematics and Statistics, Texas Tech University, Crofton, MD

Dr. Sue Marty, Senior Toxicology Leader, Toxicology & Environmental Research, The Dow Chemical Company, Midland, MI

Dr. Kristina D. Mena, Associate Professor, Epidemiology, Human Genetics and Environmental Sciences, School of Public Health, University of Texas Health Science Center at Houston, El Paso, TX

Dr. Surabi Menon, Director of Research, ClimateWorks Foundation, San Francisco, CA

Mr. Robert W. Merritt, Independent Consultant, Houston, TX

Dr. Larry Monroe, Independent Consultant, Braselton, GA

Dr. Thomas F. Parkerton, Senior Environmental Associate, Toxicology & Environmental Science Division, ExxonMobil Biomedical Science, Houston, TX

Dr. Robert Phalen, Professor, Air Pollution Health Effects Laboratory, Medicine, Department of

Medicine, University of California-Irvine, Irvine, CA

Mr. Richard L. Poirot, Independent Consultant, Burlington, VT

Dr. Kenneth M. Portier, Independent Consultant, Athens, GA

Dr. Robert Puls, Owner/Principal, Robert Puls Environmental Consulting, Hilton Head Island, SC

Dr. Kenneth Ramos, Associate Vice-President of Precision Health Sciences and Professor of Medicine, Arizona Health Sciences Center, University of Arizona, Tucson, AZ

Dr. Tara L. Sabo-Attwood, Associate Professor and Chair, Department of Environmental and Global Health, College of Public Health and Health Professionals, University of Florida, Gainesville, FL

Dr. William Schlesinger, President Emeritus, Cary Institute of Ecosystem Studies, Millbrook, NY

Dr. Anne Smith, Managing Director, NERA Economic Consulting, Washington, DC

Dr. Richard Smith, Professor, Department of Statistics and Operations Research, University of North Carolina, Chapel Hill, NC

Dr. Jay Turner, Associate Professor and Vice Dean for Education, Department of Energy, Environmental and Chemical Engineering, School of Engineering & Applied Science, Washington University, St. Louis, MO

Dr. Jeanne M. VanBriesen, Duquesne Light Company Professor of Civil and Environmental Engineering, and Director, Center for Water Quality in Urban Environmental Systems (Water-QUEST), Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA

Dr. Donald vanderVaart, Independent Consultant, Raleigh, NC

Dr. Kimberly White, Senior Director, Chemical Products and Technology Division, American Chemistry Council, Washington, DC

Dr. Peter J. Wilcoxen, Laura J. and L. Douglas Meredith Professor for Teaching Excellence, Director, Center for Environmental Policy and Administration, The Maxwell School, Syracuse University, Syracuse, NY

Dr. S. Stanley Young, Chief Executive Officer, CGStat, Raleigh, NC

SCIENCE ADVISORY BOARD STAFF

Mr. Thomas Carpenter, Designated Federal Officer, U.S. Environmental Protection Agency, Science Advisory Board Washington, DC

Message

From: Wright, Rhonda [Wright.Rhonda@epa.gov]
Sent: 6/21/2018 10:12:59 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Briefing Materials for Friday, June 22, 2018
Attachments: Tier 4 briefing for Bill Wehrum 6 21 18.pptx; Glider Kit Background Document, June 20, 2018.docx; Agenda for Fuels Weekly with OAR 06-22-18.docx

Hi everyone,

Just in case you would like to some reading as you're traveling, I've attached 3 briefing materials for 3 meetings tomorrow (see below). I've also provided you with hard copies for when you return to your offices. Safe travels and have a great weekend.

Deliberative Process / Ex. 5

Thank you,

****

Rhonda Wright
Special Assistant
U.S. Environmental Protection Agency
Office of Air and Radiation
Immediate Office of the Assistant Administrator
Room 5409G, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Office: (202) 564-5437
Cell: (202) 365-6008

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 5/30/2018 12:11:27 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: RE: SAB Follow Up
Attachments: Draft - SAB Response - Cover Letter 5-29-18.docx

Importance: High

Bill,

Attached for your review is a draft cover letter with an attachment providing supplemental information on our regulatory actions for the SAB meeting this week. Apologies for the tight turnaround – Think we need to get a signed copy back to the SAB staff office for distribution by 1:30 PM tomorrow.

Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

From: Woods, Clint
Sent: Friday, May 25, 2018 7:27 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>; Tsirigotis, Peter <Tsirigotis.Peter@epa.gov>; Dunham, Sarah <Dunham.Sarah@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Schwab, Justin <schwab.justin@epa.gov>
Subject: SAB Follow Up
Importance: High

All,

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Thanks in advance!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 4/13/2018 9:46:52 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: RE: Glider status

Chris,

That's great, thanks.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

-----Original Message-----
From: Grundler, Christopher
Sent: Friday, April 13, 2018 5:43 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: RE: Glider status

Hi Mandy--
I expect to get the draft final rule on Monday for review. It has been reviewed at OGC up to David Orlin's level. Our plan continues to be that it will be ready for your and David's review later in the week.

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

-----Original Message-----
From: Gunasekara, Mandy
Sent: Friday, April 13, 2018 4:58 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: Glider status

Hey Chris,
Can you give a status update on the glider rule?
Best,
Mandy

Sent from my iPhone

Message

From: Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Sent: 3/8/2018 1:58:40 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Bunker, Byron [bunker.byron@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: Next steps on RFS 2017 No Action Assurance/compliance date extension

Good morning Bill, Mandy:

As I mentioned Tuesday afternoon, our plans to put out the NAA and EnviroFlash to obligated parties are (Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Thanks
Ben

Message

From: Ringel, Aaron [ringel.aaron@epa.gov]
Sent: 6/21/2018 9:57:44 PM
To: Lyons, Troy [lyons.troy@epa.gov]; Burke, Marcella [burke.marcella@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Wilcox, Jahan [wilcox.jahan@epa.gov]; Block, Molly [block.molly@epa.gov]
Subject: Fwd: OGR Subcommittee Letter to the OIG

All, see below. HOGR Interior, Energy, and Environment sent a letter to the IG today regarding the glider study done by OTAQ last year and outside group involvement. This comes from the FOIA responses reported on in the press.

Sent from my iPhone

Begin forwarded message:

> **From:** "Conrad, Jessica" <Jessica.Conrad@mail.house.gov>
> **Date:** June 21, 2018 at 5:50:59 PM EDT
> **To:** "Ringel, Aaron" <ringel.aaron@epa.gov>
> **Cc:** "Harsha, Christen" <Christen.Harsha@mail.house.gov>
> **Subject: OGR Subcommittee Letter to the OIG**
>
> Hi Aaron,
>
> Today Chairman Gianforte sent a letter to IG Elkins – wanted to make sure you were aware. The letter can be accessed here.
>
> Best,
> Jessica
>
> **Jessica M. Conrad**
> Staff Director
> Subcommittee on the Interior, Energy, and Environment
> Committee on Oversight and Government Reform
> 2157 Rayburn House Office Building
> 202.225.5074

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 12/21/2018 8:29:54 PM
To: Harlow, David [harlow.david@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: RE: AW SEPW QFR Updates - OAR
Attachments: 2018.10.04 - EPA MANAGEMENT REVIEW - FINAL OMB REVIEW - ALL Wheeler QFRs 08.01.2018 BH+jl.docx

Here's a file that combines my and Ben's edits to the responses that Andrew wanted revised. I trust one of you will send along to Aaron after you review.

Deliberative Process / Ex. 5

From: Harlow, David
Sent: Thursday, December 20, 2018 11:19 AM
To: Lewis, Josh <Lewis.Josh@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: Fwd: AW SEPW QFR Updates - OAR

Not sure who can do/manage this, with Mandy away for the duration. The putative deadline is next Friday, and while I'm planning to be here next Thursday and Friday (the 27th and 28th), I'm not in a position to do the substantive work involved because I don't really know anything about these issues (which are almost all RFS).

Could you help us get this to the appropriate people, assuming anyone in the program offices are still around at this point in the week? Thanks!

Sent from my iPhone

Begin forwarded message:

> **From:** "Ringel, Aaron" <ringel.aaron@epa.gov>
> **Date:** December 20, 2018 at 10:49:48 AM EST
> **To:** "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Wehrum, Bill" <Wehrum.Bill@epa.gov>, "Harlow, David" <harlow.david@epa.gov>
> **Cc:** "Dominguez, Alexander" <dominguez.alexander@epa.gov>, "Palich, Christian" <palich.christian@epa.gov>, "Frye, Tony (Robert)" <frye.robert@epa.gov>
> **Subject: AW SEPW QFR Updates - OAR**
>
> Team OAR,
>
> AA Wheeler went through the QFRs and had updates he needs made before we can get them submitted. I've pasted the relevant questions for your program office below that need edits and attached the doc for reference.
>
> We need to get these turned in by next Friday so we can move forward with his confirmation hearing. Considering there aren't many substantive changes required, if you can turn these around in next couple days so we can do a final review and get sign off it would be greatly appreciated. Please let myself, Christian, or Tony know if you have any questions.

Best,
Aaron

Aaron E. Ringel
Deputy Associate Administrator
Office of Congressional & Intergovernmental Relations
U.S. Environmental Protection Agency

W: 202.564.4373
Ringel.Aaron@epa.gov

Chairman Barrasso:

1. The administration has indicated that it plans to issue a Reid Vapor Pressure (RVP) waiver for fuels with ethanol concentrations higher than ten percent. However, in 2011, EPA formally reaffirmed that it did not have the authority to issue a RVP waiver for these fuels. Specifically, EPA stated that: "In sum, the text of section 211(h)(4) [of the Clean Air Act] and this legislative history supports EPA's interpretation, adopted in the 1991 rulemaking, that the 1 psi waiver only applies to gasoline blends containing 9 - 10 vol% ethanol." 76 Fed. Reg. 44406, 44433 (July 25, 2011). Please explain the process by which EPA has re-evaluated its statutory authority and come to a new conclusion.

Deliberative Process / Ex. 5

2. On June 29, 2018, EPA published a report entitled, "Biofuels and the Environment: Second Triennial Report to Congress." The report documents how activities associated with biofuel production and use have negatively affected the environment. Specifically, it shows how activities associated with biofuel production and use have reduced air quality, polluted waters, destroyed wildlife habitat and ecosystems, and depleted already stressed aquifers. Has EPA evaluated how a RVP waiver for fuels with more than ten percent ethanol would affect demand for biofuel feedstocks and the use of biofuels, and, in turn, make the impacts to the environment worse? If not, will EPA do so before issuing a RVP waiver for these fuels?

Deliberative Process / Ex. 5

27. Last year, I asked the Federal Trade Commission (FTC) staff to offer their expertise to EPA to help address RFS RIN market manipulation. I was told by former Administrator Scott Pruitt that on February 8, 2018, EPA and FTC did have a meeting to "initiate

dialogue on this matter."[1]

a. Have there been further conversations with the FTC? If so, please provide further details. If not, why not?

Deliberative Process / Ex. 5

b. Please provide any suggestions received from FTC on what data EPA should be collecting to mitigate RIN market manipulation.

Deliberative Process / Ex. 5

c. On August 6, 2009, the FTC finalized a rule that prohibited market manipulation in the petroleum industry. So far, EPA has not taken similar steps. Why is market manipulation banned for the wholesale petroleum markets and not for the RFS RIN markets?

Deliberative Process / Ex. 5

d. Is the EPA considering a similar rulemaking to prohibit market manipulation in the RFS RIN market? If not, why not? If so, please provide further details and a planned timeline.

Deliberative Process / Ex. 5

Senator Inhofe:

39. In April, EPA issued a policy statement announcing that it would proactively address congressional directives and stakeholder concerns, by treating biogenic emissions from

[1] *See* Scott Pruitt, Administrator Environmental Protection Agency, Responses to Questions for the Record, Hearing Before the U.S. Senate Committee on Environment and Public Works entitled "*Oversight Hearing to Receive Testimony from Environmental Protection Agency Administrator Scott Pruitt*" (Jan. 30, 2018).

forest biomass as carbon neutral in a forthcoming regulatory action. What is the timeframe in which we can expect the proposed regulation will issue?

Deliberative Process / Ex. 5

Senator Markey:

51. Late last April, former EPA Administrator Scott Pruitt announced that the EPA will reconsider its methane emissions rule set by the last administration that aimed to combat climate change and protect public health, and simultaneously stated that during the "reconsideration process," the EPA would place a 90-day stay on oil and gas companies' compliance with the rule. Methane is the second-biggest driver of climate change after carbon dioxide. Even though the D.C. Circuit Court of Appeals ruled 2-1 against the EPA's suspension of the rule, the EPA's rationale for pursuing this issue still raises significant questions.

    a. What are the existing regulations that would curb the leaking of methane and other harmful pollutants without this rule?

Deliberative Process / Ex. 5

Senator Wicker:

81. On July 20, 2018, the U.S. Court of Appeals for the Fourth Circuit vacated and remanded the EPA's denial of a 2016 petition for small refinery hardship filed by Ergon – West Virginia, Inc., under the Renewable Fuel Standard. What actions is the EPA prepared to take to respond to this court ruling? What is the expected timeline for such actions?

Deliberative Process / Ex. 5

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 4/13/2018 9:18:00 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: RE: Glider status

Will do. I know most of the heavy lifting is over in OGC so may not have update for you until Monday
Have a good weekend

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

-----Original Message-----
From: Gunasekara, Mandy
Sent: Friday, April 13, 2018 4:58 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: Glider status

Hey Chris,
Can you give a status update on the glider rule?
Best,
Mandy

Sent from my iPhone

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 6/12/2018 1:04:59 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: Fwd: OMB Priorities
Attachments: OMB Review through August 06.08.2018.docx; ATT00001.htm

FYI

Begin forwarded message:

From: "Lovell, Will (William)" <lovell.william@epa.gov>
Date: June 11, 2018 at 12:42:53 PM EDT
To: "Woods, Clint" <woods.clint@epa.gov>, "Dominguez, Alexander" <dominguez.alexander@epa.gov>, "Schwab, Justin" <Schwab.Justin@epa.gov>
Subject: OMB Priorities

All,

Please find attached the list of priorities we plan to discuss with OMB on Wednesday (6/13). Please let us know if you can provide any additional justification wherever it is vague (e.g., "Deregulatory priority," "Administrator Priority") or not provided. Statutory, legal, and compliance deadlines are compelling.

Deliberative Process / Ex. 5

Thank you!

Will Lovell
Policy Advisor, Office of Policy
U.S. Environmental Protection Agency
(202) 564-5713
Lovell.William@epa.gov

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 6/21/2018 4:13:33 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: pls note Glider Background piece contains CBI

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 6/21/2018 4:12:37 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: Glider Background for your meeting tomorrow
Attachments: Glider Kit Background Document, June 20, 2018.docx

Bill-this is going to your office but I thought you'd like to peruse on your flight home. Just some background facts on the industry, the firm, and the FRM

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Martha Roberts [mroberts@edf.org]
Sent: 2/28/2018 1:22:52 AM
To: Pruitt, Scott [Pruitt.Scott@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]; Moulis, Charles [moulis.charles@epa.gov]; spears.matthew@epa.gov; A-AND-R-DOCKET [A-AND-R-DOCKET@epa.gov]
Subject: EDF Supplemental Comment on Gliders Proposal, Docket ID EPA–HQ–OAR–2014–0827
Attachments: TTU Withhold Letter 2.19.18 Pruitt.pdf; EDF Second Supplemental Comment re TTU Study 2.27.18 clean.pdf

Attn: Docket ID EPA–HQ–OAR–2014–0827

Attached is a supplemental comment of the Environmental Defense Fund and accompanying attachment for submission into the docket for EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017).

Sincerely,

Martha Roberts

Martha Roberts
Senior Attorney
U.S. Climate Legal and Regulatory Program

Environmental Defense Fund
1875 Connecticut Ave. NW Suite 600
Washington, DC 20009
T 202-572-3243
mroberts@edf.org

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February 27, 2018

VIA ELECTRONIC SUBMISSION

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Attn: EPA-HQ-OAR-2014-0827

RE: Second Supplemental Comment of Environmental Defense Fund on the Environmental Protection Agency's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017)

The Environmental Defense Fund ("EDF") respectfully submits this supplemental comment on the Environmental Protection Agency's ("EPA") Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017) ("Proposed Rule"), addressing provisions contained in the agency's 2016 final rule, *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2*, 81 Fed. Reg. 73,478 (October 25, 2016) ("Phase 2 Standards"). In a further development from the information raised in our supplemental comment of February 14, 2018, an academic institution has now explicitly asked that EPA not rely on its research, which the agency cites in the Proposed Rule. We once more call upon EPA to withdraw its flawed proposal, or, at minimum, the agency should not take any further action on the proposal until it has thoroughly investigated the circumstances explained herein.

As stated in our supplemental comment of February 14, 2018, EPA's Proposed Rule cites to a study[1] performed by Tennessee Technological University ("TTU") and funded by Fitzgerald Glider Kits.[2] According to a summary document, the TTU study—overseen by Associate Vice

[1] U.S. EPA, Proposed Rule: *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442, 53,444 (Nov. 16, 2017).
[2] Tenn. Tech. University Office of Research, Tennessee Technological University Annual Report 2015-16 (Volume 2) 42 (2016), *available at* https://www.tntech.edu/assets/userfiles/resourcefiles/13847/1476976572_2015-16%20Annual%20Report_FINAL.pdf; Tenn. Tech. University, Grants Rewarded Report (09/01/2016 – 09/30/2016), *available at*

President of Research Tom Brewer at a Fitzgerald facility—purported to conclude that remanufactured glider engines performed equally as well or outperformed modern engines with regard to pollutant emissions.[3] These results are at odds with both recent EPA testing of glider vehicles and emission factors for the model year diesel engines that glider vehicles use, which show that uncontrolled glider vehicles have nitrogen oxide and particulate matter pollution emissions many multiples greater than other new freight trucks.[4]

EPA explicitly discussed the TTU study and summarized the study's conclusions, without critical assessment, in its Proposed Rule to repeal emission requirements for glider vehicles.[5] The Proposed Rule did not cite to any other analyses purporting to address the proposal's health or environmental impacts.[6]

On February 19, 2018, TTU President Philip Oldham sent a letter to EPA Administrator Scott Pruitt, attached herein, requesting that the agency "withhold any use or reference to said study pending the conclusion of our internal investigations." The letter explains that TTU is pursuing a peer review of the study "to assure its validity," because "knowledgeable experts within the University have questioned the methodology and accuracy of the report." President Oldham sent letters with similar requests to its research sponsor, Fitzgerald Glider Kits, and to Congresswoman Diane Black. News reports have further documented the emerging concerns with the TTU study, and EPA's treatment of it.[7]

In EDF's initial comment on the Proposed Rule, filed jointly with the Environmental Law and Policy Center and WE ACT for Environmental Justice, we explained that EPA's action was

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https://www.tntech.edu/assets/userfiles/resourcefiles/9512/1481215150_Grants%20Awarded%20Sept%202016.pdf; Tenn. Tech. University, Academic Affairs Highlights 25 (2017), available at https://www.tntech.edu/assets/usermedia/provost/12546/2017_End_of_the_Year_Statement.pdf.

[3] July 10, 2017 Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 Final Rule" to Gliders, from Fitzgerald Glider Kits, LLC; Harrison Truck Centers, Inc.; and Indiana Phoenix, Inc. (July 10, 2017), EPA–HQ–OAR–2014–0827, Exhibit 1, *available at* https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.

[4] U.S. EPA, Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles (Nov. 20, 2017), Docket No. EPA-HQ-OAR-2014-0827-2417, *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417; EPA Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2, Response to Comments for Joint Rulemaking, at 1960-68, 1965, Appendix A (Aug. 2016), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF.

[5] 82 Fed. Reg. at 53,444.

[6] *See id.*

[7] Eric Lipton, *How $225,000 Can Help Secure a Pollution Loophole at Trump's E.P.A.*, N.Y. TIMES, (Feb. 15, 2018), https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html; Eric Lipton, *University Pulls Back on Pollution Study That Supported Its Benefactor*, N.Y. TIMES (Feb. 21, 2018), https://www.nytimes.com/2018/02/21/admin/trucking-pollution-study.html; Eric Miller, *Tennessee University Investigating Possible Research Misconduct in Glider Vehicle Testing*, TRANSPORT TOPICS (Feb. 16, 2018), http://www.ttnews.com/articles/tennessee-university-investigating-possible-research-misconduct-glider-vehicle-testing; Jason Gonzales, *Tennessee Tech president asks EPA to withhold use of controversial emissions research*, THE TENNESSEAN (Feb. 22, 2018), https://www.tennessean.com/story/news/education/2018/02/22/tennessee-tech-president-asks-epa-withhold-use-controversial-emissions-research/363326002/.

arbitrary and capricious for failing to properly consider the troubling emissions consequences of the proposal, with the only reference to such emissions being a citation to the TTU study.[8] The emergence of additional concerns about the integrity of that study further underscores the arbitrary and capricious nature of EPA's proposal.

These developments provide further reason why, as our earlier comments urged, EPA must withdraw its flawed repeal proposal. At a minimum, in light of these developments and EPA's inclusion of the TTU study in its proposal, it would be inappropriate for the agency to take any action on the Proposed Rule until the facts and circumstances surrounding the study are fully understood and disclosed to the public.

Sincerely,

Alice Henderson
Erin Murphy
Martha Roberts

Environmental Defense Fund
1875 Connecticut Ave., NW
Suite 600
Washington, DC 20009
(202) 387-3500

[8] Comment of EDF, ELPC, & WE ACT on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 10, 2018), at Part I(f), VII, *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861; *see also Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29, 43 (1983) (stating that an agency may not offer a justification, as a basis for reversing course, "that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise").

Office of the President

TENNESSEE TECH

February 19, 2018

Honorable Scott Pruitt
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 1101A
Washington, DC 20460

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Mr. Pruitt:

Please be advised that regarding the "Environmental & Economic Study of Glider Kit Assemblers" report, knowledgeable experts within the University have questioned the methodology and accuracy of the report. Therefore, Tennessee Tech University is actively pursuing a peer review of the report and supporting data to assure its validity. The University also is investigating an allegation of research misconduct related to the study. We request that you withhold any use or reference to said study pending the conclusion of our internal investigations.

We sincerely regret any inconvenience this imposes, but our aim is to ensure the absolute integrity and objectivity of any scholarly product of Tennessee Tech. We anticipate a timely and thorough review following which we will inform you of the outcome. Thank you for your assistance and patience as we work through the concerns raised.

Sincerely,

Philip B. Oldham

PBO/ds

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/21/2018 12:21:07 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]
CC: Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]
Subject: For review: draft OAR Weekly Report

I'll send forward first thing Friday morning. Edits before then welcome.

OAR Weekly Report – June 22, 2018

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Block, Molly [block.molly@epa.gov]
Sent: 5/29/2018 12:53:04 PM
To: Daniell, Kelsi [daniell.kelsi@epa.gov]; Abboud, Michael [abboud.michael@epa.gov]; Beach, Christopher [beach.christopher@epa.gov]; Bennett, Tate [Bennett.Tate@epa.gov]; Bodine, Susan [bodine.susan@epa.gov]; Cory, Preston (Katherine) [Cory.Preston@epa.gov]; Ferguson, Lincoln [ferguson.lincoln@epa.gov]; Ford, Hayley [ford.hayley@epa.gov]; Frye, Tony (Robert) [frye.robert@epa.gov]; Gordon, Stephen [gordon.stephen@epa.gov]; Grantham, Nancy [Grantham.Nancy@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hanson, Paige (Catherine) [hanson.catherine@epa.gov]; Hewitt, James [hewitt.james@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Kelly, Albert [kelly.albert@epa.gov]; Konkus, John [konkus.john@epa.gov]; Leopold, Matt [Leopold.Matt@epa.gov]; Letendre, Daisy [letendre.daisy@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]; McMurray, Forrest [mcmurray.forrest@epa.gov]; Palich, Christian [palich.christian@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]; Rodrick, Christian [rodrick.christian@epa.gov]; Ross, David P [ross.davidp@epa.gov]; Shimmin, Kaitlyn [shimmin.kaitlyn@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Wheeler, Andrew [wheeler.andrew@epa.gov]; Wilcox, Jahan [wilcox.jahan@epa.gov]; Yamada, Richard (Yujiro) [yamada.richard@epa.gov]; Falvo, Nicholas [falvo.nicholas@epa.gov]
Subject: EPA News Highlights 5.29.18
Attachments: EPA News Highlights 5.29.18.docx

EPA News Highlights 5.29.18

San Francisco Chronicle: New EPA Administrator in San Francisco Says He's Prioritizing Superfund Site Clean Up
The new head of the Environmental Protection Agency's San Francisco headquarters vowed Friday to work diligently on environmental issues, including the clean up of toxic Superfund sites, a slate of work that he claims will keep him so busy it won't matter that he still lives in Southern California. Mike Stoker, the 62-year-old Santa Barbara County attorney named last week as administrator of the EPA's Pacific Southwest Region, was criticized by Sen. Dianne Feinstein, for what she said was his plan to oversee 702 San Francisco employees from a Los Angeles satellite office.

Nashua Telegraph: EPA to Conduct First Regional PFAS Meeting
At the EPA's two-day National Leadership Summit meeting to address PFAS issues on May 22-23, officials announced the first of five regional follow-up meetings will take place at the Pease industrial port in Portsmouth on June 25-26, the site of a former Air Force base where PFAS were found in water wells in 2014.

LA Times: EPA Used Disavowed Research to Justify Putting Dirtier Trucks on the Road
At a time when acts of defiance against the Trump administration are routine in Sacramento, the rebuke that breezed through the California Assembly this month still came as a jolt. Even Trump loyalists in the chamber joined in... Despite Pruitt's earlier acknowledgment that the study factored into his decision to revisit the glider vehicle restrictions, an EPA spokesperson said in an email last week that "it played no role" in the action the EPA is now taking.

Daily Signal: 'This Is a Job-Killing Regulation That Will Put Our Company Out of Business': Some Push EPA to Reverse Obama-Era Regulation
Trucking industry interests successfully lobbied the Environmental Protection Agency to impose "job-killing" regulations on remanufactured vehicles known as gliders that are cheaper to purchase than new trucks, an energy policy analyst and a maker of the vehicles say.

Bloomberg: EPA's Pruitt Racked Up $3.1 Million Security Bill in First Year
U.S. taxpayers spent at least $3.1 million guarding EPA Administrator Scott Pruitt around-the-clock during his first year on the job, according to the agency's newly released records. That price tag—spent on protective agents' pay and travel during 2017—is higher than the security costs for Pruitt's immediate predecessors at the Environmental Protection Agency.

New York Times: Think the Big Banks Have Abandoned Coal? Think Again

Starting three years ago, the largest American banks vowed to cut back on lending to the coal industry. But the banks, it turns out, never actually promised to walk away from coal completely. And now, with coal companies enjoying a small resurgence under the Trump administration, banks are again embracing the industry.

National News Highlights 5.29.18

Bloomberg: What Letter? Trump Proceeds Like Summit With Kim is Still On
President Donald Trump appeared to confirm that his summit with Kim Jong Un was back on, three days after he abruptly called off the historic meeting in a sharply worded letter to the North Korean leader. "Our United States team has arrived in North Korea to make arrangements for the Summit between Kim Jong Un and myself," Trump said in tweet on Sunday afternoon, making no reference to his recent decision to pull out of the meeting. "I truly believe North Korea has brilliant potential and will be a great economic and financial Nation one day," Trump added. "Kim Jong Un agrees with me on this. It will happen!"

USA Today: Top North Korean Official Headed to the U.S. to Discuss Summit Between Kim Jon Un, Trump
President Trump continued to tease the re-scheduling of a meeting with Kim Jong Un, tweeting on Monday that a top North Korean official is en route to New York City for meetings on the possible summit. "We have put a great team together for our talks with North Korea," Trump tweeted. "Meetings are currently taking place concerning Summit, and more. Kim Young Chol, the Vice Chairman of North Korea, heading now to New York. Solid response to my letter, thank you!"

Associated Press: Hawaii Volcano: First 'Laze,' Now 'Vog?'
Kilauea volcano on Hawaii's Big Island has had it all over the past three weeks: molten rock shooting toward the sky, lava oozing from the ground and ash clouds rising miles into the air. First there was "laze," now you can also add "vog" to the mix. Scientists say higher sulfur dioxide emissions recorded at the volcano's vents in recent days are creating the potential for heavier than usual vog, or volcanic smog. So far, trade winds have been mostly blowing the gray haze offshore.

TRUMP TWEETS

San Francisco Chronicle

https://www.sfgate.com/science/article/New-EPA-administrator-in-San-Francisco-says-12945205.php
New EPA Administrator in San Francisco Says He's Prioritizing Superfund Site Clean Up
By Peter Fimrite, 5/25/18

The new head of the Environmental Protection Agency's San Francisco headquarters vowed Friday to work diligently on environmental issues, including the clean up of toxic Superfund sites, a slate of work that he claims will keep him so busy it won't matter that he still lives in Southern California.

Mike Stoker, the 62-year-old Santa Barbara County attorney named last week as administrator of the EPA's Pacific Southwest Region, was criticized by Sen. Dianne Feinstein, for what she said was his plan to oversee 702 San Francisco employees from a Los Angeles satellite office.

The Republican stalwart, who has fought for fossil fuels and led "Lock Her Up" chants in opposition to Hillary Clinton, said he will be traveling most of the time, but will work out of both the Los Angeles and San Francisco offices when he is in town.

"My duty station, my home office, is San Francisco," said Stoker, who lives in Carpinteria (Santa Barbara County), and pointed out that Southern California is a huge area with at least as many environmental problems as the Bay Area. "I don't think it matters at all (where the administrator lives). I'll be on the road."

Stoker, who is in charge of enforcing federal regulations in Region 9, covering California, Nevada, Arizona, Hawaii and the Pacific islands, said his goals are in line with those of EPA Administrator Scott Pruitt, who recently released a list of

21 Superfund sites targeted for immediate attention. The list included two of the 111 sites in Region 9. California has 98 Superfund sites, second in the nation to New Jersey.

Remediating and closing Superfund sites "is one of my top priorities," Stoker said. "Closure is a win win for the environment."

Environmentalists and EPA managers, however, insist that Pruitt's version of remediation is to cut staff and relax regulations at toxic sites and decrease critical oversight of polluting industries.

Stoker said he doesn't expect to get involved in conflicts between California and Pruitt, including a skirmish over whether the state can maintain stricter vehicle fuel standards than the rest of the nation.

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Nashua Telegraph

http://www.nashuatelegraph.com/news/local-news/2018/05/27/epa-to-conduct-first-regional-pfas-meeting/

EPA to Conduct First Regional PFAS Meeting

By Ken Liebeskind, 5/27/18

At the EPA's two-day National Leadership Summit meeting to address PFAS issues on May 22-23, officials announced the first of five regional follow-up meetings will take place at the Pease industrial port in Portsmouth on June 25-26, the site of a former Air Force base where PFAS were found in water wells in 2014.

"We were the first community to discover contamination, which began a journey over the last four years to push the health department to take action," said Andrea Amico, an area resident whose husband and children drank contaminated water at the site.

Amico, who started Testing for Pease, a community action group that advocates for a long-term health plan for those impacted by PFAS water contamination in Portsmouth, attended the first day of the EPA leadership summit and met with Scott Pruitt, the EPA administrator, who oversaw the summit and was criticized for the EPA's unwillingness to release a federal study on PFAS water contamination.

"I met with Scott Pruitt for 15 minutes," Amico said, "and he had the answers ahead of time. He said the report will come out soon, but didn't commit a date."

In a statement released by the EPA, Pruitt said, "There has been much discussion about an unpublished study that focuses on certain PFAS chemicals. The Department of Health and Human Services is preparing this study and has the authority to release it. To be clear, the EPA does not have the authority to release this study."

At the leadership summit, the EPA announced a four-step action it will take to address PFAS issues. The plan includes establishing a new maximum contaminant level for PFOA and PFOS in drinking water that will replace the current MCL of 70 parts per trillion it set in 2016. It also will develop toxicity levels for GenX, the chemical that has replaced PFOAs in manufacturing operations, and it will develop groundwater cleanup recommendations for PFOA and PFOS at contaminated sites.

At the conclusion of the leadership summit, the EPA announced it will visit five sites around the country to meet with local leaders on the PFAS issue, starting in New Hampshire.

Alexandra Dunn, the New England regional administrator for the EPA, said the agency will co-host the event with the New Hampshire Department of Environmental Services.

"It will be open to representatives from all New England states who will help us plan the agenda for PFAS that will regulate action for testing and analytical methods," she said.

Brandon Kernen, the supervisor of hydrology and conservation at the DES, who made a presentation at the EPA leadership summit, said, "New Hampshire will engage directly with the EPA to identify ways we can collaborate and support each other to address PFAS contamination in drinking water."

In his presentation at the leadership summit, he outlined an agenda that called for EPA standards and health advisories to be updated and cost-effective options for disposing hazardous wastes developed.

The EPA's efforts at PFAS action are criticized by many environmental groups. Shaina Kasper, the Vermont state director of the Toxic Action Center, said, "The EPA is trying to hinder efforts to protect the public. They appear to be disinterested in taking action that is not approved by the chemical industry that has been poisoning people for decades. We need to have protective standards because chemical companies like Saint-Gobain don't have the health and well-being of our communities at heart. We need to make sure the chemicals they are using now are safe."

Laurene Allen, who leads the Merrimack Citizens for Clean Water group, said the EPA did not invite her to the leadership summit, noted, "We drank polluted water for years and now we want to know exactly how the EPA plans to clean up the public health catastrophe and we want to be part of the solution."

Allen said she will attend the EPA regional meeting at Pease.

"We look forward to working with the EPA and the state of New Hampshire to address our needs as an impacted community," Allen said. "If we can't regulate the PFAS chemicals we are exposed to that are harmful at relatively low levels we will continue to be poisoned."

Los Angeles Times

http://www.latimes.com/politics/la-na-pol-pruitt-polluting-trucks-20180528-story.html

EPA Used Disavowed Research to Justify Putting Dirtier Trucks on the Road

By Evan Halper, 5/29/18

At a time when acts of defiance against the Trump administration are routine in Sacramento, the rebuke that breezed through the California Assembly this month still came as a jolt. Even Trump loyalists in the chamber joined in.

The message to the administration was clear: Forget about your plan to unleash on freeways a class of rebuilt trucks that spew as much as 400 times the choking soot that conventional new big rigs do. Getting caught behind the wheel of one of these mega-polluters in California would carry a punishing $25,000 minimum fine under the measure that lawmakers passed 73 to 0. It had the support of 25 Republicans.

"This was a reaction," said Chris Shimoda, vice president of government affairs for the California Trucking Assn., which sponsored the legislation. "A lot of people have made the investments to clean up their trucks. They don't want to see an obvious loophole that allows others to be gross polluters and undercut them."

Equally strong reactions are rippling across the country in response to the Trump administration's push to boost a cottage industry eager to sell trucks that run on rebuilt diesel engines. The trucks look new from the outside, but are equipped with repurposed motors that, according to the EPA's own experts, threaten to produce enough soot each year to cause up to 1,600 premature deaths.

Trump's EPA has tried to justify the move by citing a privately funded study that claimed the trucks did not cause more pollution, but even the university that conducted the research has now cast doubt on the findings.

Air regulators loathe the proposal to allow thousands more of the trucks on the roads. Most of the trucking industry feels the same. Even the White House budget office and several conservative allies of the administration are balking.

"We urge you to consider the adverse impact on the economy," said a letter that the Environmental Protection Agency recently disclosed from the Republican senators of Indiana, West Virginia and North Carolina. They warned EPA chief Scott Pruitt that the plan is ill-advised and disruptive to industry. Ten House Republicans concurred in their own letter, which warned the proposal is a potential job-killer. "We respectfully ask that you carefully consider the negative impacts," the GOP lawmakers wrote.

Yet the EPA is undeterred. Its crusade to lift an Obama-era ban on these heavily polluting vehicles known as "gliders" perseveres, largely at the behest of a small group of activists on the right and one generous political donor, Tennessee businessman Tommy Fitzgerald. Fitzgerald, who has met privately with Pruitt and who held a campaign event in 2016 for Trump at one of his facilities, says restricting the sale of the trucks and the kits to build them threatens 22,000 jobs.

Pruitt says the restrictions on the trucks were a misuse of Clean Air Act regulations.

In announcing the rollback, Pruitt's agency ignored its own findings about how much environmental damage the vehicles cause. Instead, it cited a new study from Tennessee Tech University that concluded, astonishingly, that the glider trucks were no more harmful to air quality than trucks with new engines. That study was bankrolled by Fitzgerald's business.

The results of the study came as a shock to experts at the EPA, and also to the engineering faculty at Tennessee Tech.

"Tennessee Tech has skills in some areas, but air pollution is an area we have never worked in," said David Huddleston, an engineering professor at the university. "I thought, who on campus knows enough to actually even offer an opinion on that? We have one guy who has some expertise in emissions, but he wasn't even involved in this."

The faculty would soon learn the study was run by a university vice president who lacked any graduate level engineering training, and that it was conducted at a Fitzgerald-owned facility. Tennessee Tech's president and Rep. Diane Black (R-Tenn.) — who has accepted more than $200,000 in political donations from Fitzgerald, his companies and top employees — had lobbied Pruitt to embrace the research.

The Tennessee study quickly came under suspicion. Notes from discussions between EPA scientists and its authors revealed major flaws. The EPA scientists then updated their own tests of glider vehicles, which confirmed the trucks are substantially dirtier than newly manufactured trucks.

The head of Tennessee Tech's engineering department dismissed the study's key conclusion as a "far-fetched, scientifically implausible claim" by a research team that included "no qualified, credentialed engineer." The faculty senate passed a resolution demanding the university revoke its support for the study and launch an investigation.

By late February, the university asked the EPA to stop using or referring to the study, pending its investigation. That investigation continues.

"The university takes the allegations of research misconduct seriously," the school said in a statement to the Los Angeles Times. "Tennessee Tech is still in the process of following its internal procedures related to such matters."

Despite Pruitt's earlier acknowledgment that the study factored into his decision to revisit the glider vehicle restrictions, an EPA spokesperson said in an email last week that "it played no role" in the action the EPA is now taking.

Two former EPA chiefs are skeptical. Christine Todd Whitman, who led the agency under George W. Bush, and Carol Browner, who led it under Bill Clinton, pointed out in a March letter to Pruitt that the industry's petition that prompted the EPA to act on glider trucks relied heavily on the now disavowed study. They urged him to withdraw the proposal.

Fitzgerald's company is refusing to publicly release the full study, which it owns under its arrangement with the school. But it has cast itself as the victim.

"We did not expect to receive work product that some have characterized as 'flawed and shoddy' or 'far-fetched and scientifically implausible,' and we certainly did not expect to be defamed by faculty members and administrators from the very institution that conducted the research," a company lawyer wrote to university officials earlier this year.

The company later demanded that four faculty members who have spoken out against the research and the company's involvement in it turn over any emails they wrote about the matter.

"It's a mess," said Huddleston. "All these professors are trying to do is the right thing. And now they have had to go out and hire lawyers to protect themselves. It's sad."

Rep. Black recently told Nashville Public Radio that she had no regrets about using the study to try to help the glider business. She said glider manufacturers are in a noble "David and Goliath" battle with much larger trucking interests seeking to crush them.

But even some at the White House are chafing. Its budget office directed the EPA to undertake an extensive economic review that will hold things up for weeks and could reveal more legal vulnerabilities. The free market think tank FreedomWorks has, in turn, launched a campaign to pressure the White House to approve the EPA's plan promptly, without requiring the economic analysis.

It remains to be seen whether Pruitt will prevail. But if he succeeds, glider truck drivers could find themselves entering California at their own risk. Backers of the $25,000 penalties that the Assembly approved said they would expect to see them enforced, regardless of how the EPA proceeds. The bill appears likely to pass the state Senate and be signed into law.

Asked how it would confront that challenge, the agency demurred. "EPA has not yet taken a final action," said the email from its press office, "and will not comment on hypothetical outcomes before the process is complete."

Daily Signal

https://www.dailysignal.com/2018/05/25/this-is-a-job-killing-regulation-that-will-put-our-company-out-of-business-some-push-epa-to-reverse-obama-era-rule/

'This Is a Job-Killing Regulation That Will Put Our Company Out of Business': Some Push Epa to Reverse Obama-Era Regulation

By Kevin Mooney, 5/25/18

Trucking industry interests successfully lobbied the Environmental Protection Agency to impose "job-killing" regulations on remanufactured vehicles known as gliders that are cheaper to purchase than new trucks, an energy policy analyst and a maker of the vehicles say.

Gliders range in size from medium to heavy trucks. They are constructed from "glider kits" that include new truck parts, such as the tractor chassis, with a frame, front axle, cab, and brakes. The glider is manufactured by combining the glider kit with a powertrain from a used vehicle.

While gliders include new truck parts, they should not be considered new trucks, since the engine and other parts are used, industry representatives have argued. Yet, the EPA under President Barack Obama issued a new rule reclassifying gliders as new trucks in October 2016.

This distinction matters because the Clean Air Act authorizes the EPA to regulate greenhouse gas emissions only from new trucks, not old ones. Most glider trucks cannot meet the emissions standards the Obama EPA imposed for new vehicles.

"This is a job-killing regulation that will put our company out of business," Jon Toomey, director of government affairs for the Tennessee-based Fitzgerald Glider Kits, said in a phone interview with The Daily Signal.

"Based on the business we do with parts suppliers and family-run businesses, we estimate this Obama-era rule could cost 900 jobs in Tennessee and possibly 22,000 jobs across the country. We hope the rule can be reversed," he said.

Toomey and Steve Milloy, a member of President Donald Trump's EPA transition team, have identified the Volvo Group as the company that most aggressively lobbied the EPA to impose the new emissions standards against glider trucks.

In May 2016, Volvo Group submitted comments to the EPA expressing support for the imposition of new greenhouse gas regulations on glider trucks.

In testimony delivered before an EPA hearing last December, a Volvo public affairs official told agency officials that glider trucks had been permitted to "skirt" both emissions and safety regulations. The official also made the point that some glider kits are manufactured in Mexico, while every truck manufactured by Mack Trucks and Volvo is built in the U.S.

The glider market represents a very small percentage of the trucking industry, with between 5,000 and 7,000 sold annually, compared with 300,000 new trucks sold annually, Toomey estimates.

He also notes that gliders sell for about 25 percent less than what it costs to buy a new truck.

"We serve a vital interest for small, independent trucking operations," Toomey said. "The EPA regulation would be devastating."

Fitzgerald has joined with other glider truck manufacturers to call on the Trump administration to reverse the Obama rule.

While he's concerned about the actions of "careerists" inside the EPA, Toomey says he is encouraged by steps taken by Scott Pruitt, Trump's EPA administrator.

Pruitt issued a statement in November that said he would be working to "undo the regulatory overreach of the prior administration." Because of the "unique way gliders are manufactured," the EPA is now proposing that gliders not be regulated as new vehicles, Pruitt explained in his statement.

"The previous administration attempted to bend the rule of law and expand the reach of the federal government in a way that threatened to put an entire industry of specialized truck manufacturers out of business," Pruitt said in his statement. " ... Gliders not only provide a more affordable option for smaller owners and operators, but also serve as a key economic driver to numerous rural communities."

Tommy Fitzgerald, the owner and founder of Fitzgerald Glider Kits, expressed his gratitude toward the Trump administration for moving forward with regulatory reforms that he said would enable small businesses to continue to innovate and create new jobs.

"The Trump administration and Administrator Pruitt are walking back the blatant regulatory overreach of their predecessors," Fitzgerald said in an email.

"In this case, the Obama EPA, at the urging of a few corporate elites, sought to regulate gliders out of existence. We cannot thank President Trump enough for his relentless work to save small businesses and promote American industry first," he said.

"Fitzgerald USA is a family-run business, and I am pleased that we have been able to create good-paying jobs and other opportunities in rural communities. Our mission is to bring jobs back to the proud, hardworking people left behind by manufacturers who offshored jobs just to save a few bucks."

The comment period for the rule Pruitt proposed to reverse the Obama EPA regulations on glider trucks ended on Jan. 5 and is expected to move up to the Office of Management and Budget for interagency review within the next few weeks.

"Administrator Pruitt is doing a great job protecting the environment while adhering to the rule of law," Toomey told The Daily Signal in an email.

"His opponents believe that they can make enough noise to have him removed. President Trump is far too smart to fall for such a scam by the liberal elitists and Volvo, a foreign truck manufacturer."

Critics of glider trucks are "being disingenuous" when they claim those trucks exceed emissions standards, Toomey explained, because they fail to point out that glider trucks actually emit less carbon dioxide than newer ones.

The challenge with emissions for glider trucks relates to particulate matter, not carbon dioxide, he said.

The EPA defines particulate matter as "a complex mixture of extremely small particles and liquid droplets that get into the air" and "cause serious health effects" if inhaled. The Clean Air Act requires the agency to set national air quality standards for particulate matter.

An EPA laboratory in Ann Arbor, Michigan, performed tests in October on two glider trucks and found they exceeded emissions standards for particulate matter. But Milloy, who is also the editor of JunkScience.com, told The Daily Signal in a phone interview that the tests were performed under questionable circumstances—without Pruitt's knowledge and with no peer review process.

Moreover, what he called the "renegade report" was not printed on an official EPA letterhead and did not receive an internal EPA document number, he said.

"This was an easy layup for Volvo and the new truck industry at the Obama EPA," Milloy said. "This was classic rent-seeking. With more stringent air standards, Volvo gets to sell more expensive items.

"The fact that this would happen with the Obama administration is not surprising. But what is surprising and disturbing is to have these bogus tests take place in the new administration without Pruitt's knowledge," he said.

With regard to some of the environmental concerns that have been raised about glider trucks, Fitzgerald pushed back on what he described as "false narratives" Volvo has circulated to environmental groups. He also explained why glider trucks might have some environmental benefits.

Environmental groups have been misled by the Volvo Trucks of the world that have actively sought to kill off the glider industry for years.

They were given misleading and unfounded data points about glider emissions, and they were encouraged to repeat false narratives about the carbon footprint and efficiency of gliders. In reality, gliders are the best example of 'upcycling' that the truck industry has.

Upcycling is the process of transforming products into new materials or products of better quality for better environmental value. It is a concept that is very familiar to environmental groups.

Every glider assembled accounts for approximately 4,000 pounds of upcycled cast steel that would otherwise be junked and tossed in a landfill. Glider assemblers are developing ways to make trucks that are more fuel-efficient and emit less carbon dioxide than new trucks, all without adding to our nation's landfills.

The Daily Signal contacted Volvo and asked why the company saw fit to lobby for regulatory changes on emissions that would impact the glider truck industry. John Mies, a communications official with Volvo Group of North America, responded in an email and said, "We are seeking a level playing field. All manufacturers, whether of original equipment or gliders, should have to abide by the same emissions regulations."

He also sent testimony from Susan Alt, Volvo's senior vice president of public affairs, that was delivered as part of an EPA hearing on Dec. 5.

Her remarks read in part:

We are here today to voice opposition to EPA's proposal to repeal the emissions standards for heavy-duty glider vehicles. A glider vehicle is essentially a new truck that's been equipped with a used engine.

Their original purpose was to allow truck owners to salvage working powertrains after severe accidents by installing the wrecked truck's engine and transmission into new cab-and-chassis assemblies.

The glider vehicle market was just a few hundred per year for decades, and Volvo has never objected to gliders used for the aforementioned purpose.

In fact, the Phase 2 rule as finalized provides for production of a volume of glider vehicles to meet this market need. In 2010, a significant emission reduction was required for newly manufactured diesel engines.

Not coincidentally, we've watched the glider-vehicle market grow more than tenfold since 2010, now reaching 'significantly over 10,000 gliders in 2015,' according to EPA records.

Why did the volume grow so dramatically? Because some companies exploited the opportunity to offer glider vehicles with older 'pre-emissions' engines to customers seeking to avoid modern emissions-control systems.

Today, almost no glider vehicles use 2 of 3 donor components from the same truck to be installed into his new truck. Most glider vehicles today are mass produced, custom-built new trucks with donor components that come from any possible source.

Most glider vehicle buyers today are not small operators trying to salvage their truck after an accident or unable to afford new trucks. The glider buyers today are small, medium, and even large fleets buying new replacement trucks, equipped with noncompliant engines, to haul for-hire loads on America's highways.

These glider vehicles not only skirt current emission regulations, but they also skirt safety regulations, such as electronic stability control—technologies that help keep both the driver of the truck and the cars safer.

But Nick Loris, an energy policy analyst with The Heritage Foundation, sees an effort at work to put small business at a disadvantage.

"These onerous regulations are the epitome of the federal government crushing small business," he said in an email. "In many cases, it is a single individual who owns a truck or a small fleet of trucks. The businesses that have and use gliders passionately defended them, because the gliders often have better gas mileage and break down less.

"Regulating them out of existence would also likely backfire environmentally, by forcing companies to hold onto their older trucks longer, rather than buy new ones," he said.

In her testimony, Alt insisted that the proposed rule change "will hurt a much larger number of small businesses who are not selling glider vehicles."

She also warns that glider vehicles will undercut new-vehicle sales and that that would directly affect the "livelihoods of the more than 14,000 Americans" these dealers employ.

Where the interests of small business are concerned, Fitzgerald anticipates that the Trump EPA's planned regulatory relief will help to level competition between larger and small companies while providing smaller trucking fleets with affordable options.

"The vast majority of our customers are small fleet owners and owner-operators who cannot afford to buy or maintain new trucks, but nonetheless want the latest safety features, amenities, and styling," he said in an email.

"Small fleet owners and owner-operators buy gliders because the alternatives—sticking with their old, unsafe truck or buying another used truck that likely lacks the latest safety features—are not viable, long-term business strategies."

Fitzgerald added: "Consolidation in the trucking industry is making life increasingly difficult for independent owner-operators and small fleets. Gliders—which are more reliable, cost less to buy and maintain, and are more fuel-efficient than new trucks—help them keep the lights on and the doors open.

"Gliders allow the small fleets and owner-operators to stay competitive with the big corporate fleets that want to eat their lunch. Destroying the glider industry would put tens of thousands of people out of business, and the impact on small businesses and rural communities throughout the country would be profound," he said.

Bloomberg

https://news.bloombergenvironment.com/environment-and-energy/epas-pruitt-rackedup-31-million-security-bill-in-first-year

EPA's Pruitt Racked Up $3.1 Million Security Bill in First Year

By Jennifer Dlouhy, 5/25/18

U.S. taxpayers spent at least $3.1 million guarding EPA Administrator Scott Pruitt around-the-clock during his first year on the job, according to the agency's newly released records.

That price tag—spent on protective agents' pay and travel during 2017—is higher than the security costs for Pruitt's immediate predecessors at the Environmental Protection Agency.

Taxpayers spent $1.4 million during 2009 on pay and travel for the protective detail assigned to Administrator Lisa Jackson, who served under former President Barack Obama. Gina McCarthy, who was Obama's second EPA administrator, racked up a $1.9 million security bill during her first full year on the job, according to the documents, which the agency released May 25.

The higher cost dovetails with a boost in security surrounding Pruitt, whose long history challenging the agency he now leads and his quest to roll back some Obama-era regulations have made him a target for criticism. More than a week before Pruitt's Feb. 17, 2017, swearing in, EPA and Trump transition team officials considered safeguarding him day and night.

The security upgrade goes beyond bodyguards. The EPA also purchased biometric locks for Pruitt's office, spent some $43,000 installing a soundproof phone booth, and paid for a contractor to sweep the site for hidden surveillance devices.

EPA officials said Pruitt's 24/7 security protection has been necessary amid escalated threats. Pruitt told Bloomberg News in October that the quantity and type of threats made against him and his family have differed from those lobbed at previous administrators.

"Administrator Pruitt has faced an unprecedented amount of death threats against him," said EPA spokesman Jahan Wilcox. "Americans should all agree that members of the president's Cabinet should be kept safe from violent threats."

The agency is committing to publicly post the cost of the administrator's security detail and update the numbers on a quarterly basis, Wilcox said.

In 2017, the EPA spent $2.4 million paying Pruitt's protective detail; another $733,737 went to travel costs for those agents. That compares to an average $1.7 million annual tab for the agents' payroll and another $321,343 in average annual costs for their travel over the past nine years, including 2017 under Pruitt, according to a Bloomberg analysis of the newly released data.

The EPA's internal watchdog is investigating Pruitt's security protection, including the possibility that bodyguards accompanied him to Disneyland and the Rose Bowl.

The matter has drawn scrutiny from lawmakers too; Sen. Sheldon Whitehouse, a Democrat from Rhode Island, said he wants investigators to determine whether the government paid for tickets for security agents to join Pruitt during personal trips to the Rose Bowl Jan. 1 and Disneyland over the following two days.

Separately, Pruitt is under investigation for an unorthodox $50-per-night rental of a Capitol Hill bedroom from a lobbyist, his use of taxpayer-funded travel and questionable spending decisions at the EPA.

New York Times

https://www.nytimes.com/2018/05/28/business/banks-coal-loans.html?

Think the Big Banks have Abandoned Coal? Think Again

By Emily Flitter, 5/28/18

Starting three years ago, the largest American banks vowed to cut back on lending to the coal industry.

"The bank has a responsibility to help mitigate climate change by leveraging our scale and resources to accelerate the transition from a high-carbon to a low-carbon society," Bank of America said in its coal policy in May 2015.

Their pledges seemed so dramatic that Paul Argenti, a professor of corporate communication at Dartmouth's Tuck School of Business, began citing them in lectures as a rare example of a corporate principle's trumping profits. "I read it as: They were done," he said.

But the banks, it turns out, never actually promised to walk away from coal completely. And now, with coal companies enjoying a small resurgence under the Trump administration, banks are again embracing the industry.

At the time of the pledges, the three biggest coal mining companies were in bankruptcy, the United States was signing a pact to reduce carbon emissions, and cheap natural gas was forcing coal-fired power plants out of business. There were few coal loans to make.

But Peabody Energy, Arch Coal and Alpha Natural Resources have emerged from bankruptcy, their balance sheets scrubbed clean. President Trump has vowed to support the industry.

Five of the country's biggest banks are lending tens or hundreds of millions of dollars to coal companies again, in one case eclipsing what they lent in 2014, before the industry entered a nose dive, according to an analysis by Rainforest Action Network, a liberal environmental group.

JPMorgan's coal lending increased to $654 million 2017 from $32 million in 2015, according to the analysis. That was more than the $570 million the bank lent to coal interests in 2014. The vast majority of JPMorgan's coal loans in 2017 were to Peabody, which emerged from bankruptcy that April.

Morgan Stanley's coal loans, though well below their 2014 levels, more than doubled from 2015 to 2017. And though their loans to coal companies haven't quite reached earlier levels, Goldman Sachs and Bank of America each added new coal loans last year, the analysis shows. Citigroup made more such loans in 2016 and 2017 than it did in 2015, though well below its 2014 figure.

Combined, the five banks issued about $1.5 billion in new coal-related loans last year, according to Rainforest Action Network.

The analysis includes loans to companies like Glencore and BHP Billiton, which produce commodities like copper and oil in addition to coal. It weights each loan based on the percentage of the company's business that comes from coal. Fifteen percent of Glencore's assets are in coal, for example, so a $229 million loan that Bank of America made to Glencore last year was given a value of $34 million.

The analysis looked only at new loans, not at the banks' overall exposure to the coal industry.

The banks made their pledges around the time that world leaders negotiated the Paris agreement to reduce carbon emissions. Some of the banks vowed to curb lending to new coal-fired power plants in wealthy countries and to plants that did not use pollution-mitigating technology.

In November 2015, for example, Morgan Stanley said it would reduce financing for projects using "mountaintop removal," in which mountains are dynamited to reveal coal seams. In March 2016, JPMorgan said it would eliminate such financing, as well as stop lending to new coal mines.

The promises generated a flood of publicity. "Here's Another Big Sign the Coal Industry Is Burning Out," Fortune reported. "Wall Street checks out of coal mines," CNBC announced. The New York Times quoted a historianwho suggested that John Pierpont Morgan himself might not have lent to coal companies in the current environment.

Banks used the pledges as part of a broader effort to project a green corporate image. Citigroup listed its reduced lending as the first item in the environmental section of its 2016 report on its "citizenship" initiatives. Bank of America and JPMorgan were lead sponsors of Climate Week NYC 2016, a gathering of world leaders and corporate executives who discussed ways to fulfill the Paris accord's goals.

Even experts got the impression that banks were abandoning coal.

"A few years ago when a lot of these major banks came out and said that they would no longer be supporting the sector, I think, a lot of people generalized in a major way," said Chiza Vitta, an analyst at Standard & Poor's. "The sector is in decline, but it remains a very important component of electricity generation."

The banks left themselves plenty of room to respond if the coal industry recovered.

Few coal mining companies still use mountaintop removal. And it is far more common for companies to expand existing mines than to break ground for new ones.

Environmental groups are crying foul.

"It wasn't an environmental policy," said Alex Bozmoski, managing director of RepublicEn, a conservative environmental activism group. "It was financial and risk management policy that was used by communications departments."

Alison Kirsch, a spokeswoman for Rainforest Action Network, said the banks' initial pledges had left "huge loopholes," which she said JPMorgan in particular was "shamelessly exploiting."

"We disagree with the report's conclusions," said Brian Marchiony, a JPMorgan spokesman. "Over the last two years, we have declined to participate in dozens of transactions related to coal-fired power plants and coal mining, and our credit exposure to companies deriving the majority of their revenues from coal has declined by about a third."

Kelly Sapp, a spokeswoman for Bank of America, said the company was adhering to its 2015 pledge. "We have been reducing our credit exposure over the past several years to companies focused on coal mining while growing our financing of renewables," she said. "Our policy is not changing."

Representatives of Citigroup, Goldman Sachs and Morgan Stanley declined to comment.

Part of the reason that coal has been resurgent is that it is used to fuel blast furnaces in which steel is made. The Rainforest Action Network analysis doesn't differentiate between loans for so-called metallurgical coal and coal used in power plants.

Randall Atkins, who briefly worked as a JPMorgan investment banker specializing in the coal industry and now runs Ramaco Resources, a small coal producer based in Kentucky, said the banks' rapprochement with coal companies was "Banking 101." Coal producers appear financially healthier now, he said, so banks think they can make money lending to them.

"The banks are receptive to come back in and do normal lending in the space," he said.

Not every coal company is having an easy time getting a loan. Grant Quasha, the chief executive of Paringa Resources, said his company had no loans from major United States banks. Some of their policies prohibit loans to projects like the new Poplar Grove mine, which Paringa is developing in Kentucky.

"For smaller companies such as ourselves, it's still very difficult to obtain financing," Mr. Quasha said. "It exists, it's just very expensive."

Mr. Argenti, the Dartmouth professor, said he would no longer cite the banks' coal pledges in his classroom lectures on corporate responsibility.

"A lot of what passes for sustainability is actually nothing more than public relations," he said.

Bloomberg

https://www.bloomberg.com/news/articles/2018-05-28/trump-appears-to-confirm-his-summit-with-kim-back-on-track

What Letter: Trump Proceeds Like Summit With Kim Is Still On

By Margaret Talev, Kanga Kong, and Nafeesa Syeed, 5/28/18

President Donald Trump appeared to confirm that his summit with Kim Jong Un was back on, three days after he abruptly called off the historic meeting in a sharply worded letter to the North Korean leader.

"Our United States team has arrived in North Korea to make arrangements for the Summit between Kim Jong Un and myself," Trump said in tweet on Sunday afternoon, making no reference to his recent decision to pull out of the meeting.

"I truly believe North Korea has brilliant potential and will be a great economic and financial Nation one day," Trump added. "Kim Jong Un agrees with me on this. It will happen!"

The president's reference to a bright future echoes recent remarks by Secretary of State Mike Pompeo envisioning major investments by U.S. companies and those of other nations if Kim ends his country's pariah status by giving up its nuclear arsenal.

The State Department earlier confirmed reports that a U.S. delegation is meeting with North Korean officials to prepare for the summit, which had been set for Singapore on June 12.

"A U.S. delegation is in ongoing talks with North Korean officials at Panmunjom," State Department spokeswoman Heather Nauert said in a statement, referring to the truce village in the demilitarized zone between the Koreas. "We continue to prepare for a meeting between the president and North Korean leader Kim Jong Un."

Kim, Moon Talk

Nauert provided no further details. The Washington Post reported that Sung Kim, a former U.S. ambassador to South Korea, is leading the delegation and met Sunday with North Korea's vice foreign minister, Choe Son Hui.

Kim, a South Korean born diplomat, is a former nuclear negotiator and current U.S. ambassador to the Philippines. Allison Hooker, a Korea specialist on the National Security Council, is reportedly also part of the team. The meetings are expected to go through Monday and Tuesday, the newspaper reported, citing an unnamed person familiar with the arrangements.

The U.S. has decided to hold off on implementing major new sanctions on North Korea while attempts to revive the summit are underway, the Wall Street Journal reported Monday. The White House was preparing to announced a ramped-up sanctions regime as soon as Tuesday, but decided on Monday to indefinitely delay the measures while talks are ongoing, according to a U.S. official the newspaper didn't name.

South Korean President Moon Jae-in held a surprise two-hour meeting Saturday with Kim on the border in a bid to keep the Trump summit on track. Moon said on Sunday that Kim requested the meeting, only the fourth ever by leaders of the two countries since the Korean War.

Moon could travel to Singapore for a three-way summit with Kim and Trump next month, Yonhap News Agency reported Monday. The South Korean presidential office said later in a text message that Seoul is "just considering the possibility" of such a meeting and "at a working level."

"Chairman Kim clearly appealed once again that his intent to completely denuclearize the Korean Peninsula is firm," Moon said. "What's unclear for Chairman Kim, in my opinion, is not his willingness for denuclearization but whether he can certainly trust the U.S. saying that it'll end hostile relations and guarantee the security of his regime after his denuclearization."

Armistice to Peace

During a phone call Monday, Trump and Japanese Prime Minister Shinzo Abe agreed to meet again to continue close coordination before the "expected meeting" between the U.S. and North Korea, according to a statement from the White House. The two leaders -- who met in April -- affirmed their shared goal of achieving complete dismantlement of North Korea's nuclear, chemical and biological weapons, and ballistic missile programs, according to the statement.

The White House said Saturday that an advance team will travel to Singapore, the planned site of the summit, to continue preparations.

South Korea is reviewing ways to address North Korea's security concerns, including converting the current armistice into a peace agreement, a senior Moon administration official said on Sunday. Moon reiterated a goal to hold a trilateral summit with both Trump and Kim to officially end the Korean War if their meeting is successful.

The second meeting between Kim and Moon in as many months reflects urgency among both men to maintain momentum for diplomacy. Since taking power last year, Moon has sought to facilitate dialogue between Trump and Kim to avoid the possibility of a devastating military conflict on the Korean Peninsula.

North Korea's state news agency, KCNA, said the Korean leaders had agreed to "high-level" talks between the two countries on June 1. "They shared the opinion that they would meet frequently in the future to make dialogue brisk and pool wisdom and efforts," KCNA said.

Main Dispute

The main dispute between the U.S. and North Korea boils down to how fast Kim should give up his weapons, and what he'll get in return.

North Korea rejected outright calls from U.S. National Security Adviser John Bolton to follow the so-called Libya model of quickly giving up its nuclear weapons before it gets anything in return. Libyan dictator Moammar Qaddafi was killed in an uprising several years later.

Moon on Sunday dodged a question on whether Kim clearly mentioned whether he would agree to the U.S. demand for complete, verifiable, irreversible denuclearization.

"If North Korea and the U.S. are to have a summit, then their summit is possible only after they confirm each other's intention on that regard," Moon said. "I'd like to say that the fact that North Korea and the U.S. agreed to have a summit and working-level talks indicates that the U.S. has already confirmed the North's intentions."

Keeping Nukes

Michael Hayden, who led the Central Intelligence Agency and the National Security Agency, said on ABC's "This Week" that a summit is "more rather than less likely" to happen. But he and Republican Senator Marco Rubio agreed it's unrealistic to expect Kim to give up his nuclear weapons.

"I remain convinced that he does not want to denuclearize, in fact he will not denuclearize," Rubio, a member of the Senate Foreign Relations and Intelligence committees. "But he wants to give off this perception that he's this open leader, that he's peaceful, that he's reasonable."

Rubio called Kim's willingness to release U.S. hostages and destroy a nuclear test site "all a show."

USA Today

https://www.usatoday.com/story/news/world/2018/05/29/north-korea-u-s-summit-talks-donald-trump-kim-jong-un/650428002/

Top North Korean Official Headed to the U.S. to Discuss Summit Between Kim Jon Un, Trump

By David Jackson, 5/29/18

President Trump continued to tease the re-scheduling of a meeting with Kim Jong Un, tweeting on Monday that a top North Korean official is en route to New York City for meetings on the possible summit.

"We have put a great team together for our talks with North Korea," Trump tweeted. "Meetings are currently taking place concerning Summit, and more. Kim Young Chol, the Vice Chairman of North Korea, heading now to New York. Solid response to my letter, thank you!"

Trump did not detail what he meant by "my letter;" he could have been referring to the missive he disclosed last week calling off the Kim meeting that had been scheduled for June 12 in Singapore.

Since then, Trump has said North Korea has been responsive to the point where the meeting could be re-scheduled.

In a Sunday tweet, Trump spoke of the summit in the present tense by saying that "our United States team has arrived in North Korea to make arrangements for the Summit between Kim Jong Un and myself. I truly believe North Korea has brilliant potential and will be a great economic and financial Nation one day. Kim Jong Un agrees with me on this. It will happen!"

Kim Yong Chol, one of Kim Jong Un's top lieutenants, is apparently playing a major role in rescheduling the meeting. North Korea's former spy chief, Kim Yong Chol is now a vice chairman of the ruling Workers' Party.

He is among a small group of North Korean officials who have accompanied Kim Jong Un to all four of his summits with foreign leaders in recent months – twice with South Korean President Moon Jae-in and twice with Chinese President Xi Jinping. He also visited South Korea in February to attend the closing ceremony of the Winter Olympics at the start of Kim Jong Un's charm offensive.

Kim Yong Chol, who is about 72, is a contentious figure outside North Korea.

Before taking up the job responsible for relations with South Korea in 2016 he was a four-star army general and a military intelligence chief who is thought to have been behind a slew of provocations, including two deadly attacks in 2010 that killed 50 South Koreans and an alleged 2014 cyberattack on Sony Pictures. Both Seoul and Washington imposed sanctions on him in recent years.

While in the United States, South Korean media say Kim Yong Chol will likely meet Secretary of State Mike Pompeo, who visited Pyongyang, North Korea's capital, twice recently, to finalize plans for the North Korea-U.S. summit. But it's not known what else he'll do there. Media reports said Pompeo could make a third trip to Pyongyang after Kim's U.S. visit.

While Kim Yong Chol's possible trip to the United States could further brighten the prospects for the summit, history shows that things could still crumble at the last minute even after an exchange of high-level officials.

In October 2000, then North Korean leader Kim Jong Il, the late dictator father of Kim Jong Un, sent Vice Marshal Jo Myong Rok to Washington on a then-unprecedented goodwill mission. Jo, who died in 2010, remains the highest-level North Korean official to visit the United States since the end of the 1950-53 Korean War.

Jo's trip came as the two countries were seeking closer ties following North Korea's first-ever summit talks with South Korea in June 2000.

During his Washington visit, Jo met then President Bill Clinton, conveyed a letter from Kim Jong Il and met Secretary of State Madeleine Albright and Defense Secretary William Cohen. Jo said that improved relations "will be good for both countries and for peace and stability on the Korean Peninsula and the Northeast Asian region as well."

About three weeks later, Albright made a historic reciprocal trip to Pyongyang to try to arrange a North Korea trip by Clinton. Some U.S. critics suspected Clinton was angling for a hasty foreign policy triumph in his last months in office.

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Associated Press

https://www.nbcnews.com/news/us-news/hawaii-volcano-first-laze-now-vog-n878106

Hawaii Volcano: First 'Laze,' Now 'Vog?'

By Associated Press, 5/29/18

HONOLULU — Kilauea volcano on Hawaii's Big Island has had it all over the past three weeks: molten rock shooting toward the sky, lava oozing from the ground and ash clouds rising miles into the air.

First there was "laze," now you can also add "vog" to the mix.

Scientists say higher sulfur dioxide emissions recorded at the volcano's vents in recent days are creating the potential for heavier than usual vog, or volcanic smog. So far, trade winds have been mostly blowing the gray haze offshore.

WHAT IS VOG?

Volcanic smog, or air pollution, is created by vapor, carbon dioxide and sulfur dioxide gas released from Kilauea. It reacts in the atmosphere with oxygen, sunlight, moisture and other gases and particles. In a matter of hours or days, it converts to fine particles that scatter sunlight, creating a haze that can be seen downwind of Kilauea, according to The Interagency Vog Dashboard, which is made up of Hawaii, U.S. and international agencies.

The U.S. Geological Survey said sulfur dioxide emissions from the volcano have more than doubled since the current eruption began.

Kilauea was belching 15,000 tons of the gas each day, up from 6,000 tons daily prior to the May 3 eruption. People living miles from the eruption are paying attention to the amount of noxious fumes pouring out of the volcano because it creates potential for more vog.

WHAT ARE THE HEALTH IMPACTS?

"Everyone is having symptoms now on some level," said Dr. Josh Green, a state senator and emergency room physician who has been volunteering in communities where lava fissures have opened in neighborhoods.

Symptoms for generally healthy people can include burning eyes, headaches and sore throats. But those with asthma or other respiratory problems can end up hospitalized.

Those who are healthy, physically active and don't smoke can usually tolerate basic symptoms, Green said, adding hospitals are seeing more patients with difficulty breathing.

Green's mom, Natasha Green, who lives on the Kona side of the island, said the vog was particularly bad on Tuesday. "It makes it very hard to breathe," she said, adding that her other symptoms include coughing and watery and stinging eyes.

She's had to use an inhaler, which she doesn't need when there isn't vog. She's a former smoker, "so that's probably part of the problem," she said.

WHO IS AFFECTED?

Vog can affect areas far from the volcano, including the western side of the Big Island and even other islands.

But lately, trade winds have been blowing most of the vog offshore. The National Weather Service said it expected trade winds to slow this weekend, creating hazardous air quality.

With trade winds, communities where lava fissures have opened and those downwind are the most affected.

Kilauea is erupting on Hawaii's largest island, so there are plenty of areas that aren't suffering from the effects of vog.

"My phone's been ringing off the hook," said Steven Businger, chairman of the University of Hawaii's atmospheric sciences department. "A little old lady out of Minnesota wants to know if she should cancel her vacation — that kind of thing."

He told her not to cancel because the vog was blowing away from her planned destination, the Big Island resort town of Waikoloa.

Businger also runs the Vog Measurement and Prediction Project. The website provides current vog conditions for various sites around the Big Island.

IS THE VOG WORSE NOW?

With an increase in emissions, there's more vog, said Lisa Young, environmental health specialist for the state health department's Clean Air Branch.

Bruce Corker, a Kona coffee farmer, has noticed. When he looks down from his farm at Kailua Bay, it's hard to make out the water because it's the same gray color as the sky.

"For me, it's just visual," he said. "I don't feel any effects on my lungs. I don't smell anything."

Corker, who grew up in Southern California, compares vog to "Los Angeles-like smog."

WHAT ELSE?

Retired photojournalist Chris Stewart says there's one good thing about vog: It intensifies the colors of a sunset.

But it depends on how thick the haze is. "Some days it's thin enough you can see the sun passing through," he said. "But other days we just go inside because we can't see it at all."

Stewart said he's grateful to be living on the Big island's west side — away from the volcano.

"I almost feel guilty enjoying our sunsets," he said.

TRUMP TWEETS

Donald J. Trump @realDonaldTrump · 52m

Sorry, I've got to start focusing my energy on North Korea Nuclear, bad Trade Deals, VA Choice, the Economy, rebuilding the Military, and so much more, and not on the Rigged Russia Witch Hunt that should be investigating Clinton/Russia/FBI/Justice/Obama/Comey/Lynch etc.

9.6K 7.1K 27K

Donald J. Trump @realDonaldTrump · 1h

Why aren't the 13 Angry and heavily conflicted Democrats investigating the totally Crooked Campaign of totally Crooked Hillary Clinton. It's a Rigged Witch Hunt, that's why! Ask them if they enjoyed her after election celebration!

6.0K 5.1K 20K

Donald J. Trump @realDonaldTrump · 1h

The 13 Angry Democrats (plus people who worked 8 years for Obama) working on the rigged Russia Witch Hunt, will be MEDDLING with the mid-term elections, especially now that Republicans (stay tough!) are taking the lead in Polls. There was no Collusion, except by the Democrats!

5.5K 6.3K 23K

Donald J. Trump @realDonaldTrump · 1h

"This investigation involved far more surveillance than we ever had any idea about. It wasn't just a wiretap against a campaign aide...it was secretly gathering information on the Trump Campaign...people call that Spying...this is unprecedented and scandalous." Mollie Hemingway

4.5K 6.0K 21K

Donald J. Trump @realDonaldTrump · 2h

We have put a great team together for our talks with North Korea. Meetings are currently taking place concerning Summit, and more. Kim Young Chol, the Vice Chairman of North Korea, heading now to New York. Solid response to my letter, thank you!

2.9K 6.7K 25K

Donald J. Trump @realDonaldTrump · 2h

Democrats mistakenly tweet 2014 pictures from Obama's term showing children from the Border in steel cages. They thought it was recent pictures in order to make us look bad, but backfires. Dems must agree to Wall and new Border Protection for good of country...Bipartisan Bill!

5.2K 9.1K 32K

Appointment

From: Microsoft Outlook [MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@usepa.onmicrosoft.com]
Sent: 6/20/2018 9:53:24 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Meeting Forward Notification: Meet with Fitzgerald re: Glider Kits (Confirmed)
Location: WJC - N 5400 + Video AA **Deliberative Process / Ex. 5**

Start: 6/22/2018 5:00:00 PM
End: 6/22/2018 5:45:00 PM

Recurrence: (none)

Your meeting was forwarded

Grundler, Christopher has forwarded your meeting request to additional recipients.

Meeting

Meet with Fitzgerald re: Glider Kits (Confirmed)

Meeting Time

Friday, 22 June 2018 13:00-13:45.

Recipients

Charmley, William

All times listed are in the following time zone: (UTC-05:00) Eastern Time (US & Canada)

Sent by Microsoft Exchange Server

Message

From: cmsadmin@epa.gov [cmsadmin@epa.gov]
Sent: 4/12/2018 3:33:42 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]
Subject: CMS For Review - Maria Carroll - AL-18-000-5444

Control AL-18-000-5444 is in your CMS In Box for review. Please go to the CMS webpage to view the details of the control.

Summary Information -
Control Number: AL-18-000-5444
Control Subject: EMISSIONS STANDARDS FOR HEAVY-DUTY GLIDER VEHICLES, GLIDER ENGINES, AND GLIDER KITS
From: Rogers, Harold

Note: This Email was automatically generated. Please do not attempt to respond to it. You can access this control at https://cms.epa.gov/cms. Questions or comments concerning CMS should be directed to CMS Support at 202-564-4985 or CMS Information@epa.gov.

Message

From: Jackson, Ryan [jackson.ryan@epa.gov]
Sent: 6/19/2018 11:57:38 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Ford, Hayley [ford.hayley@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Leopold, Matt (OGC) [Leopold.Matt@epa.gov]
Subject: RE: Call Request

Definitely. Thank you.

From: Wehrum, Bill
Sent: Tuesday, June 19, 2018 7:11 PM
To: Ford, Hayley <ford.hayley@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>
Subject: RE: Call Request

I have a meeting with Fitzgerald on Friday. It will be my first meeting with them. I suggest holding off on a meeting with the Administrator for now. I will circle back after I meet with them.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Ford, Hayley
Sent: Tuesday, June 19, 2018 7:09 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>
Subject: Fwd: Call Request

Thoughts?

Sent from my iPhone

Begin forwarded message:

> **From:** Jon Toomey <jtoomey@fitzgeraldtrucksales.com>
> **Date:** June 19, 2018 at 6:40:58 PM EDT
> **To:** "Ford, Hayley" <ford.hayley@epa.gov>
> **Subject: Re: Call Request**
>
> Thanks, Hayley. Regarding the NPRM for gliders.
>
> Let me know if you have any additional questions, feel free to call me at 202-999-8880.
>
> Thanks again,
> Jon

Sent from my iPhone

On Jun 19, 2018, at 6:20 PM, Ford, Hayley <ford.hayley@epa.gov> wrote:

Hi Jon,

Can you share content for the meeting?

Thanks!

Hayley Ford
Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: 202-306-1296

-----Original Message-----
From: Jon Toomey [mailto:jtoomey@fitzgeraldtrucksales.com]
Sent: Tuesday, June 19, 2018 6:03 PM
To: Ford, Hayley <ford.hayley@epa.gov>
Subject: Call Request

Hi Hayley,

I wanted to inquire about setting up a call with our CEO, Tommy Fitzgerald, and our General Counsel, Joe DePew, this week if possible with Administrator Pruitt.

Please feel free to reach me at Personal Phone / Ex. 6

Thank you,
Jon Toomey

Message

From: Erin Murphy [emurphy@edf.org]
Sent: 6/12/2018 12:57:41 PM
To: Pruitt, Scott [pruitt.scott@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]; Moulis, Charles [moulis.charles@epa.gov]; spears.matthew@epa.gov; A-AND-R-DOCKET [A-AND-R-DOCKET@epa.gov]
Subject: EDF 4th Supplemental Comment on Gliders Proposal, Docket ID EPA–HQ–OAR–2014–0827
Attachments: EDF 4th Supplemental Gliders Comment 6.12.18.pdf

Attn: Docket ID EPA–HQ–OAR–2014–0827

Attached is a supplemental comment of the Environmental Defense Fund, regarding EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017).

Sincerely,

Erin Murphy
Legal Fellow
U.S. Clean Air

Environmental Defense Fund
1875 Connecticut Ave NW, Suite 600
Washington, DC 20009
T 202 572 3525
emurphy@edf.org

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June 12, 2018

VIA ELECTRONIC SUBMISSION

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Attn: EPA–HQ–OAR–2014–0827

RE: Supplemental Comment of Environmental Defense Fund on the Environmental Protection Agency's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017)

The Environmental Defense Fund ("EDF") respectfully submits this supplemental comment on the Environmental Protection Agency's ("EPA") Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017) ("Proposed Rule"), addressing provisions contained in the agency's 2016 final rule, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, 81 Fed. Reg. 73,478 (October 25, 2016) ("Phase 2 Standards").

Additional concerns regarding the Proposed Rule and its incomplete underlying analysis further demonstrate the problematic nature of this rulemaking. According to news reports, the White House Office of Management and Budget ("OMB") has properly called on the EPA to perform a regulatory impact analysis ("RIA") for the agency's proposed repeal of pollution limits for glider vehicles.[1] And more recently, the EPA Science Advisory Board ("SAB") voted to review the Proposed Rule, based on a recommendation by the SAB Work Group that the Board should assess "the adequacy of the supporting science" in the proposal.[2] These actions further underscore that EPA must withdraw this deeply flawed rulemaking.

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[1] Attachments 1, 2, & 3: Evan Halper, *EPA used disavowed research to justify putting dirtier trucks on the road*, LA TIMES (May 29, 2018), http://www.latimes.com/politics/la-na-pol-pruitt-polluting-trucks-20180528-story.html; Inside EPA, *OMB said to rebuff final EPA glider plan due to lack of RIA* (May 2, 2018), https://insideepa.com/daily-feed/omb-said-rebuff-final-epa-glider-plan-due-lack-ria; Michael Bastasch, *SOURCES: EPA's Effort To Save An Industry From Obama Regulations Is Being Held Up By Bureaucratic Delays*, The Daily Caller (May 2, 2018), http://dailycaller.com/2018/05/02/epa-obama-era-regulation-repeal-glider-kits/; *see also* Maxine Joselow, *Lawmaker urges White House to rush EPA glider-rule rollback,* E&E News (May 22, 2018), https://www.eenews.net/greenwire/stories/1060082383/.

[2] Memorandum from Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, Alison Cullen, to Members of the Chartered SAB and SAB Liaisons (May 18, 2018),

I. OMB Reportedly Highlights Need for a Regulatory Impact Analysis

For every "significant regulatory action," Executive Order 12,866 requires EPA to provide OMB's Office of Information and Regulatory Affairs ("OIRA") with a cost-benefit analysis.[3] E.O. 12,866 further requires EPA to make this information available to the public in an accessible manner.[4] Last year, in a memorandum addressing Executive Order 13,771, OIRA reaffirmed that agencies must continue to assess and consider costs and benefits of new regulatory actions and comply with all existing requirements of E.O. 12,866.[5]

In its Proposed Rule, EPA identified this rulemaking as a "significant regulatory action" for the purposes of Executive Order 12,866.[6] Thus, to comply with the executive order, EPA was required to provide a cost-benefit analysis to OMB, such as by conducting an RIA for the proposal.

OMB is correct to request that EPA perform a regulatory impact analysis—among other shortcomings, the rule is not adequately supported because it was not accompanied or informed by this required analysis. As pointed out in our comment on the proposal—submitted jointly with the Environmental Law & Policy Center and WE ACT for Environmental Justice—EPA failed to include a cost-benefit analysis with the Proposed Rule.[7] Failing to address this requirement is just one of the numerous procedural inadequacies and legal errors that render EPA's proposal unlawful.[8]

Furthermore, even if EPA ultimately does produce an RIA (which would not cure the other deficiencies with the Rule) the agency would have to re-propose the rule to allow for public comment on the new information.[9] In addition to the requirements of E.O. 12,866, EPA has an obligation under the Administrative Procedure Act "to make its views known to the public in a

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https://yosemite.epa.gov/sab/sabproduct.nsf/9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf.

[3] Executive Order 12,866 § 6(a)(3)(B), 58 Fed. Reg. 57,735 (Sept. 30, 1993).

[4] *Id.* § 6(a)(3)(E).

[5] Memorandum, "Guidance Implementing Executive Order 13771, Titled 'Reducing Regulation and Controlling Regulatory Costs,'" Dominic J. Mancini, Acting Administrator, Office of Information and Regulatory Affair, Executive Office of the President, Office of Management and Budget (Apr. 5, 2017).

[6] Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442, 53,447 (Nov. 16, 2017).

[7] Comment of EDF, ELPC, & WE ACT on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 5, 2018), at Part VII(e), available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861.

[8] *See id.*

[9] *Kennecott Corp. v. EPA.*, 684 F.2d 1007, 1019–20 (D.C. Cir. 1982) (where data of central relevance to the rulemaking was not placed in the docket until shortly before promulgation, "EPA's refusal to convene a new round of public comment proceedings constitute[ed] reversible error under s 307(d)(9)"); *Union Oil Co. of California v. U.S. E.P.A.*, 821 F.2d 678, 682-83 (D.C. Cir. 1987) (The "docket must provide the entire basis for the final rule . . . failure to docket data and analysis relied upon in formulating a final rule violates § 307(d)(6)(C) of the Clean Air Act").

concrete and focused form so as to make criticism or formulation of alternatives possible."[10] Congress, in enacting Section 307(d) of the Clean Air Act, affirmatively heightened this notice obligation to specifically require that all information and factual data supporting a Clean Air Act regulatory action be included in a rulemaking docket at the time of proposal.[11]

II. SAB Votes to Review the Proposed Rule

EPA's Science Advisory Board voted recently in favor of full SAB review of this action, stemming from an SAB Work Group memo that identified a number of concerns with the proceeding.[12]

A May 18, 2018 memorandum from the Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science identified the Proposed Rule as an action meriting examination by the SAB due to concerns about its inadequate scientific support. Notably, the Work Group memo observed that EPA itself disclosed that there is "uncertainty about what science, if any, would support" this action.[13] The Work Group memo explained the basis for its recommendation, stating that the Proposed Rule "lacks transparency regarding the sources of and basis for data regarding costs, emissions, life cycle implications, and safety," and that "EPA failed to take into account its own study . . . that shows that glider truck emissions can be substantially higher than those from conventionally manufactured trucks."[14] The Work Group also identified a number of key questions that should be addressed in a full review of the proposal, including:

- "What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?"
- "What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?"[15]

At the Science Advisory Board's meeting on May 31, 2018, the full board followed the recommendation of the Work Group and voted in favor of SAB review of EPA's Proposed Rule.[16] SAB's scrutiny of the proposal underscores the need for further study and critical

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[10] *Home Box Office v. FCC*, 567 F.2d 9, 36 (D.C. Cir. 1977).
[11] 42 U.S.C. § 7607(d).
[12] Attachment 4: Memorandum from Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, Alison Cullen, to Members of the Chartered SAB and SAB Liaisons (May 18, 2018), https://yosemite.epa.gov/sab/sabproduct.nsf/9263940BB05B89A885258291006AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf.
[13] *Id.* at 5, B-37.
[14] *Id.* at B-38.
[15] *Id.* at B-37—B-38.
[16] Attachment 5: Eric Rosten, *EPA Science Board Rebukes Pruitt's Use of Science to Deregulate*, Bloomberg: Politics (June 1, 2018), https://www.bloomberg.com/news/articles/2018-05-31/epa-science-board-rebukes-pruitt-s-

examination of the technical and scientific aspects of the Agency's action. Given these concerns, Administrator Pruitt should withdraw this flawed proposal or at least defer further action until after full SAB review.

Additionally, many experts testified before the SAB at its recent meeting, providing evidence of the high level of concern in the health and scientific communities over the Proposed Rule. Copies of the relevant testimonies are attached to this comment.[17]

III. Conclusion

These developments further demonstrate that Administrator Pruitt must withdraw this deeply flawed Proposed Rule, or at least delay any further proceedings until after the SAB completes its review and then allow for public comment on any new information produced as a result of that review or included in an EPA RIA.[18]

Sincerely,

Alice Henderson
Michelle Endo
Erin Murphy
Martha Roberts

Environmental Defense Fund
1875 Connecticut Ave. N.W.
Suite 600
Washington, DC 20009
(202) 387-3500

---

use-of-science-to-deregulate; *see also* U.S. EPA Science Advisory Board, *Science Advisory Board Draft Meeting Agenda, May 31 – June 1, 2018*, EPA Science Advisory Board (May 25, 2018), https://yosemite.epa.gov/sab/sabproduct.nsf/7D239353BCECF85B852582600058B716/$File/draft_SAB_meeting_agenda_5_25_18.pdf.

[17] *See* Attachments 6-11.

[18] Further concerns with the Proposed Rule are articulated in our past comments: Comment of EDF, ELPC, & WE ACT on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 10, 2018), https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861; Supplemental Comment of EDF on EPA's Proposed Rule (Feb. 14, 2018), https://www.edf.org/sites/default/files/content/EDF%20Supplemental%20Comment%20on%20Gliders%20Proposed%20Repeal%202.14.2018.pdf; Second Supplemental Comment of EDF on EPA's Proposed Rule (Feb. 27, 2018), https://www.edf.org/sites/default/files/content/EDF%20Second%20Supplemental%20Comment%20re%20TTU%20Study%202.27.18%20Final2.pdf; Third Supplemental Comment of EDF on EPA's Proposed Rule (Mar. 11, 2018), https://www.edf.org/sites/default/files/content/EDF%20Third%20Supplemental%20Comment%20re%20TTU%20Study%203.11.18.pdf.

Attachments

Sources Cited in Footnotes

1. Article: Evan Halper, *EPA used disavowed research to justify putting dirtier trucks on the road*, LA Times (May 29, 2018), http://www.latimes.com/politics/la-na-pol-pruitt-polluting-trucks-20180528-story.html — p7
2. Article: Inside EPA, *OMB said to rebuff final EPA glider plan due to lack of RIA* (May 2, 2018), https://insideepa.com/daily-feed/omb-said-rebuff-final-epa-glider-plan-due-lack-ria — p15
3. Article: Michael Bastasch, *SOURCES: EPA's Effort To Save An Industry From Obama Regulations Is Being Held Up By Bureaucratic Delays*, The Daily Caller (May 2, 2018), http://dailycaller.com/2018/05/02/epa-obama-era-regulation-repeal-glider-kits/ — p16
4. Memorandum: From Chair of the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science, Alison Cullen, to Members of the Chartered SAB and SAB Liaisons (May 18, 2018), https://yosemite.epa.gov/sab/sabproduct.nsf/9263940BB05B89A88525829100 6AC017/$File/WG_Memo_Fall17_RegRevAttsABC.pdf. — p20
5. Article: Eric Rosten, *EPA Science Board Rebukes Pruitt's Use of Science to Deregulate*, Bloomberg: Politics (June 1, 2018), https://www.bloomberg.com/news/articles/2018-05-31/epa-science-board-rebukes-pruitt-s-use-of-science-to-deregulate — p100

Testimony before the EPA Science Advisory Board

6. Dr. Dave Cooke, Sr. Vehicles Analyst, Union of Concerned Scientists—May 31, 2018 — p103
7. Glen Kedzie, Vice President, Energy & Environmental Counsel for the American Trucking Associations (May 31, 2018) — p108
8. Statement of Amit Narang, Regulatory Policy Advocate, Public Citizen (May 31, 2018) — p110
9. Michael Walsh, Independent Consultant (May 31, 2018) — p112
10. Genna Reed, Lead Science and Policy Analyst, Union of Concerned Scientists (May 31, 2018) — p114
11. Testimony of Rachel Muncrief and John German on behalf of the International Council on Clean Transportation (ICCT) (May 31, 2018) — p117

Attachments 1-5
Sources Cited in Footnotes

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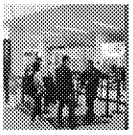

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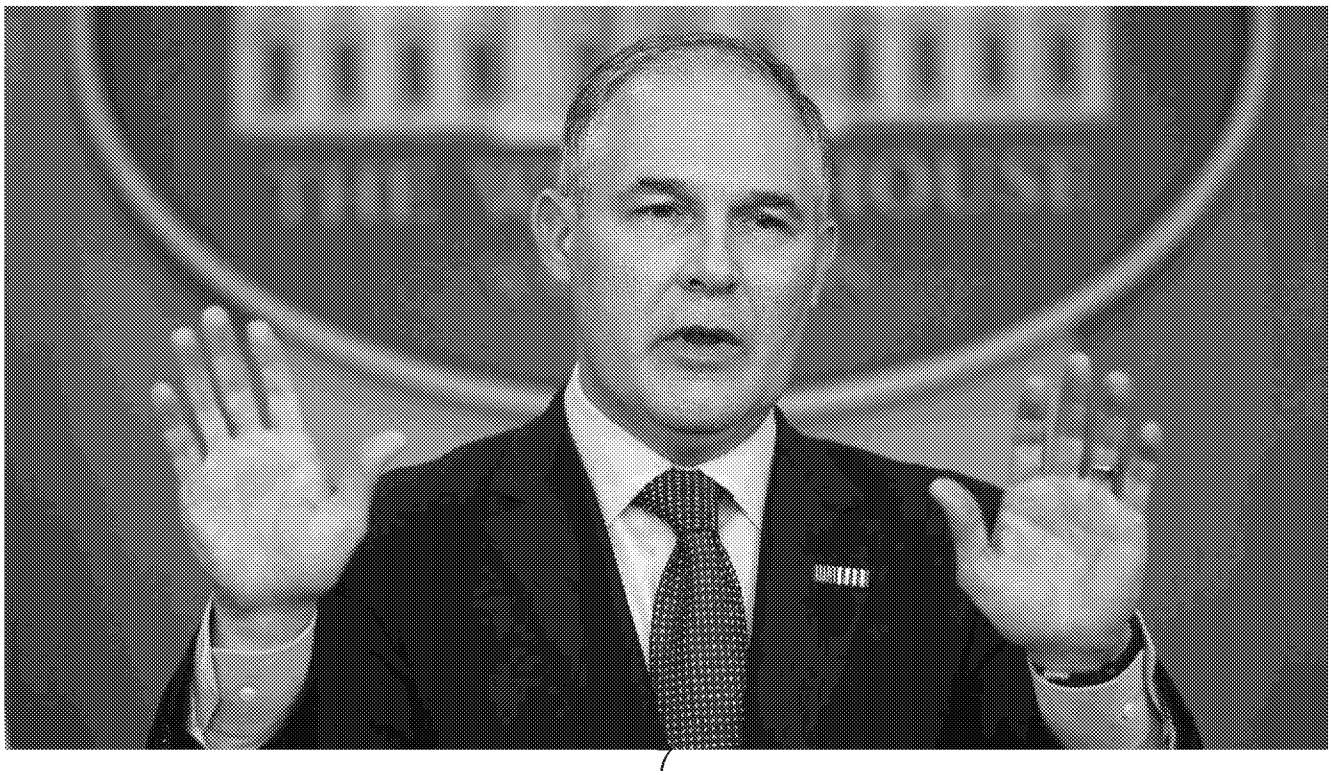
POLITICS

EPA used disavowed research to justify putting dirtier trucks on the road

By EVAN HALPER
MAY 29, 2018 | WASHINGTON



EPA Administrator Scott Pruitt. (Pablo Martinez Monsivais / Associated Press)

At a time when acts of defiance against the Trump administration are routine in Sacramento, the rebuke that breezed through the California Assembly this month still came as a jolt. Even Trump loyalists in the chamber joined in.

The message to the administration was clear: Forget about your plan to unleash on freeways a class of rebuilt trucks that spew as much as 400 times the choking soot that conventional new big rigs do. Getting caught behind the wheel of one of these mega-polluters in California would carry a punishing $25,000 minimum fine under the measure that lawmakers passed 73 to 0. It had the support of 25 Republicans.

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"This was a reaction," said Chris Shimoda, vice president of government affairs for the California Trucking Assn., which sponsored the legislation. "A lot of people have made the investments to clean up their trucks. They don't want to see an obvious loophole that allows others to be gross polluters and undercut them."

Equally strong reactions are rippling across the country in response to the Trump administration's push to boost a cottage industry eager to sell trucks that run on rebuilt diesel engines. The trucks look new from the outside, but are equipped with repurposed motors that, according to the EPA's own experts, threaten to produce enough soot each year to cause up to 1,600 premature deaths.

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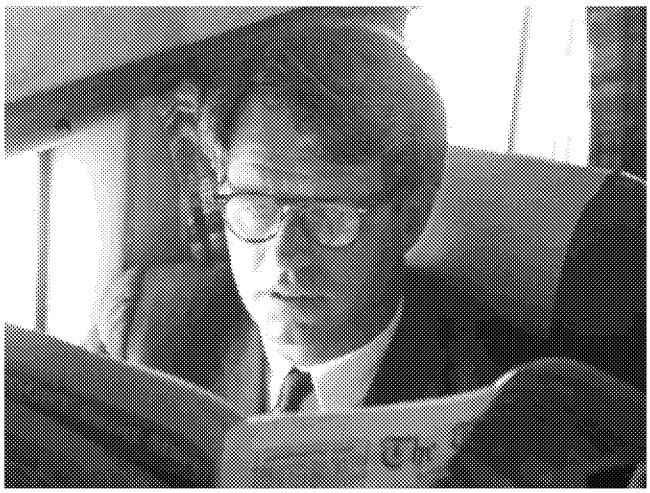

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Trump's EPA has tried to justify the move by citing a privately funded study that claimed the trucks did not cause more pollution, but even the university that conducted the research has now cast doubt on the findings.

The latest from Washington »

Air regulators loathe the proposal to allow thousands more of the trucks on the roads. Most of the trucking industry feels the same. Even the White House budget office and several conservative allies of the administration are balking.

"We urge you to consider the adverse impact on the economy," said a letter that the Environmental Protection Agency recently disclosed from the Republican senators of Indiana, West Virginia and North Carolina. They warned EPA chief Scott Pruitt that the plan is ill-advised and disruptive to industry. Ten House Republicans concurred in their own letter, which warned the proposal is a potential job-killer. "We respectfully ask that you carefully consider the negative impacts," the GOP lawmakers wrote.

Yet the EPA is undeterred. Its crusade to lift an Obama-era ban on these heavily polluting vehicles known as "gliders" perseveres, largely at the behest of a small group of activists on the right and one generous political donor, Tennessee businessman Tommy Fitzgerald. Fitzgerald, who has met privately with Pruitt and who held a campaign event in 2016 for Trump at one of his facilities, says restricting the sale of the trucks and the kits to build them threatens 22,000 jobs.

Pruitt says the restrictions on the trucks were a misuse of Clean Air Act regulations.

In announcing the rollback, Pruitt's agency ignored its own findings about how much environmental damage the vehicles cause. Instead, it cited a new study from Tennessee Tech University that concluded, astonishingly, that the glider trucks were no more harmful to air quality than trucks with new engines. That study was bankrolled by Fitzgerald's business.

The results of the study came as a shock to experts at the EPA, and also to the engineering faculty at Tennessee Tech.

"Tennessee Tech has skills in some areas, but air pollution is an area we have never worked in," said David Huddleston, an engineering professor at the university. "I thought, who on campus knows enough to actually even offer an opinion on that? We have one guy who has some expertise in emissions, but he wasn't even involved in this."

The faculty would soon learn the study was run by a university vice president who lacked any graduate level engineering training, and that it was conducted at a Fitzgerald-owned facility. Tennessee Tech's president and Rep. Diane Black (R-Tenn.) — who has accepted more than $200,000 in political donations from Fitzgerald, his companies and top employees — had lobbied Pruitt to embrace the research.

The Tennessee study quickly came under suspicion. Notes from discussions between EPA scientists and its authors revealed major flaws. The EPA scientists then updated their own tests of glider vehicles, which confirmed the trucks are substantially dirtier than newly manufactured trucks.

The head of Tennessee Tech's engineering department dismissed the study's key conclusion as a "far-fetched, scientifically implausible claim" by a research team that included "no qualified, credentialed engineer." The faculty senate passed a resolution demanding the university revoke its support for the study and launch an investigation.

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By late February, the university asked the EPA to stop using or referring to the study, pending its investigation. That investigation continues.

"The university takes the allegations of research misconduct seriously," the school said in a statement to the Los Angeles Times. "Tennessee Tech is still in the process of following its internal procedures related to such matters."

Despite Pruitt's earlier acknowledgment that the study factored into his decision to revisit the glider vehicle restrictions, an EPA spokesperson said in an email last week that "it played no role" in the action the EPA is now taking.

Two former EPA chiefs are skeptical. Christine Todd Whitman, who led the agency under George W. Bush, and Carol Browner, who led it under Bill Clinton, pointed out in a March letter to Pruitt that the industry's petition that prompted the EPA to act on glider trucks relied heavily on the now disavowed study. They urged him to withdraw the proposal.

Fitzgerald's company is refusing to publicly release the full study, which it owns under its arrangement with the school. But it has cast itself as the victim.

"We did not expect to receive work product that some have characterized as 'flawed and shoddy' or 'far-fetched and scientifically implausible,' and we certainly did not expect to be defamed by faculty members and administrators from the very institution that conducted the research," a company lawyer wrote to university officials earlier this year.

The company later demanded that four faculty members who have spoken out against the research and the company's involvement in it turn over any emails they wrote about the matter.

"It's a mess," said Huddleston. "All these professors are trying to do is the right thing. And now they have had to go out and hire lawyers to protect themselves. It's sad."

Rep. Black recently told Nashville Public Radio that she had no regrets about using the study to try to help the glider business. She said glider manufacturers are in a noble "David and Goliath" battle with much larger trucking interests seeking to crush them.

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But even some at the White House are chafing. Its budget office directed the EPA to undertake an extensive economic review that will hold things up for weeks and could reveal more legal vulnerabilities. The free market think tank FreedomWorks has, in turn, launched a campaign to pressure the White House to approve the EPA's plan promptly, without requiring the economic analysis.

It remains to be seen whether Pruitt will prevail. But if he succeeds, glider truck drivers could find themselves entering California at their own risk. Backers of the $25,000 penalties that the Assembly approved said they would expect to see them enforced, regardless of how the EPA proceeds. The bill appears likely to pass the state Senate and be signed into law.

Asked how it would confront that challenge, the agency demurred. "EPA has not yet taken a final action," said the email from its press office, "and will not comment on hypothetical outcomes before the process is complete."

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Evan Halper writes about a broad range of policy issues out of Washington D.C., with particular emphasis on how Washington regulates, agitates and very often miscalculates in its dealings with California. Before heading east, he was the Los Angeles Times bureau chief in Sacramento, where he spent a decade untangling California's epic budget mess and political dysfunction.

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Inside EPA: OMB said to rebuff final EPA glider plan due to lack of RIA

May 02, 2018

The White House Office of Management & Budget (OMB) is rejecting an EPA draft final rule that would scrap production limits of "glider" trucks that do not meet modern emissions standards, on the grounds that EPA had yet to craft a regulatory impact analysis (RIA) detailing the pollution impacts of the plan, according to a news report.

The report in the conservative *Daily Caller* is the latest indication that federal officials have been working behind the scenes to shore up the legal and technical basis for the controversial plan.

But it also indicates more specifically that the agency has continued to skip a routine regulatory step in an effort to quickly get a final plan out the door. EPA did not issue an RIA in tandem with its proposed repeal of the glider rules, an analysis that would have required a detailed look at the costs that would result from increased pollution from such trucks.

The report quotes three sources indicating OMB rejected the glider repeal before it was formally presented to the office, with OMB telling EPA to do a RIA.

The report also suggests that agency staff had initially "slow walked" the move to finalize the controversial plan, with a source calling this surprising given the EPA effort to justify its plan based on legal arguments that the agency never had the authority to regulate the gliders as "new" vehicles in the first place.

But the proposal has also spawned massive blow back from much of the trucking sector and increasingly Hill Republicans, not only on legal but also on substantive grounds -- with critics arguing it could result in significant pollution increases and undercut industry investments in trucks that meet modern pollution standards.

The report states that the need to conduct an RIA could delay the EPA draft final rule by roughly a month.

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A Administrator Scott Pruitt testifies before the House
Agencies Subcommittee on Capitol Hill in Washington, U
Aaron

SOURCES: EPA's Effort To Save An Industry From Obama Regulations Is Being Held Up By Bureaucratic Delays

MICHAEL BASTASCH

10:40 AM 05/02/2018

(http://dailycaller.com/author/michaelb/)

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11

The Environmental Protection Agency's (EPA) repeal of Obama-era regulations that could put an entire industry out of business has been slowed by bureaucratic delays and an unexpected request from the White House.

EPA has been working for months to finalize its repeal of Obama administration regulations on glider kits that critics say would have put an entire industry that sells refurbished truck engines out of business in the coming years.

Initially, EPA's effort to finalize the repeal of glider kit regulations was slow-walked by career officials at the agency, sources familiar with the matter told The Daily Caller News Foundation. But when EPA was finally ready to send the finalized repeal to the White House Office of Management and Budget (OMB), it was rejected late last week, three sources told TheDCNF. OMB did not respond to a request for comment.

OMB rejected EPA's glider kit rule repeal before the agency officially sent it over for review, one source said. OMB said EPA needed to conduct a regulatory impact analysis, three sources said.

The rejection was somewhat shocking since the rule is being rejected on legal grounds, rather than economic ones, sources said. EPA will likely conduct a regulatory impact analysis, but that could set back finalizing the rule a month or so, one source said.

The Obama administration issued regulations to ban the sale of glider kits, which are new truck bodies fitted with refurbished engines. The engines may generate more pollutants, but they are cheaper than buying new trucks with new engines.

Glider kits became an incredibly important source of trucks for small companies unable to afford newer engines, especially in the wake of Clinton administration trucking regulations that went into full effect in 2010.

Environmentalists and big automakers worked with the Obama administration to clamp down on the glider industry. The Obama EPA issued regulations to phase out glider kits over a matter of years.

The Obama EPA did this by using a provision of the Clean Air Act allowing regulations on "new motor vehicles." The EPA simply reclassified the refurbished glider kit engines as new motor vehicles. EPA also justified its regulations on glider kits under its authority to regulate greenhouse gas emissions.

The Tennessee-based Fitzgerald Glider Kits, the largest glider kit producer, petitioned EPA in June 2017 to rescind the regulation, which would kill its industry. Administrator Scott Pruitt granted the petition and issued (https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider) a proposed rule in November.

CEO Tommy Fitzgerald built a $700 million company, supplying trucks that are about 25 percent cheaper than competitors — major automakers, like Volvo, trying to sell newer, more expensive trucks.

"The new truck industry, led by foreign-owned Volvo Trucks (whose largest shareholder is a Chinese company), lobbied the Obama EPA to ensnare us in an ongoing rulemaking to establish emissions standards for new trucks," Fitzgerald wrote in an op-ed (http://dailycaller.com/2018/04/19/trump-epa-is-helping-real-americans/) for The Daily Caller.

"Making our rebuilt engines meet new truck standards would have killed the industry, and the glider haters knew it," Fitzgerald wrote.

In the months since, the auto industry has worked to squash the rule's repeal on the grounds it would jeopardize its investments in newer, more expensive engines.

The New York Times noted (https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html) that "major truck makers like Volvo and Navistar; fleet owners like the United Parcel Service; lobbying powerhouses like the National Association of Manufacturers" oppose repealing the glider kit rule.

Republican lawmakers have also come out against repealing the glider rule, signing a letter (https://twitter.com/EricLiptonNYT/status/987084465741627398) to EPA urging them to abandon their repeal effort. However, many of the letter signatories have gotten donations

(https://junkscience.com/2018/04/nytimes-investigative-reporter-eric-lipton-not-so-investigative-on-glider-trucks/) from Volvo and other companies or groups opposed to glider kits.

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MEMORANDUM

TO: Members of the Chartered SAB and SAB Liaisons

FROM: Alison Cullen, Chair, SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science */signed/*

DATE: May 18, 2018

SUBJECT: Preparations for Chartered Science Advisory Board (SAB) Discussions of EPA Planned Agency Actions and their Supporting Science in the Fall 2017 Regulatory Agenda

The Chartered SAB will discuss whether to review the adequacy of the science supporting planned regulatory actions identified by the EPA as major actions in the Fall 2017 semi-annual regulatory agenda at its May 31, 2018 meeting. To support this discussion a SAB Work Group was charged with identifying actions for further consideration by the Chartered SAB. This memorandum provides background on this activity, a short description of the process for identifying actions for SAB consideration, a summary of the process used by the Work Group and Work Group recommendations on the planned actions.

Background

The Environmental Research, Development, and Demonstration Authorization Act of 1978 (ERDDAA) requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, or regulations provided to any other Federal agency for formal review and comment, together with relevant scientific and technical information on which the proposed action is based. The SAB may then make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed action.

EPA's current process (Attachment A) is to provide the SAB with information about the publication of the semi-annual regulatory agenda and to provide descriptions of major planned actions that are not yet proposed. Identifying actions that are not yet proposed provides the SAB and the Agency with sufficient time to provide a review. The agency process for submitting information on planned actions includes any major actions whether or not they are listed in the Regulatory Agenda. These descriptions provide available information regarding the science informing agency actions. This process for engaging the SAB supplements the EPA's process for program and regional offices to request science advice from the SAB.

Summary of the Process Used by the SAB Work Group

The SAB Work Group followed the process adopted by the Chartered SAB in 2013[1] to initiate its review of major planned actions identified in the Unified Regulatory Agenda by EPA. The current SAB review began when the EPA Office of Policy informed the SAB Staff Office that the Fall 2017 Unified (Regulatory) Agenda and Regulatory Plan had been published on December 14, 2017. This semi-annual regulatory agenda is available at https://www.reginfo.gov/public/do/eAgendaHistory. This SAB Work Group was formed in January 2018 and includes SAB members with broad expertise in scientific and

[1] Available at http://yosemite.epa.gov/sab/sabproduct.nsf/WebSABSO/ProcScreen2017/$File/SABProtocol2017.pdf

technological issues related to the proposed actions. The Work Group consists of Drs. Alison Cullen (chair), Robert Blanz, Otto Doering, H. Christopher Frey, John Graham, Merle Lindstrom, and Jay Turner, and Messrs. Robert Merritt and Richard Poirot.

The Work Group considered actions in the Fall 2017 semi-annual regulatory agenda that were identified by the EPA as "major actions." The Work Group considered several factors when assessing each proposed major action, i.e., whether the action:

- already had a planned review by the SAB or some other high level external peer review [e.g., National Academy of Sciences, Clean Air Scientific Advisory Committee, Federal Insecticide, Fungicide and Rodenticide (FIFRA) Scientific Advisory Panel];
- was primarily administrative (i.e., involved reporting or record keeping);
- was an extension of an existing initiative;
- was characterized by EPA as an influential scientific or technical work product having a major impact, or involved precedential, novel, and/or controversial issues;
- considered scientific approaches new to the agency;
- addressed an area of substantial uncertainty;
- involved major environmental risks;
- was related to an emerging environmental issue; or
- exhibited a long-term outlook.

On March 30, 2018, the Work Group received information and short descriptions from the EPA Program Offices on the major planned actions that are listed in the Fall 2017 semi-annual regulatory agenda but not yet proposed. Work Group members concurred on the recommendations presented in this memorandum after discussions on April 20, 2018, May 3, 2018 and subsequently via email. A compiled set of the EPA descriptions of the actions and the Work Group recommendations are provided in Attachment B. The Work Group submitted requests for additional information on several planned actions and held a fact-finding teleconference on April 20, 2018. A summary of the teleconference is provided in Attachment C.

Work Group Recommendations Regarding Planned EPA Actions of Interest to the SAB

The SAB Work Group based the recommendations below on information received from the EPA and the Group's independent research. Of the nine major planned actions considered, the Work Group recommends that two of the actions merit further SAB consideration, and the underpinnings of a third action merit further SAB consideration. A brief summary of the Work Group findings is provided and further information on each action is available in Attachment B.

Table 1 identifies the nine planned actions reviewed and summarizes the SAB Work Group's recommendations. Attachment B provides the EPA's descriptions of the planned actions, and the recommendation for each of the planned actions with the supporting rationales.

Table 1: Summary of Proposed Actions that the SAB Work Group Considered for Additional SAB Comment on the Supporting Science		
RIN[1]	**Planned Action Title**	**Workgroup Recommendation**
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	Defer SAB consideration of the planned action until more information is available
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	Does not merit further SAB review
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	Merits SAB Review
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	Does not merit further SAB review
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	Does not merit further SAB review
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	Merits SAB Review
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	Does not merit further SAB review
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	Does not merit further SAB review
2060-AT31	Fuels Regulation Modernization - Phase 1	Does not merit further SAB review

[1]The Regulatory Identification Number provides a hyperlink to the Office of Management and Budget's webpage and information on the planned action provided in the Unified Regulatory Agenda on the OMB website http://www.reginfo.gov/

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12): The SAB Work Group recommends that the SAB review the scientific and technical basis for this planned action when more information is available and at that time determine if it is appropriate to provide advice and comment to the Administrator. From information the EPA staff provided, this planned action appears to be in the very early stages, so there is not enough information to recommend that the SAB should consider the underlying science at this time. The current language indicates that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. Depending upon how the action proceeds, it may ultimately involve precedential issues and become an influential scientific or technical work product. The Work Group conducted a fact-finding teleconference on April 20, 2018 to discuss the planned action and additional available information. The teleconference is summarized in Attachment C of this memorandum.

State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units (RIN 2060-AT67): This planned action does not merit review by the SAB. However, the SAB may wish to consider several aspects of the underlying "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) dated October 2017. Specifically, the SAB is advised to consider reviewing: i) RIA sensitivity analysis assumptions about PM mortality at concentrations below the current NAAQS; ii) RIA calculations of climate change benefits on a US-only basis rather than a global scale; and iii) RIA application of a 7% discount rate to estimate climate change effects which extend across multiple generations. The SAB may also wish to consider whether changes to the "social cost of carbon" (SCC) introduced in the RIA are consistent with recent reviews of the previous SCC by the National Research Council.

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77): The SAB should consider this action for review with regard to the adequacy of the supporting science. The Work Group provided fact-finding questions to the EPA. EPA staff noted that the Work Group identified analyses that "could be considered to inform the forthcoming Notice of Proposed Rule Making (NPRM)" and that they would assess these issues as they develop the proposed rule. EPA staff responded that the schedule for the rulemaking addressing standards for model years 2022-2025 light-duty vehicle greenhouse gas standards has not yet been announced. The Work Group notes that EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation (MTE), including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and RIA regarding fuel economy standards to inform a companion rule to the EPA standards. Key questions to address in such an SAB review should include but need not be limited to the following:

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effectiveness, co-benefits/harms in terms of emissions reductions/increases for other pollutants, and costs/benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected. The Work Group provides a detailed rationale in Attachment B and the fact finding effort is summarized in Attachment C.

Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68) and *Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)*: These actions do not merit further SAB consideration. These actions undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Panels. CASAC is a FACA committee and has statutory mandate under the Clean Air Act to advise the Administrator regarding the National Ambient Air Quality Standards(NAAQS). The SOx Review Panel and the Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur were specifically constituted, in terms of independent scientific expertise, to review the proposed actions, respectively. CASAC completed its review of the Sulfur Oxides NAAQS on April 30, 2018.

National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74): The Work Group finds that this action does not merit further SAB consideration. While the details of each Residual Risk and Technology Review (RTR) are unique to the sources and pollutants being evaluated, the general approaches and methodologies employed in EPA RTRs have become standardized, have been employed in numerous previous RTRs, and have been subject to multiple peer reviews over the past 17 years, most recently in 2009. As EPA's RTR methodologies are refined and revised over time, there is a need for periodic peer reviews of the changing methods. The SAB is currently conducting a review of recent revisions to the screening methodologies used to support RTR reviews. A final SAB report on this review is anticipated in 2018. Given the extensive past and ongoing peer reviews that have been conducted on RTR methodologies, the Work Group recommends that no additional SAB review is warranted for these specific RTRs at this time.

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79): The SAB should review this action with regard to the adequacy of the supporting science. The Work Group notes the EPA stated that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. Key questions to address in such a review should include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?

- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?
- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles is a technical and scientific issue that is within the scope of the SAB. Technical questions regarding the emission impacts of a rule change with respect to glider vehicles are within the scope of the SAB. Identification of suitable methodologies for assessment of the effect of the proposed rule on emissions, air quality, and public health is also within the scope of advice that SAB can provide.

The Work Group recommends that the SAB conduct a review of the technical and scientific issues pertaining to this proposed action. In developing this recommendation, the Work Group considered the following: i) the proposed rule is in part based on a study that has been withdrawn by its authoring institution, ii) pertinent technical content is omitted, iii) the rule lacks clear attribution of the information that EPA cites, iv) the rule implies a potential rollback of reductions in emissions of pollutants that are harmful to public health, and v) there are myriad technical issues related to life cycle emissions.

Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements (RIN 2070-AK43): This action does not merit any further SAB consideration. Per Executive Order 13777 the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues. Thus separate review by the SAB would not be warranted. The Work Group further notes that the FIFRA SAP waived the right to review of the original 2015 WPS because the proposed revisions were administrative and did not include any influential scientific information or highly influential scientific information.

Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31): The planned action does not merit further review by the SAB. This long-term action to "streamline and modernize EPA's existing fuels regulations under 40 CFR part 80" is described as "an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones". No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

Work Group Recommendations Regarding Improvements to the Process for Identifying EPA Planned Actions for SAB Consideration

The Work Group thanks the EPA for providing information for consideration but emphasizes that the SAB requires more complete and timely information from the agency to make recommendations and decisions regarding the science supporting planned actions. The Work Group is noticing a trend of less information to describe the planned actions being made available over the last three regulatory review cycles. In reviewing the Fall 2017 Regulatory Agenda, there were several cases where key information about the planned action, supporting science and peer review were provided only after specific Work Group requests.

To improve the process for future review of planned actions, the SAB Work Group strongly recommends that EPA enhance descriptions of future planned actions by providing more description of the scientific and technological basis for actions and specific information on the peer review associated with the scientific basis for actions. For both the Spring and Fall 2017 reviews the Work Group finds that the responses to fact finding questions were not comprehensive and participation in the scheduled teleconference was limited. EPA should provide such information in the initial descriptions provided to the Work Group. The Work Group requests improved agency responsiveness for efficiency in the fact finding step.

The Work Group is aware that a recently proposed action, Strengthening Transparency in Regulatory Science (RIN 2080-AA14), was not included in the Fall 2017, nor identified as a major planned action by the EPA. The Work Group also notes that the EPA process to meet ERDDAA requirements, described in Attachment A of this memorandum, directs EPA program offices to include major actions that are not in the regulatory agenda and to provide descriptions of those actions. The Work Group finds that RIN 2080-AA14 is a major action and merits further review by the SAB. The Work Group provided a separate memorandum on this action. The proposed rule deals with issues of scientific practice and proposes constraints that the agency may apply to the use of scientific studies in particular contexts. As such, this rule deals with myriad scientific issues about which the Agency should seek expert advice from the Science Advisory Board.

Effective SAB evaluation of planned actions requires the agency to characterize:

- All relevant key information associated with the planned action;

- The science supporting the regulatory action. Clearly describe the science supporting the regulatory action and whether it is influential scientific information or highly influential scientific information. If there is new science to be used, provide a description of what is being developed. If the agency is relying on existing science, provide a short description.

- The nature of planned or completed peer review. To the extent possible, provide information about the type of peer review, the charge questions provided to the reviewers, how relevant peer review comments were integrated into the planned action, and information about the qualifications of the reviewer(s).

The SAB made several of these recommendations in previous reviews, as well as noting a trend toward less information being made available for actions listed in the Regulatory Agenda. We request that the chartered SAB highlight to the Administrator the need for the Agency to provide more complete information to support future SAB decisions about the adequacy of the science supporting actions in future regulatory agendas.

Attachments

Attachment A: Implementation Process for Identifying EPA Planned Actions for SAB Consideration
Attachment B: SAB Work Group Recommendations on Major EPA Planned Actions Identified in the Fall 2017 Semi-Annual Regulatory Agenda.
Attachment C: Summary of the Science Advisory Board Work Group Fact-Finding on EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda

Attachment A
Implementation Process for Identifying EPA Planned Actions for SAB Consideration

Background on the EPA Process

- The Environmental Research, Development, and Demonstration Authorization Act of 1978 (ERDDAA, see p. 4)
  - Requires the EPA to make available to the SAB proposed criteria documents, standards, limitations, or regulations provided to any other Federal agency for formal review and comment together with relevant scientific and technical information in the possession of the agency on which the proposed action is based.
  - States that the Board may make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed actions.
- In January 2012, Office of Policy Associate Administrator Michael Goo issued a memorandum to strengthen coordination with the SAB by providing the Board with information about *proposed* agency actions. (see page p. 9)
- In February 2012, SAB Staff developed an initial proposal to provide the SAB with information about *proposed* agency actions.
  - EPA Senior Leadership concluded that providing information to the SAB for consideration at the proposal stage was *too late* in the process for meaningful involvement.
- In March 2012, the SAB held a public meeting and discussed the Goo memo and a pilot to consider the science underlying four proposed rules identified by OAR (standards for air toxics from boilers and incinerators and greenhouse gas emissions and fuel economy standards for light-duty vehicles).
  - The SAB:
    - Did not identify any science topics related to the four proposed rules warranting SAB comment.
    - Noted that the proposal stage was *too late* in the process for meaningful input.
    - Discussed the need for adequate information on the underlying science for agency actions early in the process. Information beyond the information presented in the Semiannual Regulatory Agenda is needed for this purpose.
- On January 2, 2013, Associate Administrator Michael Goo, the Administrator's Science Advisor Glenn Paulson, and the SAB Office Director Vanessa Vu issued a memorandum (see p. 10) "Identifying EPA Planned Actions for Science Advisory Board (SAB) Consideration of the Underlying Science – Semi-annual Process" requiring EPA to provide short descriptions of *major planned actions that are not yet proposed* appearing in the semi-annual regulatory agenda

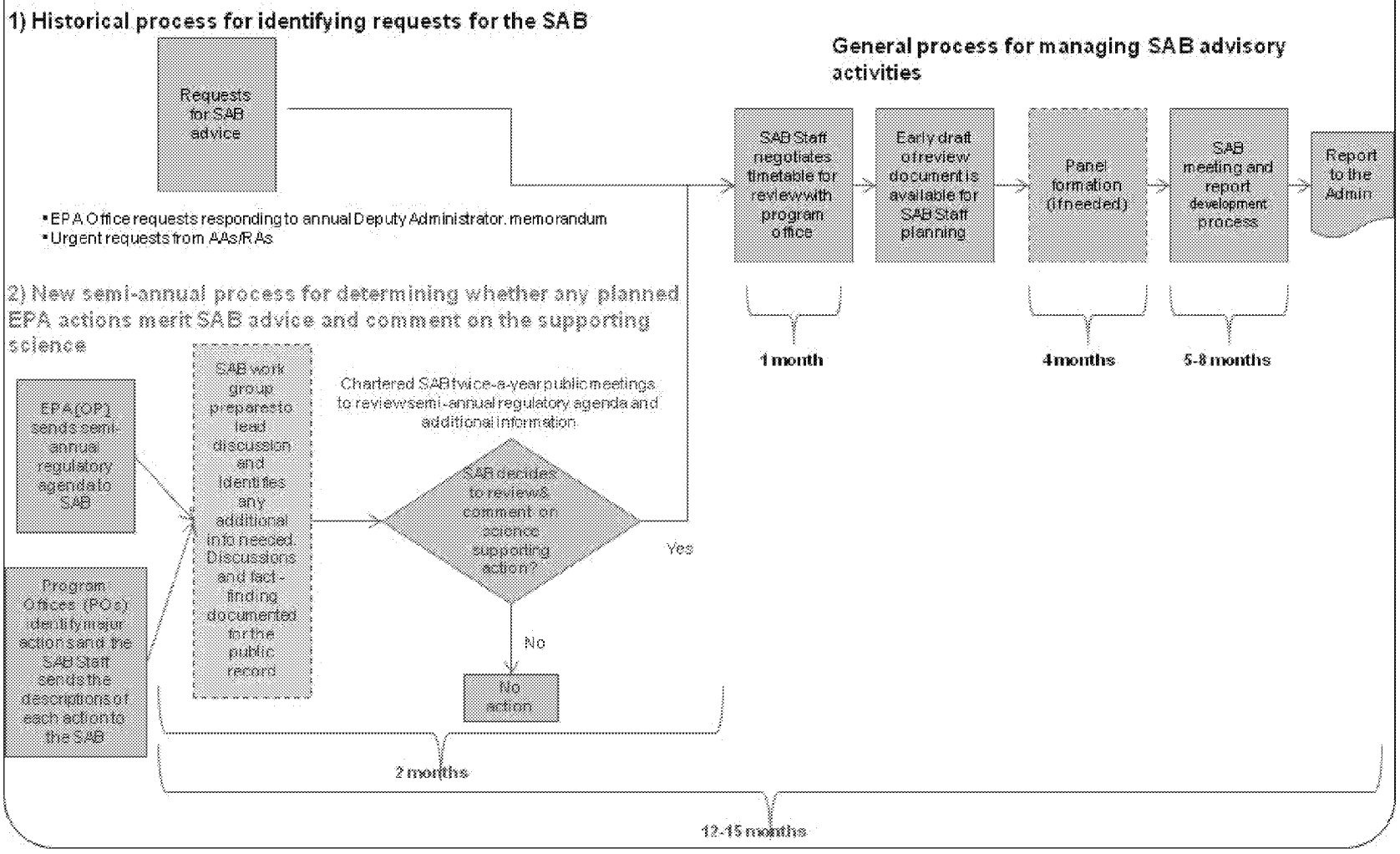
- This process supplements the Deputy Administrator's annual memorandum requesting program and regional offices to identify scientific issues that might be appropriate for SAB consideration.

SAB Process

- The SAB Staff manages the semi-annual process for determining whether any planned EPA actions merit SAB advice and comment on the supporting science as part of the entire SAB operating plan (see Figure 1).

EPA-HQ-2019-30664

Figure 1: Two Major Processes for Identifying Advisory Activities for the SAB Operating Plan:
1) the historical process for identifying requests and 2) the new semi-annual process for determining whether any planned EPA actions merit SAB advice and comment on the supporting science



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Environmental Research, Development, and Demonstration Authorization Act [(ERDDAA), 42 U.S.C. 4365]

TITLE 42--THE PUBLIC HEALTH AND WELFARE

CHAPTER 55--NATIONAL ENVIRONMENTAL POLICY

SUBCHAPTER III--MISCELLANEOUS PROVISIONS

Sec. 4365. Science Advisory Board

(a) Establishment; requests for advice by Administrator of Environmental Protection Agency and Congressional committees

The Administrator of the Environmental Protection Agency shall establish a Science Advisory Board which shall provide such scientific advice as may be requested by the Administrator, the Committee on Environment and Public Works of the United States Senate, or the Committee on Science, Space, and Technology, on Energy and Commerce, or on Public Works and Transportation of the House of Representatives.

(b) Membership; Chairman; meetings; qualifications of members

Such Board shall be composed of at least nine members, one of whom shall be designated Chairman, and shall meet at such times and places as may be designated by the Chairman of the Board in consultation with the Administrator. Each member of the Board shall be qualified by education, training, and experience to evaluate scientific and technical information on matters referred to the Board under this section.

(c) Proposed environmental criteria document, standard, limitation, or regulation; functions respecting in conjunction with Administrator

(1) The Administrator, at the time any proposed criteria document, standard, limitation, or regulation under the Clean Air Act [42 U.S.C. 7401 et seq.], the Federal

Water Pollution Control Act [33 U.S.C. 1251 et seq.], the Resource Conservation and Recovery Act of 1976 [42 U.S.C. 6901 et seq.], the Noise Control Act [42 U.S.C. 4901 et seq.], the Toxic Substances Control Act [15 U.S.C. 2601 et seq.], or the Safe Drinking Water Act [42 U.S.C. 300f et seq.], or under any other authority of the Administrator, is provided to any other Federal agency for formal review and comment, shall make available to the Board such proposed criteria document, standard, limitation, or regulation, together with relevant scientific and technical information in the possession of the Environmental Protection Agency on which the proposed action is based.

(2) The Board may make available to the Administrator, within the time specified by the Administrator, its advice and comments on the adequacy of the scientific and technical basis of the proposed criteria document, standard, limitation, or regulation, together with any pertinent information in the Board's possession.

(d) Utilization of technical and scientific capabilities of Federal agencies and national environmental laboratories for determining adequacy of scientific and technical basis of proposed criteria document, etc.

In preparing such advice and comments, the Board shall avail itself of the technical and scientific capabilities of any Federal agency, including the Environmental Protection Agency and any national environmental laboratories.

(e) Member committees and investigative panels; establishment; chairmenship

The Board is authorized to constitute such member committees and investigative panels as the Administrator and the Board find necessary to carry out this section. Each such member committee or investigative panel shall be chaired by a member of the Board.

(f) appointment and compensation of secretary and other personnel; compensation of members

(1) Upon the recommendation of the Board, the Administrator shall appoint a secretary, and such other employees as deemed necessary to exercise and fulfill the Board's powers and responsibilities. The compensation of all employees appointed under this paragraph shall be fixed in accordance with chapter 51 and subchapter III of chapter 53 of title 5.

(2) Members of the Board may be compensated at a rate to be fixed by the President but not in excess of the maximum rate of pay for grade GS-18, as provided in the General Schedule under section 5332 of title 5.

(g) Consultation and coordination with Scientific Advisory Panel

In carrying out the functions assigned by this section, the Board shall consult and coordinate its activities with the Scientific Advisory Panel established by the Administrator pursuant to section 136w(d) of title 7.

(Pub. L. 95-155, Sec. 8, Nov. 8, 1977, 91 Stat. 1260; Pub. L. 96-569, Sec. 3, Dec. 22, 1980, 94 Stat. 3337; Pub. L. 103-437, Sec. 15(o), Nov. 2, 1994, 108 Stat. 4593; Pub. L. 104-66, title II, Sec. 2021(k)(3), Dec. 21, 1995, 109 Stat. 728.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

2

OFFICE OF THE ADMINISTRATOR

MEMORANDUM

SUBJECT: Identifying EPA Planned Actions for Science Advisory Board (SAB) Consideration of the Underlying Science- Semi-annual Process

FROM: Michael Goo, Associate Administrator
Office of Policy

Glenn Paulson
Science Advisor

Vanessa Vu, Director
SAB Staff Office

TO: General Counsel
Assistant Administrators
Associate Administrators
Regional Administrators

The purpose of this memorandum is to provide guidance for implementing improved coordination with the SAB, the goal of the memorandum dated January 19, 2012 on that topic (Attachment A).

We ask that you work with the Office of Policy to provide the SAB Staff Office with information about the science supporting major planned agency actions (Tier 1 and Tier 2 actions) that are in the pre-proposal stage. The *2012 Unified (Regulatory) Agenda and Regulatory Plan* was published on December 21, 2012 on the Office of Management and Budget web site http://www.reginfo.gov/public/.

Please provide the SAB Staff Office (contact: Angela Nugent) by January 30, 2013, a brief description of each action along with its supporting science, following the format provided in Attachment B. Please ensure that these submissions to the SAB are consistent with information developed in the action development process.

This process supplements the Deputy Administrator's annual memorandum requesting program and regional offices- to identify scientific issues that might be appropriate for SAB consideration.

We look forward to working with you on this new process to strengthen science supporting EPA's decisions. Please contact us or Caryn Muellerleile (202-564-2855) in the Office of Policy or Angela Nugent (202-564-2218) in the SAB Staff Office, should there be questions.

Attachments

cc: Administrator
Deputy Administrator
Chief of Staff
Deputy Chief of Staff

Attachment A: January 19, 2012 Memorandum from Michal L. Goo

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 19 2012

OFFICE OF POLICY

MEMORANDUM

SUBJECT: Coordination with the Science Advisory Board Regarding Proposed Criteria Documents, Standards, Limitations and Regulations

FROM: Michael L. Goo, Associate Administrator
Office of Policy

TO: Assistant Administrators
General Counsel
Chief of Staff
Associate Administrators
Regional Administrators

This is to confirm the procedures that we have discussed regarding coordination with the Science Advisory Board (SAB) on the science and technical information underlying the EPA's proposed criteria documents, standards, limitations and regulations.

In addition to the current process by which program offices identify actions on which they plan to seek advice from the SAB on scientific and technical issues, OP will semiannually inform the SAB, through the SAB Staff Office, of upcoming proposed actions. This process will focus on those proposed regulations, criteria documents, standards or limitations that undergo interagency review and will operate as follows:

1. OP will submit to the SAB staff office a list, based on the Agency's *Semiannual Regulatory Agenda* (*Regulatory Agenda*), augmented as necessary, of upcoming proposed regulations, criteria documents, standards or limitations that are expected to undergo interagency review. OP will work with program and regional offices to ensure that any actions not listed in the *Regulatory Agenda* that nevertheless are expected to be submitted for interagency review are included in this submission. For any of these additional actions, offices should provide a description similar to that provided for actions included in the *Regulatory Agenda*.

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Attachment A: Identifying EPA Planned Actions for SAB Consideration

2. Program and Regional offices will notify the SAB staff office when proposed Agency actions that undergo interagency review become formally available for public review and comment. EPA programs are also expected to provide additional information as requested by the SAB Staff Office to facilitate the SAB's consideration of this information.

If the SAB decides to review and, as appropriate, comment on the scientific and technical basis for a proposed action, OP will work with the SAB Staff Office and the relevant program or regional office to establish the appropriate time frame for SAB review and comment.

Thank you for your assistance in adhering to this process. If you have any questions or concerns, please contact me, or your staff can contact Nicole Owens owens.nicole@epa.gov, at 202 (564-1550).

cc: Bob Perciasepe
Bob Sussman
Deputy Assistant Administrators
Deputy Associate Administrators
Deputy Regional Administrators
Assistant Regional Administrators
Alex Cristofaro
Nicole Owens
Vanessa Wu
Thomas Brennan

Attachment B - Sample Description of Major Planned EPA Action-Information to be Provided to the SAB

Name of action: Development of Best Management Practices for Recreational Boats Under Section 312(o) of the Clean Water Act

EPA Office originating action: OW

Brief description of action and statement of need for the action:

This action is for the development of regulations by EPA to implement the Clean Boating Act (Public Law 110-288), which was signed by the President on July 29, 2008. The Clean Boating Act amends section 402 of the Clean Water Act (CWA) to exclude recreational vessels from National Pollutant Discharge Elimination System permitting requirements. In addition, it adds a new CWA section 312(o) directing EPA to develop regulations that identify the discharges incidental to the normal operation of recreational vessels (other than a discharge of sewage) for which it is reasonable and practicable to develop management practices to mitigate adverse impacts on waters of the United States. The regulations also need to include those management practices, including performance standards for each such practice. Following promulgation of the EPA performance standards, new CWA section 312(o) directs the Coast Guard to promulgate regulations governing the design, construction, installation, and use of the management practices. Following promulgation of the Coast Guard regulations, the Clean Boating Act prohibits the operation of a recreational vessel or any discharge incidental to their normal operation in waters of the United States and waters of the contiguous zone (i.e., 12 miles into the ocean), unless the vessel owner or operator is using an applicable management practice meeting the EPA-developed performance standards.

Timetable:

Statutory: Phase 1 - 2009, Phase 2 - 2010, and Phase 3 – 2011
Regulatory Agenda: Phase 1 NPRM - 2013, Phase 1FR - 2014

Does the action rely on science that meets the EPA *Peer Review Handbook* definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

No

Scientific questions to be addressed and approach:

Recreational boating activities can contribute to the spread of aquatic nuisance species, primarily through the secondary transport of organisms introduced to U.S. waters via other vectors. For example, recreational boating has been linked to the spread of Zebra and Quagga mussels from their initial introduction into the Great Lakes to other U.S. waters. Consequently, the Agency is considering the development of regulations designed to reduce the spread of such organisms by reducing propagule pressure from the recreational vessel vectors. Propagule pressure is a measure

of the number of individual organisms released as well as the number of discrete release events. While there is a general consensus that an increase in propagule pressure increases the probability of establishing a self-sustaining population of an aquatic nuisance species, the probability is a complex function of a wide range of variables. These variables include species traits (e.g., viability, reproductive capability, and environmental compatibility) and environmental traits (e.g., retention of propagules, and interactions with resident species). When addressing secondary transport via recreational vessels, as this project is designed to specifically do, additional variables such as vessel characteristics, voyage type, and propagule exposure need to be considered. Due to the complexity of this issue, the Agency is seeking expert scientific opinions on management practices that can reduce propagule pressure that results from recreational boating activities.

Plans for scientific analyses and peer review:

The Agency is planning to convene a workshop on secondary transport of aquatic nuisance species via recreational vessels. Invited participants will have expertise in the field of invasion biology and each participant will be charged to provide their expert scientific opinion on management practices that the Agency should consider as part of this rule making.

Attachment B
SAB Work Group Recommendations on Major EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda
May 18, 2018

RIN	Title	EPA Office	Agenda Stage of Rulemaking	Additional Available Information*	Page
2010-AA12	Increasing Consistency, Reliability, and Transparency in the Rulemaking Process	OP	Pre-rule Stage	Submitted questions**	2
2060-AT67	State Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units	OAR	Pre-rule Stage	Submitted questions**	6
2060-AT77	Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles	OAR	Pre-rule Stage	Withdrawal of January 12, 2017 final determination FR Notice 4/13/2018 Submitted questions**	11
2060-AT68	Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides	OAR	Proposed Rule Stage		28
2060-AT74	National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review	OAR	Proposed Rule Stage		31
2060-AT79	Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits	OAR	Proposed Rule Stage	NPRM 11/16/17 Submitted questions**	36
2070-AK43	Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements	OCSPP	Proposed Rule Stage		44
2060-AS35	Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter.	OAR	Long-Term Actions		47
2060-AT31	Fuels Regulation Modernization - Phase 1	OAR	Long-Term Actions		50

*Includes publicly available information published in the *Federal Register (i.e., Advanced Notice of Public Rule Making, Notice of Data Availability, Proposed Rules) in addition to the Regulatory agenda and EPA description of the planned action*

*** A summary of the Work Group's submitted questions and agency responses may be found in Attachment C*

Description of Planned EPA Action

1. **Name of action:** Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (ANPRM)

2. **RIN Number:** 2010-AA12

3. **EPA Office originating action:** Office of the Administrator / Office of Policy

4. **Brief description of action and statement of need for the action:**

   EPA is considering developing implementing regulations that would increase consistency across EPA divisions and offices, increase reliability to affected stakeholders, and increase transparency during the development of regulatory actions. Many EPA statutes, including the Clean Air Act and the Clean Water Act, provide language on the consideration of costs, but costs have historically been interpreted differently by the EPA depending on the office promulgating the regulatory action. This has led to EPA choosing different standards under the same provision of the statute, the regulatory community not being able to rely on consistent application of the statute, and EPA developing internal policies on the consideration of costs through non-transparent actions. By developing implementing regulations through a notice-and-comment rulemaking process, it will provide the public with a better understanding on how EPA is evaluating costs when developing a regulatory action and allow the public to provide better feedback to EPA on potential future proposed rules.

   In an Advanced Notice of Proposed Rulemaking (ANPRM) EPA will solicit comments and recommendations on how it can make regulatory cost considerations more consistent, reliable, and transparent. The ANPRM is expected to illustrate how EPA considered costs in recent rulemakings and pose questions to help identify opportunities for improvement. Potential areas of inquiry may include:
   - How EPA should define cost metrics and thresholds for specific terms such as reasonable and practicable
   - How EPA could increase the consistency and reliability of cost considerations within particular statutes (e.g., CAA, CWA) and across statutes
   - How might EPA improve the transparency of how it considers regulatory costs in a consistent, reliable manner.

   Based on the comments received, EPA may move to develop implementing regulations through a notice-and-comment rulemaking process (NPRM).

5. **Timetable:**

   The current EPA Regulatory Agenda reports a target date of February 2018 for publication of the ANPRM.

6. **Scientific products that will inform the action and plans for peer review:**

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.

None at this time. The EPA is early in the process of developing the ANPRM. Based on the comments received, EPA may move to develop implementing regulations through a notice-and-comment rulemaking process (NPRM), at which time the Agency will determine the specific scientific products needed and the nature of the peer review intended.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

Not applicable at this time, per answer to 6(a).

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

Not applicable at this time, per answer to 6(a).

6(d). Peer review:

Not applicable at this time, per answer to 6(a).

Recommendation from the SAB Work Group

Name of planned action: Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks		X	
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB Work Group recommends that the SAB review the scientific and technical basis for the Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12) when more information on the planned action is available and at that time determine if advice and comment is appropriate to provide to the Administrator.

Rationale: From the discussion with the EPA staff, this planned action appears to be in the very early stages, so there is not enough information to recommend that the SAB should consider the underlying science. There also was the indication that this action would not involve basic economic methodology changes. However, given the concern for consistency, such changes may well have to be considered. The Work Group conducted a fact-finding teleconference on April 20, 2018 to discuss the planned action and additional available information. The teleconference is summarized in Attachment C of this memorandum.

We would propose to defer consideration of this action until the next review when more information may be available. Depending upon how the action proceeds, it may well involve precedential issues and become an influential scientific or technical work product.

With respect to the consistency and transparency goals, EPA staff may find the National Research Council's 2012 *Review of the EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida* helpful – especially the chapter on "A Framework for Incremental Cost Analysis of a Rule Change."

Description of Planned EPA Action

1. **Name of action:** State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units

2. **RIN Number:** 2060-AT67

3. **EPA Office originating action:**

   Office of Air and Radiation, Office of Air Quality Planning and Standards, Sector Policies and Programs Division

4. **Brief description of action and statement of need for the action:**

   On October 23, 2015, the Environmental Protection Agency (EPA) finalized the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule (aka the Clean Power Plan). On March 28, 2017, President Trump signed Executive Order 13783 to initiate reconsideration proceedings to suspend, revise or rescind this regulation (among others). On October 16, 2017, the EPA proposed to repeal the Clean Power Plan; the comment period for this repeal is scheduled to be open until April 26, 2018. In a separate but related action, the EPA issued an Advance Notice of Proposed Rulemaking (ANPRM) to solicit information from the public about a potential future rulemaking to replace the Clean Power Plan on December 28, 2017; the comment period for this ANPRM is scheduled to be open until February 26, 2018. The ANPRM has specifically focused on measures that electric generating units can take at the facility to reduce carbon emissions.

   Clean Power Plan Repeal Hot Link: https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-repealing-clean-power-plan-0

   Clean Power Plan replacement ANPRM Hot Link: https://www.epa.gov/stationary-sources-air-pollution/electric-utility-generating-units-advance-notice-proposed

5. **Timetable:**

   The administrator has publicly announced a proposed and final version of this regulation in 2018. There are no judicial or more delineated time frames at this stage of the rule-making.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   The EPA is early in the process of developing a proposal, and has not yet determined the specific scientific products needed. The EPA is also still waiting for input from the public from the ANPRM on this subject that will influence what products are needed.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).
See related response in 6(a) above.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
The EPA is early in the process of developing a proposal, and has not yet determined the specific nature of the peer review intended. We do not envision this action relying on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product."

6(d). Peer review:
See related response in 6(a) above.

Recommendation from the SAB Work Group

Name of planned action: State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (RIN 2060-AT67)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency	X		
Addresses areas of substantial uncertainties	X		
Involves major environmental risks	X		
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This planned action does not merit review by the SAB. However, the SAB may wish to consider several aspects of the underlying "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) dated October 2017. Specifically, the SAB may wish to review: 1.) RIA sensitivity analysis assumptions about PM mortality at concentrations below the current NAAQS; 2.) RIA calculation of climate change benefits on a US-only rather than global scale; and 3.) RIA application of a 7% discount rate to estimate climate change effects which extend across multiple generations. The SAB may also wish to consider whether changes to the "social cost of carbon" (SCC) introduced in the RIA are consistent with recent reviews of the previous SCC by the National Research Council.

Rationale: Planned Action 2060-AT67 is an ANPRM seeking information on systems to reduce carbon dioxide emissions from existing fossil-fueled EGUs. If enacted, the new rule would

essentially serve as a replacement of the Clean Power Plan (CPP), which the Agency has previously proposed to repeal via action 2060-AT55. This ANPR is also intended to solicit information on the proper respective roles of the states and federal government, compliance measures, and state planning requirements associated with emissions of GHG from existing EGUs. The ANPRM seeks comments on a broad range of regulatory scenarios and technical approaches, while considering the overarching environmental objectives of GHG reductions.

The draft SAB recommendations of the Spring 2017 EPA regulatory agenda recommended further SAB review of action 2060-AT55 (CPP repeal). Since a potential replacement rule is in the early information-gathering stage, there do not currently appear to be unique science questions that would not also be addressed in a SAB review of 2060-AT55 (although some may be identified as and if the replacement rule-making proceeds). It is also noted that the stated justification for the CPP replacement is based on a revised legal interpretation, rather than any new science or technology. For these reasons, a separate SAB review of Action 2060-AT67 is not recommended at the present time (an alternative recommendation might be to review the proposed repeal and replacement actions together?).

However, it should be noted that the proposed repeal and replacement of the CPP are both dependent on an October 2017 "Regulatory Impact Analysis for the Review of the Clean Power Plan: Proposal" (RIA) which includes a number of critically important scientific and technical assumptions and approaches that differ substantially from those employed in many past RIAs, and which may also influence other current or future Agency actions relating to GHG emissions, but which have not been subject to external peer review. Among the most influential and controversial assumptions is that there is no reduction in PM mortality at concentrations below the NAAQS (employed in a "sensitivity analysis", but otherwise not supported by the current science). The SAB CASAC has concurred that PM mortality has no discernible threshold in the past several PM NAAQS reviews, and the SAB Council on Clean Air Compliance Analysis, has expressed similar concurrence in its past several reviews of CAAA Section 812 cost/benefit studies of the CAAA. Several recent Harvard studies (Di et al. 2017a, b) clearly indicate PM mortality at concentrations well below the current daily and annul PM NAAQS respectively.

Other key assumptions in the RIA include a substantial downward revision (87% to 97% lower) to the previously accepted estimates of the "Social Cost of Carbon" (SCC). The previous SCC had been developed and revised over many years by a multi-agency workgroup of scientists and economists, and was recently subject to extensive reviews by the National Research Council. The Phase 1 NRC report reviewed the current (as of 2016) SCC and recommended no short term changes, while the Phase 2 NRC report recommended longer-term approaches and research needs for future revisions. The revised SCC used in the 2017 RIA is not consistent with the NRC recommendations.

Two important changes from previous SCC estimates include limiting assumed benefits from US GHG reductions to the US only rather than considering the global nature of the problem, and using discount rates of 3% and 7% (compared to 2.5%, 3% and 5% used in previous SCC estimates) to project future costs & benefits in current dollars. If each country considered only local climate-related benefits of reducing its local GHG emissions, none would act. Conversely, inaction on US GHG emissions may result in other nations reneging on their emissions reduction commitments. The 3% to 7% discount rates were taken from a 2003 OMB circular A4 - which

also indicated that lower rates might be appropriate for considering long-term intergenerational effects. A 7% discount rate essentially drives assumed benefits towards zero for the future generations which will be most heavily impacted by current GHG emissions. A recent 2017 report from the Council of Economic Advisors recommends that both the high and low bounds of this range should be lowered. Richard Newell, who co-chaired the NRC SCC Review panel recently indicated that "the [3% to 7%] range of discount rates used is not appropriate under standard economics, leading to much weaker policy than would otherwise be the case."

Since the assumptions and methods employed in the 2017 RIA are critical to both the proposed repeal and replacement of the CPP, as well as to other current or future actions pertaining to GHG emissions, it is important that they be subject to external peer review. How, when and by whom such review(s) should be conducted are difficult questions - for which further input and discussion from the entire SAB would be desirable. The issue of PM mortality effects at levels below current NAAQS should be thoroughly considered (again) in the currently ongoing PM NAAQS ISA development and associated CASAC review. Since the NRC Committee has recently completed extensive reviews of the SCC, it could be presumptuous to assume that an SAB committee could improve upon those efforts. However, those NRC reviews were very specifically focused on the previous (pre-2017) SCC estimates. One approach might be to recommend reconvening the NRC Committee and ask them to review just the changes to SCC estimation methods since their last review.

Description of Planned EPA Action

1. **Name of action:** Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles

2. **RIN Number:** 2060-AT77

3. **EPA Office originating action:** Office of Air and Radiation/Office of Transportation and Air Quality

4. **Brief description of action and statement of need for the action:**

   On March 22, 2017, EPA announced its intention to reconsider the Final Determination of the Mid-Term Evaluation (MTE) of greenhouse gas (GHG) standards for model year (MY) 2022–2025 light-duty vehicles and to coordinate its reconsideration with the parallel process to be undertaken by the Department of Transportation (DOT)/National Highway Traffic Safety Administration (NHTSA) regarding Corporate Average Fuel Economy (CAFE) standards for cars and light trucks for the same model years. EPA is authorized to establish GHG standards for light-duty vehicles under section 202(a) of the Clean Air Act.

   This reconsideration follows a January 2017 determination signed by the former Administrator to maintain the current GHG emissions standards for MY 2022-2025 vehicles. The previous determination was preceded by an EPA Proposed Determination in November 2016 and a Draft Technical Assessment Report released jointly by EPA, NHTSA, and the California Air Resources Board in July 2016.

   EPA made a regulatory commitment as part of the 2012 rulemaking establishing the MY 2017-2025 light-duty vehicle greenhouse gas (GHG) standards to conduct a Mid-term Evaluation of the standards for MYs 2022-2025 to determine whether the standards remain appropriate. As a part of the Mid-term Evaluation process, EPA has examined and continues to examine a wide range of factors, such as developments in powertrain technology, vehicle electrification, the penetration of fuel efficient technologies in the marketplace, consumer acceptance of fuel efficient technologies, trends in fuel prices and the vehicle fleet, employment impacts, and many others.

   Additional background and documents related to the Mid-Term Evaluation are available at:
   https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas.

   Rulemaking documents for the model year 2017-2025 standards are available at:
   https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle.

5. **Timetable:**

EPA plans to issue a new Final Determination no later than April 1, 2018.

6. **Scientific products that will inform the action and plans for peer review:**

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
The EPA has developed a wide range of technical and scientific work products to inform the Midterm Evaluation. EPA utilizes two key models: 1) the Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) model is a full vehicle simulation model which estimates the GHG emission reduction potential of various combinations of vehicle and powertrain technologies. 2) the Optimization Model for reducing Emissions of Greenhouse Gases from Automobiles (OMEGA) estimates the most cost-effective technology pathways for automobile manufacturers to achieve fleet-wide levels of GHG emissions, by using vehicle effectiveness estimates from the ALPHA model combined with cost estimates for various combinations of fuel efficient technologies. Both the ALPHA and OMEGA model have been peer reviewed and are publicly available.

https://www.epa.gov/regulations-emissions-vehicles-and-engines/advanced-light-duty-powertrain-and-hybrid-analysis-alpha

https://www.epa.gov/regulations-emissions-vehicles-and-engines/optimization-model-reducing-emissions-greenhouse-gases

The EPA assesses advancements in fuel efficient technologies in the vehicle market through an in-house powertrain benchmarking program at its National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. Through this effort, the EPA has benchmarked more than 30 vehicles to gather detailed data on the emissions and fuel consumption performance of advanced gasoline engines and transmissions. Over the past five years, the EPA has published about 30 peer-reviewed technical papers regarding the development of the EPA ALPHA model, EPA's benchmarking work, EPA's investigation of advanced automotive technologies, and other technical elements that can help to inform the EPA Mid-term Evaluation. These papers and the data is made publicly available.

https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#publication

https://www.epa.gov/vehicle-and-fuel-emissions-testing/test-data-light-duty-greenhouse-gas-ghg-technology

The EPA continues to assess, with a contractor, FEV, the costs of fuel efficient technologies through a detailed process referred to as cost teardown analysis. The EPA has also assessed both the feasibility and costs of reducing GHG emissions through vehicle light-weighting; the most recent of these studies assessed light-weighting

potential for full-size pickups.
https://nepis.epa.gov/Exe/ZyPDF.cgi/P100MS0E.PDF?Dockey=P100MS0E.PDF

In further investigation of auto manufacturer costs impacts, the EPA commissioned a study on cost reduction through learning in manufacturing. The final report and peer review report can be found at
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100PUSX.PDF

The EPA has conducted research on several fronts relating to consumer and market impacts of the vehicle GHG standards. The EPA assessed consumer satisfaction with fuel efficient technologies through a content analysis study of professional automotive reviews. The EPA is currently continuing to assess consumer issues through a review of consumer survey data, has commissioned research into consumer willingness to pay for various vehicle attributes, and is also exploring the evolving relationship between vehicle performance and fuel economy.

The EPA commissioned research on the vehicle miles traveled rebound effect. The final report and peer review report can be found at
https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N11T.PDF?Dockey=P100N11T.PDF

https://nepis.epa.gov/Exe/ZyPDF.cgi/P100N141.PDF?Dockey=P100N141.PDF

Numerous EPA technical reports and publications informing the MTE can be found on the EPA Science Inventory:

Benchmarking and Hardware-In-The-Loop Operation of a 2014 MAZDA SkyActiv (SAE 2016-01-1007) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309373&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Characterizing SI Engine Transient Fuel Consumption in ALPHA (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328376&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Consideration of Real World Factors Influencing Greenhouse Gas Emissions in ALPHA (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328377&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

EPA ALPHA Modeling of a Conventional Mid-Size Car with CVT and Comparable Powertrain Technologies (SAE 2016-01-1141) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309576&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Estimating GHG Reduction from Combinations of Current Best-Available and Future Powertrain and Vehicle Technologies for a Midsized Car Using EPA's ALPHA Model (SAE 2016-01-0910) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309574&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Fuel Efficiency Mapping of a 2014 6-Cylinder GM EcoTec 4.3L Engine with Cylinder Deactivation (SAE 2016-01-0662) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309578&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Investigating the Effect of Advanced Automatic Transmissions of Fuel Consumption Using Vehicle Testing and Modeling (SAE 2016-01-1142) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309575&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Modeling and Validation of 12V Lead-acid Battery for Start-Stop technology (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=336334&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Modeling the Effects of Transmission Type, Gear Count and Ratio Spread on Fuel Economy and Performance Using ALPHA (SAE 2016-01-1143) (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=309611&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Peer Review of ALPHA Full Vehicle Simulation Model (PUBLISHED REPORT)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=337970&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Potential Fuel Economy Improvements from the Implementation of cEGR and CDA on an Atkinson Cycle Engine (JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328379&simpleSearch=0&showCriteria=2&searchAll=otaq&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

Testing and Benchmarking a 2014 GM Silverado 6L80 Six Speed Automatic Transmission(JOURNAL)
https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=328378&simpleSearch=0&showCriteria=2&searchAll=office+of+transportation&TIMSType=&dateBeginPublishedPresented=01%2F18%2F2016

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

The EPA's technical work to inform the MTE is conducted through approaches including in-house testing and model development, commissioning work with experts via contracts, collaborations with other agencies (NHTSA, California Air Resources Board, Department of Energy, Canadian government agencies), stakeholder outreach, peer-review, and review of public comments.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
The work products described above to inform the reconsideration of the MTE final determination meet the definition of influential scientific or technical work products.

6(d). Peer review:
Each of the technical work products conducted to inform the MTE either has been or will be peer reviewed. See 6(a) for the peer reviews that have already been completed and are contained in the EPA Science Inventory or posted to the EPA's Midterm Evaluation web site.

In addition, the EPA has several work products currently undergoing peer review, including:

- EPA's ALPHA model response surface equation report: EPA developed a method of deriving vehicle effectiveness values using an industry standard statistical methodology known as a Response Surface Model, which computationally synthesizes a large set of vehicle simulation outputs from the ALPHA model. This letter peer review was conducted through a contractor, RTI International. EPA is in the process of reviewing the draft peer review report.

- Consumer Willingness to Pay for Vehicle Attributes: EPA commissioned RTI International to work with a subject matter expert in reviewing the academic literature regarding consumer willingness to pay (WTP) for a variety of vehicle attributes (e.g., fuel economy, performance, comfort, range) and to assess the ranges of WTP values in the literature. A letter peer review, conducted through a contractor, of this research report has been completed and EPA is currently reviewing the peer review report.

- Content Analysis of Professional Auto Reviews: EPA commissioned research with a contractor, RTI International, to investigate satisfaction with vehicle fuel efficiency

technologies, through a content analysis of professional automotive reviews. EPA is conducting peer review through submission of journal articles for publication. A journal article has been published on EPA's study of auto reviews for model year 2014 vehicles (Helfand et al. (2016), "Searching for Hidden Costs: A Technology-Based Approach to the Energy Efficiency Gap in Light-Duty Vehicles," Energy Policy 98: 590-606). EPA has submitted for publication a second paper on our analysis of auto reviews for model year 2014 and 2015 vehicles.

Recommendation from the SAB Work Group

Name of planned action: Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN: 2060-AT77)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		x
Is the action primarily administrative (i.e., involve reporting or record keeping)?		x
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	x	
Is the action an extension of an existing initiative?	x	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency		x	
Addresses areas of substantial uncertainties		x	
Involves major environmental risks	x		
Relates to emerging environmental issues	x		
Exhibits a long-term outlook	x		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB should consider this action for review with regard to the adequacy of the supporting science. The Work Group provided fact-finding questions[1] to the EPA. They noted that the Work Group identified analyses that "could be considered to inform the forthcoming NPRM" and they will assess these issues as they develop the proposed rule. They also noted the schedule for the rulemaking addressing standards for model years 2022-2025

[1] Attachment C of this memorandum provides submitted questions and EPA's responses

light-duty vehicle greenhouse gas standards has not yet been announced. Key questions to address in such a review should include but need not be limited to the following:

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?
- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?
- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?
- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?
- What are the effectiveness, co-benefits/harms in terms of emissions reductions/increases for other pollutants, and costs/benefits of technology options?
- What are the projected fleet level GHG emissions and co-pollutant emission changes associated with various scenarios?

Such a review might begin with existing documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. To the extent that the agencies have appropriately addressed key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Rationale: Additional details are given below regarding the workgroup evaluation of the proposed action. In addition, fact-finding questions submitted to EPA and the EPA responses are given in an appendix.

- On April 2, 2018, the Administrator issued a revised final determination of the Mid-Term Evaluation (MTE) which "initiate[s] a rulemaking process whose outcome will be a final agency action." As such, these recommendations focus on the ongoing rulemaking process that results from the MTE. The ongoing rulemaking process pertains to revision of the now in-effect Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles, hereby after referred to as "the standards". The Administrator finds that the standards are "not appropriate and should be revised."
- The April 2, 2018 final determination relied extensively on public comment without peer review or independent evaluation or validation of claims made by public commenters. The specific ISI or HISI to be used by EPA in the forthcoming proposal is not specified in the announcement of the final determination for the MTE.
- Reconsideration of the MTE did not identify or account for the direct impact of the standards on GHG emissions, climate change, and public health and safety, or the indirect impacts of the standard on other pollutants from vehicles, including life cycle emissions from the transport system. These would seem to be logical and necessary areas for scientific and technical assessment, for which Influential Scientific Information (ISI) or

Highly Influential Scientific Information (HISI) would be needed to inform the forthcoming proposal. Such information must be transparent, accessible to the public, and appropriately peer-reviewed.

- EPA, in collaboration with the National Highway Traffic Safety Administration (NHTSA) and the California Air Resources Board (CARB), developed extensive documentation for the mid-term evaluation, including a technical assessment report and several supporting studies. NHTSA is conducting an MTE and RIA regarding fuel economy standards to inform a companion rule to the EPA standards. The Administrator argues that the 2022-2025 standards are based on "outdated information" and that new information should be considered, including gas prices, consumer acceptance of advanced technology vehicles, the social cost of carbon, the rebound effect, energy security valuation, technology effectiveness, technology cost, vehicle affordability, and vehicle safety. This implies a significant scope of data and methods which might constitute HISI or ISI and, therefore, which might require appropriate peer review. However, EPA has not provided any information on what HISI or ISI would be developed or used in the forthcoming rulemaking or how such information would be appropriately reviewed.
- The Administrator argues that manufacturers are having difficulty meeting the current standards because they are using banked credits. However, the use of banked credits might be a short term phenomenon that permits manufacturers to account for product development cycles in new vehicle offerings. The expected or possible functions of the credit banking system may be a relevant issue to the review of the standards for which no particular methodology has been articulated by the EPA.
- The Administrator argues that electric vehicle sales are necessary to compliance with the standards. This projection can be evaluated via quantitative analysis that is subject to peer review. The peer-reviewed literature includes some studies that do not support this assumption. Others, such as the National Research Council, have indicated that a variety of approaches could be employed to meet the requirements for the 2025 model year. However, the National Research Council simulations and some of the peer-reviewed literature were focused on mid-sized cars and did not account for the rapid growth of the light truck fleet.
- The Administrator stated, based on a public comment, that "electrified light vehicle" (ELV) sales have decreased. The public comment was based on incomplete information that did not take into account full year sales data for 2016, nor data for 2017, and did not differentiate among vehicle types. ELVs are defined in EPA's draft Technical Assessment Report for the MTE to include hybrid electric vehicles (HEVs), plug-in electric vehicles (PHEVs), and battery electric vehicles (BEVs). Total ELV sales peaked in 2013 and bottomed out in 2015. HEV sales bottomed out in 2016. ELV sales in 2017 are 11 percent lower than in 2013 because the decline in HEV sales has outweighed the steady rise in sales of PHEVs and BEVs. The rise in sales of plug-in electric vehicles may not be entirely encouraging because it is concentrated in mid-price to high-price models, coupled with tax credits, rather than the more affordable models that may be needed to achieve mass commercialization.
- Any revision of the standards is likely to be highly controversial. California has an EPA waiver issued under the Clean Air Act to develop its own vehicle emissions regulations. One of the key goals of the 2017-2025 standards was to harmonize the federal standard

and the California GHG standard into a Joint National Program. However, state zero emission vehicle (ZEV) standards were not harmonized with the EPA and NHTSA standards. California completed its own MTE and found that the California standards – both its GHG and ZEV standards -- were appropriate. Other states on the West Coast and in the Northeast region of the US have chosen to adopt California standards. If the EPA revises the federal standards such that they differ from those of California, and if EPA grants California a waiver for separate standards, the U.S. will have disparate standards in different parts of the country, thereby creating compliance complications for automakers. If EPA revises the federal standards but does not grant a waiver to California, that would also be highly controversial. Revisions to the standards are likely to be controversial for other reasons as well. For example, reductions in GHG emissions are critical to mitigation of climate change, which has long-term public health, safety, and ecological implications.

- Other details are as noted below.
- Some of the issues identified here, such as the social cost of carbon, cut across multiple planned actions, including 2060-AT55, 2060-AT56, and 2060-AT67. Other issues are unique to the standards.

Detailed Assessment

On April 2, 2018, the EPA Administrator determined that the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles "are not appropriate". This concludes the Reconsideration of the Final Determination of the Mid-Term Evaluation of these standards. However, the effect of the April 2, 2018 decision is to "initiate a rulemaking process whose outcome will be a final agency action." The final agency action is expected to be a revision of the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles. Until such time as these standards are revised, replaced, or rescinded, they remain in effect. As justification for the MTE decision that the standards are "not appropriate," the Administrator cites the following key factors:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers
5. The impact of the standards on the automobile industry
6. The impacts of the standards on automobile safety
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program

Not mentioned among the key factors is the direct impact of the standards on GHG emissions, climate change, and public health and safety, or the indirect impact of the standards with regard to co-benefits of reduced emissions of other pollutants and reduced life cycle emissions for vehicles.

Modification of the Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (referred to hereafter as "the standards") will entail review and interpretation of a substantial amount of information and data. The rulemaking process will involve the use of influential scientific information (ISI) or highly influential scientific information (HISI). The April 2, 2018 notice relies extensively on public comments. The specific ISI or HISI to be used by EPA in the forthcoming rulemaking is not specified in the announcement of the final determination for the MTE. Thus, at this time, the SAB Regulatory Review Working Group should conduct fact-finding or request more information from EPA regarding the planned action to revise the standards.

Mid-Term Evaluation – Version 1

According to EPA, "the Mid-Term Evaluation was established to review standards set in a 2012 joint rulemaking by the EPA and NHTSA, which set federal GHG emissions and CAFE standards for MY 2017 and beyond for light-duty vehicles. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, Final Rule, 77 FR 62624 (Oct. 15, 2012)." "These standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles (i.e., sport utility vehicles, cross-over utility vehicles and light trucks), collectively referred to as light-duty vehicles. EPA set GHG standards (including standards for emissions of carbon dioxide (CO2), nitrous oxide, methane and air conditioning refrigerants) for MY 2017–2025 passenger cars and light-trucks under section 202(a) of the CAA. NHTSA sets national CAFE standards under the Energy Policy and Conservation Act (EPCA), as amended by the Energy Independence and Security Act (EISA) of 2007."

In November, 2016, EPA issued a proposed determination for the Mid-Term Evaluation. 81 FR 87927 (Dec. 6, 2016). On January 12, 2017, the EPA Administrator signed the Final Determination of the Mid-Term Evaluation of light-duty vehicle GHG emissions standards for MYs 2022–2025." In a letter to stakeholders announcing the final determination of the MTE, the Administrator stated "the standards adopted in 2012 by the EPA remain feasible, practical and appropriate under section 202(a) and do not need to be revised, after considering the factors laid out in the 2012 rule." Furthermore, the Administrator noted "the success of the industry to date in achieving seven years of record sales while producing a large variety of vehicles that meet or exceed the standards reflects the fact that the development and deployment of advanced technology conventional gasoline engines has happened consistent with a robust vehicle market, more rapidly than we predicted, and at costs that are comparable or slightly lower than we predicted."

Scientific and Technical Analyses for the 2012 Rule and the MTE

The technical analyses that were the basis of the 2012 rule making and that informed the final determination for the MTE was extensive. They included, but were not limited to, EPA staff reports on a consumer vehicle choice model (2012), Testing a Model of Consumer Vehicle Purchases (2015), Mass Reduction and Cost Analysis— Light-Duty Pickup Truck Model Years 2020-2025 (2015), evaluation of The Rebound Effect from Fuel Efficiency Standards (2015) (including external peer review that "expressed overall support for the methodology"), A Technology-Based Approach to the Energy Efficiency Gap in Light-Duty Vehicles (2015), Cost Reduction through Learning in Manufacturing Industries and in the Manufacture of Mobile

Sources (2016), draft Technical Assessment Report for the MTE (1217 pages, 2016, jointly with CARB and NHTSA), and a Final Determination of Appropriateness under the MTE (2017). Furthermore, EPA staff authored or co-authored a series of reports submitted for peer review and publication on topics such as development of an efficiency test for air conditioners, cost effectiveness of lightweight design for a crossover SUV, development of an advanced light duty power train and hybrid analysis tool, modeling and validation of power-split and parallel hybrid electric vehicles, and others. Moreover, EPA developed new modeling tools including the Advanced Light-Duty Powertrain and Hybrid Analysis (ALPHA) Tool and Optimization Model for reducing Emissions of Greenhouse gases from Automobiles (OMEGA).

In a 2015 report, the National Research Council issued its review and recommendations regarding the methodology used by EPA and NHTSA in developing the 2017-2025 MY GHG and CAFÉ standards. "The committee found the analysis conducted by NHTSA and EPA in their development of the 2017-2025 standards to be thorough and of high caliber on the whole. In particular, the committee notes that the use of full vehicle simulation modeling in combination with lumped parameter modeling has improved the Agencies' estimation of fuel economy impacts. Increased vehicle testing has also provided input and calibration data for these models. Similarly, the use of teardown studies has improved the Agencies' estimates of costs." The NRC recommended updating some of the cost estimates during the MTE process. The committee estimated that downsized turbocharged engines would provide fuel consumption "close to that estimated by NHTSA" but with up to 15 percent higher manufacturing cost. NRC's simulations of multiple technologies for mid-sized cars found that NHTSA's 2012 analysis had underestimated technology costs by 11% or 56%, depending on the specification of updated cost inputs. However, the NRC committee further noted that "There are also new technologies not considered by EPA and NHTSA that might provide additional fuel consumption reductions for SI engines, or provide alternative approaches by 2025 and beyond. These technologies include higher compression ratio, exhaust scavenging, lean burn, and electrically assisted supercharger approaches and alternative fuels such as compressed natural gas-gasoline bi-fuel engines and ethanol-boosted direct injection engines." The NRC also found that continuously variable transmissions (CVTs) will experience more market penetration than assumed by the agencies, that more attention should be given to lightweighting, that more attention should be given to understanding why consumers undervalue fuel economy relative to its discounted expected present value, and to monitoring the effects of the standards on fuel efficiency, vehicle footprint, fleet size mix, safety, and the price of new vehicles to understand the impact of the rules on consumers' choices and manufacturers' products offered.

With regard to the latter, EPA has issued Manufacturer Performance Reports for the 2015 and 2016 model years that documents the status of auto manufacturer compliance with the GHG standards since the standards took effect in the 2012 model year. EPA has also published The Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends Report annually to summarize trends in EPA's best estimate of real world tailpipe carbon dioxide (CO2) emissions and fuel economy, and associated technologies. These reports quantify that manufacturers have responded to the GHG emission and fuel economy standards by adopting a range of technologies such as gasoline direct injection.

Mid-Term Evaluation – Version 2

On March 22, 2017, EPA announced its intent to reconsider the Final Determination of the Mid-Term Evaluation of greenhouse gas (GHG) standards for model year (MY) 2022-2025 light duty vehicles and to coordinate this reconsideration with the US DOT's NHTSA regarding Corporate Average Fuel Economy (CAFÉ) Standards for cars and light trucks for the same model years [Federal Register, Vol. 82, No. 54, page 14671]. "EPA has concluded that it is appropriate to reconsider its Final Determination in order to allow additional consultation and coordination with NHTSA in support of a national harmonized program." Under the original timeline for the MTE, EPA was required to determine no later than April 1, 2018 whether the standards for model years 2022 to 2025 are appropriate.

On August 21, 2017, EPA requested comment on "the separate question of whether the light-duty vehicle greenhouse gas standards established for model year 2021 remain appropriate, regardless of the agency's decision on the MTE," with comments to be received by October 5, 2017.

On August 23, 2017, EPA announced a hearing to be held on September 6, 2017 in Washington DC on "Reconsideration of the Final Determination of the Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Years 2022–2025 Light-Duty Vehicles."

Notice of Final Determination for the Mid-Term Evaluation

On April 2, 2018, the EPA Administrator announced that the finding of the reconsideration of the final MTE is "the current standards are not appropriate and should be revised" and that a joint process would be starting with the NHTSA "to develop a notice and comment rulemaking to set more appropriate GHG emissions standards and Corporate Average Fuel Economy (CAFE) standards."

In an April 2, 2018 announcement of the reconsideration of the final determination of the MTE, EPA states that "the current standards are based on outdated information, and that more recent information suggests that the current standards may be too stringent." EPA mentions that gas prices and "consumer acceptance of advanced technology vehicles" differ from assumptions made in support of its January 2017 MTE determination. EPA also states that "Economic inputs such as the social cost of carbon, the rebound effect, and energy security valuation should also be updated to be consistent with the literature and empirical evidence." Furthermore, "EPA has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration." The EPA also states that "the reach and success of the program established in the 2012 rulemaking is significantly limited when consumers cannot afford new cars. New information and data provided show the potential significant negative effects of higher vehicle costs." The Administrator said the current standards present "challenges for auto manufacturers due to feasibility and practicability, raises potential concerns related to automobile safety, and results in significant additional costs on consumers, especially low-income consumers."

As an example of challenges to auto manufacturers, the Administrator states that manufacturers are "relying on banked credits which suggests that it may be increasingly difficult for them to

comply going forward as they use up their supply of credits." This interpretation may be inaccurate. Another interpretation is that the banked credits have economic value to the manufacturers, and that manufacturers consume banked credits periodically in order to respond to compliance deadlines while respecting normal product life cycles. For example, when a more fuel efficient new generation of a model is introduced, credits would be banked early in the generation life cycle but might be consumed later in the generation life cycle, to allow manufacturers flexibility and lead time to design the subsequent more efficient generation to follow. The use of a credit banking system provides manufacturers with flexibility to account for the lead time necessary to introduce new technology without shortening the payback period on investment in existing technology.

EPA contends, based on a public comment, that electrified vehicle sales have decreased in total and as a percentage of light vehicle sales. Although annual sales of HEVs in recent years are much lower than their peak in 2013, the trend in sales for PHEVs and BEVs has generally been positive (except for a slight decline in 2015). Total ELV sales in 2013 were 624,610 vehicles, including 536,383 HEVs, 41,376 PHEVs, and 46,832 BEVs. Total ELV sales in 2017 were 555,167 vehicles, including 365,320 HEVs, 91,724 PHEVs, and 96,261 BEVs. Sales of all three types of electrified vehicles are higher in 2017 than in 2016. Gasoline prices collapsed in the US in 2014 and HEVs were no longer permitted on California's HOV lanes. These factors contributed to the recent decreases in HEV sales. The net decline in HEV sales from 2013 to 2017 has more than offset the rise in plug-in electric vehicle sales over the same period. Thus, consumer acceptance of fuel efficient vehicles is a major challenge.

The current U.S. fuel economy standard requires average LDV fuel economy of 40.3 to 41.0 mpg by 2021 and 48.7 mpg to 49.7 mpg by 2025. The current U.S. LDV CO_2 emission standard of 163 g/mile is equivalent to 54.5 mpg if it were to be met only by fuel economy improvement of gasoline-fueled vehicles, but can be met with vehicles powered by other fuels or electricity. Furthermore, the standard is based on FTP and HFET test results, not the downward adjusted fuel economy rating (EPA, 2018). The NRC found that a likely option for further improving LDV fuel economy is to replace naturally aspirated engines with downsized (smaller displacement) turbocharged engines, though NRC focused more on mid-sized sedans than light trucks in their simulation modeling (NRC, 2015). The market share of new LDGVs with turbocharged engines has grown from less than 5 percent in 2010 to over 20 percent in 2016. Effective strategies for meeting the current 2025 model year U.S. fuel economy target of 54.5 mpg could include either increased hybridization, increase in the 0 mph to 60 mph acceleration time, a decrease in interior volume, or combinations of these (Luk et al., 2016, Whitefoot et al., 2017). Lightweighting of vehicles is another possible strategy that agencies predict will be used to reduce fuel consumption and GHG emissions.

There are numerous other potential opportunities for increasing fuel efficiency of vehicles. For example, use of higher ethanol blends, which lead to higher octane, could lead to the development of higher compression ratio engines that are more fuel efficient. On the other hand, ethanol has less energy value than gasoline and therefore ethanol blending reduces fuel economy compared to 100% gasoline. However, on an energy basis, engine operation on ethanol is typically at least as energy efficient compared to operation on neat gasoline. EPA reports that automakers agree that higher octane is a possible path forward but a separate rulemaking on

fuels, which also would likely trigger controversy, would be required to compel higher octane levels.

The California Air Resources Board completed its own mid-term evaluation in March 2017 and found that both the California GHG and zero-emission vehicle standards were appropriate. California performed supporting analyses from California's perspective. California historically has had a waiver under the Clean Air Act to set its own vehicle emission standards. When the EPA set fuel economy and GHG emission standards in 2012, it did so to harmonize the Federal standard with the California GHG standard. State zero-emission vehicle requirements were not included in the harmonization effort.

In identifying various factors that might argue for or against revising the existing standard, EPA states that there "is significant uncertainty" in the pace of development and degree of efficiency improvements of new technologies, and that "this uncertainty further supports its determination to reconsider the current standards through a subsequent rulemaking." Consumers of cars (but not SUVs) are more likely to adopt electric drive vehicles if provided information on the total cost of owning the vehicle over its lifetime rather than information regarding the five year cost of ownership contained on EPA's label (Dumortier et al, 2015). Given that auto manufacturers and dealers spend substantial resources on advertising, and can also implement pricing strategies among different vehicle models, it may be feasible for automakers and dealers to encourage more consumers to adopt high fuel economy vehicles. However, previous concerted efforts by selected vehicle manufacturers to market fuel-economy innovations (e.g., Honda's Insight, Ford's Escape Hybrid, and the Nissan Leaf) have had only mixed success.

EPA expressed concern about the affordability of new vehicles to low income households, but did not express concern regarding the disproportionate impact on low income households from GHG emissions insofar as those households are less able to adapt to climate change than high-income households. EPA mentioned that a study by Synapse Energy Economics for Consumers Union found that entry level vehicle prices have been roughly the same for the last 10 years. EPA indicated that the potential of decreased adoption of newer cars should be considered in future rulemaking.

EPA states that the only MY 2017 vehicles that could comply with the MY2025 standards have a very low consumer purchase rate. Referring to an industry provided figure, EPA implies that only electric drive vehicles could be the basis for a fleet that meets the MY 2025 standard. However, the MY 2025 standard is a fleet-based standard, not a standard that applies to specific vehicle models individually. Missing from the MTE final determination is any discussion of the typical technology adoption and diffusion patterns for new technologies. A commenter conveyed that vehicle models with larger fuel economy improvements have had larger sales increases than those with lower fuel economy improvements, but the market shift from sedans to crossovers and other light-truck products is changing the compliance challenge for vehicle manufacturers.

EPA expressed concern that if consumers are less willing to adopt new technology vehicles, the reductions in fuel consumption and emissions from the program may be less than expected and should be considered as part of the planned rulemaking. The fuel price projections used in the 2012 rule are higher than current fuel prices, and current reference-case projections of the Energy Information Agency indicate that fuel prices will be much lower in future years than had

been projected by EIA at the time of EPA's in 2012 rulemaking. However, EIA energy-price projections are often inaccurate compared to future realities. It may be more fruitful to develop estimates based on an ensemble of scenarios than to fixate on EIA's reference-case scenario. In 2025, average fuel prices could be much lower or much higher than EIA is projecting in their reference scenario, and EIA supplies high and low fuel-price scenarios to inform sensitivity analyses.

EPA raised the issue of rebound effect based solely on public comment but did not offer any assessment of this issue. Although EPA agrees that there are co-benefits of the GHG vehicle emission standards with respect to reduction of emissions and ambient concentrations of criteria pollutants regulated under the NAAQS, EPA states "those issues are already handled through the NAAQS implementation process." The NAAQS implementation process does not involve setting fuel economy standards or GHG emission standards for new vehicles. However, if vehicle standards make it easier for states and localities to comply with NAAQS, then states and localities may permit greater levels of emissions from stationary sources than might otherwise be the case. Thus, the net effect of GHG-standard co-benefits on concentrations of criteria air pollutants requires assumptions about the policy decisions of state and local regulatory bodies and emission-control decisions by stationary sources.

EPA claims that the MY 2022-2025 standards would reduce vehicle sales over those four years by 1.3 million vehicles due to higher vehicle prices, based on a study submitted as part of public comments. However, the validity of the study, who funded it, and whether it was peer-reviewed was not mentioned. EPA cites Carley et al (2017), funded by the Alliance of Automobile Manufacturers, that estimates short-term macroeconomic effects of the standards (including the state zero emission vehicle regulations as well as the federal standards) that are negative but become positive sometime between 2022 and 2035 as a result of fuel savings and stimulus of the automotive supply chain. In the long run, the positive macroeconomic effects of the federal and state standards were much larger than the near-term negative effects.

EPA states that it intends to further assess the scope of safety analyses related to fleet turnover.

EPA summarized auto manufacturer public comments that seek a national harmonized standard between federal and California standards.

Although acknowledging that regulatory certainty and sufficient lead time is important, the EPA nonetheless proposes to reconsider standards effective with the 2022 model year which is less than four years away from the current 2018 model year. EPA argues that because NHTSA did not undertake their required rulemaking process related to the corporate average fuel economy standard, EPA should reconsider its already established rule.

The effect of the revised determination is not a final regulatory action: the effect of this determination is to initiate a rulemaking process, during which time the current standards remain in effect.

Clearly, any proposed reconsideration of the existing 2022-2025 MY GHG and CAFÉ standards will entail the use of influential scientific information (ISI) and highly influential scientific

information (HISI). There may also be revised interpretations of previously developed ISI and HISI.

Several of the EPA contractor or staff reports appear to have had letter reviews conducted by contractors using a limited number of reviewers, while other technical reports were said to be reviewed by virtue of having them published in peer reviewed publications. However, it would be helpful to obtain more information from EPA staff regarding the nature and specifics of these review activities. There was no comprehensive SAB review of the technical assessment report prepared jointly by EPA, NHTSA and CARB.

EPA continues to collect data that are published in annual reports, including a trends report and a manufacturer performance report, but it is unclear if these annual reports have had appropriate review.

Furthermore, it is unclear as to what additional information will be considered in a revised rule-making process. For example, there have been numerous peer-reviewed journal papers and other studies that pertain to this topic area. EPA has cited public comments and reports submitted by stakeholders. If the Agency intends to make use of such information as part of the reconsideration of the MY2022-2025 standard, whether such information is ISI or HISI should be determined and, as needed, subject to appropriate peer review.

EPA did not mention in its MTE final determination updated information regarding the effect of GHG emissions on climate change, or updated information that would enable improved estimates of other benefits of the standard.

Description of Planned EPA Action

1. **Name of action:** Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides

2. **RIN Number:** 2060-AT68

3. **EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards

4. **Brief description of action and statement of need for the action:** Under the Clean Air Act Amendments of 1977, EPA is required to review and if appropriate revise the air quality criteria and national ambient air quality standards (NAAQS) every 5 years. On June 22, 2010, EPA published a final rule to revise the primary (health-based) NAAQS for Sulfur Oxides to provide increased protection for public health. This review includes the preparation by EPA of an Integrated Review Plan, an Integrated Science Assessment, and, if warranted, a Risk/Exposure Assessment, and also a Policy Assessment Document, with opportunities for review by EPA's Clean Air Scientific Advisory Committee and the public. These documents will inform the Administrator's proposed decision as to whether to retain or revise the current standard. This proposed decision will be published in the Federal Register with opportunity provided for public comment. The Administrator's final decisions will take into consideration these documents, CASAC advice, and public comment on the proposed decision.

5. **Timetable:** Section 109 of the Clean Air Act establishes a 5-year review cycle for the NAAQS. EPA is currently on a court-ordered schedule to issue a proposed determination/rule in May 2018 and a final determination/rule in January 2019.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action. For each review, EPA prepares an Integrated Review Plan (IRP); an Integrated Science Assessment (ISA); a Risk/Exposure Assessment (REA) Planning Document, and, if warranted, a REA; and also a Policy Assessment (PA).

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis). Each review generally begins with a kickoff workshop with internal and external scientific experts to solicit input on technical issues and current information relevant for the review and on the key issues that will frame the review. The workshop activity informs identification of policy-relevant issues and development of the IRP for the review. As described in the IRP, EPA prepares a series of documents, with opportunities for review by the EPA's CASAC and the public. Draft versions of the IRP,

ISA, REA (if prepared), and the PA are reviewed at public meetings by a panel of the CASAC constituted for the specific NAAQS review. Final documents reflect consideration of CASAC advice and recommendations, and of comments provided by members of the public.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?" Review of the NAAQS rely on assessment documents that are designated as "highly influential scientific assessments."

6(d). Peer review: Drafts of the ISA, REA (if prepared), and PA are reviewed at public meetings by a CASAC Panel. The CASAC Panel is charged with providing written advice to the EPA Administrator, reflecting the consensus views of the Panel where appropriate. Prior to development of a REA, if one is warranted, the EPA prepares a REA Planning Document which is the subject of consultation with the CASAC Panel and on which EPA solicits public comment.

Further information: https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC

Recommendation from the SAB Work Group

Name of planned action: Review of the Primary National Ambient Air Quality Standards for Sulfur Oxides (RIN 2060-AT68)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?	X	
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	X	
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks	X		
Relates to emerging environmental issues		X	
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further SAB consideration.

Rationale: This action has undergone a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Sulfur Oxides Review Panel. CASAC is a FACA committee. The SOx Review Panel was specifically constituted, in terms of independent scientific expertise, to review this proposed action. CASAC has statutory mandate under the Clean Air Act to advise the Administrator regarding the NAAQS. On April 30, 2018, CASAC submitted its comments on EPA's Policy Assessment for the Review of the Primary National Ambient Air Quality Standard for Sulfur Oxides (External Review Draft - August 2017) and regarding its advice on this standard. Thus, the scientific review by CASAC for this review cycle has concluded. EPA finalized the Policy Assessment on May 9, 2018.

Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review

2. **RIN Number:** 2060-AT74

3. **EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards, Sector Policies and Programs Division

4. **Brief description of action and statement of need for the action:**

   The Clean Air Act (CAA) establishes a two-stage regulatory process for addressing emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, the CAA requires the EPA to develop technology-based standards for categories of industrial sources. In the second stage of the regulatory process, the EPA must review each maximum achievable control technology (MACT) standard at least every 8 years and revise them as necessary, "taking into account developments in practices, processes and control technologies." We call this requirement the "technology review." The EPA is also required to complete a one-time assessment of the health and environmental risks that remain after sources come into compliance with the MACT standards. If additional risk reductions are necessary to protect public health with an ample margin of safety or to prevent adverse environmental effects, the EPA must develop standards to address these remaining risks. For each source category for which the EPA issued MACT standards, the residual risk stage must be completed within 8 years of promulgation of the initial MACT standard. Since the initial technology review requirement deadline coincides with the risk review requirement deadline, the EPA generally combines these two requirements into one rulemaking activity, calling this the "risk and technology review" process, or simply RTR. In this way, results of the risk review can be potentially informative to the technology review process, and vice versa.

   For the first stage, the EPA issued national emission standards to control hazardous air pollutants (NESHAP) emitted from hydrochloric acid production in April 2003 (68 FR 19076). Amendments to the NESHAP were made after promulgation, resulting in final amendments on April 7, 2006 (71 FR 17738).

   For this action, as the second stage of the regulatory process, and as we have done for more than 50 source categories to date, we plan to conduct the residual risk review and initial technology review concurrently.
   Hot Link: Hydrochloric Acid Production: National Emission Standards for Hazardous Air Pollutants (NESHAP) | Stationary Sources of Air Pollution | US EPA

5. **Timetable:**

   Pursuant to a court order related to the review of 20 source categories, the EPA must complete 20 RTR final rules by March 13, 2020, including this action (*i.e.*, the RTR final

rule for Hydrochloric Acid Production). The EPA currently plans to complete this action by June 30, 2019. Tentative schedule:

Proposed RTR Rule: June 2018
Final RTR Rule: June 2019

6. Scientific products that will inform the action and plans for peer review:

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
It is the risk analysis methodologies associated with the RTR process that have undergone scientific peer reviews. There are no other scientific work products that have been or will be developed to inform this planned action.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (*e.g.*, any inter-agency collaboration, workshops to inform the analysis).
Because RTR assessments are used for regulatory purposes, and because components of our risk analyses have evolved over time, we have, over the course of the program, conducted scientific peer reviews of the methodologies through the Science Advisory Board (SAB). Through peer review of the RTR process as a whole, rather than each individual rulemaking effort, the agency is able to conduct consistent risk characterizations across all categories of industrial sources.
As described above, the EPA also conducts a technology review to account for developments in practices, processes and control technologies.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
While the overall RTR risk assessment methods meet the definition as "an influential scientific or technical work product," each individual RTR analysis does not fit this definition.

6(d). Peer review:
Each RTR analysis follows a consistent risk characterization approach using methodologies that have undergone numerous peer reviews. Previous peer reviews have covered elements associated with the RTR process or assessments with similar scopes or contexts. A brief summary of each peer review is provided:

(1) The Residual Risk Report to Congress, a document describing the agency's overall analytical and policy approach to setting residual risk standards, was issued to Congress in 1999 following an SAB peer review. Many of the design features of the RTR

assessment methodology were described in this report, although individual elements have been improved over time.
Hot Link to the final SAB advisory: https://www3.epa.gov/ttn/atw/rrisk/risk_rep.pdf.

(2) A peer review of multi-pathway risk assessment methodologies for RTR was conducted by the EPA's SAB in 2000.
Hot Link to the final SAB advisory:
http://yosemite.epa.gov/sab/sabproduct.nsf/1F1893E27059DB55852571B9004730F7/$File/ecadv05.pdf.

(3) A consultation on the EPA's updated methods for developing emissions inventories and characterizing human exposure was conducted by SAB in December 2006. The SAB provided its formal consultation in a letter to the Administrator in June 2007.
Hot Link to the final SAB advisory:
https://yosemite.epa.gov/sab/sabproduct.nsf/33152C83D29530F08525730D006C3ABF/$File/sab-07-009.pdf.

(4) A review of the updated and expanded risk assessment approaches and methods used in the RTR program was completed in 2009. This methodology was highlighted to the SAB utilizing two RTR source categories: Petroleum Refining Sources MACT I and Portland Cement Manufacturing.
Hot Link to the final SAB advisory:
https://yosemite.epa.gov/sab/sabproduct.nsf/0/b031ddf79cffded38525734f00649caf!OpenDocument&TableRow=2.3#2.

(5) The individual dose-response assessment values used in the RTR assessment have themselves been the subject of peer reviews through the agencies that developed them (including the EPA through its Integrated Risk Information System, or IRIS; the California Environmental Protection Agency, or CalEPA; and the Agency for Toxic Substances and Disease Registry, or ATSDR).

(6) The EPA is currently seeking SAB input on specific enhancements made to our risk assessment methodologies, particularly with respect to screening methodologies, since the last SAB review was completed in 2009 (see #4 above). In May 2017, the EPA submitted a report describing the updated risk screening methodologies to the SAB for review. In June 2017 the SAB expert panel met to discuss the new methodologies. SAB's findings for this review are expected in the Spring of 2018.

Recommendation from the SAB Work Group

Name of planned action: National Emission Standards for Hazardous Air Pollutants for Hydrochloric Acid Production Residual Risk and Technology Review (RIN 2060-AT74)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks		X	
Relates to emerging environmental issues			X
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further review by the SAB.

Background: The EPA uses a standard process to conduct risk and technology reviews for National Emissions Standards for Hazardous Air Pollutants. This process is explained in the Background section on pages B-31-B33.

Rationale: In 2003, EPA promulgated a final rule to reduce toxic air pollutant emissions from new and existing hydrochloric acid plants. This Hydrochloric Acid Production NESHAP

established emission limitations and work practice requirements based on maximum achievable control technology (MACT) for control of hazardous air pollutants (HAP). The pollutants emitted from hydrochloric acid production include hydrochloric acid and chlorine. These pollutants predominantly originate from process vents, storage tanks, transfer operations, and equipment leaks. EPA standards are required to provide an ample margin of safety to protect public health or an adverse environmental effect. EPA is required to review and revise the MACT standards as necessary, taking into account developments in practices, processes and control technologies no less often than every 8 years. As part of the technology review, EPA will need to identify whether new approaches to hydrochloric acid production have emerged that can more effectively prevent or control the emission of these and other pollutants. Cost must also be considered when setting a MACT standard. Therefore, a cost analysis must also be conducted.

The Work Group finds that the RTR risk assessment screening methodology is broadly applicable to many source categories, prior aspects of the data and methods identified have been subject to review by the SAB and others. The unique details of each RTR can include recommendations for new monitoring and MACTs. In general, these technologies are based on established scientific knowledge that has undergone extensive peer review. However, there can be exceptions, and the SAB encourages to EPA to continually assess and identify for SAB review any such technology recommendations that are based on new scientific knowledge. This planned RTR does not merit further review by the SAB.

Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

2. **RIN Number:** 2060-AT79

3. **EPA Office originating action:** Office of Air and Radiation

4. **Brief description of action and statement of need for the action:**

   EPA is proposing to repeal the emission standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits based on a proposed interpretation of the Clean Air Act (CAA) under which glider vehicles would be found not to constitute new motor vehicles within the meaning of CAA section 216(3), glider engines would be found not to constitute new motor vehicle engines within the meaning of CAA section 216(3), and glider kits would not be treated as incomplete new motor vehicles. Under this proposed interpretation, EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

5. **Timetable:**

   NPRM Publication: 11/16/2017
   NPRM Comment Period End: 01/05/2018
   Final Rule: To Be Determined

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   There is uncertainty about what scientific work, if any, would support the FRM.

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).
   N/A – No approaches have been developed since there is uncertainty regarding what, if any, analysis would be done.

   6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
   N/A

   6(d). Peer review:
   N/A

Recommendation from the SAB Work Group

Name of planned action: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	[---	--]
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency		X	
Addresses areas of substantial uncertainties			X
Involves major environmental risks	X		
Relates to emerging environmental issues	X		
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The SAB should review this action with regard to the adequacy of the supporting science. The Work Group notes the EPA states that there is "uncertainty about what scientific work, if any, would support" this action, did not describe the approach being taken to develop the needed science, and did not identify any peer review plans. Key questions to address in such a review should include but need not be limited to the following:

- What are the emission rates of glider trucks for GHGs, nitrogen oxides, particulate matter, and other pollutants of concern? What are key sources of variability and uncertainty in these rates?
- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?
- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet

level emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?

- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

Such a review might begin with existing documents developed by EPA, such as the November 20, 2017 test report in which emissions of gliders and conventionally manufactured trucks were compared, and focus on areas where updates are needed. To the extent that EPA appropriately addresses key issues such as those above with adequate peer review, the scope of SAB review could be narrowed or redirected.

Rationale: The main reasons for this recommendation are briefly listed followed by more detailed explanation.

- The proposed rule lacks transparency regarding the sources of and basis for data regarding costs, emissions, life cycle implications, and safety.
- The proposed rule lacks rigorous analyses of pertinent technical and scientific issues, instead relying on summaries of comments submitted by the public that have not been independently assessed or validated.
- Health effects of the proposed action are not quantified. EPA does, however, acknowledge that ""Some of the benefits for children's health … would be lost as a result of this action."
- EPA does not characterize or quantify the effect of the proposed rule with regard to challenges it would pose for attainment of air quality standards.
- Regarding comparison of emissions of glider trucks with conventional trucks, EPA relies on a study conducted by Tennessee Tech University (TTU). The TTU study was not peer-reviewed. Since the rule was proposed, the study has been withdrawn by the president of TTU as a result of TTU faculty senate concerns regarding lack of validity of the study. On February 26, 2018, Fitzgerald Glider Kits, which sponsored the TTU study, wrote a letter to TTU, signed by its General Counsel, demanding that the study funded by FGK be protected from disclosure. Thus, EPA cannot use this study as a basis for rule-making.
- EPA failed to take into account its own study, published 4 days after the proposed rule, that shows that glider truck emissions can be substantially higher than those from conventionally manufactured trucks.
- Although EPA indicates that "the Agency views the glider issue as one of legal authority," the proposed rule relies on technical information on issues alluded to above. The SAB has no comment on the issue of legal authority. However, the proposed rule argues that there are cost, energy, emissions and safety benefits of glider trucks, and thus in appearance is not relying solely on an interpretation of legal authority as the basis for the proposed rule. It is in the best interests of the EPA to use credible technical information in a proposed rule.
- This proposed action is highly controversial in that, if it were to be promulgated as proposed (with no apparent cap on maximum allowable glider truck sales), it would create a market for glider trucks that would remain in the vehicle fleet for decades to

come, and displace purchases of conventionally manufactured new trucks (or recent model year conventionally manufactured used trucks of comparable price) and thereby slow the process by which fleet turn over would lead to real-world emissions reductions.

Background

On November 16, 2017, EPA published a proposed rule to Repeal Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (Federal Register, Vol 82, page 53442). The deadline for public comments was January 5, 2018. The EPA denied requests from the American Lung Association and the Northeast States for Coordinated Air Use Management (NESCAUM) for an extension of the public comment deadline. The following definitions pertain to this proposed action. A glider vehicle (or glider truck) is a truck that has new body parts but utilizes a previously owned powertrain (including the engine, transmission, and usually the rear axle). New body parts put together to form the "shell" of a truck, such as the tractor chassis with frame, front axle, brakes, and cab, are referred to collectively as a "glider kit."

According to the EPA in its notice of the proposed rule, gliders are approximately 25% less expensive than new trucks, which is said to make them attractive to small business owners and operators. However, in public comments to EPA, Volvo stated that "our dealer network informs us that glider vehicles are often purchased at pricing similar to that of comparably configured new compliant vehicles. From this it's evident that glider vehicle buyers do not find new compliant vehicles to be unaffordable; they do, therefore, have options other than keeping older vehicles on the road." The basis for EPA's claim that gliders are 25% less expensive than new trucks is not provided.

A commenter is reported by EPA to have stated that rebuilding an engine and transmission uses 85% less energy than manufacturing a new engine and transmission. However, the basis for this claim is not given in the proposed rule, nor does the proposed rule include any technical analysis by EPA staff to confirm or validate this claim. The net impact of the proposed rule on greenhouse gas emissions is not estimated.

In the Phase 2 greenhouse gas emission standard for heavy duty vehicles, EPA determined that glider vehicles could be treated as "new motor vehicles" under CAA Section 216(3). Previously owned engines used in glider vehicles were also deemed to be "new motor vehicle engines" and, therefore, would be subject to emission standards applicable to new engines. EPA determined that it had authority under Section 202(a) of the CAA to subject glider vehicles and glider kits to the Phase 2 rule.

In the proposed rule, EPA states that the glider industry petitioned EPA to reconsider the application of the Phase 2 rule to glider vehicles, glider engines, and glider kits based on three principal arguments: (1) EPA is not authorized to regulate these under Section 202(a)(1); (2) EPA relied on unsupported assumptions to arrive at the conclusion that regulation of these is warranted and necessary'; and (3) reconsideration was warranted under Executive Order 13783. However, some comments on the proposed rule indicate that EPA does have authority and discretion to regulate glider vehicles, glider kits, and glider engines. The statutory authority and EPA's discretion to regulate based on such authority pertains to legal and policy questions that are not relevant to SAB review. However, the scope of potential technical matters that would

pertain to the possible range of allowable policy options is pertinent to the scope of a potential SAB review.

In the description of this planned action, EPA states that "there is uncertainty about what scientific work, if any, would support the FRM" and responded "N/A" with regard to questions about scientific work products, controversial issues, and related questions (see EPA response to Item 6(c) of the description of the planned action). EPA also responded "N/A" regarding peer review. It is clear that this proposed rule is based on claims and assumptions about glider vehicle emissions, safety, and cost that could be assessed via rigorous technical analysis, but it appears that EPA has not attempted to undertake relevant analyses. Furthermore, there is little mention of effects on public health in the proposed rule. EPA notes "Some of the benefits for children's health as described in that analysis [for the Phase 2 GHG emissions rule] would be lost as a result of this action." However, EPA has not attempted to quantify the loss of these or other benefits from a repeal that would very likely lead to increases in real-world emission rates from the long-haul heavy duty truck fleet. EPA takes the unusual position that an emissions regulation does not affect the existence of air quality standards, which although true seems irrelevant to the merits of this particular proposed rule. However, in raising the relationship between this proposed rule and the NAAQS, EPA fails to point out that in non-attainment areas the presence of high-emitting glider trucks would make attainment more difficult, especially with regard to NAAQS for ozone and PM. EPA seems to rely on states enacting future unspecified counter-measures under regulatory procedures that pertain to the NAAQS to offset the disbenefits of increased glider truck operational emissions of criteria pollutants or their precursors. EPA claims that "future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking." While there are uncertainties, EPA has over the years developed a variety of tools, methods, and data for estimating future emissions. Furthermore, uncertainty could be taking into account in emissions inventories based on scenario analysis, sensitivity analysis, quantitative uncertainty analysis or other suitable techniques. Questions regarding the life cycle implications of remanufacturing used powertrains versus manufacturing new powertrains could be assessed using a life cycle inventory analysis. EPA has made no attempt to conduct any of these analyses.

According to EPA's proposed rule, the petitioners "took particular issue with" EPA's assumption that NO_X and PM emissions of glider vehicles that used pre-2007 engines would be "at least ten times higher than emissions from equivalent vehicles being produced with brand new engines," claiming that EPA relied on no actual data to support this conclusion but related simply on the emission rates of the pre-2007. In the proposed rule, EPA mentions a study conducted by Tennessee Tech University that putatively reached a different conclusion. The TTU study was funded by Fitzgerald Glider Kits (FGK). Based on concerns about the validity of the study, the TTU faculty senate approved a resolution on January 30, 2018 regarding the Fitzgerald-funded study calling for the university president to "suspend all present research activities and other associations with Fitzgerald," and other provisions. In a letter from Tennessee Tech president Philip Oldham to EPA Administrator Scott Pruitt, dated February 19, 2018, the university advised the Administrator that the University is "actively pursuing a peer review of the report," and is also "investigating an allegation of research misconduct related to the study," and requested that EPA "withhold any use or reference to said study pending the conclusion of our internal investigation." On February 26, 2018, Fitzgerald Glider Kits wrote a letter to TTU, signed by its General Counsel, demanding that the study funded by FGK be protected from

disclosure. Thus, the TTU study cannot, in its present form, be used as a basis for rule making. Furthermore, if EPA intends to make use of the TTU study, or any revised version of it, independent evaluation by the SAB would be strongly indicated.

The EPA's original assertion that glider trucks using pre-2007 engines would have emissions of NO_X and PM at least ten times higher than emissions from equivalent vehicles being produced with brand new engines is well-supported by numerous measurement studies of heavy duty vehicles with powertrains certified under emission standards in effect now compared to those in effect prior to 2007. In particular, prior to 2007, heavy duty truck emission standards were not sufficiently stringent to require the use of diesel particulate filters (DPFs) for PM control nor selective catalytic reduction (SCR) for NO_X control. In contrast, under standards now in place that apply to new vehicles, heavy duty trucks are typically equipped with both DPF and SCR, as well as related technologies such as diesel oxidation catalysts, exhaust gas recirculation, and ammonia slip catalysts.

On November 20, 2017, just four days after the proposed rule was announced, EPA reported results of chassis dynamometer tests of a 2016 model year Peterbilt 389 sleeper cab tractor and a 2017 MY Peterbilt 579 sleeper cab tractor that were produced as glider vehicles using pre-2002 remanufactured engines. The emissions from these two glider vehicles were compared to those from conventionally manufactured 2014 and 2015 MY tractors. The latter include cooled exhaust gas recirculation, DPF, and SCR systems. Under highway cruise conditions, the glider vehicles had NO_X emissions 43 times higher and PM emissions 55 times higher than the conventionally manufactured trucks. Under transient conditions, the NO_X and PM emissions were 4-5 times higher and 50-450 times higher, respectively. The HC and CO emissions were also significantly higher than for the conventionally manufactured trucks. The CO_2 emission rates were lower for the glider vehicles than for the conventionally manufactured trucks, with the relative difference depending on the driving cycle. There is generally a trade-off between NO_X and CO_2 emissions. However, there are also opportunities to tune 2010 and later MY newly manufactured engines for improved efficiency, which is an area that would benefit from more study.

In the proposed rule, EPA mentions that petitioners contend that glider vehicles offer environmental benefits related to the use of recycle materials and claimed that glider vehicle greenhouse gas emissions are less than those of (putatively new) OEM vehicles. This claim, while interesting, would require a more systematic assessment involving a life cycle inventory approach. Such an approach would quantify the GHG emissions of the truck life cycle, including manufacture, operation, and disposal/recycling. Such an approach would enable quantification of the difference in greenhouse gas emissions from glider vehicles versus those for a newly manufactured truck. The scope of assessment of GHG emissions should include not just CO_2 but other primary or secondary GHGs related to truck life cycle emissions. For example, VOC and NO_X emissions from trucks lead to the formation of tropospheric ozone, which is a GHG. EPA did not offer any life cycle inventory analysis or results as part of the proposed rule.

In its proposed rule, EPA stated that it "solicits comment and information on whether limiting the availability of glider vehicles could result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA particularly seeks information and analysis addressing the question whether glider vehicles produce significantly fewer emissions overall compared to the

older trucks they would replace." It is highly unusual that EPA would propose a rule related to air pollutant emissions without including a technical analysis of the impact that the proposed rule would have on air pollutant emissions. According to the International Council for Clean Transportation, EPA's proposed regulation would lead to excess emissions of 1.5 million tons of NO_X and 16,000 tons of PM over the next decade, leading to 12 billion dollars of health damage (Muncrief, 2017). These estimates are given as an example and would need to be evaluated. EPA did not offer its own assessment of the impact on public health of the proposed rule.

This proposed action is highly controversial in that it would be an end-run around new truck emission standards. If gliders are not subject to standards currently in place that apply to conventionally manufactured new vehicles, then older power trains could be rebuilt and installed in new glider kits as a substitute for purchase of new trucks. This could mitigate against the effect of fleet turnover as a factor that would lead to longer term reductions in real-world emissions and could lead to higher real world emissions, worsened air quality, greater human exposure to truck-related air pollution, and increased adverse health effects compared to no repeal. There appears to be no provision in the proposed rule that would prevent the widespread substitution of glider trucks in lieu of new trucks, such as a cap on the number of glider vehicles that could be sold in a given year. Although EPA attempts to frame the comparison as being between a glider truck and an old truck with a power train that is not rebuilt, an equally if not more pertinent comparison is between the glider truck and a new truck whose purchase was avoided, or between a glider truck and a used truck of the same purchase price. EPA did not request comments on these comparisons, but instead focused on whether a glider truck would have lower emissions than an older truck it would displace and whether a glider truck would be safer than an older truck, presumably with the same powertrain. EPA did not ask for comment on whether the use of an old powertrain in a new chassis would lead to life extension of the old power train and thus displace emission reductions that would otherwise have accrued from fleet turnover to newer trucks. At least some public comments, such as by Volvo, called into question the notion that a glider truck would offer the full safety benefits implied by EPA, especially compared to an avoided new truck.

Given that EPA has a statutory mandate to protect public health, it is noteworthy that the health benefits of existing NO_X and PM emission standards for heavy duty diesel vehicles are substantial. These are the standards to which glider vehicles would otherwise be subject in the absence of the proposed repeal rule. For example, according to a Regulatory Impact Analysis (EPA420-R-00-026), the Final HD Engine/Diesel Fuel Rule that went into effect in 2007 has annual compliance costs of $4.2B and monetized net benefits of $66B, largely based on avoided premature deaths related to reduced human exposure to particulate matter emitted from diesel trucks. Thus, from a scientific perspective, there are potential health benefits to reductions in operational emissions of heavy duty diesel vehicles that are significant and that should be considered, although with compliance costs.

In 2016, in response to comments on the greenhouse gas emissions and fuel efficiency standards for medium- and heavy-duty engines and vehicles, EPA estimated that each model year of glider vehicle sales would be associated with up to 1,600 premature deaths over the lifetime of the vehicles, based only on $PM_{2.5}$ emissions and sales of 10,000 gliders per year.

In response to fact-finding questions (see Attachment C), the EPA Office of Air and Radiation provided the following response:

> "We appreciate the detailed questions that the SAB has asked with regard to EPA's recent proposal for glider vehicles. Many of the topics raised by the SAB were also raised through the comment period. EPA is reviewing all of these comments. As EPA noted in the proposed rule (available here: https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider), the Agency views the glider issue as one of legal authority. Under the proposed interpretation of the Clean Air Act (CAA), EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1). EPA is working to issue a final rule, though EPA has not announced a schedule for the final rule."

The work group assessment of this response is the following:

- While "many of the topics" may have been "raised" during the comment period, not all of them were. For example, the withdrawal of the Tennessee Tech. University by Tennessee Tech. University did not occur until after the public comment period ended.
- A topic being "raised" may not be the same as a topic being objectively analyzed.
- The scientific and technical statements in the proposed rule, and the scope of analyses in the proposed rule, are dubious and highly questionable.
- Whether the proposed rule hinges on "legal authority" is beyond the scope of the SAB.
- Although EPA claims that the proposed rule hinges on "legal authority," the proposed rule is clearly predicated on various scientific and technical claims that are of unknown or dubious merit, including a study cited by EPA that has since been withdrawn by its performing organization.
- Given the various scientific and technical claims in the proposed rule, which appear to be based on stakeholder comments or draft studies that lack objective analysis and peer review, it is in the best interests of EPA and prudent for the SAB to engage in a review process to assure the credibility of scientific and technical information that is put forth in the rule.

Whether glider vehicles have operational and life cycle emissions less than, comparable to, or greater than new vehicles is a technical and scientific issue that is within the scope of the SAB. Technical questions regarding the emission impacts of a rule change with respect to glider vehicles are within the scope of the SAB. Identification of suitable methodologies for assessment of the effect of the proposed rule on emissions, air quality, and public health is also within the scope of advice that SAB can provide.

Based on the controversy of EPA proposing a rule in part based on a study that has been withdrawn by its authoring institution, the omissions of pertinent technical content from EPA's proposed rule, the lack of clear pedigree of information that EPA cites in its proposed rule, the broad implications of the proposed rule that could rollback reductions in emissions of pollutants that are harmful to public health, and the myriad of technical issues involved related to life cycle emissions, it is appropriate for the SAB to conduct a review of the technical and scientific issues pertaining to this proposed action.

Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** Pesticides; Agricultural Worker Protection Standard; Reconsideration of Several Requirements

2. **RIN Number:** 2070-AK43

3. **EPA Office originating action:** Office of Chemical Safety and Pollution Prevention, Office of Pesticide Programs (OPP)

4. **Brief description of action and statement of need for the action:**

   EPA published a final rule to amend the Worker Protection Standard (WPS) regulations at 40 CFR 170 on November 2, 2015 (80 FR 67496). Per Executive Order 13777, EPA solicited comments this spring on regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda efforts. EPA received comments suggesting specific changes to the 2015-revised WPS requirements which are being considered within the Regulatory Agenda efforts. In consideration of those comments, EPA will solicit public input on specific revisions to the rule.

5. **Timetable:**

   OMB review start: 5/10/2018

   FR Publication for comment: 9/14/2018

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
   No scientific work products have been developed to inform decisions regarding the planned action. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires EPA to provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any scientific issues that are related to these rules. The Pesticides; Agricultural Worker Protection Standard draft final rule was submitted to the FIFRA SAP. The SAP waived their review on June 24, 2015 because the proposed revisions are administrative in nature and do not contain scientific issues that require the SAP's consideration. The FIFRA SAP will be provided copies of the 2018 draft revisions to the rule.

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

   N/A

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"

N/A

6(d). Peer review:

N/A

Recommendation from the SAB Work Group

Name of planned action: Name of action: Pesticides: Agricultural Worker Protection Standard: Reconsideration of Several Requirements. (RIN 2070-AK43)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks		X	
Relates to emerging environmental issues		X	
Exhibits a long-term outlook		X	

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit any further SAB consideration.

Rationale: Per Executive Order 13777 the EPA solicited suggestions about regulations that may be appropriate for repeal, replacement or modification as part of the Regulatory Reform Agenda. Specific changes to the 2015 Worker Protection Standard (WPS) regulations at 40 CFR 170 were suggested and EPA is soliciting public input on these specific revisions. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) contains the requirement that EPA must provide copies of draft proposed and final rules to the FIFRA Science Advisory Panel (SAP) for review of any related scientific issues. Thus separate review by the SAB would not be warranted. The Work Group further notes that the FIFRA SAP waived the right to review of the original 2015 WPS because the proposed revisions were administrative and did not include any influential scientific information or highly influential scientific information.

EPA Description of Planned Action

1. **Name of action:** Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter

2. **RIN Number:** 2060-AS35

3. **EPA Office originating action:** Office of Air and Radiation, Office of Air Quality Planning and Standards

4. **Brief description of action and statement of need for the action:** Under the Clean Air Act, the EPA is required to review and, if appropriate, revise the air quality criteria and national ambient air quality standards (NAAQS) every 5 years. On April 3, 2012, the EPA published a final rule in which the Agency determined to retain the current secondary standards (welfare-based) for nitrogen oxides (NOx) and for sulfur oxides (SOx). On January 15, 2013, the EPA published a final rule in which the Agency retained the secondary standards for particulate matter. This review of the air quality criteria and secondary standards for ecological effects of SOx, NOx and particulate matter includes the preparation of an Integrated Science Assessment, Risk/Exposure Assessment, and a Policy Assessment by the EPA, with opportunities for review by the EPA's Clean Air Scientific Advisory Committee and the public. These documents will inform the Administrator's proposed decision as to whether to retain or revise the standards. This proposed decision will be published in the Federal Register with opportunity provided for public comment. The Administrator's final decisions will take into consideration these documents, CASAC advice, and public comment on the proposed decision.

5. **Timetable:** Section 109 of the Clean Air Act establishes a 5-year review cycle of the NAAQS. There is no court-ordered schedule for this review.

6. **Scientific products that will inform the action and plans for peer review:**

   6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action. For each review, EPA prepares an Integrated Review Plan (IRP); an Integrated Science Assessment (ISA); a Risk/Exposure Assessment (REA) Planning Document, and, if warranted, a REA; and also a Policy Assessment (PA).

   6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis). Each review generally begins with a kickoff workshop with internal and external scientific experts to solicit input on technical issues and current information relevant for the review and on the key issues that will frame the review. The workshop activity informs identification of policy-relevant issues and development of the IRP for the review. As described in the IRP, EPA prepares a series of documents, with

opportunities for review by the EPA's CASAC and the public. Draft versions of the IRP, ISA, REA (if prepared), and the PA are reviewed at public meetings by a panel of the CASAC constituted for the specific NAAQS review. Final documents reflect consideration of CASAC advice and recommendations, and of comments provided by members of the public.

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?" Reviews of the NAAQS rely on assessment documents that are designated as "highly influential"

6(d). Peer review: Drafts of the ISA, REA (if prepared), and PA are reviewed at public meetings by a CASAC Panel. The CASAC Panel is charged with providing written advice to the EPA Administrator, reflecting the consensus views of the Panel where appropriate. Prior to development of a REA, if one is warranted, the EPA prepares a REA Planning Document which is the subject of consultation with the CASAC Panel and on which EPA solicits public comment.

Further information:
https://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/CASAC

Recommendation from the SAB Work Group

Name of planned action: Review of the Secondary National Ambient Air Quality Standards for Ecological Effects of Oxides of Nitrogen, Oxides of Sulfur and Particulate Matter. (RIN 2060-AS35)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?	X	
Is the action primarily administrative (i.e., involve reporting or record keeping)?		X
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"	X	
Is the action an extension of an existing initiative?	X	

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties		X	
Involves major environmental risks	X		
Relates to emerging environmental issues		X	
Exhibits a long-term outlook	X		

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: This action does not merit further SAB consideration.

Rationale: This action will undergo a multi-year detailed review process by the EPA Clean Air Scientific Advisory Committee and its Secondary NAAQS Review Panel for Oxides of Nitrogen and Sulfur. CASAC is a FACA committee. The Review Panel was specifically constituted, in terms of independent scientific expertise, to review this proposed action. CASAC has statutory mandate under the Clean Air Act to advise the Administrator regarding the NAAQS.

EPA Description of Planned EPA Action

1. **Name of action:** Fuels Regulation Modernization - Phase 1

2. **RIN Number:** 2060-AT31

3. **EPA Office originating action:** Office of Air and Radiation – Office of Transportation and Air Quality

4. **Brief description of action and statement of need for the action:**

   "Fuels Regulation Modernization" will streamline and modernize EPA's existing fuels regulations under 40 CFR part 80. The purpose of this effort is to update EPA's existing gasoline, diesel, and other fuels regulations to improve the clarity and efficiency of the regulations, reduce burden, and improve implementation. This action will reduce compliance costs for stakeholders as well as EPA, while helping to improve overall compliance assurance and maintaining environmental performance. In this action, EPA will streamline the existing fuels regulations under 40 CFR part 80 – by deleting expired provisions, consolidate redundant compliance provisions (e.g., duplicative registration requirements that are required by every EPA fuels program), removing unnecessary and out-of-date requirements – and replace them with a single set of provisions and definitions that will apply across all gasoline, diesel, and other fuels programs currently under 40 CFR part 80. This action will simply be an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones.

5. **Timetable:**

   No statutory or legal deadlines apply to this action. As noted in the Regulatory Agenda (which provides anticipated rule *publication* date) and the table below, we expect to issue a proposed rule by the end of calendar year 2018, to be published by January 2019; similarly, we expect to issue a final rule by the end of calendar year 2019, to be published by January 2020.

Action	Anticipated Publication Date
NPRM	January 2019
Final Rule	January 2020

6. **Scientific products that will inform the action and plans for peer review:**

6(a). Describe the scientific work products that have been or will be developed to inform decisions regarding the planned action.
We do not anticipate that there will be any scientific work products developed to inform decisions regarding this planned action. This action is not proposing any new fuel standards, but merely streamlining the regulations that accompany the existing standards to reduce unnecessary implementation and compliance burden.

6(b). For each work product, describe the approach the agency is taking to develop the needed science or analysis (e.g., any inter-agency collaboration, workshops to inform the analysis).

N/A

6(c). For each work product, identify whether the action relies on science that meets the EPA Peer Review Handbook definition of "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"
This action will not involve any highly influential scientific assessment (HISA) or influential scientific information (ISI), nor will it involve precedential, novel, and/or controversial issues. There are no legal or statutory triggers for a peer review.

6(d). Peer review:
No peer review is planned for this action.

Recommendation from the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science

Name of planned action: Fuels Regulation Modernization - Phase 1 (RIN 2060-AT31)

Please respond to the following questions based on the short description EPA provided for the planned action.

	Yes	No
Is the action planned or under review by the SAB? If not, has EPA identified other high-level external peer review (i.e., by the NAS, CASAC, or FIFRA SAP)?		X
Is the action primarily administrative (i.e., involve reporting or record keeping)?	X	
Has EPA characterized the action as one that has "an influential scientific or technical work product" that "has a major impact, involves precedential, novel, and/or controversial issues, or the Agency has a legal and/or statutory obligation to conduct a peer review?"		X
Is the action an extension of an existing initiative?		X

Please indicate whether the action merits a high, medium or low level of interest regarding the following historical SAB science- and problem-driven criteria, based on the short description EPA provided for the planned action.

	High	Medium	Low
Involves scientific approaches that are new to the agency			X
Addresses areas of substantial uncertainties			X
Involves major environmental risks			X
Relates to emerging environmental issues			X
Exhibits a long-term outlook		X	

Please provide a recommendation regarding whether the SAB should consider this action for review and comment on the adequacy of the supporting science and provide a brief rationale.

Recommendation: The planned action does not merit further review by the SAB.

Rationale: This long-term action to "streamline and modernize EPA's existing fuels regulations under 40 CFR part 80" is described as "an administrative action to add clarity to the regulations to help improve compliance, and will not change any currently applicable fuel standards or propose new fuel ones". No new scientific techniques or analysis are contemplated under this planned action, as currently described. Also, the process for this action is in an early stage, with publication of proposed and final regulations planned for 2019. As such, consideration by the SAB is not recommended at this stage in the process.

Attachment C

Summary of the Science Advisory Board Work Group Fact-Finding on EPA Planned Actions in the Fall 2017 Semi-Annual Regulatory Agenda May 18, 2018

The Science Advisory Board Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science held a fact-finding teleconference on April 20, 2018. EPA offices were provided questions to clarify and seek additional information on the planned actions in the Fall 2017 Semi-annual Regulatory Agenda published on December 14, 2017. This attachment summarizes the Work Group's findings.

The Work Group submitted questions to the Office of Policy and Office of Air and Radiation. The questions and responses are provided below. Attendees were:

Dr. Al McGartland, Office of Policy
Dr. Elizabeth Kopits, Office of Policy
Ms. Caryn Muellerleile, Office of Policy
Members of the Work Group
Thomas Carpenter, DFO, SAB Staff Office

Questions for the Office of Policy

Increasing Consistency, Reliability, and Transparency in the Rulemaking Process (RIN 2010-AA12)

The SAB Work Group notes that this action is in a pre-rule stage and is months away from an anticipated Advanced Notice of Public Rule Making (ANPRM). The Work Group submits these questions to gain a better understanding of the scope that might be covered in this effort to improve consistency and transparency in analyzing costs and identify issues the agency may wish to address in its ANPRM. We do recognize that the nature and scope of one regulation, as compared to another, may result in appropriate differences in the way costs are analyzed.

> Could the staff give us some more examples of cost standards that have been applied inconsistently in the past that might be a focus of this effort, and made more consistent?
>
> What might be examples of past 'consideration of costs through non-transparent actions' that might be addressed and made more transparent?

The Work Group has some specific example areas where we would like to know whether these are the kinds of concerns that might be addressed in the planned action.

> EPA program offices vary, for example, in assumptions about whether and how technology costs due to regulation will influence the market. Sometimes it is assumed (implicitly) that consumers will bear the cost and simply pay higher prices for products. In other cases, estimates are made of price elasticities, and impacts on sales in relevant markets.
>
> Will there be concern with how new technologies to meet a regulation impact maintenance and repair expenses?

Will there be consideration of non-pecuniary vs. pecuniary costs. EPA program offices vary in the extent to which non-pecuniary costs of regulations are identified and quantified. There may also be differences between programs in how hedonic methods are used to quantify and monetize nonpecuniary costs of a regulation.

Is there concern with the Impacts of the regulation on the longevity of older products and processes. This may be when a regulation on a new product or process induces market actions to lengthen the life of an existing process or product that may have costs with respect to emissions, safety, energy consumption, or other key indicators.

Is there concern with variation in the accounting for projected cost savings from economies of scale, learning and innovation? Conversely, dealing with scale costs, where smaller firms suffer disproportionate costs?

Agency Response:
Drs. McGartland and Kopits provided an oral response to the questions and discussed the planned action with Work Group members. They noted the planned action is in the early stages of development and the scope is broad to include factors the identified by stakeholders on the methods and factors considered in rulemaking and determining the level of standards. The agency hopes to use this information to make regulatory cost considerations more consistent, reliable, and transparent. In general, the questions posed by the Work Group are somewhat specific and they can't address them in detail at this stage in the rulemaking.

The EPA staff provided an example of what considerations may be evaluated in the planned action. They noted that affordability is a metric that varies across statutes. For example, the Office of Air may evaluate affordability in terms of number of plants that may need shut down to meet a proposed standard to determine if it is practically achievable. Under the Safe Drinking Water Act, the agency evaluates affordability on a completely different context as specified in the Act and the Clean Water Act is different than the drinking water analysis. They noted the agency has not articulated the concept of affordability in a meaningful way except for perhaps in the affordability language of the drinking water program. That is, when evaluating the affordability of an action how are the cost and benefits evaluated across programs. Another example is in the water program a comparison between toxic wieght and cost effectiveness number as an appropriate evaluation of the cost and benefit of a standard. The agency could consider whether this approach could be used as a decision rule or a factor to consider in decision making to be applied consistently within the program or in other programs.

A Work Group member asked if an inventory of metrics has been developed? The agency noted that some of this work is ongoing. They anticipate that the response to the ANPRM will greatly inform next steps. Some has been started but noted that the ANRPM is a tool to hear from stakeholders how this applies in different programs and consider how important providing a certainty to the regulated community.

Another Work Group member noted the Agency's responses describe the action as more in the legal, policy and judgement arena and not the identification of cost. The rule may be outside the scientific

and technical purview of the SAB. Another member noted that the EPA may take on more scientific and technical aspects of methodological cost analysis or data issues that are appropriate for the SAB to provide advice.

EPA staff noted the action is under review at the Office of Management and budget and the advanced notice proposed rulemaking (ANPRM) is not yet published. They characterized the agency as being in fact finding mode with the ANRPM and using the data and information they garner from public comments to decide on next steps for the planned action.

They noted that the development of cost in regulatory actions are outlined in OMB circular A-4[1] and the EPA's Guidelines for Preparing Economic Analyses [2].

Questions for the Office of Air and Radiation

Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77)

On April 2, 2018, EPA announced that it will "initiate a rulemaking process whose outcome will be a final agency action". The April 2, 2018 final determination of the Mid Term evaluation was based primarily on public comments. Does EPA intend to use data, information, models, studies, or other information as part of the rulemaking process? If so, which of these are influential scientific information (ISI) or highly influential scientific information (HISI)? For ISI and HISI, what will the Agency do to obtain the required peer review?

In the April 2, 2018 notice, EPA identified seven key factors that motivate a finding that the current standards are "not appropriate" and that, presumably, will be explored further in reviewing and revising the standards. These factors include the following:

1. The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
2. The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
3. The feasibility and practicability of the standards;
4. The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
5. The impact of the standards on the automobile industry;
6. The impacts of the standards on automobile safety;
7. The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program

[1] OMB circular A-4 is available at: https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf
[2] https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses

What additional data, models, studies, measurements, reports, or other information does EPA plan to develop pertaining to these factors, which of these will be ISI or HISI, and what are the plans for peer review for ISI and HISI?

Although the purpose of the standards is to protect public health and the environment based on an endangerment finding, the Administrator's final determination of the MTE does not mention the need for updated information regarding the benefits to the environment, public health, and public safety of reducing GHG emissions from light duty vehicles or how such information would be considered in reviewing and revising the standard. Will EPA develop quantitative or qualitative assessments of the effect of alternative standards on GHG emissions and their impact on public health and safety? Will EPA consider updated information regarding other benefits of the standard, such as co-benefits from reduction of emissions of criteria pollutants or their precursors? If so, which of these will be ISI or HISI? How will ISI or HISI be reviewed?

EPA indicates that the social cost of carbon has changed since the last review. How will EPA update the social cost of carbon and how will this be used in the rulemaking?

How will EPA quantify the "negative effects of higher vehicle costs"?

Has EPA considered that the use of banked credits may be part of product development cycles and an expected practice that allows manufacturers the lead time to develop new model generations?

Is EPA aware that national sales of plug-in hybrid electric vehicles and battery electric vehicles have increased from 2015 to 2016, and from 2016 to 2017, contrary to statements made in the final determination for the MTE?

In the Final Determination of the MTE, EPA did not acknowledge that the National Research Council found the analyses conducted by EPA and NHTSA "to be thorough and of high caliber". Does EPA intend to re-interpret or update any of its own reports, papers, models, and data? If so, which ones? Is EPA aware that, among other findings, the NRC found that EPA did not take full account of the range of technology options available to manufacturers that would enable compliance with the standards?

Given that new light duty vehicle sales in the last three model years have been over 17 million annually, higher than levels in the five years prior to the 2008 recession, what is the evidence that lack of affordability (relative to prior years) has deflated new car sales?

Although several automobile manufacturers submitted comments regarding lack of consumer interest in high efficiency vehicles, what have the manufacturers done to attempt to garner such interest? Is there an opportunity for automobile manufacturers to adjust their marketing campaigns to help consumers appreciate the benefits of higher efficiency cars, including reduced total cost of ownership over a five-year period? Similarly, are there opportunities for EPA to undertake synergistic initiatives that would help raise public awareness of and interest in higher efficiency vehicles?

Has EPA been able to independently verify automobile manufacturer claims regarding underestimated direct technology costs, indirect cost multipliers, and cost learning curves? If not, how will EPA independently assess such claims?

Does EPA acknowledge that the impacts of climate change and air pollution can accrue differently and typically more severely to low income households?

Many new technologies undergo several stages during diffusion and adoption that can be described as an "S" curve for market penetration. Has EPA considered that the currently low market shares of electric drive vehicles might be an early stage in the technology adoption process for these vehicles? In addition to identifying potential barriers to adoption, will EPA consider how such barriers can be overcome to enable realization of the full benefits of the standards to the extent possible?

Clearly, fuel prices today are lower than expected when EPA conducted analyses several years ago. However, it is also well-known that Energy Information Agency projections are often not consistent with future realities. Thus, rather than base an analysis on a single projection, has EPA considered using an ensemble of projections, or using information from assessments of projection errors (from recent papers in the literature) to develop uncertainty bounds for such estimates?

Who funded the Trinity-NERA study that is cited by EPA, has this study been peer-reviewed and, if so, who and by whom?

Who funded the Indiana University study that is cited by EPA? Although the Indiana U. study has been reviewed, the review was organized and conducted by the study itself. If this study is to be used as a basis for the rulemaking, will there be further independent review organized by EPA?

What is the schedule for the rulemaking process to review and revise the standards?

> **Agency Response:**
> We appreciate the detailed questions that the SAB has asked with regard to various analyses that could be considered to inform the forthcoming NPRM. EPA will continue to assess these issues as we develop the proposed rule.
> EPA has not yet announced a schedule for the rulemaking addressing standards for model years 2022-2025 light-duty vehicle greenhouse gas standards.

<u>Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060-AT79)</u>

Does EPA intend to continue to use the study conducted by Tennessee Tech University cited in the proposed rule that was funded by Fitzgerald Glider Kits and subsequently withdrawn by the TTU president? If so, how will EPA obtain independent peer review of this study?

Does EPA intend to use its own November 20, 2017 chassis dynamometer study in which measured emissions of two glider vehicles were compared to two newly manufactured vehicles? Is EPA aware that its own study found that NO_x emissions were at least four times higher for transient operation and 43 times higher under highway conditions, and that PM emissions were 50 to 450 times higher under transient conditions and 55 times higher under highway conditions? Will this information be taken into account and, if so, how? Will EPA conduct further studies to quantify the emissions of glider vehicles compared to conventionally manufactured trucks? For example, studies based on in-use measurements

with portable emission measurement systems would be informative to a determination of the real-world emissions impact of glider vehicles.

How will EPA quantify the effect of the proposed repeal on GHG, NO_X, PM, CO, and HC emissions? What data, models, or other information will be used? What efforts will be made to obtain appropriate peer review in the case of ISI or HISI?

Is EPA considering imposing a cap on the total number of glider vehicles, glider kits, and glider engines that are allowed to be sold annually in the U.S.? If so, what caps are being considered and on what basis?

EPA claims that glider vehicles are 25% lower cost than newly manufactured trucks. What is the basis for this claim? Please provide the relevant documentation of this claim. Has this information been peer reviewed?

EPA states that rebuilding an engine and transmission uses 85% less energy than manufacturing a new engine and transmission. What is the basis for this statement? For example, has EPA conducted life cycle inventory analysis? Please provide the relevant documentation. Has this information been peer reviewed?

EPA states that "some of the benefits for children's health as described in that analysis would be lost as a result of this action." What is the quantitative estimate of these lost benefits and its basis?

Would the operation of glider trucks, which have higher NO_X and PM emissions than a conventionally manufactured truck with the same chassis, create challenges for NAAQS attainment in areas that are currently in non-attainment?

Why is that "future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking" any more so than for future emissions for any other source category for which EPA has routinely developed estimates in other regulatory actions? Why not account for uncertainty in estimates either through sensitivity or uncertainty analysis?

Is EPA aware of an assessment by the International Council on Clean Transportation that this proposed repeal would lead to excess emissions of 1.5 million tons of NO_X and 16,000 tons of PM over the next decade, leading to 12 billion dollars of health damage? Has EPA evaluated this study or conducted its own assessment of the emissions and health impacts of the proposed repeal? Is there a precedent for EPA to undertake a regulatory action that increases emissions and harms public health?

Has EPA considered the impact that repeal would have on the reduced turnover of old power trains in the heavy duty truck fleet and its long term impact on emissions?

With regard to safety, public commenters including Volvo have provided details on ways in which glider vehicles differ from conventional newly manufactured trucks. Will EPA take into account these differences and, if so, how?

What is the current status of this rulemaking? What is the schedule for the subsequent steps? Given the controversy regarding the TTU study and the questions this raises regarding the validity of the

underlying basis for this regulatory action, will EPA provide additional opportunities for public comment and public hearing?

Agency Response:
We appreciate the detailed questions that the SAB has asked with regard to EPA's recent proposal for glider vehicles. Many of the topics raised by the SAB were also raised through the comment period. EPA is reviewing all of these comments. As EPA noted in the proposed rule (available here: https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-repeal-emission-requirements-glider), the Agency views the glider issue as one of legal authority. Under the proposed interpretation of the Clean Air Act (CAA), EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1). EPA is working to issue a final rule, though EPA has not announced a schedule for the final rule.

State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units (RIN 2060-AT67)

The proposals to repeal and replace the Clean Power Plan (in the Spring 2017 Regulatory Agenda) appear based on an interpretation that Best System of Emission reduction (BSER) determinations under CAA Section 111(d) must be limited to controls on single sources. The Agency has taken many past actions to reduce emissions from EGUs or other large source categories which employ multi-source strategies - under 111 and other sections of the Act. For example, the 1995 Emission Guidelines for Large Municipal Waste Combustors (allowed NOx emissions averaging and trading), the 2005 Clean Air Mercury Rule (allowed inter-source and interstate trading), were issued in whole or in part under 111(d). Trading provisions have been successfully employed under other sections of the Act, such as in the 1998 NOx SIP call, the 2005 CAIR, and 2011 CSAPR, where they resulted in large cost savings compared to source-specific controls. Does the Agency have plans to employ other (than 111(d)) sections of the Act to further reduce EGU GHG emissions? Does the Agency plan to repeal other multi-source trading programs that have been issued under 111(d)?

The extent to which the ANPRM proposes or seeks feedback on specific single-source controls (heat rate/efficiency improvements); a range of source-specific controls (that might include fuel switching, co-firing, carbon sequestration, etc.); or multi-source controls (including averaging, trading, least emissions dispatching, etc.) is not clear. The ANPRM includes various trading provisions in the discussion of State implementation options. Is the intended premise that the EPA is limited to proposing BSERs which are limited to individual sources, while States may consider more cost-efficient multi-source strategies during implementation? Could the Agency provide some clarification on exactly what kinds of single-source and multi-source options may be considered at the EPA and State levels?

If the CPP is repealed and replaced by an alternative EGU GHG reduction program under which BSER is limited to marginally effective single-source controls like heat rate improvements, the resulting GHG reductions (and avoided mortality from reduced PM) will be much smaller than those that would have resulted from the original CPP. GHG emissions from US fossil fuel burning EGUs are larger than those from any other US source category, and represent the largest opportunity for meaningful near-term US GHG emissions reductions - especially if addressed in a cost efficient manner that includes trading, least emissions dispatching, renewable energy source replacement and other multi-source options. Is the Agency considering other EGU GHG control measures that will result in emissions reductions

comparable in magnitude and timing to those in the original CPP? Does the Agency have any information indicating that the urgency for near and long-term action to reduce GHG emissions has diminished since the original CPP was enacted?

This proposal to replace the CPP is dependent on a previously proposed action to repeal the CPP - which in turn is based on an August 2015 Regulatory Impact Analysis (RIA) that uses methods, assumptions and techniques which differ substantially from those employed in previous EPA RIAs, and which do not appear to have been subject to scientific peer review. Although the RIA was conducted to support the CPP repeal, this work product also seems especially critical to the effective design of a replacement plan, since it represents the Agency's most recent assessment of the costs and benefits associated with reductions of GHG and associated pollutant emissions from EGUs. Please describe the Agency's plans to conduct an external peer review to assure the quality of this important and influential RIA?

Agency Response:
The questions that you ask related to both the use of emissions trading/averaging under a 111(d) program and the quantification of benefits under a rescission or replacement to the Clean Power Plan are both questions that the agency is actively considering as part of rulemaking actions. The agency has not made any final determinations about how it intends to proceed on either of these issues. The Agency's work to review the Clean Power plan is here: https://www.epa.gov/energy-independence and will be updated when we announce future actions.

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EPA Science Board Rebukes Pruitt's Use of Science to Deregulate

By
Eric Roston
Updated on

- Advisory board votes to review agency's decision on rollbacks
- Panelists also want to track controversial EPA science plan

EPA Administrator Scott Pruitt

Photographer: Andrew Harrer/Bloomberg

The Environmental Protection Agency's Scientific Advisory Board delivered a rebuke to Administrator Scott Pruitt by voting Thursday to review the agency's proposed rollback of car efficiency rules and several other deregulatory actions.

It will scrutinize Pruitt's move last year to review the Clean Power Plan, the first nationwide attempt to regulate climate pollution from existing power plants and a high-profile target of Pruitt and President Donald Trump.

Other actions it will review include EPA reviews of greenhouse gas rules for new power plants, pollution from renovated or new oil and gas facilities, and a repeal of emissions standards on so-called glider trucks that are retrofitted with rebuilt diesel engines lacking modern emissions controls.

The 44-member panel also unanimously decided to write Pruitt a letter saying it wanted to review his controversial proposal in April to limit the kinds of scientific research the agency can base regulations on.

"The leadership of the board was chosen by Pruitt himself, so their decision today is a sharp rebuke of his leadership and this dangerous proposal," Ana Unruh Cohen, managing director of government affairs at the Natural Resources Defense Council, said in an email after the board's vote.

"EPA's Science Advisory Board provides valuable independent expertise that informs and improves EPA's actions," Pruitt said in a statement released on Thursday night. "We look forward to the board's feedback and insight that develop from this meeting."

Sparring at Meeting

The board is a panel of outside researchers and experts who review the quality of the technical information the EPA relies on, gives advice on broad scientific matters and examines agency research programs.

Earlier: EPA's Own Science Advisers to Rebuke Agency Over Auto Rollback

The body went 50 minutes beyond its slated time, as board members sparred over issues ranging from the need for scientific evidence in demonstrating harm from sooty air pollution, the agency's multi-step dismantling and replacement of the Clean Power Plan and the EPA's tinkering with assumptions underlying the way the federal government estimates the damages attributable to each metric ton of carbon dioxide emitted into the atmosphere.

In a proposal sent Wednesday to the White House Office of Management and Budget, the EPA and National Highway Traffic Safety Administration jointly recommended rolling back the automobile efficiency rules established under the Obama administration. It also calls for revoking the waiver from federal standards that California uses to regulate greenhouse gas emissions from vehicle tailpipes, according to a person familiar with the matter.

(Updates with Pruitt statement in sixth paragraph.)

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Attachments 6-11
Testimony before the EPA Science Advisory Board

Testimony of Dr. Dave Cooke, Sr. Vehicles Analyst, Union of Concerned Scientists, to the Environmental Protection Agency's Science Advisory Board—May 31, 2018

My name is Dr. Dave Cooke, Senior Vehicles Analyst of the Union of Concerned Scientists. The Union of Concerned Scientists is an organization which works to ensure that policy is based on the best available science, so I very much appreciate the opportunity to speak with you today.

EPA has a responsibility under the Clean Air Act to control the emissions of harmful pollutants, including smog-forming nitrogen oxides and greenhouse gases like carbon dioxide. Recent regulatory actions taken by the agency are not based on the best available data, putting these critical protections at risk. I urge the Science Advisory Board to exercise its authority to correct these failings and review these actions to address these shortcomings and ensure that the administration is upholding its legal obligations to safeguard human health and the environment.

The focus of my work at UCS is on emissions from both light- and heavy-duty vehicles, so my testimony focuses on the shortcomings in the administration Mid-Term Review of Light-Duty Vehicle Standards and its Glider Vehicle Regulation. However, many of the shortcomings in these rules apply across a number of the administration's recent actions, including an over-reliance on industry comments and ignoring large amounts of publicly funded data and analysis from the EPA itself.

Mid-term Evaluation

With respect to the Mid-term Evaluation, I agree with many of the concerns raised by the SAB Workgroup, including that the agency's final determination "relied extensively on public comment without...validation" and did not account for any direct or indirect impacts on emissions or public health.[1] However, there are a number of specific flaws which bear further scrutiny.

In the description of the planned EPA action provided to the SAB (2060-AT77), the agency describes in detail a wide assortment of peer-reviewed literature and analysis which were intended to inform the Midterm Evaluation.[2] Not a single one of the 25 peer-reviewed publications[3] or the 6 additional peer-reviewed reports[4] identified by EPA as relevant to the mid-term evaluation were cited by the Administrator in the Final Determination. Results from the agency's transparent, publicly available, and peer-reviewed ALPHA and OMEGA models were completely ignored—in fact, the only mention of EPA's modeling is analysis provided by the Alliance of Automobile Manufacturers and Global Automakers which the Administrator claimed "rais[ed] several technical issues" in "several new studies" despite multiple EPA meetings responding to the critiques and a thorough EPA memo rebutting the analysis uploaded to the docket in November 2017,[5] all of which was again ignored by the Administrator in the Final Determination.

This, of course, outlines the fundamental flaw with the Administrator's Final Determination—a complete and total disregard for analytic reasoning. As scientists and experts on this Board are well aware, when faced

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[1] SAB Work Group Recommendations on the Fall 2017 Semi-Annual Regulatory Agenda, p. B-18.
[2] *Ibid.*, pp. B-12—B-16.
[3] Full list available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#publication.
[4] Full list detailed in SAB Work Group, pp. B-13, B-15—B-16: EPA-420-R-15-006, EPA-420-R-16-018, EPA-420-R-15-012, report on EPA's ALPHA model response surface equation, report on consumer willingness to pay for vehicle attributes, and content analysis of professional auto reviews.
[5] Memo to the docket from Kevin Bolon, EPA, November 24, 2017, regarding stakeholder meeting with Auto Alliance and Global Automakers and their contractor, Novation Analytics, and EPA Technical Response to Assertions of 'ALPHA-to-OMEGA Bias'. EPA-HQ-OAR-2015-0827-10988

with competing sets of conclusions, analytic rigor and critical thought must be exercised to determine where the truth lies. No such analysis is provided in the Final Determination—instead, it reads like a third grader's book report, summarizing large chunks of public comment verbatim without any substantive explanation of the material, despite acknowledgement of contradictory evidence there-in. This is in extreme contrast to the Final Determination filed in 2017—in 2017, the agency finalized a 33-page determination accompanied by 174 pages of responses to comments on a 268-page proposal based on 719 pages of technical support. On April 2, 2018, the Administrator finalized a 38-page determination with no accompanying justification, based largely upon responses to a 3-page proposal with, again, no accompanying technical data.

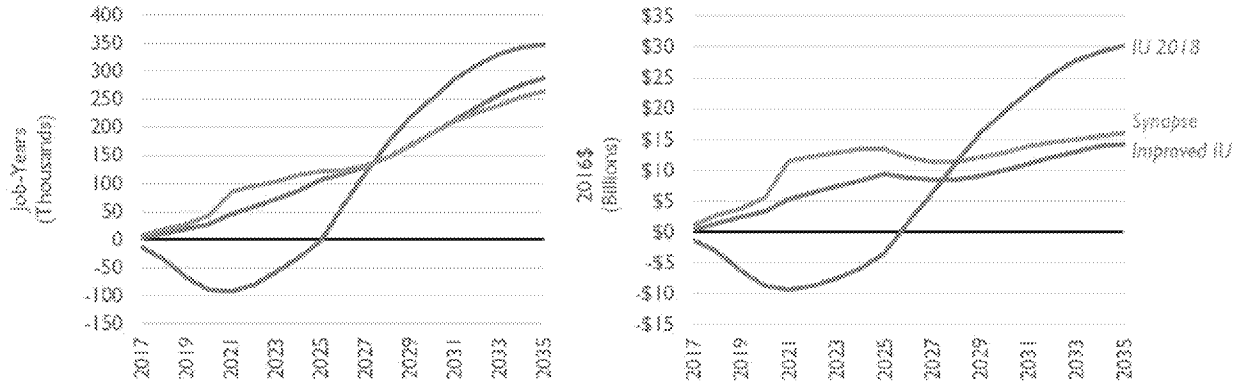

FIGURE 1. (left) Jobs and (right) Gross Domestic Product resulting from the macroeconomic modeling of 2017-2025 state and federal emissions standards (Allison, Hall, and Ackerman 2018). The gray line is based upon the assumptions used in the REMI modeling by Indiana University (Carley, et al. 2017); the blue line incorporates the assumptions of the total-cost-of-ownership modeling in Carley et al. 2017 ignored in their macroeconomic analysis; and the green line reflects updated technical costs and increased valuation of fuel savings by consumers, as described in Allison, Hall, and Ackerman 2018.

Perhaps this example best underscores the superficiality of the Administrator's Final Determination: the ***only*** peer-reviewed report cited by the Administrator in his Final Determination was misrepresented, as noted by the authors of the report.[6] Contrary to both the industry-funded Trinity Consulting/NERA report and the deeply flawed study by the Center for Automotive Research claiming potential losses of more than 1 million jobs which the Administrator pointed to in the Final Determination, despite extensive criticism and responses by EPA technical staff and public commenters, the economic analysis by IU concludes that while there may be some short-term impacts related to both state and federal vehicle emissions regulations, the long-term benefits in both jobs and GDP significantly outweigh any short-term losses. Furthermore, even more recent analysis shows that even those short-term impacts are overstated, since they are largely the results of inconsistencies between two models used in the report, including assumptions that consumers ignore fuel savings completely when purchasing a vehicle and that consumers do not finance their vehicle purchases (Figure 1).[7] This most recent report was submitted to the agency as part of the OIRA review process of the Final Determination under Executive Order 12866[8] and was summarily ignored by the agency in its Final Determination.

[6] The report in question is Carley, et al., 2017. Authors responded to the citation in the Final Determination in a letter to Administrator Pruitt on May 3, 2018, uploaded to the docket as EPA-HQ-OAR-2015-0827-11416.
[7] Allison, A., J. Hall, and F. Ackerman. 2018. Cleaner Cars and Job Creation: Macroeconomic impacts of federal and state vehicle standards. Online at http://synapse-energy.com/cleaner-cars-and-job-creation.
[8] Meeting with the Office of Management and Budget, March 30, 2018. Attendees: Jim Laity, Scott Burgess, Kim Olson, Mary Fitzpatrick (OMB); Mike Olechiw, Jeff Alson, Tad Wysor (EPA); Dave Cooke, Alyssa Tsuchiya (UCS); Ann Mesnikoff (ELPC); Alice Henderson, Martha Roberts (EDF); Margarete Strand (Public Citizen); Ben Longstreth, Luke Tonachel (NRDC); and Alejandra Nunez (Sierra Club).

This and many other shortcomings are why the Science Advisory Board should review the fundamentally flawed technical basis for the Administrator's Final Determination, ensuring that the Final Determination and any potential ensuing regulatory activity are based upon rigorous and thorough analysis of the best available data, not simply liberal quotation of public comments.

The Board has raised a number of issues which will require more careful scrutiny and which I would like to briefly touch upon:

- Rebound effect: To assess this, the EPA commissioned an independent, peer-reviewed report by Kenneth Small and Kent Hymel which briefly discusses the literature and presents updated empirical estimates of the short- and long-term rebound effect.[9]
- Fleet turnover: Assessing fleet turnover inherently relies upon modeling of consumer choice, which has historically been found to yield very little predictive capability, with one recent analysis even indicating that the best year-to-year predictor is simply last year's relative marketshare rather than any complex model.[10] Moreover, both EPA and NHTSA have examined the potential for such inclusion in the past and have also found little evidence of predictive potential, noting that "the model's predictions are unlikely to be as precise as is suggested from the model output,"[11] and found only at most short-term (2-3 model years) forecasting of market response, with difficulty predicting longer-term responses due to the need for projecting changes in household characteristics.[12]
- High octane fuels: While the technical evidence suggests that co-optimizing fuels and engines has the potential to cost-effectively enhance overall system efficiency, particularly matching fuel octane and octane sensitivity to high compression ratio engines, realizing these benefits requires significant coordinated changes in engine design, fuel production, and fuel distribution infrastructure. As such, while implementing these coordinated changes is feasible, it will take at least a decade and is therefore not realistic within the 2025 timeframe. While initial elements of the system may be deployed sooner, for example selling compatible cars, realizing the potential emissions benefits of a co-optimized system will not be achieved until the vehicles, fuels and fuel distribution infrastructure are in place.[13]
- Modeling: As noted earlier, the Final Determination did not utilize EPA's ALPHA and OMEGA models. The ALPHA model is an open source, accessible, and peer-reviewed full-vehicle simulation model, and according to the National Research Council, "the use of full vehicle simulation modeling...contributed substantially to the value of the Agencies' estimates of fuel consumption and costs, and [the committee] therefore recommends the continue to increase the use of these methods to improve their analysis."[14] The OMEGA model is built upon the ALPHA model, and its public accessibility adds additional transparency to the rulemaking process as well as itself provides additional value as the basis for policy research.[15] At the same time, EPA staff continues to improve

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[9] EPA-420-R-15-012
[10] C. Grace Haaf, Jeremy J. Michalek, W. Ross Morrow and Yimin Liu, "Sensitivity of Vehicle Market Share Predictions to Discrete Choice Model Specification," *J. Mech. Des* 136(12), 121402 (Oct 20, 2014). Online at http://dx.doi.org/10.1115/1.4028282.
[11] EPA. 2012. *Consumer Vehicle Choice Model Documentation.* EPA-420-B-12-052, p. 3.
[12] Jim Tamm, "NHTSA's Recent Activities on Light-Duty Fuel Economy," presentation to the National Research Council, Washington, DC, June 23, 2014.
[13] Farrell, John, John Holladay, and Robert Wagner. "Fuel Blendstocks with the Potential to Optimize Future Gasoline Engine Performance: Identification of Five Chemical Families for Detailed Evaluation." Technical Report. U.S. Department of Energy, Washington, DC. 2018. DOE/GO-102018-4970.
[14] National Research Council Committee on the Assessment of Technologies for Improving Fuel Economy of Light Duty Vehicles, Phase 2. 2015. *Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles.* National Academies Press: Washington, DC. Online at https://www.nap.edu/catalog/21744/cost-effectiveness-and-deployment-of-fuel-economy-technologies-for-light-duty-vehicles.
[15] For example, Lutsey, N., et al. 2017. https://www.theicct.org/publications/US-2030-technology-cost-assessment

these resources.[16] It is paramount that the agency continue to utilize peer-reviewed, transparent, and publicly available models in order to justify its regulatory actions.

Glider Regulation

Of course, the Final Determination is not the only action where the Administrator has substituted industry comment for hard evidence. In its proposal to allow the sales of glider vehicles, EPA relied upon technical data that is questionable not just for its conclusions, but for its flawed methodological approach and compromised pedigree.

While EPA claims that the basis for its action on glider kits is legal in nature, it repeatedly refers to data submitted by the petitioning industry in support of its assessment, never once attempting to validate the information submitted by the petitioners nor referring at any point in the proposed repeal to the numerous other comments which conflict with the assertions made by the petitioners. This alone is concerning, for many of the same reasons raised above regarding the Administrator's Final Determination. However, it is even more troubling considering the provenance of the study itself.

The Tennessee Tech study liberally quoted by the Administrator in the agency's proposal was funded by Fitzgerald Trucks, one of the petitioners; it was conducted at Fitzgerald's facilities, using Fitzgerald's proprietary test procedures rather than any of the many widely established regulatory and industry-certified tests; and it was conducted by a research team at Tennessee Tech that included "no qualified, credentialed engineer."[17] The principal investigator for the project withdrew himself from the study,[18] citing numerous concerns including how results were misrepresented for political purposes and later noting that the study in question included examples of "falsification by omission," a "violation of research principles."[19] In fact, members of the faculty recommended that a graduate student involved in the study no longer complete a thesis on the work, citing concerns over handling of the data.

The repeated referral of the Administrator to the Tennessee Tech study is made even more perplexing by the test data provided by the agency to the docket affirming its conclusions on the impacts of these vehicles, yielding NOx emissions up to 40 times greater and particulate matter emissions up to 450 times greater than modern heavy-duty trucks.[20] These results are largely consistent with EPA's estimates of the emissions from these vehicles when the heavy-duty vehicle regulations were finalized[21] as well as separate and independent testing by the California Air Resources Board.[22] My own analysis of EPA's test data indicates that it is likely Fitzgerald has tampered with the emissions controls of these engines to an extent that they do not even meet the standards which the engines were originally designed to meet.[23]

A further shortcoming in the proposed glider repeal is the lack of an impact assessment. Given the technical data indicating the high levels of pollution posed by these vehicles, it is expected that repealing this

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[16] See, for example, the report on EPA's ALPHA model response surface equation, under peer-review.
[17] According to the head of Tennessee Tech University's engineering department, as quoted in Halper, E., "EPA used disavowed research to justify putting dirtier trucks on the road," *Los Angeles Times*, May 29, 2018.
[18] Letter from Dr. Benjamin Mohr to Philip Oldham re: withdrawal as principle investigator, January 25, 2018.
[19] Letter from Dr. Benjamin Mohr to Dr. Bharat Soni re: Violation of Tennessee Tech Policy 780 Misconduct in Research, January 27, 2018.
[20] Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles. EPA-HQ-OAR-2014-0827-2417.
[21] Appendix A, Section 14, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles -Phase 2: Response to Comments for Joint Rulemaking. EPA-420-R-16-901.
[22] California Air Resources Board Comments on Proposed Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits. EPA-HQ-OAR-2014-0827-4831.
[23] Union of Concerned Scientists Comments Regarding the Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits. EPA-HQ-OAR-2014-0827-4878.

provision of the heavy-duty regulations would result in significant adverse health impacts—in the proposed repeal, the agency even notes that "some benefits for children's health...would be lost." It is critical that EPA conduct a thorough analysis of the health and emissions impacts of this repeal, including impacts on low-income and vulnerable communities most likely to be adversely impacted by pollution along heavily-trafficked truck routes. It should also take into consideration that the current levels of glider deployment more closely represent a floor than a ceiling, since it is likely that manufacturers and/or assemblers who have either exited the glider market or not yet participated may choose to enter the glider market as a way to provide low-cost trucks to circumvent the addition of complex and expensive pollution controls required of conventional heavy-duty trucks, thus leading to an increase in marketshare for glider vehicles.

Conclusion

Recent regulatory activity by EPA has ignored significant technical data, relying significantly upon extensive repetition of industry comments without any external validation. The Science Advisory Board should review these actions and ensure that the EPA is upholding its mission to protect public health and the environment.

TESTIMONY OF GLEN KEDZIE ON BEHALF OF THE AMERICAN TRUCKING ASSOCIATIONS ON EPA'S REPEAL OF EMISSION REQUIREMENTS FOR GLIDER VEHICLES, GLIDER ENGINES, AND GLIDER KITS RULE (May 31, 2018)

Good afternoon. My name is Glen Kedzie and I am Vice President, Energy & Environmental Counsel for the American Trucking Associations (ATA). Thank you for the opportunity to provide testimony on the scientific justification, or lack thereof, behind EPA's proposed repeal of emission requirements for glider vehicles.

ATA is the trade association representing the interests of 34,000 companies in the U.S. Through our prior written comments and testimony, ATA has strongly opposed EPA changing course and repealing the glider provisions due to their excessive emissions and their undercutting the decades and billions of dollars of investments by fleets, manufacturers, and suppliers of clean vehicle technologies.

ATA has a long history of working with EPA in reducing emissions. Our message has remained consistent – new regulations must be justified; be economically and technologically achievable; must be based upon sound data and science; implementation should not create major market shifts or disruptions in equipment purchasing cycles; and be developed with an eye towards transparency.

Diesel engines have made incredible progress since the mid 1980's in addressing NOx and PM. Today's near-zero engine emissions reflect the major progress our industry has advanced over the last 30+ years. The same cannot be said for glider vehicles.

Putting the trucking industry's emission reductions in perspective, over 36% of heavy-duty MY 2011 and newer diesel trucks in operation today are equipped with near-zero emission clean diesel technologies.[1] On the other hand, while glider vehicles comprise only 5% of heavy-duty tractors, their emissions will represent about one-third of all NOx and PM emissions from heavy-duty tractors in 2025 if EPA leaves them unchecked.

The science and data supporting the agency's justification in regulating NOx and PM emissions from gliders rests on solid ground both under highway cruise conditions and transient operations. EPA's November 20, 2017, glider emissions testing report, and CARB's December 27, 2017, emissions analysis referenced as Attachment 3 in its comments to the proposed glider repeal rule docket further justify and thoroughly substantiate the differentiation in emissions between gliders and new vehicles. Furthermore, Section 14.2 of the August 2016 EPA/NHTSA *Response to Comments* document provides a plethora of support for the agency's glider

[1] Industry research commissioned by the Diesel Technology Forum and conducted by IHS Markit.

TESTIMONY OF GLEN KEDZIE ON BEHALF OF THE AMERICAN TRUCKING ASSOCIATIONS ON EPA'S REPEAL OF EMISSION REQUIREMENTS FOR GLIDER VEHICLES, GLIDER ENGINES, AND GLIDER KITS RULE
(May 31, 2018)

provisions. It also must not be left without saying that fatally flawed and elementary studies on glider emissions funded by select special interests have no place in setting laws to protect human health and the environment.

Of note, Environment and Climate Change Canada published their final Phase 2 regulation yesterday which included provisions to regulate glider vehicles. While ATA has not had time to review supporting documents to this rule, it would be advisable for the agency to peruse this regulation for further analysis and data on glider vehicles if warranted.

Finally, while economic cost considerations -- including employment losses -- are among the factors considered by the agency in setting standards, glider repeal stakeholders using questionable employment loss figures should substantiate and justify such numbers and EPA must account for associated employment gains in other trucking industry sectors.

In closing, ATA supports the current scientific conclusions justifying the regulation of glider vehicles to protect human health and the environment and stands ready to assist the agency in providing any additional information or data as necessary on this critical matter.

Thank you.

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RE: Statement of Amit Narang, Regulatory Policy Advocate, Public Citizen
Submitted to: Scientific Advisory Board of the U.S. Environmental Protection Agency
May 31, 2018

Members of the Board, thank you for the opportunity to testify today. I am Amit Narang, regulatory policy advocate for Public Citizen, where I focus on federal agency compliance with the rulemaking process including testifying in Congress numerous times on issues related to oversight of the Executive Branch rulemaking process. I am here to discuss various procedural defects in the EPA's current rulemaking regarding the repeal of Phase 2 emission requirements for so-called "glider" trucks. I applaud the Board's interest in reviewing the scientific and technical basis for this rulemaking.

EPA's proposal to repeal the Phase 2 emission requirements for gliders is almost entirely devoid of any evidentiary foundation. Instead, EPA claims that scientific, economic, and other technical evidence, data, and analyses are not required for this rulemaking since it is simply a re-interpretation of the Clean Air Act's application to glider trucks. This ignores the legal requirement that EPA must demonstrate its rule is the product of reasoned decision-making and provide a rational basis for the rule that comports with the relevant statutory factors in the Clean Air Act regarding protection of public health and the environment. Given the EPA's stance, it is not surprising that the EPA has failed to provide any scientific basis to justify the rule, or to dispute the findings from the Phase 2 rulemaking that glider trucks could provide up to one third of all nitrous oxide and particulate matter emissions from heavy duty trucks by 2025 if left unregulated.[1] According to internal agency research not released until after EPA published this proposal, a new 2017 glider truck can emit up to 450 times the particulate matter (PM) pollution, and up to 43 times the nitrous oxide (NOx) pollution, of model year 2014 and 2015 trucks. The only scientific study that EPA cited in its proposal, provided by a glider truck manufacturer which successfully petitioned for the proposal, has since been withdrawn and disavowed by the academic institution that conducted the study.

[1] 81 Fed. Reg. at 73,943 (Oct. 25, 2016).

Turning to non-scientific evidence and analyses, EPA also failed to provide any regulatory impact analysis to accompany the proposal. Such regulatory impact analyses routinely accompany economically significant rules of this nature and provide the public with an understanding of projected impacts of the rule, including the costs and benefits or economic impact of the rule. In the absence of a regulatory impact analysis, EPA also likely failed to comply with section 317 of the Clean Air Act that requires the Administrator to analyze, and consider in some manner in the text of the rule, specific economic impacts in five categories for rulemakings undertaken under section 202 of the Clean Air Act. EPA did place an abridged version of the analysis separately in the rulemaking docket but that analysis makes clear that "EPA did not, however, consider this economic impact assessment itself in proposing the action."[2]

According to reports, EPA's failure to provide a regulatory impact analysis for its draft final rule has resulted in the Office of Information and Regulatory Affairs (OIRA) declining to review the draft final rule until such an analysis is provided. Yet, it is unclear why OIRA allowed EPA to publish the proposal without such an analysis while now insisting that one is required. A close examination of the changes OIRA made to EPA's draft proposed rule[3] reveals that the rule's designation was changed from "economically significant" to "significant" on the final day of the OIRA review period likely in order to allow EPA to propose the rule without a regulatory impact analysis. On EPA's spring 2018 regulatory agenda, the rule is now listed as "economically significant" where it was previously just listed as "significant" in the preceding regulatory agenda. It is critical that EPA and OIRA be transparent with the public as to why EPA was allowed to propose this rule without any regulatory impact analysis, and without the section 317 economic analysis, given its current designation as "economically significant."

Finally, EPA cannot simply cure these substantial procedural defects by including new data and analysis at the final rule stage. Instead, if EPA seeks to continue with this rulemaking, it must provide any new data and analysis by re-proposing the rule in order to give fair notice to the public and allow the public an opportunity to comment on the new information and to avoid additional legal vulnerability. If the Board elects to review the rule, EPA should postpone any re-proposal of the rule in order to incorporate the Board's finding. Once again, thank you for the opportunity to testify today.

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[2] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2407
[3] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2403

Testimony of Michael Walsh, Independent Consultant

Before the U.S. Environmental Protection Agency Science Advisory Board

May 31, 2018

Good afternoon, I am Michael Walsh. I am an independent consultant, and I have spent my entire career working on vehicle pollution issues. I previously served as the Deputy Assistant Administrator for the Office of Mobile Sources Air Pollution Control, the predecessor of today's Office of Transportation and Air Quality and was the founding Chairman of the International Council on Clean Transportation.

I am pleased to be able to testify before the Board today. I want to thank all of you for your public service. Scientific integrity is the foundation of EPA's mission, and the Board must fulfill its role of ensuring that future EPA decisions are grounded in the most rigorous scientific and technical foundation possible.

I strongly encourage the Board to commit to taking four actions:

1) To undertake a formal review of the Reconsideration of the Final Determination for the light-duty GHG emissions standards
2) Further, to commit to undertaking a formal review of the upcoming Notice of Proposed Rulemaking on light-duty vehicle GHG emissions standards
3) To undertake a formal review of the proposed Repeal of pollution limits for heavy-duty glider trucks, and
4) To undertake a formal review of Strengthening Transparency in Regulatory Science

I would like to highlight a few key issues on these actions:

Light-Duty GHG Emissions Standards

There is a massive technical record of approximately 10,000 pages supporting the appropriateness of the light-duty GHG emissions standards that are currently in effect. This record spans from 2009, when the first phase of the standards was proposed, to January 2017, when the original Final Determination for the standards was signed by then-Administrator McCarthy. EPA performed the most comprehensive federal regulatory automotive technology evaluation over this 8-year period. Following recommendations by National Academy of Sciences reports, EPA staff developed the first agency vehicle simulation model, and became the first and only federal agency to sponsor vehicle technology cost tear-downs. They benchmarked over 30 of the world's most efficient vehicles, engines, and transmissions, and "reverse engineered" engine and transmission maps that are the core inputs to the vehicle simulation model for precise effectiveness and cost estimates.

I cite this comprehensive technical record to compare it to the meager basis for the recent Final Determination issued by Administrator Pruitt in April. That qualitative document offered no scientific or technical evidence from EPA for the agency's claim that the 2022-2025 standards were no longer appropriate, and instead offered comments from automakers, with no independent assessment of those claims.

EPA can and must do better than this, and I strongly encourage the Board to formally review both the Reconsideration of the Final Determination, as well as the upcoming Notice of Proposed Rulemaking.

Heavy-Duty Gliders

I agree completely with the SAB Work Group that the EPA Glider proposal "is highly controversial in that it would be an end-run around new truck emission standards" and "it is in the best interests of EPA to use credible technical information in a proposed rule." It is an indictment of the proposal that the one technical document that was cited in the proposal—the Tennessee Tech study—is now the subject of a research misconduct investigation by the university, while an EPA analysis that found very high glider emissions was ignored. I strongly encourage the SAB to formally review the Glider proposal.

Strengthening Transparency in Regulatory Science

Finally, this proposed rule would weaken, rather than strengthen, the scientific basis for EPA's regulatory decisions by barring EPA consideration of valid scientific research. It ignores the many mechanisms that the scientific community and EPA have long used to review, assess, and vet scientific studies, separate and apart from disclosure of data. For EPA to ignore or exclude studies merely because they do not meet the proposed disclosure requirement is not consistent with good scientific practice.

Conclusion

Initiating a formal review of these agency actions will help to ensure that the Agency relies on robust scientific and technical information on criteria and GHG emissions and air quality in taking further actions that have significant consequences for public health.

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May 22, 2018

Written Statement for the Public Meeting of the Executive Committee of the EPA Science Advisory Board, 5/31 to 6/1

On behalf of the Union of Concerned Scientists (UCS), I submit this comment to the Environmental Protection Agency (EPA) Science Advisory Board in anticipation of its meeting to discuss the agency's semiannual regulatory agenda and other matters. UCS is a science-based nonprofit working for a healthy environment and a safer world. Our organization combines independent scientific research and citizen action to support innovative, practical solutions and secure responsible changes in government policy, corporate practices, and consumer choices.

First, I would like to commend the SAB workgroup on its review of the Spring 2017 and Fall 2017 regulatory agendas and its suggestions to review proposed changes to the clean power plan, standards of performance for greenhouse gas emissions for new, reconstructed, and modified sources, greenhouse gas emissions standards for light-duty vehicles, and emission requirements for glider vehicles. These original regulations set historically strong standards to limit methane emissions that have disastrous impacts on the climate and to reduce carbon emissions from power plants and automobiles. EPA's move to cancel the information request from the oil and gas industry for performance standards for oil and gas emissions has meant that there is even less information on which to base a deregulatory decision, and the SAB must have a chance to review these EPA actions that could have dramatic environmental and public health implications.

On the emission requirements for glider vehicles, it is critical that the EPA not move forward with its repeal for the reasons outlined by the SAB. As noted in the workgroup's memo, the scientific basis of the repeal was an emissions study from Tennessee Tech University funded by Fitzgerald Company, one of the primary manufacturers of glider trucks, and has since been withdrawn by the university because of the unscientific nature of the article.[1] The rule this new proposed rule would seek to repeal was a huge public health victory and EPA's own analysis expected that the particulate matter emissions released over the lifetime of glider trucks sold in just one year will result in as many as 1,600 premature deaths.[2] We encourage SAB's review of the scientific justification of this proposed repeal.

In addition to the three actions flagged by the workgroup for further review, the workgroup noted that there was a general lack of supporting evidence for the SAB to even judge the merits of scientific review for the other items on the list provided to the committee, specifically on the

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[1] Lipton, E. 2018. University Pulls Back on Pollution Study That Supported Its Benefactor. *New York Times*, February 21. Online at https://www.nytimes.com/2018/02/21/admin/trucking-pollution-study.html. Accessed May 18, 2018.

[2] U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration. 2016. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium-and Heavy-Duty Engines and Vehicles-Phase 2, Response to Comments for Joint Rulemaking, August. Online at https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF. Accessed May 18, 2018.

Waters of the United States Rule and on TSCA regulation. There is certainly an opportunity for the SAB to advise the administrator to provide specific information on the peer review associated with the science basis for actions and more description of the bases for its actions.

We would also like to support the SAB workgroup's recommendation that the SAB review the agency's April proposed rulemaking, "Strengthening Transparency in Regulatory Science." In the SAB workgroup's memo, it recommends that the SAB review the merits of the rule because "it deals with a myriad of scientific issues for which the Agency should seek expert advice from the Science Advisory Board." Some of the areas flagged by the memo include the lack of assessment of the impact of data restrictions on current or future rulemaking, the fact that the EPA did not solicit input from the scientific community, and that the rule does not acknowledge the strides in transparency that have already been made by epidemiologic science community. For the reasons that the SAB laid out in its May 12th memo, and more that we will be articulating in an upcoming comment, this proposed rule would effectively change the way the EPA uses science in its rulemaking and thus how EPA SAB can review agency actions. It is crucial that the SAB communicate to the EPA the necessity of its review before any further actions are taken by the administration.

We would also urge the SAB to consider reviewing a recent EPA guidance[3] that would dramatically alter how science informs the National Ambient Air Quality Standards (NAAQS) process which has effectively and drastically reduced ambient air pollution in this country for decades. According to statute, the SAB can provide advice on the "adequacy of the scientific and technical basis" of proposed criteria documents, standards, limitations, or regulations[4] which should include this particular guidance which along with a presidential memo issued last month[5] would chip away at the long-standing science-based process that has effectively and substantially reduced ambient pollution in this country for decades. Under the proposal, the EPA and its science advisors must not solely consider public health (as the law requires) but must elevate consideration of potential adverse impacts from setting a health-based standard, such as economic impacts. While the EPA guidance claims to "differentiate science and policy judgments," it in fact does the opposite. The process would be removed from EPA's Office of Research and Development and the comprehensive document outlining the state of the science on pollutants and health that the administration relies on to make science-based decisions may be combined with a regulatory impact assessment, blurring the distinction between scientific and political judgments. This builds on a presidential memo that limited the kinds of scientific analyses the EPA can use when determining whether states are meeting the standard. As former CASAC chair Barry Goldstein wrote in a recent op-ed, "this new approach to setting primary air quality standards should be judged in conjunction with other major decisions about the

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[3] Pruitt, E.S. 2018. Memorandum: Back-to-Basics Process for Reviewing National Ambient Air Quality Standards, May 9. Online at https://www.epa.gov/sites/production/files/2018-05/documents/image2018-05-09-173219.pdf. Accessed May 18, 2018.

[4] 42 USC § 4635(c)

[5] Trump, D.J. 2018. Presidential Memorandum for the Administrator of the Environmental Protection Agency, April 12. Online at https://www.whitehouse.gov/presidential-actions/presidential-memorandum-administrator-environmental-protection-agency/, Accessed May 18, 2018.

incorporation of science into EPA."[6] We urge the SAB to heed his call and to inform the EPA that this is another regulatory action that the SAB should have a chance to weigh in before the agency moves forward with implementation.

Additionally, on June 1st, the SAB will hear from EPA staff on its approaches on perfluoroalkyl substances (PFAS). As UCS FOIA documents revealed earlier this month that the White House has possibly slowed the release of U.S. Department of Health and Human Services (HHS) Agency for Toxic Substances and Disease Registry (ATSDR's) toxicological profile of PFAS,[7] we would encourage the SAB to ensure that the science staff at EPA is coordinating with HHS and not obstructing the release of a report that will help communities impacted firsthand by PFAS and PFOA contamination of their water to understand what levels are safe and hold military bases and industrial facilities accountable for swiftly remediating sites that are public health hazards.

Finally, I want to communicate how important it is that the SAB continue to meet regularly. Public access to information is at the heart of the Federal Advisory Committee Act by which the SAB is governed. We are glad to see that the SAB is meeting in person after a hiatus and welcome new members of the SAB. We want to remind the Board of the important role it serves in making sure the Administrator has access to strong, objective scientific advice as he endeavors to take on a variety of science-based tasks. The SAB has a long history of serving a critical role to the agency and the public relies on this body to hold the agency accountable. Thus, it is also important that the SAB does everything it can to remain objective including continuing to hold members to conflicts of interest reviews and recusals when deemed necessary to ensure that science, not politics, informs the advice given to the administrator and the best available science is able to inform the public health protections for which EPA is responsible.

Sincerely,

Genna Reed
Lead Science and Policy Analyst
Center for Science and Democracy, Union of Concerned Scientists

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[6] Goldstein, B.D. 2018. Pruitt's EPA disregards the science behind the Clean Air Act. *The Hill*, May 16. Online at http://thehill.com/opinion/energy-environment/387381-pruitts-epa-disregards-the-science-behind-the-clean-air-act. Accessed May 18, 2018.

[7] Snider, A. 2018. White House, EPA headed off chemical pollution study. *Politico*, May 14. Online at https://www.politico.com/story/2018/05/14/emails-white-house-interfered-with-science-study-536950, Accessed May 18, 2018.

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Testimony of Rachel Muncrief and John German on behalf of the International Council on Clean Transportation

Before the U.S. Environmental Protection Agency Science Advisory Board

May 31, 2018

Washington Plaza Hotel, 10 Thomas Cir NW, Washington, DC

A. Oral Testimony

My name is Rachel Muncrief, and I direct the heavy-duty vehicles program and compliance and enforcement program of the International Council on Clean Transportation. I have a PhD in Chemical Engineering and have been working on vehicle emissions and efficiency policy in the United States for 15 years — 5 years at the ICCT and 10 years at the University of Houston, concluding my time in Houston as a research faculty and director of the university's diesel vehicle testing and research lab. John German is a Senior Fellow at ICCT, with primary focus on vehicle policy and powertrain technology. He started working on these issues in 1976 in response to the original CAFE standards, addressing these issues for about a decade each for Chrysler, EPA, Honda, and ICCT.

Thank you for the opportunity to testify today. I would like to briefly address a few key technical issues raised in the SAB workgroup memo from May 18, 2018 concerning the 2025 light-duty vehicles GHG standards and the emission requirements for glider vehicles. We would like to state up front that we fully support the workgroup's recommendations to move forward with an SAB review of these proposed actions.

On the 2025 GHG standards: The agencies' 2016 Technical Assessment updated their analyses, but still failed to consider a number of technology advances that are already in production or

close to production, overestimated the cost of other technologies, and ignored benefits from features associated with efficiency technology that are desired by consumers.

Existing technologies are being improved and new technology is being developed at astounding rates. ICCT cooperated with suppliers on a series of six technology papers in 2016, examining all aspects of technology development. OMEGA modeling conducted by ICCT in 2017 using updated inputs based on the ICCT/supplier reports found that the cost to comply with the 2025 standards would be only $866 per vehicle, less than half the projected cost of about $1,800 in the original rule and a third less than the updated cost of about $1,300 in the TAR. And even our analysis cannot keep up with the rapid pace of technology introduction – just two examples are Mazda's introduction of the world's first gasoline compression ignition engine in 2019 and FCA's inclusion of a low-cost 48v hybrid system as standard equipment on the 2019 RAM pickup truck with the base V6 engine. Projections that large numbers of full hybrids are required to meet the standards are based upon analyses that artificially and improperly restrict the uptake of conventional technologies.

There is so much conventional technology coming that there are multiple pathways to comply and there is no tradeoff with performance, as manufacturers can simply install additional technology to meet any increase in consumer demand. Plug-in vehicles and full hybrids will not be required to meet the standards, although of course they can be used at the manufacturer's option.

The TAR failed to even consider other consumer benefits associated with efficiency technology. For example, turbocharged engines and hybrids improve throttle response, transmissions with more gears have smoother shifts and reduce engine noise, and lightweighting improves handling, braking, and performance. NHTSA has also failed to consider the better crash properties of high-strength steel and aluminum in their safety analyses.

Using realistic technology costs, the fuel savings alone offset the increased technology cost. Considering the other consumer benefits from technology, there are no significant barriers to consumer acceptance of redesigned or advanced technology vehicles. In fact, consumers are likely to increase their purchases of new vehicles.

On the emissions impact of glider trucks: According to the EPA's own testing results, in operations typical of tractor-trailer driving, glider trucks emit 30 times the NOx and 60 times the PM of a modern tractor-trailer equipped with emissions controls. Sales of glider trucks today are around 10,000 per year—5% of the Class 7 and 8 tractor truck market—up over an order of magnitude from 10 years ago. The ICCT conducted our own scenario analysis, which assumed the annual sales volume would steadily grow to 17,400 units by 2027. In that scenario, EPA's proposed regulation would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade. In monetary terms, this is equivalent to more than 12 billion dollars in health damages over the next decade.

This proposed regulation would likely also increase fleet-wide CO_2 emissions over the next decade. Although the EPA's testing indicated that the glider vehicle powertrains produced approximately 4-5% lower CO_2 emissions (for typical operation) than the model year 2014/2015 trucks they tested, typical tractor truck fuel consumption will be reduced by around 40% from 2010 to 2027 due to the EPA's Phase 1 and Phase 2 GHG regulations. If glider trucks are not regulated under these regulations, then it is unlikely they will benefit from these mandated improvements in fuel efficiency.

We have submitted more extensive comments in written form. Thank you for your time.

B. Written Testimony

ICCT response to questions posed in the SAB Workgroup memo of May 18, 2018

1. **Questions regarding Reconsideration of Final Determination: Mid Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light Duty Vehicles (RIN 2060-AT77)**

As requested by the Science Advisory Board, the review below is based upon documents developed by EPA, NHTSA and CARB during the MTE process, such as the Draft Technical Assessment Report, and focus on areas where updates are needed. Specifically, we have addressed the first four questions suggested by the SAB for review.

- What are the barriers (e.g., price and foregone power or safety) to consumer acceptance of redesigned or advanced technology vehicles, and how might such barriers be overcome?

EPA and NHTSA properly accounted for some factors influencing consumer acceptance of technologies needed to comply with the standards in the 2016 TAR, but overestimated technology cost and failed to quantify benefits from features associated with efficiency technology that are desired by consumers. Properly considering all of the factors, there are no significant barriers. In fact, consumers benefit from the standards and they are more likely to increase their purchases of new vehicles. The new and improve technologies required to meet the standards impact customers in four ways:

1. **Increased vehicle price**. The technology cost estimates in the TAR do not account for the latest technology developments and, thus, are overstated. Certainly, the cost to meet the standards is significant. However, it is important to understand that existing technologies are being improved and new technology is being developed at astounding rates, which is rapidly reducing the projected cost to comply with the standards. EPA analyses for the 2012 rule establishing 2017-2025 standards found that the cost of meeting the 2025 standards versus the 2015 baseline vehicles would be about $1,800 per vehicle. EPA updated their analyses for the 2016 Proposed Determination and found that the cost had dropped to about $1,300 per vehicle. However, even the 2016 analyses understated technology development and, thus, overstated the costs to comply. ICCT cooperated with suppliers on a series of six technology papers in 2016, examining all aspects of technology development (see attachment for links). These reports found that the TAR failed to consider a number of technology advances that are already in production or close to production—such as E-boost, dynamic cylinder

deactivation, variable compression ratio, and numerous thermal management strategies—and continued to overestimate the cost of other technologies. OMEGA modeling conducted by ICCT in 2017 using updated inputs based on the ICCT/supplier reports, found that the cost to comply with the 2025 standards would be only $866 per vehicle. Further, despite the best efforts of the agencies, suppliers, and the ICCT, recent announcements from Toyota, Mazda, GM, FCA, and Volvo have already made the updated technology assessments of the past year obsolete, as the industry continues to play technology leapfrog at an astounding rate. The redesigned 2018 Toyota Camry with the base engine has incorporated many technology improvements and improved fuel economy by 26% over the previous generation, already meeting its 2022 footprint target without any hybridization, lightweighting, or off-cycle credits. Mazda is introducing the world's first gasoline compression ignition in 2019 with up to a 30% improvement in efficiency, which was not considered in the 2016 TAR – and has announced it is developing plans for a future engine with an astounding 56% thermal efficiency. GM is introducing the world's first dynamic cylinder deactivation system on their 2019 full-size pickup trucks with twice the benefit of conventional cylinder deactivation, which also was not considered in the 2016 TAR. Finally, FCA is making a 48v hybrid system standard equipment with the base V6 engine on the 2019 RAM pickup truck and Volvo will make 48v systems standard on every model they redesign starting in 2019. **It is clear that the cost to comply with the 2025 standards will be less than half the cost estimated when the standards were adopted in 2012. Further, there is so much technology coming that manufacturers can pick from several different compliance pathways.** Toyota and Mazda are clearly on a path to comply primarily with naturally aspirated engines; some combination of high-compression ratio Atkinson cycle engines and gasoline compression ignition. Ford and Honda are clearly choosing to use downsized, turbocharged engines to comply. FCA is an early leader on 48v hybrid systems. Lightweighting is also being used for vehicles from a variety of manufacturers. Meeting the standards will not be difficult and will not be constrained to a single set of technologies.

2. **Fuel savings.** Consumer fuel savings are accurately modeled by EPA, NHTSA, and CARB. Even with the lower fuel prices since 2012, the fuel savings are still 2.4 times larger than the 2016 TAR technology cost and 3.6 times larger than the 2017 ICCT cost. However, an important issue with respect to consumer acceptance of technology is how much of the fuel savings are valued by new vehicle purchasers. New vehicle purchasers are not the same and some value the fuel savings higher than others. Even the vehicle manufacturers acknowledge that most customers value 2-3 years of fuel savings and other analyses find that consumers value about 5 years of fuel savings on average. Using the 2016 TAR costs, the fuel savings would pay back the technology costs in about 4.5

years and the pay back would be about 3 years with the 2017 ICCT costs. **Thus, for most customers the fuels savings alone would offset the increase in vehicle price.** Also note that these payback periods are significantly shorter than the average new vehicle loan of 5.5-6.0 years, meaning that the fuel savings would more than pay for the increased monthly loan payments.

3. **Foregone consumer attributes**
    a. **Performance.** The TAR appropriately determined that consumer value of performance is independent of the standards and set the standards assuming constant performance. While many technologies can be used to boost both performance and efficiency, it is inappropriate to directly trade off consumer preferences for performance and fuel economy against each other. If consumers wish to purchase more performance, manufacturers can satisfy this demand and still meet the standards by installing additional technology – there is plenty of technology available to do both. Further, recent computer simulation modeling suggests that when newer technologies are used to boost performance, the reduction in fuel economy is smaller than with older technologies. Finally, consumer demand for performance improvement is subject to diminishing marginal returns, i.e. many mainstream vehicles are already faster than most customers will ever use and consumer demand is leveling off.
    b. **Safety.** The large majority of the fuel economy and GHG reductions are achieved with powertrain technology. Prominent examples include downsizing engines for better efficiency while maintaining performance with turbocharging, improved transmissions and additional gear ratios, higher compression ratio for higher efficiency, Atkinson cycle engines that extract more useable work from combustion, and hybrids (mainly for Japan in terms of market share). But these are just the main ones – there are a host of other technologies that also improve efficiency. In addition, there are improvements in aerodynamic design to reduce drag, reductions in tire rolling resistance, and higher efficiency accessories and pumps. None of these affect safety in any way. Only lightweighing, which is an important but still relatively minor part of the overall efficiency improvements, affects safety. High-strength steel and aluminum, are increasingly employed in new vehicle designs not just because they are lighter and help comply with fuel economy and GHG standards, but because they have better crash properties than conventional steel and help improve NCAP scores. **These better crash properties are not reflected in NHTSA's traditional vehicle safety analyses**, which are based upon historical data.
4. **Other consumer attributes. The TAR failed to quantify benefits from features associated with efficiency technology that are desired by consumers.** These consumer

welfare gains are very significant and the agencies arbitrarily failed to consider them. Examples include:

a. Lightweighting improves maneuverability, performance, and braking and increases cargo and towing capacity. Note that improved maneuverability and braking also decrease the chances of an accident.
b. High-strength steel and aluminum have better crash properties than conventional steel and their use improves vehicle safety.
c. Both increasing the number of transmission gears or using a Continuously Variable Transmission reduce noise on the highway (by allowing the engine to run at lower speeds), provide smoother shifting, and improve performance (by keeping the engine closer to its peak power speed).
d. Both turbocharging or hybrid electric motors provide faster throttle response and increased torque at low engine speeds for better drivability.
e. Window glazing keeps the vehicle cooler when sitting in the sun.

Summary: All four of these factors affect consumer purchase decisions and all must be analyzed and incorporated in order to properly assess barriers to consumer acceptance of redesigned or advanced technology vehicles. The fuel savings alone offset the incremental technology cost for most customers. Many of the efficiency technologies offer other attributes valued by consumers – and manufacturers will incorporate these benefits into their future product plans. **When all of the benefits are considered, the standards provide incentives, not barriers, for consumers to purchase new technology vehicles.** A prime example of this is the Ford F150 pickup truck, for which V6 engines outsell V8 engines three to one (72% versus 24%),[1] primarily because the 3.5L turbocharged V6 engine has more torque and towing capacity than the 5.0L V8. Also note that there are multiple pathways to compliance

Misinterpretation of EPA Manufacturer Performance Report Trends[2]: On average, manufacturers exceeded the standards every year from 2010 through 2015. But the margin over the standard decreased from 2014 to 2015, and for 2016 the average fell below the average standard level for the first time, by 9 gCO2/mile. Note that most of the compliance shortfall in 2016 is due to expiration of flexible-fuel vehicle credits after 2015, but the compliance margin still fell from 13 gCO2/mile in 2014 to 6 in 2015 to approximately 0 in 2016. complying with the standards every single year would be a high-cost compliance strategy, and the regulations are designed specifically around that fact. Every year a manufacturer exceeds

[1] Michael Wayland, "Downsized engines a test for GM pickups", Automotive News, May 21, 2018. http://www.autonews.com/article/20180521/RETAIL01/180529961/gm-pickup-cylinder-silverado-sierra
[2] EPA Greenhouse Gas (GHG) Emission Standards for Light-Duty Vehicles: Manufacturer Performance Report for 2016 Model Year. https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles

the standards, it generates credits that can be used in the future. In total, manufacturers had accumulated credits of about 285 million Mg (Mg = million grams) of CO2 at the conclusion of the 2015 model year. A 2017 report from Resources for the Future estimated that GHG credits are worth $42 to $63 per Mg, so the total value of the credits accumulated through 2015 is roughly $12 billion to $18 billion dollars. Certainly, automakers want to maintain a cushion to handle unexpected events-that's part of the rationale for the credit system. But they can save billions of dollars by slowing down the rate of technology introduction and market penetration in order to under-comply at certain points and use up most of these valuable credits. **Manufacturer use of stockpiled credits to save money in no way affects the technology available in the future to comply with the 2022-2025 standards**, as discussed above.

- Would or could there be a significant "rebound" effect from the deployment of new fuel efficient (and lower GHG-emitting) vehicles, and how might such an effect be mitigated?

The agencies evaluation of the rebound effect in the 2016 TAR is appropriate and based upon the best available data. The rebound effect is not fixed. Vehicle owners adjust how much they drive based upon how much they value their time and the marginal cost of driving. The value of time goes up as disposable income increases, such that economic growth causes owners to value the benefits of driving more highly and making the cost of driving relatively less important, thus decreasing the rebound effect. Improving vehicle fuel economy decreases the marginal cost of driving, making any further reductions in fuel consumption relatively less important and decreasing the rebound effect. Economic growth is projected to continue into the future and baseline vehicle fuel economy is improving due to standards already adopted for 2011 to 2021. Thus, **the rebound effect will continue to decrease in the future and is likely to be well under 10% by 2025**. Also note that owners would not drive more if they did not perceive economic benefits to the additional driving, which should also be incorporated into analyses of the rebound effect.

- Would requirements for more fuel efficient new vehicles lead to longer retention of older less fuel efficient vehicles and, if so, would this significantly affect projected emission reductions and have effects on crash-related safety?

The answer here is similar to the answer to the question on the barriers to consumer acceptance of redesigned or advanced technology vehicles. **Due to the value placed by consumers on fuel savings and other consumer features, requirements for more fuel efficient new vehicles lead to increased new vehicles sales and shorter retention of older vehicles.** This, in turn, would lead to more emission reductions and improved safety.

- What proportion of vehicle electrification, particularly for plug-in vehicles including plug-in hybrid electric vehicle (PHEV) and battery electric vehicles (BEVs), would be needed to achieve fleet average GHG emission reductions?

The amount of conventional technology that has already been developed and is being introduced into production is much higher than projected by the agencies in the 2016 TAR. This means that **no sales of plug-in vehicles or full hybrids are needed to achieve the 2025 fleet average emission reductions**. Certainly, a manufacturer may decide that plug-in vehicles or full hybrids are a more cost-effective solution and use them to reduce the amount of conventional technology needed to comply, but this is a choice, not a requirement. Certain manufacturers that sell upscale vehicles with higher performance and more features that add weight, such as BMW and Mercedes, may need a reasonable number of 48v hybrid systems to compensate for the added weight and performance, but 48v hybrid systems are only about a third the cost of full hybrids. Note that manufacturer claims that large numbers of full hybrids are required to meet the standards are based upon analyses of historical technology that artificially restrict the available technologies, such that hybrids are the only path to compliance. This is simply a function of the artificial restriction of conventional technology.

ICCT/supplier working papers

- http://www.theicct.org/lightweighting-technology-development-and-trends-us-passenger-vehicles
- http://www.theicct.org/downsized-boosted-gasoline-engines
- http://www.theicct.org/automotive-thermal-management-technology
- http://www.theicct.org/PV-technology-transmissions-201608
- http://www.theicct.org/naturally-aspirated-gas-engines-201606
- http://www.theicct.org/diesel-engines
- http://www.theicct.org/hybrid-vehicles-trends-technology-development-and-cost-reduction

ICCT technology briefs

- http://www.theicct.org/lightweighting-technology-developments-briefing
- http://www.theicct.org/downsized-boosted-gasoline-engines-briefing
- http://www.theicct.org/tech-brief-thermal-management-technology-nov2016
- http://www.theicct.org/transmissions-techbrief-oct2016
- http://www.theicct.org/naturally-aspirated-engines-techbrief-jun2016
- http://www.theicct.org/diesel-tech-developments-tech-brief

Other ICCT technology assessments and modeling

- http://www.theicct.org/sites/default/files/publications/PV-LCV-Powertrain-Tech-Analysis_FEV-ICCT_2015.pdf
- http://www.theicct.org/next-generation-electric-vehicle-technologies
- http://www.theicct.org/US-2030-technology-cost-assessment
- https://www.theicct.org/blog/staff/technology-leapfrogging
- https://www.theicct.org/publications/how-things-work-omega-modeling-case-study-based-2018-toyota-camry
- https://www.theicct.org/blog/staff/us-fuel-economy-trend-reflects-business-strategy-not-tech-challenge
- https://www.theicct.org/sites/default/files/publications/US-LDV-Efficiency-Consumer-Benefits_ICCT_Briefing_21062017_vF.pdf

2. Questions regarding Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits (RIN 2060- AT79)

- How do these emission rates compare to those of conventionally manufactured trucks that are: (a) new; and (b) used at prices comparable to the purchase price of a "new" glider truck? What are key sources of variability and uncertainty in the comparisons?

Note that the way this question is worded seems to assume that glider trucks are not new trucks. It should be made very clear that the entire chassis of a glider truck is new and from the outside a glider kit would be indistinguishable from a new truck. That being said, Figure 1 below shows how the EPA certified emissions limits have changed in the US since the mid-90s, NOx and PM emissions have both been reduced by over 90%. The engine inside a typical glider truck is what is known as "pre-emissions", this means that there is no emissions control system in place to reduce NOx and PM emissions. Conversely, emissions from 2010 and newer heavy-duty diesel engines have sophisticated emissions control, including technology known as exhaust gas recirculation (EGR), selective catalytic reduction (SCR), and diesel particulate filters (DPF). Information about these technologies, how they work, and the estimated costs of such technologies can be found in the ICCT report titled "COSTS OF EMISSION REDUCTION TECHNOLOGIES FOR HEAVY-DUTY DIESEL VEHICLES[3]".

[3] https://www.theicct.org/publications/costs-emission-reduction-technologies-heavy-duty-diesel-vehicles

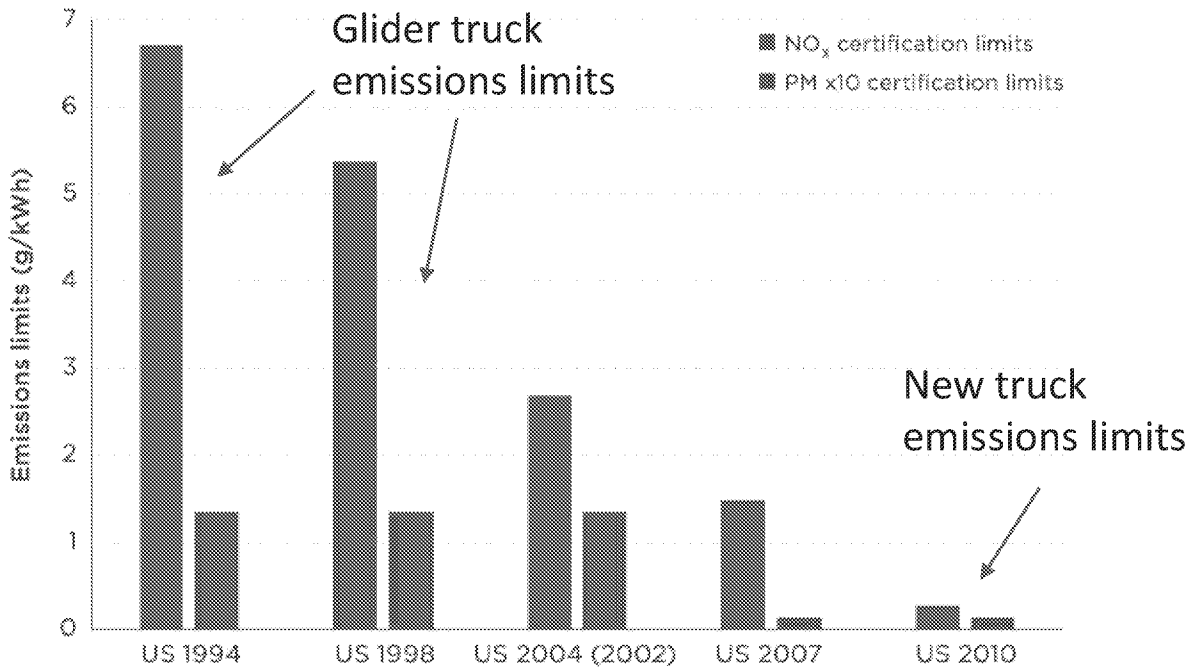

Figure 1. EPA emissions NOx and PM standards for heavy duty diesel engines

It is technically impossible for a vehicle with no emissions control system to have NOx and PM emissions comparable to that of a truck with a functional emissions control system. That being said, it should be noted that SCR systems require a minimal exhaust temperature to function optimally. In low load and low speed driving conditions (such as urban driving) it is possible to see an increase in NOx emissions from heavy duty vehicles equipped with an SCR system.

It is commonly discussed that glider trucks cost approximately 25% less to purchase than a new, emissions compliant, truck. It is also likely that the maintenance costs of a glider truck are lower due to the fact that there is less sophisticated technology to maintain. It is challenging to determine which model year used truck would be seen as "cost equivalent" comparison to a new glider truck. That being said, fleets that purchase new trucks typically keep their trucks for anywhere between 4-8 years, on average. Therefore, the second hand truck market is likely to be made up of trucks that fall under the latest (2010) emissions standard, making the average used truck significantly cleaner than a glider truck.

- What is the range of possible market penetration of glider trucks into the onroad heavy duty vehicle stock? What is the effect of glider truck penetration into the market on fleet level

emissions at national, regional, and local scales in the near-term and long-term, compared to the status quo?

It is extremely difficult to predict what the market penetration of glider trucks will be in the future. However, we do know that glider trucks currently account for around 5% (10,000 units annually) of the Class 7 and 8 tractor truck market and we also know that sales of glider trucks are up over an order of magnitude from 10 years ago. Sales of glider trucks began a rapid rise in response to the new EPA emissions standards that began phasing in in 2007. Without a regulation in place to curb the sale of glider trucks, there is no reason to believe that sales of these trucks would decrease in future years. In fact, we believe it is likely that sales of these glider trucks would continue to rise in the absence of a regulation. For our national level analysis (which is detailed further in the appendix of this document) we chose to select a conservative assumption that the annual sales volume would steadily grow to 17,400 units by 2027. In that scenario, EPA's proposed regulation to repeal the glider kit ban would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade, that they would not be exposed to otherwise. To put this in monetary terms, this is equivalent to more than 12 billion dollars in health damages over the next decade. We have not conducted an analysis of the impacts at the regional and local scale.

- What are implications of changes in emissions in the near-term and long-term from the penetration of glider trucks with regard to GHG emissions, air quality, air quality attainment, and human health, compared to the status quo?

As previously mentioned we predict the health damages that would be caused by this proposal over the next decade to be more than 12 billion dollars. NOx and PM from diesel exhaust are extremely toxic. The American Cancer Society lists diesel exhaust as a Group 1 known carcinogen to humans, alongside things like asbestos and radiation. In addition to lung cancer, long-term exposure to diesel exhaust has been linked to stroke, heart disease, pulmonary disease, chronic respiratory illnesses, asthma, bronchitis, and infections. The US citizens most likely to be impacted by the hazardous effects of diesel exhaust are children, the elderly, the sick, and the poor.

Although we have not done extensive analysis on the fleet-wide CO_2 emissions impact of the proposed glider regulation, we do point out that this proposed regulation would likely increase fleet-wide CO_2 emissions over the next decade as compared to a scenario in which the proposal

is not finalized. This is due to the fact that although the EPA's testing[4] indicated that the glider vehicle powertrains produced approximately 4-5% lower CO_2 emissions (for typical operation) than the model year 2014/2015 trucks they tested, typical tractor truck fuel consumption will be reduced by around 40% from 2010 to 2027 due to the EPA's Phase 1 and Phase 2 GHG regulations. If glider trucks go unregulated then it is unlikely they will benefit from these mandated improvements in fuel efficiency.

[4] https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417

Appendix: ICCT Written Comments on Proposed Rule: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

January 4, 2018

RE: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits; Proposed Rule

The International Council on Clean Transportation (ICCT) would like to take the opportunity to provide comments on the U.S. Environmental Protection Agency's proposal entitled, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*. The ICCT is an independent nonprofit organization founded to provide unbiased research and technical analysis to governments in major vehicle markets around the world. Our mission is to improve the environmental performance and energy efficiency of road, marine, and air transportation, as well as their fuels, in order to benefit public health and mitigate climate change.

The subsequent comments elaborate on the ICCT's oral and written testimony at the agency's public hearing on December 4, 2017.

We would be glad to clarify or elaborate on any points made in the attached comments. If there are any questions, EPA staff can feel free to contact our Heavy-Duty Vehicle Program Director, Dr. Rachel Muncrief (*rachel@theicct.org*).

Best regards,

Drew Kodjak
Executive Director
International Council on Clean Transportation

ICCT Comments on Proposed Rule: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

Background

Glider trucks consist of a new vehicle chassis into which an older re-manufactured engine has been installed. A decade ago, sales of glider trucks in the US were mostly limited to vehicles that had been in an accident that left the body unrepairable, but the powertrain still intact. Over the past 10 years, sales of glider kits have increased exponentially as a deliberate attempt by glider kit manufacturers and assemblers to circumvent emissions control regulations. In the Phase 2 Heavy Duty Vehicle Greenhouse Gas regulation, the EPA sought to cap and eventually disallow the sale of glider trucks equipped with engines that are not compliant with current emissions standards. This proposal would remove that provision from the Phase 2 regulation.

Based on ICCT's analysis of this regulation, the EPA reached the correct conclusion in the Heavy-Duty Vehicle Phase 2 Greenhouse Gas regulation. It is our position that the limitations on glider trucks sales set in that regulation should be kept in place unaltered. ICCT is strongly opposed to the EPA's proposal to repeal the emission requirements for glider vehicles for the following reasons:

- This regulation would cause US citizens to be exposed to an additional 1.5 million tons of NOx over the next decade.
- This proposal would cause US citizens to be exposed to an additional 16 thousand tons of PM 2.5 emissions over the next decade.
- This proposal would cost US citizens more than 12 billion dollars in health damages over the next decade.
- This proposal would set a precedent for the creation of a massive loophole that could potentially undo all current and future vehicle emissions control regulations, by declaring that EPA does not have the authority to regulate any vehicle with a single used component.

ICCT has previously submitted public comments[5] to EPA regarding our concerns over the loophole that has allowed the unchecked and rapid growth of glider kits over the past decade. Those comments are included here for reference as they are still relevant:

The ICCT recommends that the agencies ensure there are no regulatory loopholes whereby increasing unforeseen numbers of trucks exploit regulatory exemptions to

[5] October 1, 2015: Comment submitted by Drew Kodjak, Executive Director, International Council on Clean Transportation (ICCT) Comment on the Environmental Protection Agency (EPA) Proposed Rule: Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles; Phase 2. https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-1180

avoid deploying emission reduction and efficiency technology. The ICCT spends a considerable amount of time investigating gaps between policy objectives and their market outcomes. The U.S. exemption for gliders (i.e., "glider kits", "gliders", or "glider vehicles") in the criteria pollutant heavy-duty vehicle regulations is among the more egregious and high-risk regulatory gaps. The glider kit provision that was previously used to assist in bringing hundreds of repaired vehicles per year is now creating an entirely new market with tens of thousands of sales per year, now with multiple suppliers competing in the space. This glider market is predicated upon reduced costs from vehicles that are not regulated and not certified through the full process that most modern tractors are. This is a clear distortion of the market and the exploitation of a regulatory provision that was not foreseen to be used in such a way. We recommend that the agencies' include glider kit-manufactured vehicles within the greenhouse gas emission and efficiency regulations, as well as criteria pollutant emission regulations as soon as possible. Exemptions, if granted, would ideally be restricted to a number that is consistent with pre-emission-regulation glider production – on the order of hundreds of units per year industry wide – and only those with legally or insurance-verified evidence of inoperably damaged tractor frames.

Emissions Impact

EPA has sought comment on the following: *EPA also solicits comment and information on whether limiting the availability of glider vehicles could result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA particularly seeks information and analysis addressing the question whether glider vehicles produce significantly fewer emissions overall compared to the older trucks they would replace.*

The phrasing of EPA's solicitation for comments is odd. As older vehicles reach the end of their useful life and are retired, they are replaced by new vehicles which meet strict emissions and safety standards. Glider trucks are sold and marketed as an alternative to purchasing a new vehicle with a modern, emissions compliant, engine. It is illogical to compare glider trucks with the vehicles that they are replacing. The correct comparison would be to compare new glider trucks with new trucks that meet modern emissions and safety standards.

EPA did not conduct any impact assessment or cost benefit analysis for this proposal. From ICCT's perspective this is highly unusual, and a major defect in the proposal. We are not aware of any previous EPA regulation that failed to consider air quality and health impacts as well as costs and benefits.

The ICCT did conduct our own analysis. Our findings are detailed below.

Emissions from glider trucks, which are sold and marketed as new trucks, are much higher than emissions from all other new trucks because the engines in glider trucks are not equipped with the modern emissions controls that new engines utilize. As noted in EPA's letter dated

December 1, 2017 to Tom Brewer of Tennessee Tech University[6], "*OEMs have nearly universally utilized significant degrees of advanced technology to achieve the 2010 and later standards, including but not limited to electronic fuel injection systems at a level of manufacturing quality and design limits which did not exist in the 1998-2002 time frame, turbocharger technology at a level of manufacturing quality and design limits which were not utilized in the 1998-2002 time frame, cooled exhaust gas recirculation technology, diesel particulate filter technology, and SCR-based NOx catalysts.*"

According to chassis dynamometer testing conducted by US EPA's National Vehicle & Fuel Emissions Laboratory[7], in operations typical of tractor-trailer driving, that is a 95% weighting of highway activity (55 and 65 mph cycles) and 5% weighting of transient activity (ARB transient) for a test vehicle with a combined weight of 60,000 pounds (including the tractor, trailer, and payload), glider trucks emit 30 times the NOx and 60 times the PM of a modern tractor-trailer. Sales of glider trucks today are around 10,000 per year—5% of the Class 7 and 8 tractor truck market—up over an order of magnitude from 10 years ago. If these numbers continue to grow, even at a moderate pace, (to 17,400 units per year in 2027) EPA's proposed regulation would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade, that they would not be exposed to otherwise. To put this in monetary terms, this is equivalent to more than 12 billion dollars in health damages over the next decade.

ICCT's analysis was done using EPA's own emissions testing data, EPA's MOVES model estimates of annual vehicle sales and vehicle miles traveled, and EPA's published estimates of damages per ton of direct emissions from on-road mobile sources. Therefore, we are confident that if EPA had done an impact assessment of this proposal the results would be close to ours. More details of our analysis can be found in a recent ICCT blog that can be found on our website[8] and is also attached as an appendix to this document for further reference.

Note that the extra NOx emissions caused by this proposal, if it is finalized, will be 13 times what the impact of the Volkswagen defeat device scandal would have been if EPA hadn't caught VW cheating (something in which my organization played a small but important part). VW's deception has cost that company over 20 billion dollars in fines in the U.S. It would be inconsistent and destructive for the EPA, having helped to penalize one company for evading a reasonable emissions regulation, to then turn around and rescind another regulation specifically for the purpose of enabling a small number of other companies to profit by harming Americans' health and environment in the same way.

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[6] EPA Response E-mail to Tennessee Tech Regarding EPA Test Procedures 11.28.17, https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4272

[7] HD Chassis Glider Final Report 11202017, https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417

[8] Muncrief and Miller, "Scott Pruitt's EPA wants to resurrect the dirty diesel", The ICCT, Dec 2017. https://www.theicct.org/blog/staff/glider-proposal-means-resurrecting-dirty-diesel

Although the EPA did not conduct an impact assessment as part of the development of this proposal, emissions and resulting health impacts are mentioned in various places throughout the document.

1. Section II, Part C. EPA's proposal cites a petition submitted by the glider industry which claims that glider truck emissions are lower than the EPA's original analysis (conducted as part of the development of the HDV GHG Phase 2 Regulation) originally suggested. This claim by the glider industry was based on a study conducted by Tennessee Tech University. ICCT has analyzed the publicly available information on this study and found the study to lack technical credibility for a number of reasons (1) the TTU study did not measure PM emissions which was one of the two pollutants it claimed to assess, (2) the TTU study did not report emissions of NOx from its study except to say that the NOx emissions they measured ranged from 2 to 32 times the emissions limit for modern engines, (3) the TTU study claimed to find that "glider kit HDVs would emit less than 12% of the total NOx and PM emissions" for all Class 8 HDVs, not the one-third of all NOx and PM that EPA estimated. However, they gave no explanation of how they came to this conclusion—no information about what glider truck sales volume they assumed, no information about what NOx and PM emissions level they assumed for the glider trucks, and no information about what year their calculations reflect, (4) these results are in direct contrast with emissions testing results published by the EPA themselves (as referenced above) which found that glider truck emissions are significantly higher than emissions from modern diesel trucks, (5) as confirmed by EPA (referenced above) it is not technically feasible for a glider truck engine with no emissions control to have emissions comparable to a modern, emissions compliant, engine. More details of our analysis of the TTU study can be found in a recent ICCT blog that can be found on our website[9] and is also attached as an appendix to this document for further reference.
2. Section V, Part 8. Here EPA argues that Executive Order 13044 "Protection of Children from Environmental Health Risks and Safety Risks should not apply since the proposal is not an "economically significant regulatory action". An economically significant regulatory action is defined as having "*an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;*". It is not possible for EPA to have concluded that this proposal does not constitute an economically significant action due to the fact that, as previously mentioned, no impact assessment was performed by EPA. ICCT's analysis found that this proposal would result in more than 12 billion dollars in health damages over the next decade, an average of over 1.2 billion dollars per year which far surpasses the threshold for economic significance. Therefore, it is our belief that EO 13045 should apply.

[9] Muncrief, "Glider industry petition in support of glider trucks debunks itself", The ICCT, Dec 2017. https://www.theicct.org/blog/staff/glider-industry-petition-support-glider-trucks-debunks-itself

EO 13045 dictates that each Federal agency:

(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and
(b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Again, EPA did neither by neglecting to perform an impact assessment of their proposal. In fact, EPA acknowledges in their proposal that "some benefits for children's health...would be lost as a result of this action." Ideally, EPA would reconsider this proposal to ensure it is in line with EO 13045.

3. Section V, Part 11. In this section EPA addresses compliance with Executive Order 12898: "Federal Actions to Address Environmental Justice in Minority Populations, and Low-Income Populations". EPA notes that it did no additional analysis to consider how this proposal might impact minority or low-income populations. This again points to the highly unusual choice by EPA to not conduct an impact assessment for this proposal. As ICCT's analysis has shown, the proposal will result in US citizens being exposed to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions over the next decade. These emissions exposures will be disproportionally felt by those living closer to roadways and those living in urban centers. As EPA discusses in Section VIII.A of the Phase 2 HDV GHG Regulation "on average, populations near major roads have higher fractions of minority residents and lower socioeconomic status". ICCT believes that EPA should conduct an assessment to determine the impact this proposed regulation would have on minority and low-income populations.

Legal Analysis

As stated in Section III, Part A, the proposal to overturn the glider truck provisions is based on one argument: that EPA has reinterpreted the Clean Air Act and determined that glider trucks should not be classified as "new motor vehicles", and therefore EPA does not have authority under the CAA to regulate glider trucks and their engines. This is an unreasonable and impermissible interpretation of the Clean Air Act for a number of reasons. ICCT has coordinated with legal counsel to conduct a legal interpretation of the EPA's rationale for the statutory reinterpretation in this proposal. This legal document is attached as an annex to our comments. Below is a "lay person" summary of the legal counsel's findings.

In the Phase 2 HDV GHG Regulation, EPA presented a detailed summary as to where they derive their authority to enact the regulation including the authority to regulate emissions from glider trucks. This summary is presented in Section I.E.(1) (81 FR 73512-73519) of the regulation.

In short EPA's authority is derived from Title II of the Clean Air Act, which covers emissions from mobile sources. The CAA states that EPA has authority to regulate (1) pollutants from new motor vehicles, (2) pollutants from engines in new motor vehicles, and (3) pollutants from rebuilt heavy-duty engines. In the Phase 2 regulation EPA argues that (1) gliders fit the definition of a new motor vehicle due to the fact that they are sold and advertised as new and that the purchaser of the glider truck takes the initial title to that truck, (2) although the glider engine is a used part, that does not limit EPA from regulating its emissions once it is placed in a new truck since the CAA simply defines "new motor vehicle engine" as an engine in a "new motor vehicle" and does not exclude used engines from being considered as new in this context, (3) notwithstanding the previous two arguments, all engines being used in glider trucks are rebuilt engines and the EPA has explicit authority in the CAA to regulate pollutants from rebuilt engines.

In this proposal to repeal the emissions requirements for glider trucks, EPA attempts to argue that Congress did not specifically consider glider trucks when they defined "new motor vehicle" under Title II of the CAA. EPA argues that the definition of new motor vehicle used in the CAA was very similar to the definition already being used in the Automobile Information Disclosure Act (AIDA) of 1958. And that being the case, they believe that in the CAA Congress at the time only intended new motor vehicles to mean "showroom new" vehicles and not new vehicles with used/rebuilt engines.

EPA's argument is faulty for a number of reasons

(1) EPA possesses explicit authority under the clean air act to regulate emissions from rebuilt engines. This authority is never challenged or even mentioned in EPA's proposal.
(2) Glider vehicles are initially titled when sold to the ultimate purchaser, and are explicitly advertised as such. EPA never argues otherwise. Therefore, glider vehicles are new motor vehicles as defined by the straightforward definition given in the CAA: "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser."
(3) Under Title II of the CAA Congress explicitly allowed that new motor could include used parts including used engines.
(4) At the time of passage of the CAA, glider vehicles did exist and were considered new vehicles by the IRS for federal excise tax purposes.
(5) AIDA and the CAA were enacted for completely different purposes and there is no evidence presented that Congress was informed by AIDA when developing the CAA. The purpose of AIDA was to address fraud occurring in the showroom of new car dealers. Therefore, AIDA only covered a subset of new automobiles (those that are delivered by manufacturers to new car dealers) and does not cover the broad range of vehicles (including cars sold directly to the end user by the manufacturer, trucks, ships, construction equipment, etc) covered under the CAA.
(6) For a reinterpretation such as this to be permissible it must serve the statute's objectives (protecting the public health and welfare). In this case the statute in question is Title II of the CAA. EPA presents no evidence as to how this reinterpretation could serve the objectives of the CAA.

ATTACHMENTS

Glider industry petition in support of glider trucks debunks itself

Posted Wednesday, 29 November 2017, 17:32
Rachel Muncrief

It's not the most important or even the worst thing about the Pruitt EPA's proposal to reverse course on closing a loophole in the emissions regulations for heavy-duty vehicles that left "gliders"—that is, a remanufactured engine in a new chassis—uncovered. But the summary of a "study" that the glider industry submitted to EPA to support its claim that the agency was wrong in the first place about how dirty gliders are is fingernails-on-a-chalkboard aggravating to us at the ICCT. It's sketchy work presenting partial information as though it's serious and credible technical analysis meant to honestly inform a public debate, when its real effect is to obfuscate and confuse.

We'll have more to say about the consequences of the Pruitt EPA's proposal. For now I just want to briefly point out why this part of justification being offered for reversing EPA's earlier action is bogus.

The remanufactured engines used in gliders are most often what's known as "pre-emissions"—that is, built in the 1990's and early 2000's, before regulation set strict limits on nitrogen oxide (NOx) and particulate matter (PM) emissions (and other pollutants) in new heavy-duty diesel engine exhaust. A decade ago there were a few hundred gliders built annually in the entire U.S., to deal with cases where something (like an accident) wrecked a truck chassis but left the powertrain usable. Today, annual sales of gliders are over 10,000 units, approximately 5% of all the Class 7 and 8 tractor sales, according to the best estimates we have, and climbing fast. The reason for that surge in sales was pretty obviously people wanting to evade the emission control standards.

So when the EPA put out Phase 2 of the HDV greenhouse gas rule, in 2014, it also limited glider sales, to ensure that the air quality and health benefits from the NOx and PM limits for heavy diesel engines were not undermined. At the time, EPA estimated that without a sales cap glider emissions would represent "about one third of all NOX and PM emissions from heavy-duty tractors in 2025." That estimate reflected assumptions that gliders, in the absence of any restrictions, would continue to be about 5% of the heavy-duty tractor fleet and that "gliders emit at the level equivalent to the engines meeting the MY 1998–2001 standards since most glider vehicles currently being produced use remanufactured engines of this vintage."

The glider industry's bid to overturn the limit on sales rests in part on an argument that EPA should not have assumed that emissions from a remanufactured engine installed in a new chassis would be on par with the emissions standard from the year the engine was manufactured. And they submitted a letter from the president of Tennessee Technological University saying that a study of heavy-duty engine emissions done there purportedly cast doubt on EPA's emissions calculations.

No complete report of this Tennessee Tech study seems to be available anywhere, so all we have to go on is the four-page summary included as an exhibit in the industry ("petitioner's") request to EPA. And it's rife with unexplained claims and contradictory statements.

But the first problem is what the summary doesn't contain, which is anything at all about the test methodology. There are two pieces of information that are always supplied when research laboratories describe a vehicle or engine emissions test, even in summary form: information on the test equipment and information on the test cycle. The Tennessee Tech summary includes neither. But apparently EPA staff did meet with Tennessee Tech staff to discuss details of the test protocol and the notes from the discussion were recently posted in the docket. The notes confirm that Tennessee Tech's test lab was unable to measure particulate emissions from diesel engines, even those that were not equipped with any particulate filter. Tennessee Tech's own description of their lab makes it clear that they are not

anywhere close to being equipped to follow certified emissions testing protocols that have been in place for decades. And it means that the "study" doesn't even empirically assess one of the two main harms from the explosion of glider sales that EPA intended to address—particulate matter emissions.

The EPA's concern in Phase 2 was regarding how much NOx and PM emissions from glider trucks would increase in the absence of a sales cap. Not only was Tennessee Tech unable to measure PM emissions, the summary doesn't report NOx emissions measurements from the "study" except to note that they ranged from 0.44 to 6.45 grams per horsepower-hour (g/HP*hr) — that is, between 2 times and 32 times the NOx limit for post-2010 engines! Not only does that not call into question EPA's Phase 2 assumptions; it confirms them.

The summary reports in detail only carbon monoxide measurements, which EPA didn't focus on. Apparently the Tennessee Tech "study" found no statistical difference between the CO emissions from new and remanufactured engines, which suggests that new and remanufactured engines of the same model year would have the same emissions levels—again, exactly in line with the assumptions made by EPA when calculating the potential emissions impact from glider trucks in the absence of standards.

So on the basis of a study done at an emissions testing lab that was unable to measure PM emissions, which measured NOx emissions as much as 32 times the limits in place since 2010, and which measured CO at levels that confirm the reasonableness of EPA's assumptions concerning emissions from new and remanufactured heavy diesel engines, the glider industry argues (and the Pruitt EPA seems prepared to agree) that "glider kit HDVs would emit less than 12% of the total NOx and PM emissions" for all Class 8 HDVs, not the one-third of all NOx and PM that EPA estimated. They give zero explanation of how they came to this conclusion—no information about what glider truck sales volume they assumed, no information about what NOx and PM emissions level they assumed for the glider trucks, and even no information about what year their calculations reflect.

A number of ways come to mind to characterize that kind of technical analysis. Here let me just say that nothing presented in the Tennessee Tech letter supports the glider industry's claim that the analysis for the Phase 2 rule was incorrect and assertion that glider trucks would emit a lower fraction of Class 8 NOx and PM emissions than EPA estimated initially. It's disappointing to contemplate that the Pruitt EPA's proposal to reverse that part of the Phase 2 rule could be based even in part on this sort of representation.

TAGS: *Air quality / Vehicle emissions standards / U.S. heavy-duty vehicle standards*

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Batteries or fuel cells: Who's in it for the long haul?

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Scott Pruitt's EPA wants to resurrect the dirty diesel

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Scott Pruitt's EPA wants to resurrect the dirty diesel

Posted Friday, 1 December 2017, 11:43
Rachel Muncrief and Josh Miller

Can't get enough of zombie movies? Well, get ready for a real-life version. Scott Pruitt's EPA is bringing the oldest and dirtiest diesel engines back from the dead—but disguising them in a shiny new host body. How? In the form of the innocuous-sounding glider truck.

From the outside, a glider looks like any other modern Peterbilt, Kenworth, Freightliner, or Western Star semi tractor. But look under the hood and things start to get terrifying. Inside you will find an engine that was thought to be long dead—an engine that emits uncontrolled levels of nitrogen oxides (NOx) and particulate matter (PM).

Make no mistake, the engines inside these glider trucks are literally killers. The American Cancer Society lists diesel exhaust as a Group 1 known carcinogen to humans, alongside things like asbestos and radiation. In addition to lung cancer, long-term exposure to diesel exhaust has been linked to stroke, heart disease, pulmonary disease, chronic respiratory illnesses, asthma, bronchitis, and infections. And these killers always pick off the weakest ones first: children, the elderly, the sick.

The EPA itself has many times acknowledged the harmful effects of diesel exhaust, and has gone to great lengths to tackle it. Thanks to EPA regulations, NOx and PM emissions from modern diesel engines are more than 90% below what they were 15 years ago. In just the past 10 years, EPA's actions have led to a greater than 50% drop in PM2.5 and NOx emissions from the country's on-road vehicle fleet. Put that a different way: about a third of the total PM2.5 reduction across all pollution sources since 2007, and more than half of the total NOx reduction, have come from

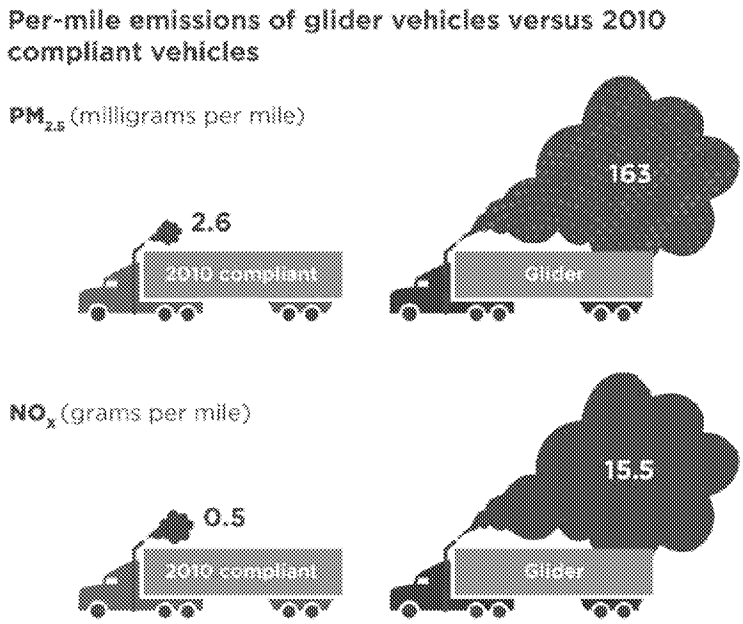
cleaning up heavy truck exhaust. As a result, air quality in the US has improved substantially: average concentrations of PM2.5 and ozone have dropped by 35% and 13% over that same time frame.

Such a record of success might make you think that those old killer diesel engines are a thing of the past. Wrong.

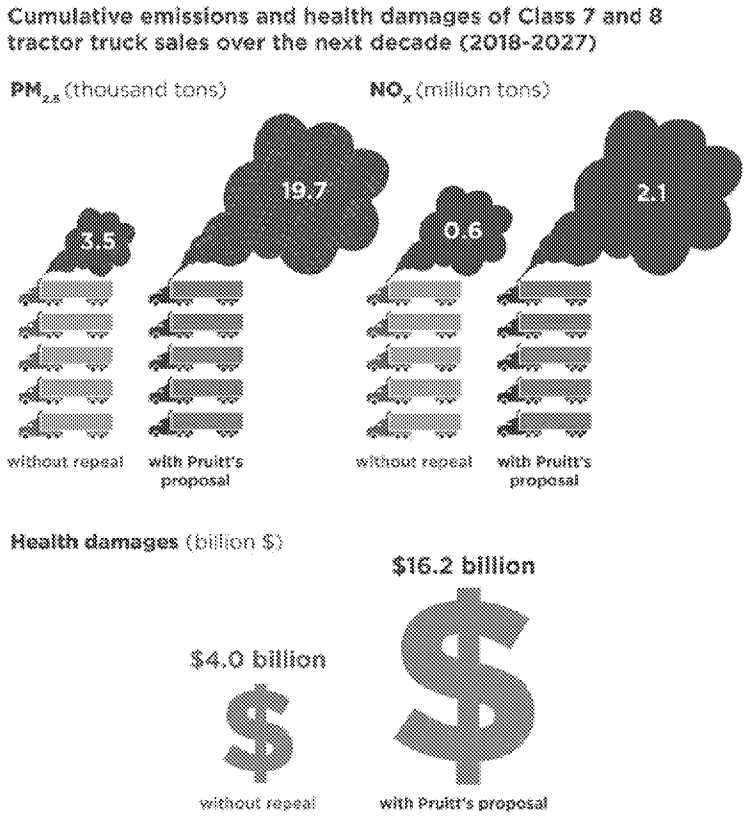
Scott Pruitt's EPA has proposed to allow the unfettered sale of glider trucks, reopening a loophole that the previous EPA administrator, Gina McCarthy, had sought to close. Sales of glider kits have increased exponentially in recent years because some unscrupulous but savvy entrepreneurs realized that there was a massive gap in the law: while it limited pollution from new engines, it did nothing to regulate emissions from these undead remanufactured engines when they were housed in new truck bodies. Glider trucks are sold at a 25 percent discount compared to trucks with modern engines, a huge incentive to their infiltration of the new vehicle fleet. That discount is ultimately paid for with human lives.

What would the Pruitt EPA's proposal mean for air quality? We ran the numbers, and the results are scary. According to the EPA's own testing, a single glider truck emits 30 times the NOx and 60 times the PM of a modern truck. Sales of glider trucks today are around 10,000 per year—5% of the Class 7 and 8 tractor truck market—up an order of magnitude from 10 years ago. If these numbers continue to grow, even at a moderate level, Scott Pruitt's proposed regulation would expose US citizens to an additional 1.5 million tons of NOx and 16 thousand tons of PM emissions, equivalent to more than 12 billion dollars in health damages over the next decade. To put this into perspective, those additional NOx emissions are 13 times what the impact of the Volkswagen fraud in the United States would have been if all 482,000 VW diesel cars sold with defeat devices before the EPA and CARB put a stop to it were driven until they died of natural causes.

If Pruitt succeeds, the next time you're driving down the interstate and see what looks like a brand new tractor-trailer, keep an eye out for a plume of black smoke. Lurking beneath the hood could be one of the living dead.



Per-mile emissions of glider vehicles versus 2010 compliant vehicles. Results are derived from chassis dynamometer testing conducted by US EPA's National Vehicle & Fuel Emissions Laboratory (November 20, 2017). Results reflect a 95% weighting of highway activity (55 and 65 mph cycles) and 5% weighting of transient activity (ARB transient) for a test vehicle with a combined weight of 60,000 pounds (including the tractor, trailer, and payload).



Cumulative emissions and health damages of Class 7 and 8 tractor truck sales over the next decade (2018-2027). Estimates without repeal assume glider vehicle sales without 2010 emissions compliant engines drop to 1,000 units per year from 2018 to 2020 and to zero starting in 2021. Estimates with Pruitt's proposal assume sales of glider vehicles with pre-2002 engines are permitted to grow from approximately 10,000 units per year in 2015 to 17,400 units per year in 2027 (10.4% of total sales). Annual total sales and vehicle-miles traveled by tractor-trailers are sourced from US EPA's Motor Vehicle Emission Simulator (MOVES2014). Monetized health damages (in billion 2017 $) are equal to ICCT estimates of direct PM2.5 and NOX emissions from Class 7 and 8 tractor trucks sold in 2018 and later, multiplied by US EPA estimates of damages per ton of direct emissions from on-road mobile sources in 2016. Damages in future years are converted to present value terms using a discount rate of 5% per year.

TAGS: *Air quality / Vehicle emissions standards / U.S. heavy-duty vehicle standards*

Previous Post

Glider industry petition in support of glider trucks debunks itself

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Legal Comments on EPA's November 2017 Proposal to Repeal Emissions Requirements for Glider Vehicles, Glider Engines, and Glider Kits

EPA's 2017 proposal is grounded solely on the statutory interpretation that glider vehicles are not "new motor vehicles" for purposes of section 202 (a) (1) of the Act and therefore EPA is without authority to control pollutant emissions from the vehicles or their engines.[10] The proposal is wrong. As discussed below, EPA possesses explicit authority to control pollutant emissions from the rebuilt heavy duty diesel engines used in glider vehicles under section 202 (a)(3)(D), which it exercised in the 2016 Final Rule to control emissions from rebuilt engines in glider vehicles.[11] In any case, the proposal to reinterpret the Act to say that glider vehicles are not new motor vehicles is devoid of legal merit.

I. EPA has authority to regulate Glider Vehicles as New Motor Vehicles

A. EPA's 2016 Final Rule

Section 216(3) of the Act defines "new motor vehicle" as "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." A glider vehicle clearly meets this definition - it is a motor vehicle, and the equitable or legal title to it has never been transferred to an ultimate purchaser. Glider vehicles are initially titled when sold to the ultimate purchaser, and are explicitly advertised as such. Glider vehicles are not a used vehicle whose owner has repair work done and keeps title to the vehicle. It is a unique and distinct vehicle never before assembled, sold, or owned. It is a combination of new components and used components, where the purchaser is the prior owner of neither the new components nor the

[10] 82 FR 53442 (November 16, 2017) ("2017 Proposal").
[11] 81 FR 73478 (October 25, 2016) ("2016 Final Rule").

used components. No person has previously held title to this assembled vehicle for purposes other than resale. The assembled glider vehicle clearly satisfies the plain meaning of the definition of new motor vehicle.

This straightforward application of the definition of new motor vehicle is the only correct interpretation. Nothing in the criterion on passage of title to the ultimate consumer makes any reference to whether the components of the vehicle are new or used. The criterion is just passage of title, with no other limitation on the history of the components prior to passage of title. Where no ultimate consumer has ever had title to the vehicle, the vehicle is a new motor vehicle. That is the case for glider vehicles.

Other provisions in the definition also show that Congress intended a new motor vehicle could include used components. The definition is clear that a new motor vehicle may include a used engine.[12] The definition also covers all imported vehicles, clearly including used vehicles. On its face the definition of new motor vehicle is not limited to vehicles that have only new components and no used components.

EPA's interpretation clearly promotes the purposes of the Clean Air Act and its Title II provisions. Title II reflects Congress' intention to authorize EPA to establish a national motor

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[12] EPA appears to argue this cannot be the case, because Congress routinely used the term new motor vehicle and new motor vehicle engine together. See 83 FR at 53446. However the definition of new motor vehicle engine is clear - a new motor vehicle can include an engine whose title has already been transferred to the ultimate purchaser. See CAA section 216 (3) and 81 FR at 73514, 73518. The agency simply asserts that since a glider vehicle cannot be a "new motor vehicle", a used engine installed in it cannot make a used engine a new one, dismissing the contrary position as "circular thinking". 82 FR 53446. This merely reiterates the agency's belief that a glider vehicle cannot be new. But the two-part definition of "new motor vehicle engine" necessarily means that an engine can be "new" even if previously sold if it is installed in a vehicle that is new in other respects. This includes a glider vehicle. Any other reading would distort the meaning of "any engine" to mean only "any new engine", eliminating a whole class of engines from the statutory definition in derogation of the normal tenets of statutory construction.

vehicle control program to address the serious and widespread problems of air pollution caused by motor vehicles. Congress recognized motor vehicles as major contributors to the Nation's air pollution problems, and provided broad, flexible, and comprehensive authorities to EPA to develop a national program to address this air pollution problem. The text of the definition of new motor vehicle reflects the broad scope of vehicles subject to EPA standard setting, and the standard setting provisions of section 202 provide the flexibility for EPA to develop appropriate solutions to this diverse and multi-faceted source of air pollution. EPA's 2016 Final Rule recognizes the very serious air pollution problem specifically attributable to glider vehicles and applies the definition of new motor vehicle in a straightforward way, allowing EPA to exercise its discretion and set reasonable and appropriate controls, taking into account the costs and other impacts on the regulated parties.

In the final rule, EPA properly interpreted the statutory language to mean exactly what it says, finding that glider vehicles are new motor vehicles. EPA's interpretation is consistent with Congress' clear intention and furthers the purposes of the Act. EPA is clearly authorized to adopt reasonable and appropriate controls for glider vehicles under section 202(a)(1) of the Act.

B.EPA's 2017 proposal

EPA's 2017 Proposal rejects this reasoned approach. Instead, EPA argues that ''it would seem clear that Congress intended, for purposes of Title II, that a 'new motor vehicle' would be understood to mean … a true 'showroom new' vehicle. It is implausible that Congress would have had in mind that a 'new motor vehicle' might also include a vehicle comprised of new body parts and a previously owned powertrain." 82 FR at 53446. EPA takes this view even though the proposal admits that glider vehicles are new motor vehicles based on the statutory criterion of first transfer of title to the ultimate purchaser. 82 FR at 53444, 53445. EPA reaches its

conclusion without any reference to or reliance on legislative history, other Clean Air Act provisions, or the Clean Air Act's statutory purposes. Instead, EPA relies on erroneous and improper approaches to statutory interpretation, which themselves do not support EPA's proposal, and fails to even discuss the statute's purposes.

EPA asks whether, at the time of enactment, Congress had the specific intention to include glider kits and vehicles or vehicles like them in the definition of new motor vehicles. In effect, EPA asks whether Congress specifically had glider kits and vehicles in mind when it adopted the definition of new motor vehicle.[13] This is not a proper approach to statutory interpretation. The question for purposes of *Chevron* step 1 is not whether, at the time of enactment, Congress was consciously thinking about one fact specific, future application of a statutory definition that was designed to address potentially hundreds or more fact specific applications over many decades of implementation. The Supreme Court rejected this approach in *State of Massachusetts v. EPA*, 549 U.S. 497, 532 (2007)("the broad language of [CAA] § 202(a)(1) reflects an intentional effort to confer the flexibility necessary to [address changing circumstances and scientific developments] … [T]he fact that a statute can be applied in situations not expressly anticipated by Congress does not demonstrate ambiguity. It demonstrates breadth.") The definition of new motor vehicle reflects this flexibility and breadth.

The appropriate question for purposes of *Chevron* step 1 is whether Congress expressed a clear intention on the broader issue of whether a new motor vehicle could include used

[13] See 82 FR at 53445 ("whether or not Congress, in defining 'new motor vehicle' for purposes of Title II, had a specific intent to include within the statutory definition such a thing as a glider vehicle") and ("[L]ikely that Congress did not have in mind that the definition would be construed as applying to a vehicle comprised of new body parts and a previously owned powertrain), id. at 53446 ("[I]t is implausible that Congress would have had in mind that a ''new motor vehicle'' might also include a vehicle comprised of new body parts and a previously owned powertrain").

components. The statute indicates clearly that Congress specifically intended that new motor vehicles could include used components. As discussed above, the criterion of first transfer of title draws no distinction with respect to the kinds of components in the vehicle, the definition expressly states that used engines can be in a new motor vehicle, and used imported vehicles are considered to be new. EPA's interpretation in the 2016 Final Rule is consistent with this clear Congressional intent, and EPA's 2017 Proposal requiring "showroom new" vehicles is not.

EPA's 2017 Proposal also errs because it rejects the intention of Congress, expressed in the clear and straightforward language of the definition, based on extraneous materials with no ties to the legislative history or to other parts of the Clean Air Act. EPA relies on two claims: (1) there was limited use of glider kits at the time of enactment, therefore Congress could not have had them in mind when it adopted the definition of new motor vehicle, and (2) Congress' intention at the time of enactment must have been consistent with a separate labeling statute because of similarities in the definitions in the statutes. Neither of these sources is discussed anywhere in the legislative history, nor is there any evidence Congress ever considered them. They provide no basis to reject the straightforward evidence of Congressional intent provided by the actual statutory text.

The evidence provided by these extraneous sources, even assuming they are relevant, provide further support for EPA's interpretation in the 2016 Final Rule, not EPA's proposal. EPA first argues that Congress did not have glider vehicles in mind at the time of enactment because "[t]he manufacture of glider vehicles to salvage the usable powertrains of trucks wrecked in accidents goes back a number of years. But only more recently—after the enactment of Title II—have glider vehicles been produced in any great number." 82 FR at 53445.

However, the contemporaneous understanding at the time of passage of the Clean Air Act, even if relevant, was that glider vehicles were considered new vehicles. The Internal Revenue Service treated a glider vehicle as a new vehicle for federal excise tax purposes, which position was upheld on judicial review. See *Boise National Leasing, Inc. v. United States*, 389 F.2d 634, 636-37 (9th Cir. 1968).[14] If anything, this shows Congress would likely have considered glider vehicles to be new motor vehicles when it enacted the CAA's definitions.

EPA next argues that similarity in the definitions used in the CAA and the Automobile Information Disclosure Act of 1958 (AIDA) shows that "Congress intended … that a 'new motor vehicle' would be understood to mean something equivalent to a 'new automobile'—i.e., a true 'showroom new' vehicle."[15] EPA's argument relies on flawed logic, and its analysis is superficial and incomplete. 82 FR 53446. Even if AIDA is relevant here the proposal ignores the other textual provisions of AIDA and how they interact, and does not consider the critical differences between the CAA and AIDA in text and Congressional purpose. These differences indicate that Congress did not adopt AIDA's narrow and limited approach, and instead adopted a broader more expansive legislative solution in CAA Title II.

First, EPA's reference to "showroom new" clearly refers to the showroom of a new car dealer. AIDA's legislative history indicates that this is the focus of AIDA. See *Baltimore*

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[14]The Internal Revenue Service imposed an excise tax on manufacturers of new trucks made from glider kits. This tax applied when a "taxpayer purchased … in packaged or "glider kit" form, all the necessary new elements, including frame, cab, brake system, etc. … and then had the structuring and assembling processes done by a third party." The glider kit process resulted in a "new truck entity having been produced, and not a repairing or reconditioning of the old truck," and the manufacturer of the new truck entity was subject to the excise tax. 389 F. 2d at 636-37.

[15] 83 FR at 53446.

Luggage Company v. FTC, 296 F. 2d 608 (4th Cir. 1961), decided several years before adoption of the CAA. The problem Congress addressed in AIDA was fraud and deception occurring in the showroom of new car dealers, and it crafted a narrow solution to address it. The result was a requirement for a window label for new cars shown by new car dealers in their showrooms. However this focus on dealers and their showrooms was not driven by AIDA's definition of "new automobile," but by other provisions of that law. That focus derives from a separate section, the requirement that manufacturers affix the window label to a new car prior to delivery of the vehicle to a dealer.[16]

In effect, Congress defined new automobile broadly in AIDA, but then narrowed the labeling requirement by limiting it to only those new automobiles delivered to new car dealers. For example, a new car sold directly by a manufacturer would not be subject to the labeling requirement. While that kind of distribution would not typically occur, this example makes clear that the definition of new automobile is not what ties AIDA to "showroom new" cars; a different section of the law achieves this result. The text of AIDA does not support EPA's reasoning and conclusion, which relies on the AIDA definition by itself.

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[16] "Every manufacturer of new automobiles distributed in commerce shall, prior to the delivery of any new automobile to any dealer, or at or prior to the introduction date of new models delivered to a dealer prior to such introduction date, securely affix to the windshield, or side window of such automobile a label on which such manufacturer shall endorse clearly, distinctly and legibly true and correct entries disclosing the following information concerning such automobile" (emphasis supplied) 15 U.S.C. 1232. The enforcement for this labeling requirement is addressed in 15 U.S.C. 1233.

The CAA and AIDA differ in many important ways, and it is clear that in the CAA Congress did not take the narrow approach used in AIDA and did not focus on the subset of vehicles presented for show in new car dealer's showrooms.

(1) The CAA's Title II provisions address a much broader societal problem – air pollution problems, reaching broadly across the country - while AIDA addresses a specific consumer information problem involving just new car dealers.

(2) Unlike AIDA, the CAA's definition of new motor vehicle covers many more kinds of vehicles than passenger cars. The CAA covers all kinds of cars and trucks, from the smallest passenger car to the largest commercial tractor trailer. It covers many more kinds of manufacturers and their distribution networks, the ways in which new cars or trucks are sold to their buyers. The vehicles and their manufacturing and distribution networks are more varied than the limited world of manufacturer deliveries of passenger cars to new car dealers.

(3) Unlike AIDA, the definition of new motor vehicle is not limited to a line drawn based on the transfer of title to an ultimate purchaser. As explained above, the definition of new motor vehicle is broader in scope, and it is clear that a new motor vehicle may include an engine whose title has already passed to an ultimate purchaser, that is, a new motor vehicle may include a used engine. In addition, it includes all imported vehicles, new and used. Thus, on its face the definition of new motor vehicle is not limited to the kind of "showroom new" vehicles shown by new passenger car dealers.

(4) It is AIDA's manufacturer requirement that focuses AIDA on new car dealers' showrooms, not the definition of new automobile. The parallel manufacturer provision in the CAA, section 203(a), requires that a manufacturer obtain an EPA certificate of conformity before selling, offering for sale, introducing into commerce or delivering a new motor vehicle for introduction into commerce. Nothing narrows this prohibition or somehow limits Title II to vehicles delivered to a dealer for presentation in "showroom new" condition in their showroom. The CAA prohibition is much broader in scope than the labeling requirement in AIDA, properly reflecting the broader scope of the industries involved and the air pollution problem Congress was trying to solve.

Thus, even assuming without evidence that Congress was informed by AIDA, it is clear that Congress rejected the narrow AIDA approach and instead chose a broader and more expansive approach for the CAA.

The proposal maintains that the interpretation is "permissible" since "[a]t a minimum, ambiguity exists" in the statute. 82 FR at 53446. As explained above, there is no ambiguity and the statute directly contemplates that new motor vehicles can include used components, including non-new engines. But even assuming that this literal language does not compel EPA's reading in the 2016 Final Rule, the proposal fails to justify that the reinterpretation is "permissible" in terms of the statute's purposes. And for good reason. A permissible interpretation under *Chevron* step 2 must promote the statutory purposes of the provision and the statute being interpreted. See, e.g. *Council for Urological Interests v. Burwell*, 790 F. 3d 212, 222 (D.C. Cir. 2015) (an interpretation is permissible under *Chevron* step 2 if "it is a reasonable explanation of how an interpretation serves the statute's objectives"); *Northpoint Tech Ltd. v. FCC*, 412 F. 3d 145, 151 (D.C. Cir. 2005) (same). EPA makes no attempt to even consider

much less justify its proposed interpretation in terms of furthering the purposes of the Act and Title II. Most glaringly, EPA fails to consider or explain how a Congressional purpose of protecting the public health and welfare is promoted by leaving these ultra-high-polluting vehicles unregulated. EPA also fails to consider or justify its interpretation in terms of any of the purposes of the Act, and its proposed reinterpretation is impermissible on that ground alone.

In any case, there is no justification for EPA's proposal. It not only does not further the statutory purposes, it negates them. This proposal is antithetical to the core statutory objective of protecting public health and the environment from exposure to harmful emissions from motor vehicles, including from heavy duty vehicles and engines. See, e.g. CAA sections 202(a)(1), 202 (a)(3)(A) and (B); 202 (a) (3)(D); 213. It is likewise antithetical to the goals of attaining and maintaining the National Ambient Air Quality Standards by allowing unlimited, uncontrolled numbers of heavy duty vehicles emitting NOx and PM at rates 40 to 450 *times* higher than new engines. Title II stands as evidence that Congress did not regard the NAAQS as an excuse not to curb dangerous vehicular emissions, but saw control of motor vehicle pollution as a critical element of the statute's NAAQS program.

The purpose of Title II is to broadly empower EPA to regulate pervasive motor vehicle air pollution, calling for EPA to control it at its source when the vehicle is first manufactured. The broad scope of the kinds of vehicles covered is matched with clear discretion to adopt reasonable controls that are appropriate under the specific circumstances. EPA's proposed interpretation does the opposite – it would require EPA to ignore a very large and growing source of harmful air pollution from motor vehicles, and would strip EPA of any ability to address this problem through reasonable controls on the manufacturer of these new vehicles under CAA section 202(a)(1). Whether or not one agrees with the specific controls EPA adopted

in the 2016 Final Rule is not the issue. The issue is whether the purposes of section 202(a)(1) of the Act are promoted by totally precluding EPA from addressing in any fashion a major and growing source of motor vehicle air pollution, where the vehicles clearly meet the terms of the definition adopted by Congress. EPA's 2016 Final Rule properly promoted the purposes of the Act, but the agency's 2017 Proposal does just the opposite.

Finally, EPA's 2017 Proposal ignores the breathtakingly destructive consequences of its proposed reinterpretation. If a "new motor vehicle" is limited to vehicles that consist entirely of new parts, as EPA determines, then simply installing one or more used parts on an otherwise new motor vehicle would allow manufacturers to avoid all Title II requirements.[17] In addition to eviscerating all potential for controls over glider vehicles under section 202(a)(1), the proposal could eviscerate the remainder of Title II motor vehicle controls as well. Such an absurd result demonstrates the impermissibility of the proposed reinterpretation.

C. Conclusion

In short, the statute is unambiguous that glider vehicles are new motor vehicles. Even if the statute were ambiguous, the proposed reinterpretation is not permissible because it is directly contrary to the terms of the statute, the intention of Congress as expressed in the definition it adopted, and the core statutory objective of protecting public health and the environment from exposure to air pollution caused by motor vehicles, including heavy duty diesel vehicles and engines, through reasonable regulation of the manufacturers of new vehicles and engines.

II. EPA Has Explicit Authority to Regulate Emissions from rebuilt Heavy Duty Diesel Engines, and did so in the 2016 Final Rule

[17] Among others, the Engine Manufacturers Association noted this drastic consequence of the proposal in its December 4, 2017 public hearing testimony opposing the proposal.

Separate and apart from EPA's authority under Section 202(a)(1), EPA's assertion that it lacks authority over emissions from glider vehicles and engines is flatly wrong as the Act provides explicit authority to adopt regulations to control emissions from rebuilt heavy duty diesel engines. There is no dispute that glider vehicles use exclusively rebuilt heavy duty diesel engines. See, e.g. 81 FR 73518 n. 93 and RTC pp. 1879-1880. Section 202 (a)(3)(D) of the Act provides that "[t]he Administrator shall study the practice of rebuilding heavy-duty engines and the impact rebuilding has on engine emissions. On the basis of that study and other information available to the Administrator, the Administrator may prescribe requirements to control rebuilding practices, including standards applicable to emission from any rebuilt heavy-duty engines … which in the Administrator's judgment cause, or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare taking costs into account." EPA is also to consider lead time, cost of compliance, energy and safety factors. Id.

As the agency notes, EPA has previously adopted controls under this authority, (properly) citing 40 CFR section 1068.120; see also 86.004-40. 82 FR 53443 and n.2. However the proposal ignores that EPA also exercised this rebuild authority as a separate basis for the 2016 Final Rule on glider vehicle engines. See e.g. 81 FR 73518/1; 73519/1-2; 73944 n. 991; 73945/3; Response to Comment Background Document ("RTC") p. 1879. Therefore, the agency cannot revoke the provisions of the 2016 Final Rule concerning glider vehicle engines without revoking its prior exercise of the rebuild authority. EPA has nowhere indicated that it is revoking this prior exercise of rebuild authority, and has totally failed to explain or justify such an action, a fatal substantive and procedural deficiency. See *State Farm*, 463 U.S. at 42 (""an agency changing course must supply a reasoned explanation for the change beyond that which may be required when an agency does not act in the first instance"), and 43 (agency acts

arbitrarily when it "entirely failed to consider an important aspect of the problem"). No reasoned explanation for revoking this exercise of authority exists.

In short, EPA supported its 2016 Final Rule with a compelling justification, and there is no basis for EPA to revoke its exercise of authority over emissions from rebuilt diesel engines in glider vehicles. EPA's failure to consider this issue is itself arbitrary, and necessitates a reproposal should the agency still seek to amend any feature of the 2016 Final Rule to alter its substantive terms.

standards." *Id.* In support, the petitioners included as an exhibit to their petition a letter from the President of the Tennessee Technological University ("Tennessee Tech"), which described a study recently conducted by Tennessee Tech. This study, according to the petitioners, had "analyz[ed] the NO_X, PM, and carbon monoxide . . . emissions from both remanufactured and OEM engines," and "reached a contrary conclusion" regarding glider vehicle emissions. Petition at 5.

The petitioners maintained that the results of the study "showed that remanufactured engines from model years between 2002 and 2007 performed roughly on par with OEM 'certified' engines," and "in some instances even out-performed the OEM engines." *Id.* The petitioners further claimed that the Tennessee Tech research " 'showed that remanufactured and OEM engines experience parallel decline in emissions efficiency with increased mileage.' " *Id.*, *quoting* Tennessee Tech letter at 2. Based on the Tennessee Tech study, the petitioners asserted that "glider vehicles would emit less than 12% of the total NO_X and PM emissions for all Class 8 heavy duty vehicles . . . not 33% as the Phase 2 Rule suggests." *Id.*, *citing* 81 FR 73943.

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 6/19/2018 10:44:59 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]
Subject: Fwd: Draft Deliberative—Interagency Review—NHTSA DEIS for Model Year 2021-2026 Light Duty Corporate Average Fuel Economy Standards SET 3
Attachments: Appendix_D_Cars and Trucks Reported Separately.docx; ATT00001.htm; 11_Distribution List.docx; ATT00002.htm; 12_References.docx; ATT00003.htm; 13_Index.docx; ATT00004.htm; Appendix A_Air Quality Nonattainment Areas.docx; ATT00005.htm; Appendix C_LCA Studies.docx; ATT00006.htm; Appendix_B Scoping Comments.docx; ATT00007.htm

#3

Sent from my iPhone

Begin forwarded message:

From: "Morrison, Jonathan (NHTSA)" <Jonathan.Morrison@dot.gov>
To: "Schwab, Justin" <Schwab.Justin@epa.gov>
Cc: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Subject: RE: Draft Deliberative—Interagency Review—NHTSA DEIS for Model Year 2021-2026 Light Duty Corporate Average Fuel Economy Standards SET 3

Here's the last of them. Thank you!

From: Morrison, Jonathan (NHTSA)
Sent: Monday, June 18, 2018 9:47 AM
To: 'Schwab, Justin' <Schwab.Justin@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Draft Deliberative—Interagency Review—NHTSA DEIS for Model Year 2021-2026 Light Duty Corporate Average Fuel Economy Standards SET 1

Subject: Draft Deliberative—Interagency Review—NHTSA DEIS for Model Year 2021-2026 Light Duty Corporate Average Fuel Economy Standards

DRAFT/DELIBERATIVE DOCUMENT – NOT FOR CIRCULATION OUTSIDE OF FEDERAL GOVERNMENT AGENCIES

Hi Justin,

Deliberative Process / Ex. 5

<image001.png>

Jonathan Morrison
Chief Counsel
Department of Transportation
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE., Washington, DC 20590
Office: 202-366-9511

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 6/19/2018 9:42:50 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Charmley, William [charmley.william@epa.gov]
Subject: Pls Read:: Response to claims made by Fitzgerald Glider Kits regarding the EPA career staff testing of glider vehicles in the Fall of 2017

Deliberative Process / Ex. 5

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

From: Charmley, William
Sent: Tuesday, June 19, 2018 5:23 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Cook, Leila <cook.leila@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: Response to claims made by Fitzgerald Glider Kits regarding the EPA career staff testing of glider vehicles in the Fall of 2017

Dear Chris,

I wanted to follow-up on one topic related to our Friday discussion with AA Wehrum on heavy-duty gliders this past Friday. Overall I think the meeting was good, and we will look for a 3rd way to resolve the issue per the direction from Bill.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Please let me know if you have any questions on any aspects of this information or this topic.

Bill

EPA-HQ-2019-30664

States Coast Guard, and local or state law enforcement vessels, are prohibited from entering the restricted area without permission from the USAF 81st Security Forces Anti-Terrorism Office, KAFB or its authorized representative.

(2) The restricted area is in effect twenty-four hours per day and seven days a week (24/7).

(3) Should warranted access into the restricted navigation area be needed, all entities are required to contact the USAF 81st Security Forces Anti-Terrorism Office, KAFB, Biloxi, Mississippi, or its authorized representative.

(c) *Enforcement.* The regulation in this section shall be enforced by the USAF 81st Security Forces Anti-Terrorism Office, KAFB and/or such agencies or persons as that office may designate.

Dated: November 9, 2017.

Thomas P. Smith,

Chief, Operations and Regulatory Division, Directorate of Civil Works.

[FR Doc. 2017–24892 Filed 11–15–17; 8:45 am]

BILLING CODE 3720–58–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 1037 and 1068

[EPA–HQ–OAR–2014–0827; FRL–9970–61–OAR]

RIN 2060–AT79

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to repeal the emission standards and other requirements for heavy-duty glider vehicles, glider engines, and glider kits based on a proposed interpretation of the Clean Air Act (CAA) under which glider vehicles would be found not to constitute "new motor vehicles" within the meaning of CAA section 216(3), glider engines would be found not to constitute "new motor vehicle engines" within the meaning of CAA section 216(3), and glider kits would not be treated as "incomplete" new motor vehicles. Under this proposed interpretation, EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

DATES:

Comments: Comments on all aspects of this proposal must be received on or before January 5, 2018.

Public Hearing: EPA will hold a public hearing on Monday, December 4, 2017. The hearing will be held at EPA's Washington, DC campus located at 1201 Constitution Avenue NW., Washington, DC. The hearing will start at 10:00 a.m. local time and continue until everyone has had a chance to speak. More details concerning the hearing can be found at *https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.*

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2014–0827, at *http://www.regulations.gov.* Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov.* The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.,* on the Web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *http://www.epa.gov/dockets/commenting-epa-dockets.*

Docket: All documents in the docket are listed on the *www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, *e.g.,* confidential business information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *www.regulations.gov* or in hard copy at the following location:

Air and Radiation Docket and Information Center, EPA Docket Center, EPA/DC, EPA WJC West Building, 1301 Constitution Ave. NW., Room 3334, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air Docket is (202) 566–1742.

FOR FURTHER INFORMATION CONTACT: Julia MacAllister, Office of Transportation and Air Quality, Assessment and Standards Division, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: 734–214–4131; email address: *hearing_registration-asd@epa.gov.*

SUPPLEMENTARY INFORMATION:

Does this action apply to me?

This action relates to a previously promulgated final rule that affects companies that manufacture, sell, or import into the United States glider vehicles. Proposed categories and entities that might be affected include the following:

Category	NAICS code [a]	Examples of potentially affected entities
Industry	336110, 336111, 336112, 333618, 336120, 441310.	Motor Vehicle Manufacturers, Engine Manufacturers, Engine Parts Manufacturers, Truck Manufacturers, Automotive Parts and Accessories Dealers.

Note: [a] North American Industry Classification System (NAICS).

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely covered by these rules. This table lists the types of entities that we are aware may be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your activities are regulated by this action, you should carefully examine the applicability criteria in the referenced regulations. You may direct questions regarding the applicability of this action to the persons listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

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EPA-HQ-2019-30664

I. Introduction

The basis for the proposed repeal of those provisions of the final rule entitled Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 (the Phase 2 rule)[1] that apply to glider vehicles, glider engines, and glider kits is EPA's proposed interpretation of CAA section 202(a)(1) and sections 216(2) and 216(3), which is discussed below. Under this proposed interpretation: (1) Glider vehicles would not be treated as "new motor vehicles," (2) glider engines would not be treated as "new motor vehicle engines," and (3) glider kits would not be treated as "incomplete" new motor vehicles. Based on this proposed interpretation, EPA would lack authority to regulate glider vehicles, glider engines, and glider kits under CAA section 202(a)(1).

This proposed interpretation is a departure from the position taken by EPA in the Phase 2 rule. There, EPA interpreted the statutory definitions of "new motor vehicle" and "new motor vehicle engines" in CAA section 216(3) as including glider vehicles and glider engines, respectively. The proposed interpretation also departs from EPA's position in the Phase 2 rule that CAA section 202(a)(1) authorizes the Agency to treat glider kits as "incomplete" new motor vehicles.

It is settled law that EPA has inherent authority to reconsider, revise, or repeal past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation. This authority exists in part because EPA's interpretations of the statutes it administers "are not carved in stone." *Chevron U.S.A. Inc.* v. *NRDC, Inc.* 467 U.S. 837, 863 (1984). If an agency is to "engage in informed rulemaking," it "must consider varying interpretations and the wisdom of its policy on a continuing basis." *Id.* at 863–64. This is true when, as is the case here, review is undertaken "in response to . . . a change in administration." *National Cable & Telecommunications Ass'n* v. *Brand X Internet Services*, 545 U.S. 967, 981 (2005). A "change in administration brought about by the people casting their votes is a perfectly reasonable basis for an executive agency's reappraisal of the costs and benefits of its programs and regulations," and so long as an agency "remains within the bounds established by Congress," the agency "is entitled to assess administrative records and evaluate priorities in light of the philosophy of the administration." *Motor Vehicle Manufacturers Ass'n.* v. *State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 59 (1983) (Rehnquist, J., concurring in part and dissenting in part).

After reconsidering the statutory language, EPA proposes to adopt a reading of the relevant provisions of the CAA under which the Agency would lack authority under CAA section 202(a)(1) to impose requirements on glider vehicles, glider engines, and glider kits and therefore proposes to remove the relevant rule provisions. At the same time, under CAA section 202(a)(3)(D), EPA is authorized to "prescribe requirements to control" the "practice of rebuilding heavy-duty engines," including "standards applicable to emissions from any rebuilt heavy-duty engines." 42 U.S.C. 7521(a)(3)(D).[2] If the interpretation being proposed here were to be finalized, EPA's authority to address heavy-duty engine rebuilding practices under CAA section 202(a)(3)(D) would not be affected.

II. Background

A. Factual Context

A glider vehicle (sometimes referred to simply as a "glider") is a truck that utilizes a previously owned powertrain (including the engine, the transmission, and usually the rear axle) but which has new body parts. When these new body parts (which generally include the tractor chassis with frame, front axle, brakes, and cab) are put together to form the "shell" of a truck, the assemblage of parts is referred to collectively as a "glider kit." The final manufacturer of the glider vehicle, *i.e.*, the entity that takes the assembled glider kit and combines it with the used powertrain salvaged from a "donor" truck, is typically a different manufacturer than the original manufacturer of the glider kit. *See* 81 FR 73512–13 (October 25, 2016).

B. Statutory and Regulatory Context

Section 202(a)(1) of the CAA directs that EPA "shall by regulation prescribe," in "accordance with the provisions" of section 202, "standards applicable to the emission of any air pollutant from any . . . new motor vehicles or new motor vehicle engines." 42 U.S.C. 7521(a)(1). CAA section 216(2) defines "motor vehicle" to mean "any self-propelled vehicle designed for transporting persons or property on a street or highway." 42 U.S.C. 7550(2). A "*new* motor vehicle" is defined in CAA section 216(3) to mean, as is relevant here, a "motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." 42 U.S.C. 7550(3) (emphasis added). A "new motor vehicle engine" is similarly defined as an "engine in a new motor vehicle" or a "motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." *Id.*[3]

Comments submitted to EPA during the Phase 2 rulemaking stated that gliders are approximately 25% less expensive than new trucks,[4] which makes them popular with small businesses and owner-operators.[5] In contrast to an older vehicle, a glider requires less maintenance and yields less downtime.[6] A glider has the same braking, lane drift devices, dynamic cruise control, and blind spot detection devices that are found on current model year heavy-duty trucks, making it a safer vehicle to operate, compared to the older truck that it is replacing.[7]

Some commenters questioned EPA's authority to regulate glider vehicles as "new motor vehicles," to treat glider engines as "new motor vehicle engines," or to impose requirements on glider kits. Commenters also pointed out what they described as the overall environmental benefits of gliders. For instance, one commenter stated that "rebuilding an engine and transmission uses 85% less energy than manufacturing them new."[8] Another commenter noted that the use of glider vehicles "improves utilization and reduces the number of trucks required to haul the same tonnage of freight."[9] This same commenter further asserted that glider vehicles utilizing "newly rebuilt engines" produce less "particulate, NO_X, and GHG emissions

[1] 81 FR 73478 (October 25, 2016).

[2] EPA has adopted regulations that address engine rebuilding practices. *See, e.g.*, 40 CFR 1068.120. EPA is not proposing in this action to adopt additional regulatory requirements pursuant to 42 U.S.C. 7521(a)(3)(D) that would apply to rebuilt engines installed in glider vehicles.

[3] The definitions of both "new motor vehicle" and "new motor vehicle engine" are contained in the same paragraph (3), reflecting the fact that "[w]henever the statute refers to 'new motor vehicle' the phrase is followed by 'or new motor vehicle engine.'" *See Motor and Equipment Manufacturers Ass'n* v. *EPA*, 627 F.2d 1095, 1102 n.3 (D.C. Cir. 1979). As Title II currently reads, the term "new motor vehicle" appears some 32 times, and in all but two instances, the term is accompanied by "new motor vehicle engine," indicating that, at the inception of Title II, Congress understood that the regulation of *engines* was essential to control emissions from "motor vehicles."

[4] Response to Comments for Joint Rulemaking, EPA–420–R–16–901 (August 2016) at 1846.

[5] EPA–HQ–OAR–2014–0827–1964.

[6] EPA–HQ–OAR–2014–0827–1005.

[7] *Id.*

[8] EPA–HQ–OAR–2014–0827–1964.

[9] EPA–HQ–OAR–2014–0827–1005.

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. . . compared to [a] worn oil burning engine which is beyond its useful life." [10]

In the Phase 2 rule, EPA found that it was "reasonable" to consider glider vehicles to be "new motor vehicles" under the definition in CAA section 216(3). *See* 81 FR 73514 (October 25, 2016). Likewise, EPA found that the previously owned engines utilized by glider vehicles should be considered to be "new motor vehicle engines" within the statutory definition. Based on these interpretations, EPA determined that it had authority under CAA section 202(a) to subject glider vehicles and glider engines to the requirements of the Phase 2 rule. As for glider kits, EPA found that if glider vehicles are new motor vehicles, then the Agency was authorized to regulate glider kits as "incomplete" new motor vehicles. *Id.*

C. Petition for Reconsideration

Following promulgation of the Phase 2 rule, EPA received from representatives of the glider industry a joint petition requesting that the Agency reconsider the application of the Phase 2 rule to glider vehicles, glider engines, and glider kits.[11] The petitioners made three principal arguments in support of their petition. First, they argued that EPA is not authorized by CAA section 202(a)(1) to regulate glider kits, glider vehicles, or glider engines. Petition at 3–4. Second, the petitioners contended that in the Phase 2 rule EPA "relied upon unsupported assumptions to arrive at the conclusion that immediate regulation of glider vehicles was warranted and necessary." *Id.* at 4. Third, the petitioners asserted that reconsideration was warranted under Executive Order 13783. *Id.* at 6.

The petitioners took particular issue with what they characterized as EPA's having "assumed that the nitrogen oxide ('NO_X') and particulate matter ('PM') emissions of glider vehicles using pre-2007 engines" would be "at least ten times higher than emissions from equivalent vehicles being produced with brand new engines." Petition at 5, *citing* 81 FR 73942. According to the petitioners, EPA had "relied on no actual data to support this conclusion," but had "simply relied on the pre-2007 standards." *Id.* In support, the petitioners included as an exhibit to their petition a letter from the President of the Tennessee Technological University ("Tennessee Tech"), which described a study recently conducted by Tennessee Tech. This study, according to the petitioners, had "analyz[ed] the NO_X, PM, and carbon monoxide . . . emissions from both remanufactured and OEM engines," and "reached a contrary conclusion" regarding glider vehicle emissions. Petition at 5.

The petitioners maintained that the results of the study "showed that remanufactured engines from model years between 2002 and 2007 performed roughly on par with OEM 'certified' engines," and "in some instances even out-performed the OEM engines." *Id.* The petitioners further claimed that the Tennessee Tech research "'showed that remanufactured and OEM engines experience parallel decline in emissions efficiency with increased mileage.'" *Id., quoting* Tennessee Tech letter at 2. Based on the Tennessee Tech study, the petitioners asserted that "glider vehicles would emit less than 12% of the total NO_X and PM emissions for all Class 8 heavy duty vehicles . . . not 33% as the Phase 2 Rule suggests." *Id., citing* 81 FR 73943.

Further, the petitioners complained that the Phase 2 rule had "failed to consider the significant environmental *benefits* that glider vehicles create." Petition at 6 (emphasis in original). "Glider vehicle GHG emissions are less than those of OEM vehicles," the petitioners contended, "due to gliders' greater fuel efficiency," and the "carbon footprint of gliders is further reduced by the savings created by recycling materials." *Id.* The petitioners represented that "[g]lider assemblers reuse approximately 4,000 pounds of cast steel in the remanufacturing process," including "3,000 pounds for the engine assembly alone." *Id.* The petitioners pointed out that "[r]eusing these components avoids the environmental impact of casting steel, including the significant associated NO_X emissions." *Id.* This "fact," the petitioners argued, is something that EPA should have been considered but was "not considered in the development of the Phase 2 rule." *Id.*

EPA responded to the glider industry representatives' joint petition by separate letters on August 17, 2017, stating that the petition had "raise[d] significant questions regarding the EPA's authority under the Clean Air Act to regulate gliders." [12] EPA further indicated that it had "decided to revisit the provisions in the *Phase 2 Rule* that relate to gliders," and that the Agency "intends to develop and issue a **Federal Register** notice of proposed rulemaking on this matter, consistent with the requirements of the Clean Air Act." [13]

III. Basis for the Proposed Repeal

A. Statutory Analysis

EPA is proposing that the statutory interpretations on which the Phase 2 rule predicated its regulation of glider vehicles, glider engines, and glider kits were incorrect. EPA proposes an interpretation of the relevant language of the CAA under which glider vehicles are excluded from the statutory term "new motor vehicles" and glider engines are excluded from the statutory term "new motor vehicle engines," as both terms are defined in CAA section 216(3). Consistent with this interpretation of the scope of "new motor vehicle," EPA is further proposing that it has no authority to treat glider kits as "incomplete" new motor vehicles under CAA section 202(a)(1).

As was noted, a "new motor vehicle" is defined by CAA section 216(3) to mean, in relevant part, a "motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." 42 U.S.C. 7550(3). In basic terms, a glider vehicle consists of the new components that make up a glider kit, into which a previously owned powertrain has been installed. Prior to the time a completed glider vehicle is sold, it can be said that the vehicle's "equitable or legal title" has yet to be "transferred to an ultimate purchaser." It is on this basis that the Phase 2 rule found that a glider vehicle fits within the definition of "new motor vehicle." 81 FR 73514 (October 25, 2016).

EPA's rationale for applying this reading of the statutory language was that "[g]lider vehicles are typically marketed and sold as 'brand new' trucks." 81 FR 73514 (October 25, 2016). EPA took note of one glider kit manufacturer's own advertising materials that represented that the company had "'mastered the process of taking the 'Glider Kit' and installing the components to work seamlessly *with the new truck.*'" *Id.* (emphasis added in original). EPA stated that the "purchaser of a 'new truck' necessarily takes initial title to that truck." *Id.* (citing statements

[10] *Id.*

[11] *See* Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 Final Rule" to Gliders, from Fitzgerald Glider Kits, LLC; Harrison Truck Centers, Inc.; and Indiana Phoenix, Inc. (July 10, 2017) (Petition). Available in the rulemaking docket, EPA–HQ–OAR–2014–0827, and at *https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.*

[12] *See, e.g.*, Letter from E. Scott Pruitt, EPA Administrator, to Tommy C. Fitzgerald, President, Fitzgerald Glider Kits (Aug. 17, 2017). Available in the rulemaking docket, EPA–HQ–OAR–2014–0827, and at *https://www.epa.gov/sites/production/files/2017-08/documents/hd-ghg-phase2-ttma-ltr-2017-08-17.pdf.*

[13] *Id.*

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on the glider kit manufacturer's Web site). EPA rejected arguments raised in comments that "this 'new truck' terminology is a mere marketing ploy." *Id.* Rather, EPA stated, "it obviously reflects reality." *Id.*

In proposing a new interpretation of the relevant statutory language, EPA now believes that its prior reading was not the best reading, and that the Agency failed to consider adequately the most important threshold consideration: *i.e.*, whether or not Congress, in defining "new motor vehicle" for purposes of Title II, had a specific intent to include within the statutory definition such a thing as a glider vehicle—a vehicle comprised both of new *and* previously owned components. *See Chevron*, 467 U.S. at 843 n.9 (Where the "traditional tools of statutory construction" allow one to "ascertain[ ] that Congress had an intention on the precise question at issue," that "intention is the law and must be given effect."). Where "Congress has not directly addressed the precise question at issue," and the "statute is silent or ambiguous with respect to the specific issue," it is left to the agency charged with implementing the statute to provide an "answer based on a permissible construction of the statute." *Id.* at 843.

Focusing solely on that portion of the statutory definition that provides that a motor vehicle is considered "new" prior to the time its "equitable or legal title" has been "transferred to an ultimate purchaser," a glider vehicle would appear to qualify as "new." As the Supreme Court has repeatedly counseled, however, that is just the beginning of a proper interpretive analysis. The "definition of words in isolation," the Court has noted, "is not necessarily controlling in statutory construction." *See Dolan* v. *United States Postal Service*, 546 U.S. 481, 486 (2006). Rather, the "interpretation of a word or phrase depends upon reading the whole statutory text, considering the purpose and context of the statute," and "consulting any precedents or authorities that inform the analysis." *Id.* Similarly, in seeking to "determine congressional intent, using traditional tools of statutory construction," the "*starting point* is the language of the statute." *See Dole* v. *United Steelworkers of America*, 494 U.S. 26, 35 (1990) (emphasis added) (internal citation omitted). At the same time, "in expounding a statute," one is not to be "guided by a single sentence or member of a sentence," but is to "look to the provisions of the whole law, and to its object and policy." *Id.* (internal citations omitted).

Assessed in light of these principles, it is clear that EPA's reading of the statutory definition of "new motor vehicle" in the Phase 2 rule fell short. First, that reading failed to account for the fact that, at the time this definition of "new motor vehicle" was enacted, it is likely that Congress did not have in mind that the definition would be construed as applying to a vehicle comprised of new body parts and a previously owned powertrain. The manufacture of glider vehicles to salvage the usable powertrains of trucks wrecked in accidents goes back a number of years.[14] But only more recently—after the enactment of Title II—have glider vehicles been produced in any great number.

Furthermore, the concept of deeming a motor vehicle to be "new" based on its "equitable or legal title" not having been transferred to an "ultimate purchaser" appears to have originated with an otherwise unrelated federal statute that predated Title II by a few years—*i.e.*, the Automobile Information Disclosure Act of 1958, Public Law 85–506 (Disclosure Act).[15] The history of Title II's initial enactment and subsequent development indicates that, in adopting a definition of "new motor vehicle" for purposes of the Clean Air Act, Congress drew on the approach it had taken originally with the Disclosure Act.

Among other things, the Disclosure Act requires that a label be affixed to the windshield or side window of new automobiles, with the label providing such information as the Manufacturer's Suggested Retail Price. *See* 15 U.S.C. 1232 ("Every manufacturer of *new automobiles* distributed in commerce shall, prior to the delivery of any *new automobile* to any dealer, or at or prior to the introduction date of new models delivered to a dealer prior to such introduction date, securely affix to the windshield, or side window of *such automobile* a label . . . .") (emphases added). The Disclosure Act defines the term "automobile" to "include[ ] any passenger car or station wagon," and defines the term "new automobile" to mean "an automobile the equitable or legal title to which has never been transferred by a manufacturer, distributor, or dealer to an ultimate purchaser." *See* 15 U.S.C. 1231(c), (d).

In 1965, Congress amended the then-existing Clean Air Act, and for the first time enacted provisions directed at the control of air pollution from motor vehicles. *See* Clean Air Act Amendments of 1965, Public Law 89–272 (1965 CAA). Included in the 1965 CAA was a brand new Title II, the "Motor Vehicle Air Pollution Control Act," the structure and language of which largely mirrored key provisions of Title II as it exists today. Section 202(a) of the 1965 CAA provided that the "Secretary [of what was then the Department of Health, Education and Welfare] shall by regulation, giving appropriate consideration to technological feasibility and economic costs, prescribe . . . standards applicable to the emission of any kind of substance, from any class or classes of *new motor vehicles or new motor vehicle engines*, which in his judgment cause or contribute to, or are likely to cause or to contribute to, air pollution which endangers the health or welfare of any persons . . . ." Public Law 89–272, 79 Stat. 992 (emphasis added).

Section 208 of the 1965 CAA defined "motor vehicle" in terms identical to those in the CAA today: "any self-propelled vehicle designed for transporting persons or property on a street or highway." Public Law 89–272, 79 Stat. 995. The 1965 CAA defined "new motor vehicle" and "new motor vehicle engine" to mean, as relevant here, "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser; and the term 'new motor vehicle engine'" to mean "an engine in a new motor vehicle or a motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." *Id.* Again, in relevant part, the 1965 CAA definitions of these terms were identical to those that currently appear in CAA section 216(3).

While the legislative history of the 1965 CAA does not expressly indicate that Congress based its definition of "new motor vehicle" on the definition of "new automobile" first adopted by the Automobile Information Disclosure Act of 1958, it seems clear that such was the case. The statutory language of the two provisions is identical in all pertinent respects,[16] and there appears to be no other federal statute, in existence prior to enactment of the 1965

[14] EPA–HQ–OAR–2014–0827–1964.

[15] The provisions of the Disclosure Act are set forth at 15 U.S.C. 1231–1233.

[16] Further, the 1965 CAA's definition of "ultimate purchaser," as set forth in section 208(5), for the most part tracks the Disclosure Act's earlier-enacted definition: "The term 'ultimate purchaser' means, with respect to any new automobile, the first person, other than a dealer purchasing in his capacity as a dealer, who in good faith purchases such new automobile for purposes other than resale." *Compare* 1965 CAA section 208(5), Public Law 89–272, 79 Stat. 995 *with* 15 U.S.C. 1231(g). Such is the case, too, with respect to the 1965 CAA's definition of "manufacturer." *Compare* 1965 CAA section 208(1), Public Law 89–272, 79 Stat. 994–995 *with* 15 U.S.C. 1231(a).

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CAA, from which Congress could have derived that terminology.

Subsequently, the statutory language from the 1965 CAA, defining the terms "motor vehicle," "new motor vehicle," "new motor vehicle engine," "ultimate purchaser," and "manufacturer" was incorporated verbatim in the Air Quality Act of 1967 (1967 AQA). *See* Public Law 148, 81 Stat. 503. The Clean Air Act Amendments of 1970 (1970 CAAA) did not change those definitions, except to add the language regarding "vehicles or engines imported or offered for importation" that currently appears in CAA section 216(3). *See* Public Law 91–604, 84 Stat. 1694, 1703.[17]

The fact that Congress, in first devising the CAA's definition of "new motor vehicle" for purposes of Title II, drew on the pre-existing definition of "new automobile" in the Automobile Information Disclosure Act of 1958 serves to illuminate congressional intent. As with the Disclosure Act, Congress in the 1965 CAA selected the point of first transfer of "equitable or legal title" to serve as a bright line—*i.e.*, to distinguish between those "new" vehicles (and engines) that would be subject to emission standards adopted pursuant to CAA section 202(a)(1) and those existing vehicles that would not be subject. Insofar as the 1965 CAA definition of "new motor vehicle" was based on the Disclosure Act definition of "new automobile," it would seem clear that Congress intended, for purposes of Title II, that a "new motor vehicle" would be understood to mean something equivalent to a "new automobile"—*i.e.*, a true "showroom new" vehicle. It is implausible that Congress would have had in mind that a "new motor vehicle" might also include a vehicle comprised of new body parts and a previously owned powertrain.

Given this, EPA does not believe that congressional intent as to the meaning of the term "new motor vehicle" can be clearly ascertained on the basis of an isolated reading of a few words in the statutory definition, where that reading is divorced from the structure and history of the CAA as a whole. Based on that structure and history, it seems likely that Congress understood a "new motor vehicle," as defined in CAA § 216(3), to be a vehicle comprised entirely of new parts and certainly not a vehicle with a used engine. At a minimum, ambiguity exists. This leaves EPA with the task of providing an "answer based on a permissible construction of the statute." *Chevron*, 467 U.S. at 843.

1. Glider Vehicles

EPA is proposing to interpret "new motor vehicle," as defined in CAA § 216(3), as not including glider vehicles. This is a reasonable interpretation—and commonsense would agree—insofar as it takes account of the reality that significant elements of a glider vehicle (*i.e.*, the powertrain elements, including the engine and the transmission) are previously owned components. Under the Phase 2 rule's interpretation, in contrast, the act of installing a previously owned powertrain into a glider kit—*i.e.*, something that, as is explained further below, is not a "motor vehicle" as defined by the CAA—results in the creation of a *new* "motor vehicle." EPA believes that Congress, in adopting a definition of "new motor vehicle" for purposes of Title II, never had in mind that the statutory language would admit of such a counterintuitive result.

In other words, EPA now believes that, in defining "new motor vehicle," Congress did not intend that a vehicle comprised of a new outer shell conjoined to a previously owned powertrain should be treated as a "new" vehicle, based solely on the fact that the vehicle may have been assigned a new title following assembly. In this regard, insofar as Title II's regulatory regime was at its inception directed at the emissions produced by new vehicle *engines*,[18] it is not at all clear that Congress intended that Title II's reach should extend to a vehicle whose outer parts may be "new" but whose engine was previously owned.

2. Glider Engines

EPA proposes to find that, since a glider vehicle does not meet the statutory definition of a "new motor vehicle," it necessarily follows that a glider engine is not a "new motor vehicle engine" within the meaning of CAA section 216(3). Under that provision, a motor vehicle engine is deemed to be "new" in either of two circumstances: (1) The engine is "in a new motor vehicle," or (2) the "equitable or legal title" to the engine has "never been transferred to the ultimate purchaser." The second of these circumstances can never apply to a glider engine, which is invariably an engine that has been previously owned.

As to the first circumstance, a glider engine is installed in a glider kit, which in itself is not a "motor vehicle." A glider kit becomes a "motor vehicle" only after an engine (and the balance of the powertrain) has been installed. But while adding a previously owned engine to a glider kit may result in the creation of a "motor vehicle," the assertion that the previously owned engine thereby becomes a "*new* motor vehicle engine" within the meaning of CAA section 216(3), due to the engine's now being in a "new motor vehicle," reflects circular thinking. It presupposes that the installation of a (previously owned) engine in a glider kit creates not just a "motor vehicle" but a "new motor vehicle." EPA is proposing to interpret the relevant statutory language in a manner that rejects the Agency's prior reliance on the view that (1) installing a previously owned engine in a glider kit transforms the glider kit into a "new motor vehicle," and (2) that, thereafter, the subsequent presence of that previously owned engine in the supposed "new motor vehicle" transforms that engine into a "new motor vehicle engine" within the meaning of CAA section 216(3).

3. Glider Kits

Under EPA's proposed interpretation, EPA would have no authority to regulate glider kits under CAA section 202(a)(1). If glider vehicles are not "new motor vehicles," which is the interpretation of CAA section 216(3) that EPA is proposing here, then the Agency lacks authority to regulate glider kits as "incomplete" new motor vehicles. Further, given that a glider kit lacks a powertrain, a glider kit does not explicitly meet the definition of "motor vehicle," which, in relevant part, is defined to mean "any *self-propelled* vehicle." 42 U.S.C. 7550(2) (emphasis added). It is not obvious that a vehicle without a motor could constitute a "motor vehicle."

4. Issues for Which EPA Seeks Comment

EPA believes that its proposed interpretation is the most reasonable reading of the relevant statutory language, and that its proposed determination, based on this interpretation, that regulation of glider vehicles, glider engines, and glider kits is not authorized by CAA section 202(a)(1) is also reasonable. EPA seeks comment on this interpretation.

Comments submitted in the Phase 2 rulemaking docket lead EPA to believe that a glider vehicle is often a suitable option for those small businesses and independent operators who cannot afford to purchase a new vehicle, but

[17] The legislative history of both the 1967 AQA and 1977 CAAA is silent with respect to the origin of Title II's definitions of "new motor vehicle," "new motor vehicle engine," "ultimate purchaser," and "manufacturer," which further underscores that Congress had originally derived those definitions from the Disclosure Act.

[18] *See* footnote 3, *supra*.

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who wish to replace an older vehicle with a vehicle that is equipped with up-to-date safety features. EPA solicits comment and further information as to this issue. EPA also solicits comment and information on whether limiting the availability of glider vehicles could result in older, less safe, more-polluting trucks remaining on the road that much longer. EPA particularly seeks information and analysis addressing the question whether glider vehicles produce significantly fewer emissions overall compared to the older trucks they would replace.

EPA also seeks comment on the matter of the anticipated purchasing behavior on the part of the smaller trucking operations and independent drivers if the regulatory provisions at issue were to repealed. Further, EPA seeks comment on the relative expected emissions impacts if the regulatory requirements at issue here were to be repealed or were to be left in place.

Finally, EPA seeks comment on whether, if the Agency were to determine not to adopt the interpretation of CAA sections 202(a)(1) and 216(3) being proposed here, EPA should nevertheless revise the "interim provisions" of Phase 2 rule, 40 CFR 1037.150(t)(1)(ii), to increase the exemption available for small manufacturers above the current limit of 300 glider vehicles per year. EPA seeks input on how large an increase would be reasonable, were the Agency to increase the limit in taking final action. Further, EPA seeks comment on whether, if the Agency were to determine not to adopt the statutory interpretation being proposed here, EPA should nevertheless extend by some period of time the date for compliance for glider vehicles, glider engines, and glider kits set forth in 40 CFR 1037.635. EPA seeks comment on what would be a reasonable extension of the compliance date.

B. Conclusion

EPA has a fundamental obligation to ensure that the regulatory actions it takes are authorized by Congress, and that the standards and requirements that it would impose on the regulatory community have a sound and reasonable basis in law. EPA is now proposing to find that the most reasonable reading of the relevant provisions of the CAA, including CAA sections 202(a)(1), 216(2), and 216(3) is that glider vehicles should not be regulated as "new motor vehicles," that glider engines should not be regulated as "new motor vehicle engines," and that glider kits should not be regulated as "incomplete" new motor vehicles. Based on this proposed interpretation, EPA is proposing to repeal those provisions of the Phase 2 rule applicable to glider vehicles, glider engines, and glider kits.

IV. Public Participation

We request comment by January 5, 2018 on all aspects of this proposal. This section describes how you can participate in this process.

Materials related to the Heavy-Duty Phase 2 rulemaking are available in the public docket noted above and at: *https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.*

1. How do I prepare and submit information?

Direct your submittals to Docket ID No. EPA–HQ–OAR–2014–0827. EPA's policy is that all submittals received will be included in the public docket without change and may be made available online at *www.regulations.gov*, including any personal information provided, unless the submittal includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute.

Do not submit information to the docket that you consider to be CBI or otherwise protected through *www.regulations.gov*. The *www.regulations.gov* Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your submittal. If you submit an electronic submittal, EPA recommends that you include your name and other contact information in the body of your submittal and with any disk or CD–ROM you submit. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket visit the EPA Docket Center homepage at *http://www.epa.gov/epahome/dockets.htm.*

EPA will hold a public hearing on the date and at the location stated in the **DATES** Section. To attend the hearing, individuals will need to show appropriate ID to enter the building. The hearing will start at 10:00 a.m. local time and continue until everyone has had a chance to speak. More details concerning the hearing can be found at *https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks.*

2. Submitting CBI

Do not submit this information to EPA through *www.regulations.gov* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD–ROM that you mail to EPA, mark the outside of the disk or CD–ROM as CBI and then identify electronically within the disk or CD–ROM the specific information that is claimed as CBI). In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

3. Tips for Preparing Your Comments

When submitting comments, remember to:

- Identify the action by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified in the **DATES** section above.

V. Statutory and Executive Order Reviews

(1) Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket.

(2) Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is expected to be an Executive Order 13771 deregulatory action. This proposed rule is expected

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to provide meaningful burden reduction by eliminating regulatory requirements for glider manufacturers.

(3) Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA because it does not contain any information collection activities. It would only eliminate regulatory requirements for glider manufacturers.

(4) Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden, or otherwise has a positive economic effect on the small entities subject to the rule. Small glider manufacturers would be allowed to produce glider vehicles without meeting new motor vehicle emission standards. We have therefore concluded that this action will have no adverse regulatory impact for any directly regulated small entities.

(5) Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments.

(6) Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

(7) Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. This proposed rule will be implemented at the Federal level and affects glider manufacturers. Thus, Executive Order 13175 does not apply to this action.

(8) Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not an economically significant regulatory action as defined by Executive Order 12866. However, the Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits was anticipated to lower ambient concentrations of $PM_{2.5}$ and some of the benefits of reducing these pollutants may have accrued to children. Our evaluation of the environmental health or safety effects of these risks on children is presented in Section XIV.H. of the HD Phase 2 Rule.[19] Some of the benefits for children's health as described in that analysis would be lost as a result of this action.

In general, current expectations about future emissions of pollution from these trucks is difficult to forecast given uncertainties in future technologies, fuel prices, and the demand for trucking. Furthermore, the proposed action does not affect the level of public health and environmental protection already being provided by existing NAAQS and other mechanisms in the CAA. This proposed action does not affect applicable local, state, or federal permitting or air quality management programs that will continue to address areas with degraded air quality and maintain the air quality in areas meeting current standards. Areas that need to reduce criteria air pollution to meet the NAAQS will still need to rely on control strategies to reduce emissions. To the extent that states use other mechanisms in order to comply with the NAAQS, and still achieve the criteria pollution reductions that would have occurred under the CPP, this proposed rescission will not have a disproportionate adverse effect on children's health.

(9) Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

(10) National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

[19] 81 FR 73478 (October 25, 2016).

(11) Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations, and Low-Income Populations

Pursuant to Executive Order 12898 (59 FR 7629, February 16, 1994), EPA considered environmental justice concerns of the final HD Phase 2 rule. EPA's evaluation of human health and environmental effects on minority, low-income or indigenous populations for the final HD Phase 2 rule is presented in the Preamble, Section VIII.A.8 and 9 (81 FR 73844–7, October 25, 2016). We have not evaluated the impacts on minority, low-income or indigenous populations that may occur as a result of the proposed action to rescind emissions requirements for heavy-duty glider vehicles and engines. EPA likewise has not considered the economic and employment impacts of this rule specifically as they relate to or might impact minority, low-income and indigenous populations.

List of Subjects in 40 CFR Parts 1037 and 1068

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Labeling, Motor vehicle pollution, Reporting and recordkeeping requirements, Warranties.

Dated: November 9, 2017.

E. Scott Pruitt,

Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is proposed to be amended as set forth below.

PART 1037—CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES

■ 1. The authority for part 1037 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

Subpart B—[Amended]

■ 2. Section 1037.150 is amended by removing and reserving paragraph (t) as follows:

§ 1037.150 Interim provisions.

* * * * *

(t) [Reserved]

* * * * *

Subpart G—[Amended]

§ 1037.635 [Removed]

■ 3. Section 1037.635 is removed.

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Subpart I—[Amended]

■ 4. Section 1037.801 is amended by removing the definitions "glider kit" and "glider vehicle" and revising the definitions of "manufacturer" and "new motor vehicle" to read as follows:

§ 1037.801 Definitions.

* * * * *

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures or assembles a vehicle (including a trailer or another incomplete vehicle) for sale in the United States or otherwise introduces a new motor vehicle into commerce in the United States. This includes importers who import vehicles for resale.

* * * * *

New motor vehicle has the meaning given in the Act. It generally means a motor vehicle meeting the criteria of either paragraph (1) or (2) of this definition. New motor vehicles may be complete or incomplete.

(1) A motor vehicle for which the ultimate purchaser has never received the equitable or legal title is a new motor vehicle. This kind of vehicle might commonly be thought of as "brand new" although a new motor vehicle may include previously used parts. Under this definition, the vehicle is new from the time it is produced until the ultimate purchaser receives the title or places it into service, whichever comes first.

(2) An imported heavy-duty motor vehicle originally produced after the 1969 model year is a new motor vehicle.

* * * * *

PART 1068—GENERAL COMPLIANCE PROVISIONS FOR HIGHWAY, STATIONARY, AND NONROAD PROGRAMS

■ 5. The authority for part 1068 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

Subpart B—[Amended]

■ 6. Section 1068.120 is amended by revising paragraph (f)(5) to read as follows:

§ 1068.120 Requirements for rebuilding engines.

* * * * *

(f) * * *

(5) The standard-setting part may apply further restrictions to situations involving installation of used engines to repower equipment.

* * * * *

[FR Doc. 2017–24884 Filed 11–15–17; 8:45 am]

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Office of the President

TENNESSEE TECH

February 19, 2018

The Honorable Diane Black
1131 Longworth HOB
Washington, DC 20515

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Congressman Black:

Please be advised that regarding the "Environmental & Economic Study of Glider Kit Assemblers" report, knowledgeable experts within the University have questioned the methodology and accuracy of the report. Therefore, Tennessee Tech University is actively pursuing a peer review of the report and supporting data to assure its validity. The University also is investigating an allegation of research misconduct related to the study. We request that you withhold any use or reference to said study pending the conclusion of our internal investigations.

We sincerely regret any inconvenience this imposes, but our aim is to ensure the absolute integrity and objectivity of any scholarly product of Tennessee Tech. We anticipate a timely and thorough review following which we will inform you of the outcome. Thank you for your assistance and patience as we work through the concerns raised.

Sincerely,

Philip B. Oldham

PBO/ds

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

Office of the President

TENNESSEE TECH

February 19, 2018

Mr. Tommy C. Fitzgerald
Fitzgerald Glider Kits
575 Technology Dr.
Sparta, TN 38583

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

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Sincerely,

Philip B. Oldham

PBO/ds

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 5/15/2018 7:51:31 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: Pending Actions for Hearing
Attachments: Pending-Issues-OAQPS-for-SAC states 15May2018.docx

Ryan,
Attached is a document that lists out pending actions in states with Senators on the Approps Committee. We've already covered bigger issues that could come up with SP. Others items included in the document are 'in the weeds' and not likely to come up, but want to pass this info along. Let me know if you have any questions.
Mandy

Mandy M. Gunasekara
Principal Deputy Assistant Administrator
Office of Air and Radiation
US Environmental Protection Agency

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 2/15/2018 8:38:07 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Headlines of Interest

- Senate EPW Minority, 2/14/18: Carper, Whitehouse Send New Internal EPA Documents to GAO as Federal Watchdog Reviews EPA's Efforts to Change Federal Advisory Board Nominations Process
- Science, 2/16/18: The changing face of urban air pollution
- Science, 2/16/18: Volatile chemical products emerging as largest petrochemical source of urban organic emissions
- Science, 2/15/18: Paints, pesticides, and other consumer products now add as much to air pollution as cars
- AP/Chicago Tribune/The Conversation, 2/14/18: Air pollution from industrial shutdowns and startups worse than thought
- Inside EPA, 2/13/18: Study touting low emissions from 'glider' trucks under investigation
- E&E News PM, 2/14/18: AIR POLLUTION: EPA drops proposed rule on implementing 2015 ozone standard
- Climatewire, 2/15/18: WHITE HOUSE: The president's climate guy is out. Will Trump find another?
- Politico, 2/14/18: Third White House official resigns after being told he wouldn't qualify for full clearance: National Economic Council official George David Banks departed amid increasing scrutiny of the Trump administration's decision to let multiple staffers work on interim clearances
- Biomass Magazine, 2/14/18: Pruitt commits to creating regulatory certainty for biomass
- Inside EPA, 2/15/18: EPA withdraws ozone NAAQS 'classifications' rule
- Inside EPA, 2/15/18: Critics Say Pruitt NSR Relief Memo Stymies Enforcement, 'Coerces' States
- All 4, Inc., 2/15/18: House New Source Review Reform Hearing: Can We Make Progress?
  The Oregonian, 2/14/18: Cancer risk doubles in industry-backed toxic air plan for Oregon
- MasterResource, 2/14/18: Beware EPA 'Social Cost of Carbon' Models
- Greenwire, 2/15/18: AIR POLLUTION: All states must track 'excess emissions' — study
- E&E Daily, 2/15/18: AIR POLLUTION: New Source Review hearing reignites old divisions
- E&E Daily, 2/15/18: APPROPRIATIONS: Negotiators nearing deal on spending levels
- Environmental Integrity Project, 2/15/18: Civil Penalties Against Polluters Drop by Half During First Year of Trump Administration
- Environmental Progress, 2/12/18: Electricity prices in California rose three times more in 2017 than they did in the rest of the United States
- Energywire, 2/14/18: METHANE: BLM rule revisions gut Obama-era guidance
- Inside EPA, 2/14/18: Oil, ethanol groups urge EPA to reject RFS waivers
- Inside EPA, 2/14/18: House lawmakers prepare for NSR 'reform' debate
- Inside EPA, 2/14/18: Pruitt Moves To Find Biomass Carbon Neutral, Despite Ongoing SAB Work
- U.S. Chamber, 2/13/18: EIA's Annual Energy Outlook 2018—The Ups & Downs
- Fred Lipfert, Dose-Response, Jan-March 2018: Letter to the Editor Re: Enstrom JE. Fine particulate and total mortality in Cancer Prevention Study cohort reanalysis.

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 2/15/2018 12:31:53 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Pretty tepid stuff

https://www.nytimes.com/2018/02/15/us/politics/epa-pollution-loophole-glider-trucks.html

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 3/3/2018 12:24:45 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: "Give me a place to stand on, and I can move the earth." -- Archimedes, on the power of the lever, as quoted by Pappas of Alexandria c. AD 340
Attachments: NAE.docx

A place to stand, a template, whatever. In my experience, all a person really needs, in most instances, is just some form of template.

Of course, this is all pretty much top-of-the-head stuff at this point.

Anyway, that's way more than enough damage for one day/one week. So have a good weekend, guys.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

Message

From: Erin Murphy [emurphy@edf.org]
Sent: 2/14/2018 3:42:09 PM
To: Pruitt, Scott [Pruitt.Scott@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]; Moulis, Charles [moulis.charles@epa.gov]; spears.matthew@epa.gov; A-AND-R-DOCKET [A-AND-R-DOCKET@epa.gov]
Subject: EDF Supplemental Comment on Gliders Proposal, Docket ID EPA–HQ–OAR–2014–0827
Attachments: EDF Supplemental Comment on Gliders Proposed Repeal 2.14.2018.pdf

Attn: Docket ID EPA–HQ–OAR–2014–0827

Attached is a supplemental comment of the Environmental Defense Fund, regarding EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017).

Sincerely,

Erin Murphy
Legal Fellow
U.S. Climate Legal and Regulatory Program

Environmental Defense Fund
1875 Connecticut Ave NW
Washington, DC 20010
T 202 572 3525
emurphy@edf.org

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February 14, 2018

VIA ELECTRONIC SUBMISSION

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Attn: EPA-HQ-OAR-2014-0827

RE: Supplemental Comment of Environmental Defense Fund on the Environmental Protection Agency's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017)

The Environmental Defense Fund ("EDF") respectfully submits this supplemental comment on the Environmental Protection Agency's ("EPA") Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017) ("Proposed Rule"), addressing provisions contained in the agency's 2016 final rule, *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2*, 81 Fed. Reg. 73,478 (October 25, 2016) ("Phase 2 Standards"). Emerging information regarding possible research misconduct related to a study cited in the Proposed Rule raise further concerns regarding this deeply harmful rulemaking. We accordingly call upon EPA to withdraw its flawed proposal, or, at minimum, the agency should not take any further action on the proposal until it has thoroughly investigated the circumstances explained herein.

EPA's Proposed Rule cites to a study[1] performed by Tennessee Technological University ("TTU") and funded by Fitzgerald Glider Kits.[2] According to a summary document, the TTU

[1] U.S. EPA, Proposed Rule: *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442, 53,444 (Nov. 16, 2017).
[2] Tenn. Tech. University Office of Research, Tennessee Technological University Annual Report 2015-16 (Volume 2) 42 (2016), *available at* https://www.tntech.edu/assets/userfiles/resourcefiles/13847/1476976572_2015-16%20Annual%20Report_FINAL.pdf; Tenn. Tech. University, Grants Rewarded Report (09/01/2016 – 09/30/2016), *available at* https://www.tntech.edu/assets/userfiles/resourcefiles/9512/1481215150_Grants%20Awarded%20Sept%202016.pdf;

study—conducted by Associate Vice President of Research Tom Brewer at a Fitzgerald facility—purported to conclude that remanufactured glider engines performed equally as well or outperformed modern engines with regard to pollutant emissions.[3] These results are at odds with both recent EPA testing of glider vehicles and emission factors for the model year diesel engines that glider vehicles use, which show that uncontrolled glider vehicles have nitrogen oxide and particulate matter pollution emissions numerous times that of other new freight trucks.[4]

EPA explicitly discussed the TTU study and summarized the study's conclusions, without critical assessment, in its Proposed Rule to repeal emission requirements for glider vehicles.[5] The Proposed Rule did not cite to any other analyses purporting to address the proposal's health or environmental impacts.[6]

The Herald-Citizen, a Tennessee newspaper covering the region where Tennessee Technological University and Fitzgerald Glider Kits are located, reported on February 11, 2018, that TTU has begun an official investigation into its glider vehicles study.[7] As noted in the article, a January 30, 2018 resolution adopted by TTU's Faculty Senate recommends that the university withdraw its support of the study and "[s]uspend all present research activities and other associations with Fitzgerald."[8] TTU President Philip Oldham has responded by letter, stating that he has initiated an investigation under TTU's "Misconduct in Research" policies and an "external peer review of the research," and that activities related to the Fitzgerald-sponsored research had already been suspended.[9]

TTU's decision to investigate possible research misconduct related to the glider vehicle study and to seek peer review of the study is significant.[10] The decision indicates that the University's

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Tenn. Tech. University, Academic Affairs Highlights 25 (2017), available at https://www.tntech.edu/assets/usermedia/provost/12546/2017_End_of_the_Year_Statement.pdf.

[3] July 10, 2017 Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 Final Rule" to Gliders, from Fitzgerald Glider Kits, LLC; Harrison Truck Centers, Inc.; and Indiana Phoenix, Inc. (July 10, 2017), EPA–HQ–OAR–2014–0827, Exhibit 1, *available at* https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.

[4] U.S. EPA, Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles (Nov. 20, 2017), Docket No. EPA-HQ-OAR-2014-0827-2417, *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417; EPA Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2, Response to Comments for Joint Rulemaking, at 1960-68, 1965, Appendix A (Aug. 2016), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF.

[5] 82 Fed. Reg. at 53,444 (Nov. 16, 2017).

[6] *See id.*

[7] Kate Cook, *TTU investigating Fitzgerald study*, HERALD-CITIZEN (Feb. 11, 2018), http://herald-citizen.com/stories/ttu-investigating-fitzgerald-study,25943.

[8] Tennessee Tech University Faculty Senate, Resolution on Fitzgerald Research Study (Jan. 30, 2018), *available at* https://www.tntech.edu/assets/usermedia/facultysenate/minutes-and-notes-2017-2018/Resolution_on_Fitzgerald_Study_1-30-2018.pdf.

[9] Letter, TTU President Philip B. Oldham to Dr. Christy Killman, TTU Faculty Senate President (Feb. 1, 2018).

[10] *See id.*

President and Faculty Senate have concerns regarding the integrity of the research.[11] EDF raised related concerns about the TTU glider vehicles study in a comment on EPA's Proposed Rule submitted jointly with the Environmental Law and Policy Center and WE ACT for Environmental Justice.[12]

These developments provide further reason why, as our earlier comments urged, EPA must withdraw its flawed repeal proposal. At a minimum, in light of these developments, and EPA's inclusion of the TTU study in its proposal, it would be inappropriate for the agency to take any action on the Proposed Rule until the facts and circumstances surrounding the study are fully understood.

Sincerely,

Alice Henderson
Erin Murphy
Martha Roberts

Environmental Defense Fund
1875 Connecticut Ave., NW
Suite 600
Washington, DC 20009
(202) 387-3500

[11] Tennessee Tech University Faculty Senate, Resolution on Fitzgerald Research Study (Jan. 30, 2018), *available at* https://www.tntech.edu/assets/usermedia/facultysenate/minutes-and-notes-2017-2018/Resolution_on_Fitzgerald_Study_1-30-2018.pdf; Letter, TTU President Philip B. Oldham to Dr. Christy Killman, TTU Faculty Senate President (Feb. 1, 2018); *see also* Kate Cook, *TTU investigating Fitzgerald study*, HERALD-CITIZEN (Feb. 11, 2018), http://herald-citizen.com/stories/ttu-investigating-fitzgerald-study,25943 (stating that TTU has "suspended ties" with Fitzgerald due to the investigation).

[12] Comment of EDF, ELPC, & WE ACT for Environmental Justice on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 10, 2018), at Part I (f), *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861.

APPENDIX

Contents:

1. Letter, TTU President Philip B. Oldham to Dr. Christy Killman, TTU Faculty Senate President (Feb. 1, 2018)
2. Tennessee Tech University Faculty Senate, Resolution on Fitzgerald Research Study (Jan. 30, 2018)
3. Article: Kate Cook, *TTU investigating Fitzgerald study*, HERALD-CITIZEN (Feb. 11, 2018)

Office of the President

TENNESSEE TECH

February 1, 2018

Dr. Christy Killman
President, TTU Faculty Senate
Campus Box 5043
Cookeville, TN 38505

Dear Dr. Killman:

Thank you for documenting the Faculty Senate's concerns about the Fitzgerald Glider Kit research in your email on January 30. I certainly share your desire to ensure the academic research integrity of the university along with our reputation as an honest broker of knowledge. To that end, it is important that we strictly follow established university policy and provide everyone with fair and appropriate due process.

Therefore, in response to your resolution I am sharing the actions currently being taken regarding the issue.

An allegation has been received, and I have initiated the processes called for in Tennessee Tech Policy 780, Misconduct in Research. Dr. Sharon Huo has accepted the appointment as the Research Integrity Officer. She will assist the inquiry and investigation committees and institutional personnel in order to assure compliance with policy procedures.

In addition to the inquiry and investigation described in the research misconduct policy, I have asked that an external peer review of the research itself be conducted concurrently. I do not anticipate any university statements being made during the inquiry, investigation, and peer review processes.

In regards to employee suspensions and in accordance with TTU policy 650, Tennessee Tech follows an investigative due process prior to any corrective action. Tennessee Tech does not take disciplinary action lightly and has set a precedent to utilize disciplinary

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

EPA-HQ-2019-30664

administrative absences (i.e. suspensions) in situations that involve tangible safety or security concerns.

Prior to receiving your resolution, activities related to the sponsored research project referenced in the allegation already had been suspended pending completion of the process described in the policy.

Dr. Huo will be in contact with you soon regarding your role within Policy 780.

Sincerely,

Philip B. Oldham
President

PBO/ds

cc: Dr. Tom Brewer
Dr. Darrell Hoy
Mr. Tom Jones
Dr. Ben Mohr
Dr. Bharat Soni

ED_002386B_00002530-00006

Faculty Senate Resolution on Fitzgerald Study

Whereas our reputation and integrity as an institution and, by extension, the faculty, staff and students, are two of the most valuable assets of the University;

Whereas our reputation has recently been damaged because of a study funded by Fitzgerald Glider Kits and used to influence Federal Policy; therefore, be it

Resolved, that the University President should immediately intervene to protect the solid and excellent research reputation of the University by the following recommended and responsible actions:

1. Suspend Tom Brewer, Associate Vice President of Research from all University activities pending the results of an independent investigation headed by an external investigator according to University Policy 780;

2. Issue a letter, signed by the President, withdrawing all Tennessee Tech support from the study, pending the results of the aforementioned investigation;

3. Suspend all present research activities and other associations with Fitzgerald, pending the results of the investigation;

4. Confirm within 5 working days of the passing of this resolution the successful formation of the impartial investigatory committee under University Policy 780, led by an independent external investigator, to the Tennessee Tech Faculty Senate President and Board of Trustees;

5. Include a review by the investigatory committee of the actions, responsibilities and involvement of the Vice President of Research and Economic Development and the Associate Vice President for Research.

Mover: Senator Holly Stretz
Seconder: Senator Ahmed ElSawy

Approved by Faculty Senate vote on January 30, 2018.

You have **3 free items** remaining before a subscription is required. Subscribe now! (/subscribe/?town_id=0)

TTU investigating Fitzgerald study

Posted Sunday, February 11, 2018

BY KATE COOK

Tennessee Tech has begun an official investigation and suspended ties with a local company after a scientific study came under fire.

The study was conducted by Tom Brewer, TTU's Associate Vice President of Research, and an unnamed graduate student from September to November 2016.

Basically, Brewer and the graduate student determined that trucks outfitted with glider kits, like those made by Fitzgerald Glider Kits, are as clean as new truck engines and may be cleaner.

Brewer and TTU President Phil Oldham announced the results in a letter to Rep. Diane Black in June 2017.

Fitzgerald Glider Kits paid for the study. Last August, Fitzgerald, TTU and TCAT Livingston announced it had created a partnership called the "Center for Intelligent Mobility" to be located at Fitzgerald's technology complex in White County.

Since that time, a host of groups have examined the study. Letters from retired professors and groups like the Environmental Defense Fund (EDF) state the EPA used the study as evidence to suspend a key emissions rule. Those same documents state the study wasn't carried out properly and is incorrect.

A letter from the EDF to EPA Administrator Scott Pruitt stated "any reliance on this study would constitute legal error."

On Jan. 30, Faculty Senate President Dr. Christy Killman sent Oldham a resolution asking him to immediately suspend Brewer and all present research activities and associations with Fitzgerald, pending the outcome of an investigation.

Two days later, Oldham responded in a letter, stating he has "initiated the processes called for in Tennessee Tech Policy 780, Misconduct in Research." The Research Integrity Officer will be Dr. Sharon Huo.

Oldham said he's also asked for a peer review of the Fitzgerald Glider Kit study. The letter states Tech policy requires the investigation to proceed then "corrective action" be taken. Oldham also said Tech had suspended activities with Fitzgerald.

TTU Chief Communication Officer Karen Lykins sent the following statement for this story:

"Tennessee Tech's integrity and ability to conduct research is critical to our mission and service to the state.

We take any and all allegations of research misconduct seriously and have a policy in place that guides any inquiry or investigation. The policy affords all complainants, respondents, and witnesses the broadest opportunity for confidentiality consistent with federal and state laws.

The federal government requires a policy and procedures for such matters as a part of the process to apply for federal assistance to conduct research projects. Tennessee Tech has chosen to go beyond this requirement and to adopt a broader policy that applies to all university research, not just those receiving federal funding. Tech's policy outlines the procedures and faculty's involvement in the process."

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Message

From: Dominguez, Alexander [dominguez.alexander@epa.gov]
Sent: 2/26/2018 6:44:10 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]; Konkus, John [konkus.john@epa.gov]; Block, Molly [block.molly@epa.gov]; Letendre, Daisy [letendre.daisy@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: FW: annual report
Attachments: DRAFT Formatted Year in Review 2.25.18_OAR compiled edits.docx

Attached for your consideration is OAR's suggested edits (p 5-9).

Alex Dominguez
Policy Analyst to the Principal Deputy
Office of Air and Radiation
U.S. Environmental Protection Agency

From: Gunasekara, Mandy
Sent: Monday, February 26, 2018 12:15 AM
To: Clint Woods <cwoods@csg.org>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Harlow, David <harlow.david@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: RE: annual report

Attached are first round edits for the air portion of the draft report. Please review and let me know your thoughts.

Deliberative Process / Ex. 5

From: Jackson, Ryan
Sent: Sunday, February 25, 2018 1:37 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Ross, David P <ross.davidp@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>; Greenwalt, Sarah <greenwalt.sarah@epa.gov>; Leopold, Matt <Leopold.Matt@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>; Bodine, Susan <bodine.susan@epa.gov>; Traylor, Patrick <traylor.patrick@epa.gov>; Bowman, Liz <Bowman.Liz@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Letendre, Daisy <letendre.daisy@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Kelly, Albert <kelly.albert@epa.gov>; Konkus, John <konkus.john@epa.gov>; Block, Molly <block.molly@epa.gov>
Subject: annual report

All – the OPA has done an outstanding job putting together a report to highlight items from this past year. I would like to release this by posting to our website. Can you look through your sections to ensure we've characterized your issues is the most correct way?

Much appreciated to Daisy, John, and ultimately Molly Block who did the final formatting and applied the layman's test to the text to ensure it's understandable.

Really nice work.

Ryan Jackson
Chief of Staff
U.S. Environmental Protection Agency
Personal Phone / Ex. 6

Faculty Senate Resolution on Fitzgerald Research Study

Whereas our reputation and integrity as an institution and, by extension, the faculty, staff and students, are two of the most valuable assets of the University;

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2. Issue a letter, signed by the President, withdrawing all Tennessee Tech support from the study, pending the results of the aforementioned investigation;

3. Suspend all present research activities and other associations with Fitzgerald, pending the results of the investigation;

4. Confirm within 5 working days of the passing of this resolution the successful formation of the impartial investigatory committee under University Policy 780, led by an independent external investigator, to the Tennessee Tech Faculty Senate President and Board of Trustees;

5. Include a review by the investigatory committee of the actions, responsibilities and involvement of the Vice President of Research and Economic Development and the Associate Vice President for Research.

Motion by Senator Holly Stretz
Seconded by Senator Ahmed ElSawy

Approved by Faculty Senate vote on January 30, 2018.

Message

From: Shoaff, John [Shoaff.John@epa.gov]
Sent: 5/14/2018 8:39:51 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
CC: Lubetsky, Jonathan [Lubetsky.Jonathan@epa.gov]
Subject: FYI: Spring 2018 Semiannual Agenda available
Attachments: Updated: RSC Distribution: Tiering - May 2018 Tiering List due May 17; EPA_Spring_2018_published.xlsx; EPA_OAR_Spring_2018_Published_Reg_Agenda.xlsx

All,

FYI – Believe this has been making its way around, but just to be sure, wanted to pass along info that the **Spring 2018 Semiannual Reg Agenda** was released from OMB late last week, see notes below from Wanda and OP, including links of potential interest at end.

The **first spreadsheet** attached contains the **full EPA agenda** (RIN with link to details, office, stage of rulemaking, title, publication, new, tier and economic significance) with OAR items included at the following rows:

- Rows 28 through 102: Prerule, Proposed, and Final actions
- Rows 155-174: Long-Term actions
- Rows 192-211: Completed actions

(Note that the second tab, pending inactive Spr-2018, is internal info that is not on the agenda).

The **second spreadsheet** is a subset of the first extracting **OAR actions** with tabs for each of the main groupings of rule stages, e.g.,

- Prerule & Proposed
- Final Rule Stage
- Long-term actions &
- Completed

Thanks.

John

JOHN SHOAFF | DIRECTOR
OFFICE OF AIR POLICY & PROGRAM SUPPORT (OAPPS)
OFFICE OF AIR & RADIATION | U.S. EPA | WJC NORTH 5442-B
1200 PENNSYLVANIA AVE. NW | MC 6103A | WASHINGTON, D.C. | 20460 | USA
Shoaff.john@epa.gov | **1-202-564-0531 DIRECT | 1-202-257-1755 MOBILE**

From: Farrar, Wanda
Sent: Friday, May 11, 2018 6:35 AM
To: Brown, Kelly <Brown.Kelly@epa.gov>; Chappell, Regina <Chappell.Regina@epa.gov>; Childers, Pat <Childers.Pat@epa.gov>; Clarke, Deirdre <clarke.deirdre@epa.gov>; Eagles, Tom <Eagles.Tom@epa.gov>; Eck, Janet <Eck.Janet@epa.gov>; Edwards, Chebryll <Edwards.Chebryll@epa.gov>; Henigin, Mary <Henigin.Mary@epa.gov>; Hockstad, Leif <Hockstad.Leif@epa.gov>; Iglesias, Amber <Iglesias.Amber@epa.gov>; Krieger, Jackie

<Krieger.Jackie@epa.gov>; Lee, Raymond <Lee.Raymond@epa.gov>; Long, Pam <Long.Pam@epa.gov>; Mcquilkin, Wendy <Mcquilkin.Wendy@epa.gov>; Morgan, Ruthw <morgan.ruthw@epa.gov>; Rush, Alan <Rush.Alan@epa.gov>; Saltman, Tamara <Saltman.Tamara@epa.gov>; Scoville, Pat <Scoville.Pat@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>; Wilson, Holly <Wilson.Holly@epa.gov>; Wood, Anna <Wood.Anna@epa.gov>; Wright, Rhonda <Wright.Rhonda@epa.gov>; Deck, Leland <Deck.Leland@epa.gov>; DeMocker, Jim <DeMocker.Jim@epa.gov>; Ferland, Henry <Ferland.Henry@epa.gov>; Jefferson, Catrice <Jefferson.Catrice@epa.gov>; Lubetsky, Jonathan <Lubetsky.Jonathan@epa.gov>; Mazza, Carl <Mazza.Carl@epa.gov>; Morris, Joseph <Morris.Joseph@epa.gov>; Mroz, Jessica <mroz.jessica@epa.gov>; Reddick, Lorraine <Reddick.Lorraine@epa.gov>; Resendez, Mary <Resendez.Mary@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>; Whitehurst, Shanika <whitehurst.shanika@epa.gov>
Subject: FW: Spring 2018 Semiannual Agenda available

Good Day!

We've received Spring 2018 Semiannual Agenda information from OP (see below).

From the desk of:
Wanda Farrar

From: Muellerleile, Caryn
Subject: Spring 2018 Semiannual Agenda available

The spring 2018 agenda of regulatory and deregulatory actions and regulatory plan has been released by OMB. I've included several links of interest below, but most importantly, you will want to look at the compiled Excel spreadsheet (attached) since it includes all of EPA's actions in one location, in addition to some other key information, such as the tier level and whether the action is new. All actions that are not "inactive" or "pending" include a live hyperlink to view the spring agenda entry – please query this list before contacting me about where an action is available online. I also highly encourage you to use the "Advanced Search" function at reginfo.gov to seek certain attributes of EPA's entries, such as government levels impacted or small businesses.

EPA's May tiering is not yet completed so the attached spreadsheet contains proposed tier levels.

****

Online Agenda:
https://www.reginfo.gov/public/do/eAgendaMain

Regulatory Reform: Two-for-One and Regulatory Cost Caps
https://www.reginfo.gov/public/do/eAgendaEO13771

Press:
https://www.epa.gov/newsreleases/administrator-pruitt-advances-president-trumps-regulatory-reform-agenda-smart-sectors
https://www.whitehouse.gov/articles/advancing-responsible-regulatory-reform-deregulatory-agenda/

****

Caryn Muellerleile
Regulatory Management Division
Office of Policy
US Environmental Protection Agency
1200 Pennsylvania Ave NW (1803A)
Washington, DC 20460

(202) 564-2855
muellerleile.caryn@epa.gov

Message

From: Paul Miller [pmiller@nescaum.org]
Sent: 1/5/2018 7:03:22 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]
CC: Conroy, David [Conroy.Dave@epa.gov]; Ruvo, Richard [Ruvo.Richard@epa.gov]
Subject: NESCAUM comments on proposed repeal of glider emission requirements
Attachments: nescaum-comments-proposed-glider-kit-repeal-20180105.pdf

Please find attached comments submitted today by the Northeast States for Coordinated Air Use Management (NESCAUM) on EPA's proposed "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits." Thank you for your consideration of our comments and the concerns we have with the proposed repeal.

Sincerely,

Paul J. Miller, Deputy Director & Chief Scientist
Northeast States for Coordinated Air Use Management
89 South Street, Suite 602
Boston, MA 02111
Ph: 617-259-2016
Fax: 617-742-9162

NESCAUM
www.nescaum.org

Northeast States for Coordinated Air Use Management
89 South Street, Suite 602 Boston, MA 02111
Phone 617-259-2000 Fax 617-742-9162
Arthur N. Marin, Executive Director

January 5, 2018

Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Attention: Docket I.D. # EPA-HQ-OAR-2014-0827

Re: *Proposed Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*

Dear Administrator Pruitt:

The Northeast States for Coordinated Air Use Management (NESCAUM[1]) offer the following comments on the U.S. Environmental Protection Agency's (EPA's) proposed *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits* published on November 16, 2017 (82 Fed. Reg. 53442-53449). NESCAUM and our member states strongly oppose the proposed rulemaking because of the very serious harm to air quality and public health that will occur in our region if the glider kit loophole is re-opened. At its core, the proposed repeal is inconsistent with the Clean Air Act's primary purpose "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare."[2] We are further troubled by EPA's apparently uncritical acceptance of a deeply flawed technical study provided by glider vehicle manufacturers, and by its revised legal justification. There is no need to re-open this loophole, and the technical and legal arguments to support the proposed repeal fail to withstand scrutiny.

In its 2016 Phase 2 rulemaking, EPA correctly recognized that while gliders have a legitimate use in those rare cases where a powertrain can be salvaged from a wrecked vehicle, they have increasingly been marketed and sold to new truck buyers as a way to avoid nitrogen oxides (NOx) and particulate matter (PM) control requirements. We agree with EPA's original analysis, which found that these trucks constitute an unacceptably large source of excess NOx and PM emissions that have significant adverse impacts on air quality and public health.

The proposed repeal of emission requirements for gliders would substantially worsen air quality in the Northeast. Using EPA's own earlier projections,[3] we estimate the excess NOx emissions in

[1] NESCAUM is the regional association of state air pollution control agencies in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.
[2] 42 C.F.R. §7401(b)(1) (1990).
[3] US EPA. *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2: Response to Comments for Joint Rulemaking*, EPA-420-R-16-901 (Aug. 2016) (*see* Appendix A to Section 14, p. 1962).

NESCAUM Members:
Connecticut Bureau of Air Management, Anne Gobin
Maine Bureau of Air Quality Control, Marc Cone
Massachusetts Bureau of Air and Waste, Christine Kirby
New Hampshire Air Resources Division, Craig Wright
New Jersey Division of Air Quality, Francis Steitz
New York Division of Air Resources, Steve Flint
Rhode Island Office of Air Resources, Laura Grandchamp
Vermont Air Quality & Climate Division, Heidi Hales

2040 from these uncontrolled gliders would be almost 30 times higher than the 2015 emissions from all noncompliant Volkswagen cars,[4] and would be comparable to the entire 2018 NOx budget for fossil fuel power plants in the 22 states covered by the Cross-State Air Pollution Rule Update[5] (Table 1).

Table 1. Glider Vehicle NOx in Context

VW NOx Excess[4] (tons per year in 2015)	**CSAPR Update Power Plant NOx Cap[5]** (tons per ozone season starting 2018)	**Fleetwide Glider Vehicle NOx above Control Levels[3]** (tons per year in 2040)
11,200	313,626	318,615

It is not difficult to see why these impacts are so large. The effectiveness of advanced emission controls for NOx and PM has been exhaustively demonstrated.[6] Recent additional testing by both EPA[7] and the California Air Resources Board (CARB)[8] continues to demonstrate that trucks equipped with diesel particulate filters (DPFs) and selective catalytic reduction (SCR) systems emit far less pollution than glider trucks without this equipment.

Notably, there is no evidence that actually contradicts this basic fact in the technical study attached to the July 10, 2017 reconsideration petition from glider vehicle manufacturers and performed by researchers at Tennessee Tech. The information contained in the Tennessee Tech study provides no support for the notion that vehicles fitted with pre-2002 engines emit less NOx and PM pollution than vehicles with engines complying with the 2007/2010 standards. For PM emissions, the table of results from the Tennessee Tech study shown in Appendix A of the glider manufacturers' reconsideration petition indicates that PM emissions were "Below Threshold Detection Point" for all of the engines, without specifying what the detection limit is. Based on EPA's summary of its follow-up teleconference meeting with the Tennessee Tech researchers,[9]

---

[4] Based on NOx estimate in: S.R.H. Barrett *et al.*, Impact of the Volkswagen emissions control defeat device on US public health, *Envtl. Res. Lett.* **10** (2015) doi:10.1088/1748-9326/10/11/114005.

[5] 81 Fed. Reg. 74504-74650 (Oct. 26, 2016), Table 1.B-1.

[6] *See, e.g.,* US EPA 2001. *United States Environmental Protection Agency Air and Radiation EPA420-R-00-026 December 2000 Regulatory Impact Analysis: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*; California Air Resources Board 2001. *Staff Report: Initial Statement of Reasons Public Hearing to Consider Amendments Adopting More Stringent Emission Standards for 2007 and Subsequent Model Year New Heavy-Duty Diesel Engines.*

[7] US EPA National Vehicle & Fuel Emissions Laboratory, *Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles,* November 20, 2017. (https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417).

[8] California Air Resources Board, *Real-World Heavy-Duty Diesel Truck Emissions from Gliders in California,* December 27, 2017.

[9] US EPA Memorandum: *Teleconference with Tennessee Tech University Regarding Glider Test Report Summarized in June 2017 Letter; Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation*

the researchers acknowledged that they did not actually measure PM emissions beyond visual inspection of the sample probe. This is clearly an inadequate basis to draw any quantitative conclusion about relative PM emission impacts. Yet in their "Summary Chart of Phase 1 Test Results," the researchers state that for PM, "All vehicles met the standard." We urge EPA to explicitly clarify for the record the basis of the study's assertions, and to clearly indicate that it provides no evidence to support the suggestion that diesel engines with uncontrolled exhaust are as low-emitting in PM emissions as engines with modern emission controls.

Regarding NOx emissions, very little information is provided in the study as to the specific emissions output from each engine, their age, or condition of repair. We note, however, that the engine cited as having the lowest NOx output is a Detroit Diesel DD15, a modern engine first introduced in 2008 and designed to incorporate advanced emission controls for both PM and NOx. This engine is not at all typical for glider kit vehicles, which primarily use older, pre-2002 engines that lack DPF and SCR controls. As with our comment on the study's PM assertions, we urge EPA to clearly document for the record the lack of support the study provides for making any inference on the relative NOx emissions performance of glider kit engines relative to new engines equipped with modern NOx controls.

Continuing Air Quality Problems in the Northeast

The NESCAUM region, home to over 42 million people, is subject to episodes of poor air quality resulting from ground-level ozone and fine particle pollution. During severe events, the scale of the problem can extend beyond NESCAUM's borders and include over 200,000 square miles across the eastern United States. Local and regional sources as well as air pollution transported hundreds of miles from distant sources outside the region contribute to elevated ozone and fine particle concentrations in the region.

NOx emissions contribute to a number of adverse public health and environmental outcomes. NOx is the most egregious contributor to regional ozone concentrations and an important precursor to fine particulate matter formation. These two pollutants are responsible for tens of thousands of premature deaths, hospital admissions, and lost work and school days in the U.S. annually. NOx is also a key factor in a number of environmental problems that affect the Northeast. Table 2 summarizes the major adverse impacts of NOx emissions in the NESCAUM region.

---

of the Phase II Heavy Duty Truck Rule, November 13, 2017 (https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2416).

Table 2. Adverse Public Health and Environmental Impacts of NOx in the Northeast

Ozone and PM2.5	• Reduces lung function, aggravates asthma and other chronic lung diseases • Can cause permanent lung damage from repeated exposures • Contributes to premature death
Acid Deposition	• Damages forests • Damages aquatic ecosystems, e.g., Adirondacks and Great Northern Woods • Erodes manmade structures
Coastal Marine Eutrophication	• Depletes oxygen in the water, which suffocates fish and other aquatic life in bays and estuaries, e.g., Chesapeake Bay, Narragansett Bay, and Long Island Sound
Visibility Impairment	• Contributes to regional haze that mars vistas and views in urban and wilderness areas

Based on recent historical monitoring data, large parts of the Northeast region violate the recently strengthened 0.070 ppm 8-hour average ozone national ambient air quality standard (NAAQS). In addition, the CT-NJ-NY region continues to violate the older 0.075 ppm ozone NAAQS. The EPA's failure to meet statutory deadlines in designating nonattainment areas under the Clean Air Act and its persistent failure to fully address interstate ozone transport have been detrimental to the states' interests in protecting public health. The EPA now proposes to re-open a large loophole that will greatly increase NOx emissions from highway trucks, the largest source sector of NOx emissions in the northeast region.[10] Should this repeal be finalized, the states will be burdened in offsetting these excess emissions, and at potentially much higher costs, for decades to come.

Our states have long supported and relied upon strong – and smart – federal regulation to ensure that harmful air emissions are gradually reduced over time. Within this cooperative framework, the federal highway diesel engine rule is vital to our states' efforts to attain and maintain air quality standards. It was developed with comprehensive stakeholder input, and informed by rigorous technical analysis. It has put the states on a path to much cleaner air.

Another result is that U.S. companies are thriving as they have become leaders in many of the advanced emission reducing technologies that will continue to be in demand around the world for years to come. The proposed preferential exemption for glider engines and vehicles from these long-established modern emission standards puts these companies at a competitive disadvantage, thus undercutting businesses employing hundreds of thousands of workers across the U.S. Furthermore, the proposed rulemaking portends a 'race to the bottom' if more truck manufacturers are drawn into glider production, leading to even greater harmful impacts to air quality and public health.

[10] Based on 2011 and projected 2018 NOx emission inventories developed by the Ozone Transport Commission/MANE-VU.

There is no way to understand the dramatic increase in sales of glider kits with old, dirty engines except as a concerted effort to circumvent critical public health protections. Exempting glider vehicles from modern emissions standards exposes the nation's citizens to elevated emissions of harmful pollutants, and it unfairly penalizes the many businesses in our states and across the country that operate in compliance with modern emission standards. We urge EPA to withdraw this proposed rule.

Sincerely,

Arthur N. Marin
Executive Director

cc: NESCAUM Directors
Bill Wehrum, EPA OAR
Chris Grundler, EPA OTAQ
David Conroy, EPA R1
Richard Ruvo, EPA R2

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 12/21/2018 4:02:45 PM
To: Woods, Clint [woods.clint@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Pallone Letter Response

Obviously, I concur with this approach.

And at such time as the government reopens, we can think about what more we may want to say and do.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Woods, Clint
Sent: Friday, December 21, 2018 11:00 AM
To: Harlow, David <harlow.david@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Re: Pallone Letter Response

Deliberative Process / Ex. 5

On Dec 21, 2018, at 10:57 AM, Harlow, David <harlow.david@epa.gov> wrote:

Deliberative Process / Ex. 5

<image002.png>

Deliberative Process / Ex. 5

"Thank you."

-- 30 --

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Woods, Clint
Sent: Friday, December 21, 2018 10:21 AM

To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>
Subject: Pallone Letter Response

All,

Apparently OCIR is trying to get a response to the attached Pallone letter regarding analytics for SAFE, ACE, and Quad Oa out today. Attached is the draft responses provided by OTAQ and OAQPS. I'm making some edits, but wanted to get you an electronic copy (will bring a hard copy to 10:30 as well). If we see major issues, OCIR is also drafting a shorter placeholder response that could go out today and just point to the RIAs.

Thanks!

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Paul Miller [pmiller@nescaum.org]
Sent: 12/14/2017 8:26:01 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Grundler, Christopher [grundler.christopher@epa.gov]
Subject: Request for 30-day comment deadline extension: proposed glider kit repeal
Attachments: nescaum-glider-repeal-comment-extension-request-20171214.pdf

Dear Mr. Wehrum:
Please find attached a request submitted today to EPA Docket ID No. EPA–HQ–OAR–2014–0827 from the Northeast States for Coordinated Air Use Management (NESCAUM) requesting a 30-day comment deadline extension for the proposed "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits."

Thank you for your consideration of our request.

Sincerely,
Paul J. Miller, Deputy Director & Chief Scientist
Northeast States for Coordinated Air Use Management
89 South Street, Suite 602
Boston, MA 02111
Ph: 617-259-2016
Fax: 617-742-9162
www.nescaum.org

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Northeast States for Coordinated Air Use Management
89 South Street, Suite 602 Boston, MA 02111
Phone 617-259-2000 Fax 617-742-9162
Arthur N. Marin, Executive Director

December 14, 2017

William Wehrum, Assistant Administrator
US EPA, Office of Air and Radiation (6103A)
Mail Code 6103A
1200 Pennsylvania Ave., NW
Washington, DC 20460
Attention: Docket ID No. EPA–HQ–OAR–2014–0827

Re: *30-day comment deadline extension request – Proposed Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*

Dear Mr. Wehrum:

The Northeast States for Coordinated Air Use Management (NESCAUM) respectfully request a 30-day extension of the deadline to comment on the US EPA proposed rule "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" (Docket ID No. EPA–HQ–OAR–2014–0827). The current comment deadline is January 5, 2018 (82 Fed. Reg. 53442).

NESCAUM requests the 30-day extension based on the practical difficulties of commenting on this important rulemaking during a series of major U.S. holidays, as well as a currently incomplete docket record, as noted by the US EPA in supporting documents posted to the rulemaking docket after publication of the Federal Register notice. Our requested extension is critical to ensure that state regulatory agencies and other stakeholders have adequate time to fully analyze and comment on the proposal.

The proposed repeal of glider requirements appeared in the Federal Register on November 16, 2017 with a comment deadline of January 5, 2018. During the comment period are major holidays extending from Thanksgiving through New Year's Day. As a practical matter, these holidays significantly compress the available time to comment on a major rule that has important implications for public health and the ability of our states to effectively implement air quality programs.

In addition, the US EPA added to the docket on November 22 (after publication of the proposal) two significant items requiring careful review. These items are the US EPA Memorandum "EPA Teleconference with Tennessee Tech University Regarding Glider Test Report Summarized in June 2017 Letter" (EPA-HQ-OAR-2014-0827-2416) and the US EPA "Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles" (EPA-HQ-OAR-2014-0827-2417). The US EPA has cited the Tennessee Tech Test Report in its proposed repeal of the glider requirements, yet the summary of its teleconference with the Tennessee Tech researchers indicates the agency has requested additional information on this study (e.g., information on each tested vehicle's engine, mileage, and age, and measured nitrogen

NESCAUM Members:
Connecticut Bureau of Air Management, Anne Gobin
Maine Bureau of Air Quality Control, Marc Cone
Massachusetts Bureau of Air and Waste, Christine Kirby
New Hampshire Air Resources Division, Craig Wright
New Jersey Division of Air Quality, Francis Steitz
New York Division of Air Resources, Steve Flint
Rhode Island Office of Air Resources, Laurie Grandchamp
Vermont Air Quality & Climate Division, Heidi Hales

oxides (NOx) emissions). The US EPA's requested information does not currently appear in the docket for commentators' review, and will be difficult to fully consider when it appears at this late stage of the comment period. Furthermore, the US EPA's own testing results of two glider kits appeared in the docket after publication of the Federal Register notice, and we need additional time to review its findings as well. The US EPA's test results indicate significant burdens will be placed upon our state air quality programs by allowing for a large increase of NOx and fine particulate emissions from on-road heavy-duty trucks that had not previously been expected or accounted for by state air quality planners. The obvious implications of the US EPA study for public health protection deserve a fuller consideration than currently provided by the January 5, 2018 comment deadline.

We look forward to working with you on our shared goals to improve the nation's air quality and protect public health, and thank you for your consideration of our request.

Sincerely,

Paul J. Miller
Deputy Director

cc: NESCAUM state directors
Chris Grundler, EPA OTAQ
David Conroy, EPA R1
Richard Ruvo, EPA R2

Message

From: Atkinson, Emily [Atkinson.Emily@epa.gov]
Sent: 3/2/2018 7:33:03 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
CC: Sutton, Tia [sutton.tia@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: FW: Glider comments
Attachments: Auto Alliance Comments.pdf; National Automobile Dealers Association (NADA).pdf; Truck & Engine Manufacturers Association.pdf; ICCT_Glider Proposal Comments_Jan 4 2017_signed.pdf

Hard copies will be in your take home folders.

From: Sutton, Tia
Sent: Friday, March 02, 2018 2:30 PM
To: OAR Briefings <OAR_Briefings@epa.gov>
Cc: Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: Glider comments

Hi all,
The attached comments on the HD glider NPRM are follow-up items from this morning's 9am meeting with Bill. Please print/email copies to Bill, Mandy, and David H.

Thanks!
-Tia

Susan T Conti, Assistant General Counsel, Alliance of Automobile Manufacturers

Comment

RE: Docket ID No. EPA-HQ-OAR-2014-0827; comments submitted electronically at http://www.regulations.gov

The Alliance of Automobile Manufacturers (Auto Alliance) hereby submits comments opposing the proposed "Repeal of
Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" published on November 16, 2017.

The Auto Alliance is the leading advocacy group for the auto industry, representing 70% of all car and light truck sales in
the United States. Its members include the BMW Group, Fiat Chrysler Automobiles, Ford Motor Company, General Motors
Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of
America and Volvo Car USA.

See the attached file for more detailed comments. Thank you for the opportunity to comment on this proposal.

Susan Conti
Assistant General Counsel

AUTO ALLIANCE
DRIVING INNOVATION®

January 5, 2018

Julia MacAllister
Office of Transportation and Air Quality
Assessment and Standards Division
U.S. Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, MI 48105

RE: Docket ID No. EPA-HQ-OAR-2014-0827; comments submitted electronically at http://www.regulations.gov

Dear Ms. MacAllister:

The Alliance of Automobile Manufacturers (Auto Alliance) hereby submits comments opposing the proposed "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" published on November 16, 2017.[1] The Auto Alliance is the leading advocacy group for the auto industry, representing 70% of all car and light truck sales in the United States. Its members include the BMW Group, Fiat Chrysler Automobiles, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America and Volvo Car USA.[2]

For many of the same reasons set forth in comments submitted by the Truck and Engine Manufacturers Association (EMA), the Auto Alliance believes that EPA's proposed "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" is based on an incorrect interpretation of the Clean Air Act (CAA). The Auto Alliance's members are subject to EPA's extensive regulations with respect to light-duty vehicle greenhouse gas (GHG) standards and light-duty vehicle criteria pollutant emissions promulgated under Title II of the CAA. These regulations are based on CAA language authorizing EPA to regulate "new motor vehicles" and "new motor vehicle engines."

Under the Proposed Repeal, EPA seeks to change its interpretation of those terms in a way that could have a profound effect on the competitive landscape for new vehicles and engines—leaving some heavily regulated while eliminating the regulatory burdens on others. Thus, Auto Alliance members have a strong interest in the Proposed Repeal.

EPA's proposed reinterpretation is contrary to the plain meaning of the CAA definitions of "new motor vehicles" and "new motor vehicle engines" under Section 216(3).[3] If finalized, this interpretation would remove EPA's authority under CAA section 202(a)(1) to regulate GHG emissions from glider

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1 82 Fed. Reg. 53,442 (Nov. 16, 2017).
2 For more information, go to www.autoalliance.org.
3 42 U.S.C. § 7550(3).

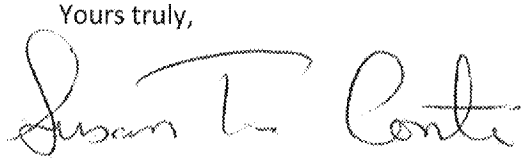
vehicles, glider engines, and glider kits as new motor vehicles or new motor vehicle engines. One glaring (and perhaps unintended) result of the Proposed Repeal is that any auto or engine manufacturer (or its customer) could circumvent EPA's GHG regulation of new motor vehicles and new motor vehicle engines merely by incorporating a few used components into their finished products.

On its face, the Proposed Repeal would remove certain heavy-duty vehicles and engines from the scope of GHG regulations. However, the re-interpretation of the CAA underlying the Proposed Repeal is not restricted to that specific scenario. The same rationale potentially could be used, for example, to conclude that light-duty glider-type vehicles are no longer subject to GHG emission regulations, regulatory warranty protection provided to consumers, or even that they are no longer subject to criteria pollutant emissions regulations. Vehicle manufacturers or builders of "kit vehicles" could attempt to avoid compliance with emission standards in their entirety by incorporating used powertrain components into their vehicles. A circumvention of criteria pollutant standards in this way would adversely affect public health and run contrary to other EPA efforts to promote low on-road emissions. Moreover, it would punish true OEMs by creating a pathway for the production and sale of competitor vehicles that are marketed as new at a much lower cost,[4] yet are not actually new. This result would be contrary to the plain language and purpose of the CAA, and would be detrimental to consumers, manufacturers and air quality.

Rather than broadly reinterpreting the CAA in a way that would affect sectors well beyond manufacturers of glider vehicles, engines and kits, EPA could consider the narrowly tailored alternatives it raises in its own proposal of November 16, 2017 under the section – "Issues for Which EPA Seeks Comment" at 82 Fed. Reg. 53,446-53,447. For example, the Auto Alliance would be open to a proposal for a reasonable increase in the number or type of gliders that can be built by small volume manufacturers subject to an exemption. We do not seek to oppose regulatory reforms that reduce burdens while maintaining the integrity of existing programs. For the reasons stated above, however, the Auto Alliance agrees with EMA that EPA's Proposed Repeal is not appropriate because the underlying rationale is misguided, and the integrity of existing programs would not be maintained.

The Auto Alliance appreciates the opportunity to comment on this proposal. Please contact me at 202-326-5512 or sconti@autoalliance.org if you have any questions regarding these comments and concerns. Thank you.

Yours truly,



Susan T. Conti
Assistant General Counsel

Cc: Chris Nevers, VP, Energy & Environment
Chris Grundler, Director, OTAQ

---

[4] Lower costs could be achieved through utilizing used parts and avoiding state-of-the-art emissions control components and the attendant cost of development, testing, certification, defect reporting, and warranty.

January 5, 2018

By regulations.gov
Environmental Protection Agency (EPA)
Air and Radiation Docket and Information Center (MC- 28221T)
EPA/DC, EPA WJC West Building, Room 3334
1301 Constitution Avenue, NW
Washington, DC 20460

Re: Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits; 40 CFR Parts 1037 and 1068; Doc. No. EPA–HQ–OAR–2014–0827.

Ladies and Gentlemen:

The National Automobile Dealers Association (NADA) represents over 16,000 franchise automobile and truck dealers, including over 1,800 American Truck Dealer Division (ATD) members who sell new and used commercial trucks and tractors and engage in service, repair and parts sales. They employ upwards of 1,200,000 people, including over 100,000 by ATD members alone. Many are small businesses as defined by the Small Business Administration.

I. BACKGROUND: THE 2015 REGULATORY PROPOSAL

In mid-2015, EPA and the National Highway Traffic Safety Administration (NHTSA) solicited comment on their "Phase 2" proposal for medium- and heavy-duty engine and truck fuel efficiency and greenhouse gas (GHG) emissions standards.[1] Included in that proposal were provisions designed to restrict the introduction into commerce of glider vehicles, glider engines, and glider kits.[2] EPA specifically proposed to amend its rules applicable to engines installed in glider vehicles, to clarify the application of its vehicle certification requirements to such vehicles, to revise pertinent definitions, and to establish exemptions for small business glider vehicle assemblers.[3] EPA stressed that it was *not* proposing to ban glider vehicles, but rather to clarify the extent to which they are "new" vehicles for purposes of CAA certification mandates.[4]

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[1] 80 Fed. Reg. 40138, *et seq.* (July 13, 2015).
[2] EPA characterized "glider vehicles" as "new vehicles produced to accept rebuilt engines (or other used engines) along with used axles and/or transmissions." 80 Fed. Reg. at 40215.
[3] NHTSA did not propose changes to its rules but noted that it was aware of manufacturers building glider vehicles that were "new" for purposes of 49 CFR 571.7(e), but which were not complying with applicable registration, certification, and/or Vehicle Identification Number (VIN) mandates. NHTSA stated an intent to pursue enforcement actions against noncompliant manufacturers and to consider potential regulatory changes. 80 Fed. Reg. at 40329.
[4] 80 Fed. Reg. at 40527. EPA did note a desire to see annual pre-2007 engine equipped glider vehicle production fall to 1000 vehicles or less.

The 2015 proposal reviewed EPA's position that used or rebuilt engines must comply with the emission standards for the model year in which they were originally built, and its position that glider vehicles are "new" vehicles subject to certification mandates, notwithstanding the installation of used or rebuilt engines.[5] Expressing concerns regarding the volume of glider vehicles being produced with pre-2007 diesel engines and the criteria pollutant emissions associated with those engines, EPA proposed a mandate that glider vehicles generally be equipped with engines certified to the emission standards applicable to the glider vehicle's model year of assembly.[6] Lastly, EPA also proposed an exemption to allow for the assembly of up to 300 glider vehicles per year, per assembler, equipped with used or rebuilt engines meeting at least the emissions standards for the model year in which they were originally built.[7]

On October 1, 2015, ATD filed written comments on the Phase 2 proposal which, among other things, offered an alternative approach to regulating glider vehicles:

> *NADA/ATD urges EPA and NHTSA to consider another alternative designed to harmonize with NHTSA's long-standing "manufacture" exemption for vehicle rebuilding. That exemption keys on there being a single "donor" vehicle from which two of three used components (engine, transmission, and drive-axle) are incorporated into the rebuilt vehicle. This exemption from the definition of "manufacturing" allows the rebuilder to avoid having to meet NHTSA manufacturer registration and other requirements. Likewise, NADA/ATD suggests that when two of these three used components are incorporated into a rebuilt vehicle, using a glider kit, the used engine would only be required to meet emission standards applicable to its year of original manufacture and, if rebuilt, any subsequent running changes. Obviously, no emissions certification would be required. Under this alternative, it would matter not if the rebuilder was a small business or how many units were rebuilt in a year.*

EPA did not take up this suggestion in its final rule.

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[5] EPA had long required that glider vehicles comply with at least the emissions standards in place for the model year of the original donor vehicle/engine, together with any updates, modifications, or running changes applicable to that engine. Then, in its 2011 Phase 1 fuel efficiency /greenhouse gas (GHG) rule, EPA implicitly determined that glider vehicles were "new vehicles" subject to the CAA, but indicated that current model year emission standards need not apply to MYs 2013 and prior. 76 Fed Reg. 57407 (September 15, 2011); 40 CFR 1037.150(j).

[6] 80 Fed. Reg. at 40528-9.

[7] EPA interpreted and described its statutory authority to regulate used and rebuilt engines, to characterize glider vehicles as "new motor vehicles," and to characterize glider vehicle assemblers as regulated "manufacturers."

II. THE FINAL 2016 RULE

The final Phase 2 rule[8] included extensive language addressing glider vehicles, including:

1. Mandates that glider vehicles generally be equipped with new, used, or rebuilt engines compliant with the emission standards applicable to the year of glider vehicle assembly, and that glider vehicle assemblers generally meet applicable manufacturer certification requirements.[9]
2. A reiteration of NHTSA's concerns regarding the lack of donor vehicles.[10]
3. A vocational vehicle exemption for low mileage used engines.[11]
4. A restatement of EPA's intent not to ban glider vehicle production.[12]
5. A small assembler certification exemption.[13]
6. A reiteration of EPA's concern for the volume of glider vehicles equipped with "higher polluting" pre-2007 and pre-2002 used and rebuilt engines.[14]
7. A mandate that new glider vehicles meet GHG vehicle standards by January 1, 2021.[15]

EPA again gave a detailed interpretation of its authority to regulate used and rebuilt engines, to characterize glider vehicles as "new motor vehicles" and glider kits as "new incomplete motor vehicles," and to treat glider vehicle assemblers as regulated "manufacturers".[16]

III. THE 2017 PROPOSAL

On July 10, 2017, a petition was filed with EPA asking it to reconsider its 2016 glider vehicle restrictions.[17] In an August 17, 2017 letter, EPA responded to the petition by stating that issues raised regarding the agency's legal authority and technical analysis warranted reconsideration of its 2016 glider vehicle restrictions. In November 2017, EPA formally proposal to repeal the glider restrictions imposed by its 2016 rule,[18] taking the position that glider vehicles are "used vehicles" beyond the reach of the CAA, notwithstanding how they are marketed or titled. If the

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[8] 81 Fed. Reg. 73478, *et seq*. (October 25, 2016).
[9] 81 Fed. Reg. at 73943-5.
[10] 81 Fed. Reg. at 73584.
[11] 81 Fed. Reg. at 73726, 73944; 49 CFR 1037.150(t)(3). The exemption applies to engines within their useful life *or* with less than 100,000 miles *or* less than three-years-old. Thus, until 2020, this exemption allows glider vehicle assemblers may install MY 2008 and 2009 compliant engines, in addition to MY 2010 and later compliant engines.
[12] 81 Fed. Reg. at 73942.
[13] 81 Fed. Reg. at 73942. The exemption is capped at the lesser of the highest annual volume of glider vehicles produced between 2010 and 2014 or 300 vehicles.
[14] 81 Fed. Reg. at 73942-3. EPA provided an extensive emissions analysis focused on a comparison of glider vehicles equipped with older used and rebuilt engines vs. new vehicles equipped with new engines.
[15] 81 Fed. Reg. at 73946.
[16] 81 Fed. Reg. at 73945-6. See, 40 CFR §1037.801
[17] That petition was filed by Fitzgerald Glider Kits, LLC, Harrison Truck Centers, Inc. and Indiana Phoenix, Inc.
[18] 82 Fed. Reg. 53442, *et seq.* (November 16, 2017).

proposal is finalized, EPA will no longer treat glider vehicles as ''new motor vehicles,'' glider engines as ''new motor vehicle engines,'' or glider kits as ''incomplete'' new motor vehicles.[19]

At a December 4, 2017 hearing held on the proposed repeal, all but two persons testified in opposition. Notably, several Volvo and Mack dealers argued that the sale and use of glider kits to manufacture glider vehicles presents unfair competition versus the sale of new trucks and tractors. In addition, while testimony in opposition to the repeal was presented by the Engine and Truck Manufacturers Association, there was no testimony presented in support (or otherwise) by any of the manufacturers of Class 8 glider kits.[20]

IV. NADA/ATD RESPONSE TO THE 2017 PROPOSAL

Glider vehicles typically consist of new frames, cabs, and front axles, and other (optional) new parts. Glider kits and vehicles have been sold and used for many years, all the while regulated by various government agencies including the EPA, NHTSA, the IRS and state motor vehicle departments.[21] Truck manufacturers traditionally offered glider kit "parts" to meet a market demand where, due to accidents or for other reasons, operators sought to rebuild vehicles using used powertrain and suspension components sourced (mostly) from "donor" vehicles.

Importantly, EPA's NOx reduction mandates for MYs 2002-2007 directly resulted in new engines and emission control technologies which dramatically increased the up front and operational cost of new trucks offering significantly reduced reliability and fuel economy performance.[22] In turn, this resulted in a dramatic growth in the market for glider vehicles equipped with pre-2007/2002 used and rebuilt engines. Specifically, an increasing number of operators began to purchase glider kits to extend the life of their pre-2010 equipment using used parts from that equipment, and/or began to purchase complete glider vehicles built with used or rebuilt parts primarily sourced from other than the vehicles they owned.

The desire to avoid the real or perceived higher equipment costs, higher maintenance and repair costs, reduced vehicle reliability, and/or lower fuel economy performance associated with new equipment continues to drive the market for glider vehicles.[23] In fact, glider kit sales have grown from less than 1,000 per year in 2007 to more than 10,000 per year today, often for incorporation into glider vehicles made with used or rebuilt parts from multiple sources.

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[19] 82 Fed. Reg. at 5443.

[20] Freightliner, Western Star, Peterbilt, and Kenworth.

[21] In 2012, NADA/ATD presented a webinar for its members entitled *Glider Kits: Federal and State Regulatory Concerns* addressing a wide-array of these various regulatory mandates.

[22] See attached, NADA/ATD, *A Look Back at EPA's Cost and Other Impact Projections for My 2004-2010 Heavy-Duty Truck Emissions Standards,* (February 2012).

[23] In fact, NADA/ATD has become aware of many instances where customers have paid *more* for "new" glider vehicles equipped with a pre-2007 engine and little or no emission controls to avoid the real and perceived reliability and cost-of-ownership benefits involved.

Notwithstanding the fact that certain members of NADA/ATD represent the four Class 8 glider kit manufacturers, and thus may themselves build glider vehicles or sell glider kits to others who do, NADA/ATD must object to EPA's proposal to repeal its October 2016 restrictions.

To be clear, NADA/ATD agrees that, as a general matter, EPA has the inherent authority to reconsider, revise, or repeal past decisions, *to the extent permitted by law,* so long as it *can provide a reasoned explanation for doing so.*[24] But, by establishing appropriate flexibilities and accommodations, the 2016 rule largely preserves the traditional, time-honored option for truck owners and operators to rebuild wrecked or worn-out donor vehicles using new glider kits, together with used or rebuilt engines and other used drivetrain (e.g., drive axle, transmission) components sourced from donor vehicles (or otherwise). Essentially, the 2016 rules target the imposition of "new motor vehicle" regulations on the largest volume production of assembled glider vehicles, very few of which directly involve donor vehicles. And even those vehicles may be equipped with MY 2008 and later engines under certain conditions. As a practical matter, EPA's 2016 rules also work to harmonize with how NHTSA defines glider vehicles to be "newly manufactured", and when glider assemblers must meet NHTSA's "manufacturer" mandates to register with the agency, to properly assign VINs to the vehicles they manufacture, and to assure compliance with all applicable safety standards. They also effectively serve to harmonize with the IRS' current position that many completed glider vehicles are newly manufactured taxable articles subject to Federal Excise Tax, as well as with how many state motor vehicle departments define "new vehicles" for titling and registration purposes.

The November 2017 proposal cites the Automobile Information Disclosure Act of 1958 (Monroney Act) in support of EPA's latest interpretation of how the CAA should apply to glider vehicles. Since the Monroney Act, in part, directly regulates automobile dealers, NADA/ATD is intimately familiar with it. The Monroney Act's prohibition against the removal of pricing labels from new automobiles on dealer lots prior to their transfer to ultimate purchasers does not depend on whether the manufacturer of those vehicles may have assembled them with rebuilt engines (or other used parts). In other words, the statutory language of the Monroney Act does not on its face indicate whether the presence of used parts in vehicles (automobiles) that have not yet been transferred to ultimate purchasers renders them "used."

Moreover, NADA/ATD agrees with the conclusion in the 2017 proposal that used or rebuilt engines are not "new motor vehicle engines." This does not mean, however, that it is an unreasonable interpretation of the CAA that EPA has the authority to specify when new glider vehicles should be assembled with engines (new, used, or rebuilt) that meet the emissions standards applicable to the year of vehicle assembly. NADA/ATD also suggests that a reasonable interpretation of the CAA would define glider kits to be "parts", not incomplete self-propelled new motor vehicles, at least until they are incorporated into new glider kit vehicles.

Given the issues and arguments detailed above, NADA/ATD urges EPA to let its October 2016 rule stand as written, with one exception. EPA should clearly indicate how dealerships that

[24] 82 Fed. Reg. at 53443. *Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2126 (2016)

neither sold glider kits nor built or sold completed glider vehicles in 2010 through 2014 may nonetheless still be eligible for the low volume exemptions set out in the 2016 rule.

On behalf of NADA/ATD, I thank EPA for the opportunity to comment on this matter.

Respectfully submitted,

Douglas I. Greenhaus
Chief Regulatory Counsel,
Environment, Health and Safety

UNITED STATES OF AMERICA

ENVIRONMENTAL PROTECTION AGENCY

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits; Proposed Rule	)))	**Docket I.D. No.: EPA-HQ-OAR-2014-0827**

COMMENTS OF THE TRUCK AND ENGINE MANUFACTURERS ASSOCIATION

January 3, 2018

Jed R. Mandel
Timothy A. French
Truck & Engine Manufacturers Association
333 West Wacker Drive, Suite 810
Chicago, IL 60606

UNITED STATES OF AMERICA

ENVIRONMENTAL PROTECTION AGENCY

Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits; Proposed Rule	)))	**Docket I.D. No.: EPA-HQ-OAR-2014-0827**

Introduction

The Truck and Engine Manufacturers Association (EMA) hereby submits its comments on the notice of proposed rulemaking (NPRM) that the U.S. Environmental Protection Agency (EPA or Agency) published in the Federal Register on November 16, 2017, relating to the "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" (Proposed Repeal). (*See* 82 F.R. 53442).

EMA is the not-for-profit trade association that represents the world's leading manufacturers of a broad array of heavy-duty and medium-duty on-highway vehicles, and the many types and sizes of engines that power them. EMA's members manufacture the on-highway vehicles and engines that are the subject of the Phase 2 Greenhouse Gas (GHG) Emission Standards that the Agency finalized on October 25, 2016. (*See* 81 F.R. 73478). EMA was an active participant in the technical discussions and analyses that led to the development and finalization of the Phase 2 GHG Final Rule.

Now, however, in the context of revisiting the glider kit elements of the Final Phase 2 GHG Rule, EPA is proposing a sweeping reinterpretation of the Clean Air Act. The Agency's proposed reinterpretation of the terms "new motor vehicle" and "new motor vehicle engine" are contrary to the plain language meaning of the Clean Air Act and, if finalized, would have significant unintended adverse consequences. The Agency should not finalize the statutory reinterpretation at issue.

The Proposed Repeal Conflicts With the Express Terms of the CAA

In its Proposed Repeal, EPA seeks to reverse its previous legal reasoning, and argues that in enacting the definition of "new motor vehicle" in the Clean Air Act (CAA), Congress "did not have in mind that the definition would be construed as applying to a vehicle comprised of new body parts and a previously owned powertrain." EPA further asserts that "it seems likely that Congress understood a 'new motor vehicle,' as defined in CAA § 216(3), to be a vehicle *comprised entirely of new parts and certainly not a vehicle with a used engine*." (Emphasis added.) (82 F.R.

at 53446). EPA explains its new reasoning by claiming, without support, that "Congress did not intend that a vehicle comprised of a new outer shell conjoined to a previously owned powertrain should be treated as a 'new' vehicle, based only on the fact that the vehicle may have been assigned a new title following assembly." Id.

EPA's revised arguments are contrary to the plain language of the relevant provisions of the CAA. Moreover, EPA's "reconsidered" arguments would create a loophole that could swallow whole the Agency's regulatory authority under CAA section 202(a)(1).

The relevant CAA provisions provide that EPA shall prescribe standards applicable to the emission of any air pollutant from "any class or classes of new motor vehicles or new motor vehicle engines . . . *whether such vehicles and engines are designed as complete systems* or incorporate devices to prevent or control such pollution." (Emphasis added.) 42 U.S.C. § 7521(a)(1). The term "motor vehicle" means "any self-propelled vehicle designed for transporting persons or property on a street or highway." 42 U.S.C. § 7550 (2). The term "new motor vehicle" is defined to mean "a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." 42 U.S.C. § 7550(3). And finally, the term "new motor vehicle engine" means "*an engine in a new motor vehicle* or a motor vehicle engine the equitable or legal title to which has never been transferred to the ultimate purchaser." Id. (Emphasis added.) Significantly, under that controlling definition, even a non-new engine can qualify as a "new motor vehicle engine" if it is installed in a new motor vehicle.

From the foregoing, it is clear that an engine containing previously-owned components can still be deemed a new motor vehicle engine if it is installed "in a new motor vehicle." A new motor vehicle is a vehicle the title to which has not yet passed to an ultimate purchaser. Thus, a new glider vehicle, that has not been sold, and that contains an engine with some previously-owned parts, is nonetheless a "new motor vehicle" subject to regulation because (i) at the time of its first sale, it is a vehicle that is self-propelled, since it is equipped with a motor vehicle engine, and (ii) it is a vehicle the title to which has not previously passed in commerce to an ultimate purchaser. The terms of the CAA are unambiguous and can lead to no other conclusion. Consequently, a previously unsold glider vehicle is properly viewed as a new motor vehicle regardless of whether the motor vehicle engine that it contains is partially manufactured from previously-owned parts. By the same reasoning, the engine in that new motor vehicle can be deemed a "new motor vehicle engine," since that term expressly includes "an engine in a new motor vehicle," regardless of whether that engine itself is brand new. EPA's arguments to the contrary are fundamentally at odds with the Clean Air Act's unambiguous terms.

Significantly, EPA appropriately acknowledged this unambiguous reading of the CAA in the Agency's earlier legal analysis when it first adopted the Phase 2 GHG Rule. In its original Response to Comments (RTC), EPA correctly reasoned as follows:

> The EPA sees nothing in the Act that compels the result that adding a used component to an otherwise new motor vehicle necessarily vitiates classification of the motor vehicle as "new." *See* 80 F.R. 40528. . . . Indeed, the definition of "new motor vehicle engine" encompasses engines of any vintage. . . . Put another way, a "new motor vehicle" can contain an earlier model year engine. *See* CAA section 216(3). (RTC at p.56).

EPA's regulations implementing the CAA's parallel provisions for nonroad engines reflect the same legal conclusion. More specifically, subpart (4) of the Agency's regulatory definition of "new nonroad engine" expressly includes any engine, brand new or not, "that is intended to be installed in new nonroad equipment. *This generally includes installation of used engines in new equipment*." 40 C.F.R. § 1039.801. (Emphasis added.)

Further, the fact that a previously unsold glider kit may not have been designed on its own as a complete vehicle is not a bar to regulation under the CAA. To the contrary, CAA section 202 (a)(1) specifically authorizes EPA to adopt emission control standards for new motor vehicles regardless of "whether such vehicles and engines are designed as complete systems." Thus, the CAA makes it clear that EPA can set standards for a new incomplete vehicle or its engine notwithstanding that the new vehicle may not yet be self-propelled.

EPA attempts to find support for its revised reading of the CAA by citing Justice Rehnquist's partially concurring opinion in *Motor Vehicle Manufacturers Ass'n (MVMA) v. State Farm Mutual Automobile Ins. Co.,* 463 U.S. 29, 59 (1983). But EPA's quote of that opinion is, at best, selective. The entire relevant quote from the *MVMA* opinion is as follows:

> A change in administration brought about by the people casting their votes is a perfectly reasonable basis for an executive agency's reappraisal of the costs and benefits of its programs and regulations. As long as the agency remains within the bounds established by Congress, it is entitled to assess administrative records and evaluate priorities in light of the philosophy of the administration. *Of course, a new administration may not refuse to enforce laws of which it does not approve, or ignore statutory standards in carrying out its regulatory functions.* Id. (Emphasis Added.)

Here, EPA is, in effect, ignoring the otherwise unambiguous provisions of the CAA that define the scope of EPA's authority, including through the Agency's proposed redefinition of what constitutes a new motor vehicle and a new motor vehicle engine. A change in administration does not allow for that type of statutory reappraisal. Thus, while it may be appropriate for a new administration to alter or redefine the specific terms or scope of particular regulations based on revised cost-benefit analyses, it is not permissible for a new administration to attempt to redefine what is subject to regulation under the clear terms of Title II of the CAA.

EPA's Proposed Reasoning
Would Create A Loophole That
Would Swallow CAA Section 202(a)

EPA's reconsidered legal analysis also would lead to potentially absurd and damaging results. EPA's revised theory boils down to the assertion that a new motor vehicle can only be "a vehicle comprised *entirely of new parts*." (82 F.R. at 53446). (Emphasis added.) By that logic, any motor vehicle that contained a powertrain that was comprised of any used parts — a crankshaft, for example — would fall outside the definition of "new motor vehicle" and so outside the scope of CAA section 202(a)(1). Similarly, under EPA's revised legal analysis, any motor vehicle engine that incorporated any previously-owned components could not be deemed a "new

motor vehicle engine," and so it too would be beyond the reach of EPA's regulatory authority under section 202(a)(1). The net result would be that an engine and vehicle manufacturer could avoid all regulation of the sale of its new engines and vehicles so long as the engines used in the final assembly of otherwise brand new vehicles included at least some refurbished parts. Thus, the loophole that EPA's Proposed Repeal would create would effectively nullify EPA's statutory authority over new motor vehicle and engines. That is an impermissible result under the governing rules of statutory interpretation. Further, such a loophole would be especially damaging to EMA's members who have invested hundreds of millions of dollars in advanced technologies - - technologies that make them the world's leaders in the manufacture of new heavy-duty and medium-duty on-highway engines and vehicles. EPA's loophole would open the door for other manufacturers (that have not made the same investment) to enter the U.S. marketplace, even with used engines that have no advanced emission-control systems whatsoever.

EMA's concerns in this regard are more than academic. The truck and engine manufacturing industry in the U.S. relies to a large extent on a level regulatory playing field that helps to ensure that all manufacturers seeking to sell their products into U.S. markets must first comply with stringent EPA emission control requirements and certification testing procedures. In fact, many of those EPA requirements, as developed through administrative rulemakings that have included significant industry input, have helped EMA's members become the worldwide leaders in the design, development and manufacture of advanced heavy-duty and medium-duty on-highway vehicles and engines. That in turn has helped to create significant competitive advantages for those manufacturers that are able to produce EPA-compliant products in a cost-effective manner. Those vehicle and engine products not only can be sold domestically, but provide advanced technology platforms that can be marketed effectively worldwide.

Through the Proposed Rule and its underlying reasoning, however, EPA unintentionally would be abandoning its jurisdiction over the fundamentally important regulatory playing field that controls, in a uniform and well-established manner, the manufacture and sale of heavy-duty and medium-duty engines and vehicles. More specifically, EPA's proposed revised interpretation of the CAA would allow any foreign or domestic manufacturer to circumvent EPA's carefully crafted regulations applicable to new motor vehicles and new motor vehicle engines — simply by selling heavy-duty vehicles and engines with some previously used components — and so would undermine the very significant investments in advanced emission-control technologies that EMA's members have made in reliance on the uniform applicability of those regulations.

Conclusions

EPA's revised legal theory — that the Agency does not have the statutory authority to regulate glider vehicles and engines — is at odds with the otherwise unambiguous terms of the Clean Air Act, and would lead to damaging results whereby manufacturers, specifically including foreign manufacturers, of otherwise new motor vehicles and engines would be able to sidestep regulation by incorporating some amount of previously used components in their finished products, putting those manufacturers that have invested to achieve CAA-compliant vehicles at a significant competitive disadvantage. EPA's proposed reinterpretation of the CAA is invalid and should not be finalized.

Respectfully submitted,

TRUCK & ENGINE
MANUFACTURERS ASSOCIATION

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 3/19/2018 11:21:13 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Charmley, William [charmley.william@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Subject: Following Up- Gliders/MTE

Hi Bill-
Just letting you know that first thing this morning Bill and I met regarding your directions late Friday, and Bill has already met with our staff. I followed up with him at the end of the day and as of now we know what to do and don't need any further glider meetings. As for the schedule, we need to confer with OGC, and I will let you know if we see any obstacles to meeting your timeline. As you know the largest burden is on our OGC colleagues in responding to comments we received on the legal issues.

We are also beginning to pick fruit for the forthcoming joint rulemaking on cars

Thanks

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 2/26/2018 2:30:46 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Clint Woods [cwoods@csg.org]; Dominguez, Alexander [dominguez.alexander@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: RE: annual report
Attachments: dsh DRAFT Formatted Year in Review 2.25.18_oar edits.docx

Mandy,

Attached is a copy of the report, with my suggested edits laid overtop your own revisions to the NSR and OI/AI portions. For ease of review, cut-and-pasted below is how the text would read with all edits "accepted."

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Gunasekara, Mandy
Sent: Monday, February 26, 2018 12:15 AM
To: Clint Woods <cwoods@csg.org>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Harlow, David <harlow.david@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: RE: annual report

Attached are first round edits for the air portion of the draft report. Please review and let me know your thoughts.

Deliberative Process / Ex. 5

From: Jackson, Ryan
Sent: Sunday, February 25, 2018 1:37 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>; Ross, David P <ross.davidp@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>; Greenwalt, Sarah <greenwalt.sarah@epa.gov>; Leopold, Matt <Leopold.Matt@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>; Bodine, Susan <bodine.susan@epa.gov>; Traylor, Patrick <traylor.patrick@epa.gov>; Bowman, Liz <Bowman.Liz@epa.gov>; Dravis, Samantha <dravis.samantha@epa.gov>; Bolen, Brittany <bolen.brittany@epa.gov>; Letendre, Daisy <letendre.daisy@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Kelly, Albert

<kelly.albert@epa.gov>; Konkus, John <konkus.john@epa.gov>; Block, Molly <block.molly@epa.gov>
Subject: annual report

All – the OPA has done an outstanding job putting together a report to highlight items from this past year. I would like to release this by posting to our website. Can you look through your sections to ensure we've characterized your issues is the most correct way?

Much appreciated to Daisy, John, and ultimately Molly Block who did the final formatting and applied the layman's test to the text to ensure it's understandable.

Really nice work.

Ryan Jackson
Chief of Staff
U.S. Environmental Protection Agency
Personal Phone / Ex. 6

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 12/14/2017 2:40:31 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: Heavy Duty Rule

I saw this and have spoken to Karl. The reporter did not include in the story that Karl said this question should be addressed to you.

We are not working on a rule. Here's what we are doing:

Deliberative Process / Ex. 5 also be

Pls let me know if you have any concerns with this work.

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

On Dec 14, 2017, at 9:13 AM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

> Chris – Karl is reported in his CAAAC remarks to say that OTAQ is doing preliminary technical work on a possible heavy duty rule. We need to talk before any significant work gets going.

EPA takes steps toward tighter heavy-duty truck standards

Sean Reilly, E&E News reporter

Published: Wednesday, December 13, 2017

Almost a year into the Trump administration, U.S. EPA is continuing preliminary spadework that could lead to more stringent emissions standards for heavy-duty trucks, a top manager in the agency's Office of Transportation and Air Quality said yesterday.

In the 17 years since EPA last revised the standards for nitrogen oxides (NOx), "technology has dramatically increased," Karl Simon told members of the Clean Air Act Advisory Committee. "There are opportunities, we believe, for cost-effective and common-sense control strategies."

While a final decision on whether to pursue tighter limits will rest with EPA chief Scott Pruitt, "we've begun the technical work," Simon said, adding that states, industry and other interested groups have voiced support. Simon heads OTAQ's transportation and climate division.

Under an EPA timetable laid out last December, however, it will be about another year before the agency pursues a proposed rule that would tentatively take effect for model year 2024 trucks (*E&E News PM*, Dec. 20, 2016). One committee member, Brian Mormino of the Indiana-based engine maker Cummins Inc., urged the agency to keep going, albeit in a "collaborative" fashion.

While Cummins and other engine makers have cut NOx emissions by more than 98 percent, "the issue is that we can and we should do more, and we're willing to do more," said Mormino, the company's executive director for worldwide environmental strategy and compliance.

Whether Pruitt will ultimately opt to do more remains to be seen. With a draft rule published last month, for example, Pruitt is seeking to exempt refurbished "glider" trucks that use older engines from EPA's "Phase 2" greenhouse gas and fuel efficiency standards put in place last year. Cummins, along with other segments of the trucking industry, opposes that proposal, and Mormino voiced hope that the Phase 2 regulations will be left intact.

EPA's decision to study tighter NOx standards for 18-wheelers and other heavy-duty trucks came in response to a petition by the Los Angeles-area South Coast Air Quality Management District and other regulatory agencies that say the step is essential to helping them meet the national 70-parts-per-billion ground-level ozone standard set in 2015.

NOx is a key ingredient in the formation of ozone, often known as smog. While the petition called on EPA to slash NOx standards to one-tenth their current level, the agency did not commit to a specific threshold.

The Clean Air Act Advisory Committee, which includes representatives of environmental groups, business organizations, and state and local air agencies, advises EPA on implementation of the 1990 Clean Air Act amendments.

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 1/2/2018 8:59:48 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: Next Steps: Gliders

Dear Bill, Mandy and David –

The comment period on our proposal closes this week on Friday, January 5. There are already several thousand comments in the public docket, with the majority thus far being from individuals. We expect there will be many additional comments from a wide range of stakeholders that will be submitted between now and Friday and which will be posted in the docket early the following week.

Deliberative Process / Ex. 5

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 1/15/2018 7:51:31 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Headlines of Interest

- Bloomberg BNA, 1/12/18: EPA Trashes Plan To Pause Landfill Methane Limits
- Senate EPW, 1/12/18: EPW Republicans Send Letter to EPA in Support of Clean Power Plan Repeal
- Inside EPA, 1/12/18: EPA Targets April 30 For Ozone Designations But Withholds 'Exact Details'
- Inside EPA, 1/12/18: EPA Fuel Economy Reports Prompt Mixed Industry, Environmentalist Views
- Greenwire, 1/15/18: AIR POLLUTION: EPA admits goof, will soon detail ozone plans — filing
- Congressional Research Service, 1/3/18: Clean Air Act Issues in the 115th Congress: In Brief
- Inside EPA, 1/11/18: Transcript Of Jan. 11 Interview With EPA Air Chief Bill Wehrum
- Senate EPW, 1/11/18: Barrasso Statement on EPA Holding CPP Repeal Listening Session in Gillette, Wyoming on March 27
- Inside EPA, 1/11/18: Truckers' Pushback On Glider GHG Plan Raises Question Of EPA Next Steps
- Greenwire, 1/15/18: EPA: Pruitt met with green critics
- Sierra Club, 1/12/18: ICYMI: Even the EPA Knows Clean Car Standards Are Working
- EDF, 1/12/18: NASA study underscores urgency of solving the global methane problem
- Center for Biological Diversity, 1/11/18: Lawsuit Challenges California County's Flawed Plan to Limit Harmful Greenhouse Pollution From Industrial Cattle Operations
- Atmospheric Measurement Techniques, 1/15/18: Calibration and assessment of electrochemical air quality sensors by co-location with regulatory-grade instruments
- Stan Young, Dose-Response: An International Journal, Jan/Mar 2018: Evidence Supporting No Dose Response of Mortality to Air Quality
- Atmospheric Chemistry & Physics, 1/15/18: Identifying biomass burning impacts on air quality in Southeast Texas 26–29 August 2011 using satellites, models and surface data
- Journal of Geophysical Research: Atmospheres, 1/13/18: Evaluation of the Community Multiscale Air Quality Model for Simulating Winter Ozone Formation in the Uinta Basin
- Journal of Geophysical Research: Atmospheres, 1/13/18: Modeled Full-Flight Aircraft Emissions Impacts on Air Quality and Their Sensitivity to Grid Resolution
- Journal of Geophysical Research: Atmospheres, 1/13/18: Multiyear Composite View of Ozone Enhancements and Stratosphere-to-Troposphere Transport in Dry Intrusions of Northern Hemisphere Extratropical Cyclones

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Bowman, Liz [Bowman.Liz@epa.gov]
Sent: 1/13/2018 3:13:23 PM
To: Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]
CC: Bennett, Tate [Bennett.Tate@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]
Subject: WSJ Op-Ed: Bureaucrats Go Rouge on Glider Truck Emissions

Passing along for awareness

https://www.wsj.com/articles/epa-bureaucrats-go-rogue-on-glider-truck-emissions-1515800360

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 1/11/2018 10:42:33 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
CC: Wright, Rhonda [Wright.Rhonda@epa.gov]
Subject: Draft one pagers for the Administrator's upcoming hearing
Attachments: OAR-3 CA CAA Waiver 1-11-18.DOCX; OAR-2 MTE 1-11-18 .docx; OAR-1 ATTAINMENT 1-10-18.DOCX; OAR-9 Methane QuadOa Memo 1-10-18.docx; OAR-8 Glider Kits 1-11-18 final.docx; OAR-7 RFS RVO Memo 1-11-18 .docx; OAR-6 ENERGY STAR 1-10-18.DOCX; OAR-5 DIESEL EMISSIONS REDUCTION ACT GRANTS 1-11-18.docx; OAR-4 Clean Power Plan 1-10-18+OAQPS.docx

For your review. Bill, I'll have hard copies for you in the morning. (These are with OCIR right now for review as well)

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 4/4/2018 2:06:19 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Fwd: Reg Agenda
Attachments: image002.gif; ATT00001.htm; EPA Unified Agenda OMB Comments-EPA_20180403.docx; ATT00002.htm

FYI - Will take a first look and follow up on reg agenda items of interest

Begin forwarded message:

> **From:** "Shoaff, John" <Shoaff.John@epa.gov>
> **Date:** April 3, 2018 at 5:36:06 PM EDT
> **To:** "Woods, Clint" <woods.clint@epa.gov>
> **Cc:** "Lubetsky, Jonathan" <Lubetsky.Jonathan@epa.gov>
> **Subject: FW: Reg Agenda**

Message

From: Erin Murphy [emurphy@edf.org]
Sent: 3/12/2018 2:52:36 AM
To: Pruitt, Scott [Pruitt.Scott@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Charmley, William [charmley.william@epa.gov]; Moulis, Charles [moulis.charles@epa.gov]; spears.matthew@epa.gov; A-AND-R-DOCKET [A-AND-R-DOCKET@epa.gov]
Subject: EDF Third Supplemental Comment on Gliders Proposal, Docket ID EPA–HQ–OAR–2014–0827
Attachments: EDF Third Supplemental Comment re TTU Study 3.11.18.pdf

Attn: Docket ID EPA–HQ–OAR–2014–0827

Attached is a supplemental comment of the Environmental Defense Fund, regarding EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017).

Sincerely,

Erin Murphy
Legal Fellow
U.S. Climate Legal and Regulatory Program

Environmental Defense Fund
1875 Connecticut Ave NW, Suite 600
Washington, DC 20010
T 202 572 3525
emurphy@edf.org

This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any dissemination or use of this information by a person other than the intended recipient is unauthorized and may be illegal.

March 11, 2018

VIA ELECTRONIC SUBMISSION

The Honorable E. Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Attn: EPA-HQ-OAR-2014-0827

RE: Third Supplemental Comment of Environmental Defense Fund on the Environmental Protection Agency's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (November 16, 2017)

The Environmental Defense Fund ("EDF") respectfully submits this supplemental comment on the Environmental Protection Agency's ("EPA") Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (November 16, 2017) ("Proposed Rule"), addressing provisions contained in the agency's 2016 final rule, *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2*, 81 Fed. Reg. 73,478 (October 25, 2016) ("Phase 2 Standards"). New information has emerged indicating that from the outset of the public comment period, EPA had access to the underlying test report and data for a study cited in the Proposed Rule, yet the agency did not release any of that information to the public until after the comment period closed. The test report was placed in the docket late and with emissions data redacted, without any explanation but apparently due to the preference of an industry stakeholder. In light of the further evidence that this rulemaking is fundamentally flawed, we again call upon EPA to withdraw its proposal.

As stated in our prior supplemental comments of February 14 and February 27, 2018, EPA's Proposed Rule cites to a study[1] performed by Tennessee Technological University ("TTU") and

[1] U.S. EPA, Proposed Rule: *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442, 53,444 (Nov. 16, 2017).

funded by Fitzgerald Glider Kits.[2] According to a summary document, the TTU study—overseen by Associate Vice President of Research Tom Brewer at a Fitzgerald facility—purported to conclude that remanufactured glider engines performed equally as well or outperformed modern engines with regard to pollutant emissions.[3] These results are at odds with both recent EPA testing of glider vehicles and emission factors for the model year diesel engines that glider vehicles use, which show that uncontrolled glider vehicles have nitrogen oxide and particulate matter pollution emissions many multiples greater than other new freight trucks.[4]

EPA explicitly discussed the TTU study and summarized the study's conclusions, without critical assessment, in its Proposed Rule to repeal emission requirements for glider vehicles.[5] The Proposed Rule did not cite to any other analyses purporting to address the proposal's health or environmental impacts.[6]

Documents obtained by the Southern Environmental Law Center through a public records request under Tennessee law indicate that TTU released the test report with emissions data underlying its study to EPA as early as November 17, 2017, but maintained that EPA not release the information to the public because of the university's agreement with the company sponsoring the research, Fitzgerald Glider Kits.[7] EPA did not submit any of this information into the docket during the comment period, which closed on January 5, 2018. On January 9, 2018, the agency posted to the docket a version of the test report with all emissions data redacted.[8] EPA has not provided any explanation for the delay, nor for why emissions information that underlies discussion in its Proposed Rule was not made available to the public for review and comment, and even now remains unavailable for public review.

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[2] Tenn. Tech. University Office of Research, Tennessee Technological University Annual Report 2015-16 (Volume 2) 42 (2016), *available at* https://www.tntech.edu/assets/userfiles/resourcefiles/13847/1476976572_2015-16%20Annual%20Report_FINAL.pdf; Tenn. Tech. University, Grants Rewarded Report (09/01/2016 – 09/30/2016), *available at* https://www.tntech.edu/assets/userfiles/resourcefiles/9512/1481215150_Grants%20Awarded%20Sept%202016.pdf; Tenn. Tech. University, Academic Affairs Highlights 25 (2017), available at https://www.tntech.edu/assets/usermedia/provost/12546/2017_End_of_the_Year_Statement.pdf.

[3] July 10, 2017 Petition for Reconsideration of Application of the Final Rule Entitled "Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 Final Rule" to Gliders, from Fitzgerald Glider Kits, LLC; Harrison Truck Centers, Inc.; and Indiana Phoenix, Inc. (July 10, 2017), EPA–HQ–OAR–2014–0827, Exhibit 1, *available at* https://www.epa.gov/sites/production/files/2017-07/documents/hd-ghg-fr-fitzgerald-recons-petition-2017-07-10.pdf.

[4] U.S. EPA, Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles (Nov. 20, 2017), Docket No. EPA-HQ-OAR-2014-0827-2417, *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-2417; EPA Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2, Response to Comments for Joint Rulemaking, at 1960-68, 1965, Appendix A (Aug. 2016), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P8IS.PDF?Dockey=P100P8IS.PDF.

[5] 82 Fed. Reg. at 53,444.

[6] *See id.*

[7] *See* attached TTU Document Production.

[8] Docket ID EPA-HQ-OAR-2014-0827-4804, "Redacted 11-17-17 Email from Tom Brewer with Follow-Up," (posted Jan. 9, 2018), available at https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4804.

As we articulated in joint comments on the Proposed Rule submitted together with the Environmental Law and Policy Center and WE ACT for Environmental Justice,[9] Section 307(d)(3) of the Clean Air Act requires that EPA provide notice in the proposed rule of "the factual data on which the proposed rule is based," "the methodology used in obtaining the data and in analyzing the data," and the "major … policy considerations underlying the proposed rule." All these data and documents are to be included in the docket on the date of proposal.[10] The newly-obtained documents indicating EPA has had this emissions information since early November, yet has failed to fully disclose it and provided no explanation for its delay and withholding, further underscore the flawed nature of EPA's rulemaking.

Because the TTU study is the only information in the proposal that purports to address the health and environmental impacts of repealing the 2016 glider vehicle emissions limits, information related to the legitimacy of the study is of particular importance. These developments provide further reason why, as our earlier comments urged, EPA must withdraw its flawed repeal proposal.

Sincerely,

Alice Henderson
Erin Murphy
Martha Roberts

Environmental Defense Fund
1875 Connecticut Ave., NW
Suite 600
Washington, DC 20009
(202) 387-3500

[9] Comment of EDF, ELPC, & WE ACT on EPA's Proposed Rule, *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,442 (Jan. 10, 2018), at Part VII(d), *available at* https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861.
[10] 42 U.S.C. § 7607(d)(3)(C).

FW: Tennessee Tech University - Follow Up

Brewer, Tom

Mon 2/12/2018 3:39 PM

To:Lykins, Karen <KLykins@tntech.edu>;

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

From: Brewer, Tom
Sent: Tuesday, December 12, 2017 10:25 AM
To: 'Charmley, William' <charmley.william@epa.gov>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>; Carpenter, Kae <kcarpenter@tntech.edu>; Soni, Bharat <bsoni@tntech.edu>; Wray, Lee <lwray@tntech.edu>
Subject: RE: Tennessee Tech University - Follow Up

Bill .... Thank you for your email.

The document you reference is part of a Sponsored Research project.

Consequently, Tennessee Tech University does not have the authority to grant permission to publish it.

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

From: Charmley, William [mailto:charmley.william@epa.gov]
Sent: Friday, December 08, 2017 3:22 PM
To: Brewer, Tom <TBrewer@tntech.edu>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>
Subject: RE: Tennessee Tech University - Follow Up

Dear Tom,

I have attached to this email the spreadsheet that you provided at my request in mid-November which includes the additional NOx and CO data the TTU team collected during your testing of several reman and OEM tractors.

My staff and I would like to place this data into the public docket for our current rulemaking, that is, the proposal EPA issues last month to repeal the current EPA standards that apply to glider tractors. This would make the TTU test data for the additional test modes available for stakeholders to review.

Can you please let us know if that is acceptable to TTU?

Please not that next week, December 11-15, I will not be in the office. If you have any questions you can respond to this mail, and Angela or Brian can follow up with you.

Best regards,

Bill

Bill Charmley
Director
Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory
2000 Traverwood Drive
Ann Arbor, MI 48105

desk ph. 734-214-4466
cell ph. 734-545-0333
e-mail: charmley.william@epa.gov

From: Brewer, Tom [mailto:TBrewer@tntech.edu]
Sent: Friday, November 17, 2017 3:43 PM
To: Charmley, William <charmley.william@epa.gov>
Subject: Tennessee Tech University - Follow Up

Bill .... Per your request for the TTU Heavy Duty Truck Emissions Field Testing results ..... please see the attached details of the data for the (15) vehicles.

And to follow up from our Conference Call, the minutes you sent for us to review are accurate !

Lastly, TTU is requesting two pieces of information from the EPA :

- Ø Specifications (Cetane Rating etc) for the Fuel used in Emissions Testing at the EPA Ann Abor Lab
- Ø How many / What Make and Model of Glider Kits are you currently testing ?

Thank you so much and don't hesitate contacting me for further information.

Thomas Brewer
Associate Vice President

Executive Director

TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

From: Brewer, Tom [mailto:TBrewer@tntech.edu]
Sent: Friday, November 17, 2017 3:43 PM
To: Charmley, William <charmley.william@epa.gov>
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Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

From: Charmley, William [mailto:charmley.william@epa.gov]
Sent: Friday, December 08, 2017 3:22 PM
To: Brewer, Tom <TBrewer@tntech.edu>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>
Subject: RE: Tennessee Tech University - Follow Up

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Best regards,

Bill

Bill Charmley
Director
Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory
2000 Traverwood Drive
Ann Arbor, MI 48105

desk ph. 734-214-4466
cell ph. 734-545-0333
e-mail: charmley.william@epa.gov

From: Brewer, Tom [mailto:TBrewer@tntech.edu]
Sent: Tuesday, December 12, 2017 11:25 AM
To: Charmley, William <charmley.william@epa.gov>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>; Carpenter, Kae <kcarpenter@tntech.edu>; Soni, Bharat <bsoni@tntech.edu>; Wray, Lee <lwray@tntech.edu>
Subject: RE: Tennessee Tech University - Follow Up

Bill .... Thank you for your email.

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Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

EPA-HQ-2019-30664

TCIM

Tennessee Center for Intelligent Mobility

Heavy Duty Vehicle Emissions Testing Cycle Results - Nitrogen Oxide (NOx)

Purpose : Gather Field Test Emissions Data to compare Glider Kits Remanufactured Engines versus OEM 'Certified' Engines

Vehicle	Engine	Test Date	Mileage	Type	Model Yr	NOx (g / HP * hr) 100%	75%	50%	25%	Idle	5 Cycle Avg
1	Detroit Diesel Series 60 12.7 Liter	09/19/16	52	ReMan	Pre 2003						
2	Detroit Diesel Series 60 12.7 Liter	09/19/16	656,419	ReMan	Pre 2003						
3	Detroit Diesel Series 60 12.7 Liter	09/22/16	52	ReMan	Pre 2003						
4	Detroit Diesel Series 60 12.7 Liter	09/22/16	62	ReMan	Pre 2003						
5	Detroit Diesel Series 60 12.7 Liter	10/17/16	63	ReMan	Pre 2003						
6	Detroit Diesel Series 60 12.7 Liter	10/17/16	63	ReMan	Pre 2003						
7	Detroit Diesel DD15	11/09/16	63	ReMan	2007						
8	Caterpillar CT13	11/09/16	67,958	ReMan	Pre 2003						
9	Detroit Diesel DD15	11/29/16	375	OEM	2017						
10	Detroit Diesel DD15	11/29/16	375	OEM	2017						
11	Detroit Diesel DD15	11/29/16	384	OEM	2017						
12	Detroit Diesel DD15	11/29/16	378	OEM	2017						
13	Detroit Diesel DD15	11/29/16	356	OEM	2017						
14	Volvo D13	09/27/17	700,000	OEM	2014						
15	Volvo D13	10/16/17	250,721	OEM	2017						

REDACTED

Notes :

- > Field Tested (15) Heavy Duty Class 8 Vehicles for NOx / CO / Particulate Matter
- > (8) Remanufactured Engines vs (7) OEM 'Certified' Engines
- > Vehicles # 1 & 3 Same Truck ... # 1 with Small Turbocharger / # 3 with Large Turbocharger
- > Vehicle # 4 recorded unusable data except for 100% Load Test Cycle
- > 'Off the Lot' Representative Vehicle Samples / Low & High Mileage
- > All Vehicles Field Tested on common Chassis Dynamometer @ common Location
- > Uncontrolled Variables - Air Density / Ambient Temperature / Humidity / Fuel Mixture & Cetane Rating / Oil Type
- > Utilized EPA 40 CFR 1065 Field Test Procedures and (PEMS) Portable Emissions Measurement System

Prepared By:
Thomas Brewer
Executive Director
TN Center for Intelligent Mobility
Tennessee Tech University
Dated : 11 / 15 / 2017

ED_002386B_00002603-00010

Vehicle	Engine	Test Date	CO idle	CO Allowed	CO 75%	CO 100%	NOx (g/HP * hr) 75%	NOx (g/HP * hr) 50%	NOx (g/HP * hr) 25%	NOx (g/HP * hr) idle	NOx (g/HP * hr) 5 State Avg
Show truck, smaller turbo	Detroit Diesel Series 60 12.7 Liter	09/19/16	REDACTED								
ad1772	Detroit Diesel Series 60 12.7 Liter	09/19/16									
39251 ECU 2	Detroit Diesel Series 60 12.7 Liter	10/17/16									
39252 ECU 1	Detroit Diesel Series 60 12.7 Liter	10/17/16									
432833.00	Detroit Diesel DD15	11/09/16									
Post 2007 new 1	Detroit Diesel DD15	11/29/16									
Post 2007 new 2	Detroit Diesel DD15	11/29/16									
Post 2007 new 3	Detroit Diesel DD15	11/29/16									
Post 2007 new 4	Detroit Diesel DD15	11/29/16									
Post 2007 new 5	Detroit Diesel DD15	11/29/16									
Show truck, Large turbo	Detroit Diesel Series 60 12.7 Liter	09/22/16									
498201.00	Cat CT13	11/09/16									
Volvo VNL 300 2(	Volvo D13	09/27/17									

The purpose of this test was to gather preliminary data as to how close to certified vehicles glider kits are and to gather data to investigate how to improve their emissions.

Cells marked 0 are below detection threshold of 1 part per million mass
"N/A" is marked when the EPA documentation says "N/A" for a rating
HP is measured horsepower. An SAE recommended 85% mechanical effeciency is assumed
Data for gx7384 was unusable except for full load. All data for it is at full load
While the preliminary tests were as controlled as possible without disrupting daily activities, the following variables can change the resulting emmissions:
Air temperature
Air density
Humidity
Wear
Fuel is 'as driven'
Fuel Temperature
Oil type
Ambient emissions
Mechanical Effeciency
Intake irregularities
Exhaust irregularities

FW: Tennessee Tech Univ - Follow Up

Brewer, Tom

Mon 2/12/2018 3:19 PM

To:Lykins, Karen <KLykins@tntech.edu>;

1 attachments (111 KB)

TCIM - HDV Emissions Test Procedure July 2016.docx;

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

From: Brewer, Tom
Sent: Tuesday, November 07, 2017 4:46 PM
To: Charmley, William <charmley.william@epa.gov>
Subject: Tennessee Tech Univ - Follow Up

Hey Bill ... enjoyed our conversation today .... don't hesitate contacting me if you need anything else.

See attached file that documents our Test Procedures ..... and the links below for both the Chassis Dyno and Combustion Analyzer.

[redacted]

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

e-mail: charmley.william@epa.gov

From: Brewer, Tom [mailto:TBrewer@tntech.edu]
Sent: Tuesday, November 07, 2017 5:46 PM
To: Charmley, William <charmley.william@epa.gov>
Subject: Tennessee Tech Univ - Follow Up

Hey Bill ... enjoyed our conversation today .... don't hesitate contacting me if you need anything else.

See attached file that documents our Test Procedures ..... and the links below for both the Chassis Dyno and Combustion Analyzer.

[redacted]

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

FW: Tennessee Tech University - Follow Up

Brewer, Tom

Mon 2/12/2018 3:40 PM

To: Lykins, Karen <KLykins@tntech.edu>;

2 attachments (862 KB)

Redacted 11-17-17 Email from Tom Brewer with Follow-Up.pdf; ATT00001.htm;

See attached

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

From: Brewer, Tom
Sent: Thursday, January 04, 2018 6:32 PM
To: Joe DePew [redacted]
Subject: Fwd: Tennessee Tech University - Follow Up

FYI ... I will send Joe's email address as the Research Sponsor contact to Bill Charmley.

Further, what does ' a redacted version' mean ?

Thanks
Tom B

Sent from my iPad

Begin forwarded message:

> **From:** "Charmley, William" <charmley.william@epa.gov>
> **To:** "Brewer, Tom" <TBrewer@tntech.edu>
> **Cc:** "Carpenter, Kae" <kcarpenter@tntech.edu>, "Soni, Bharat" <bsoni@tntech.edu>, "Wray, Lee" <lwray@tntech.edu>
> **Subject: RE: Tennessee Tech University - Follow Up**
>
> Dear Tom,
>
> If it is still possible for EPA to perform outreach to the sponsor of the TTU test program in order to find out if we can make the additional TTU emission test data available to the public, please let me know, as I would be happy to follow-up directly with the sponsor.

In the meantime, EPA's Office of General Counsel , the legal office within EPA, advised my team and I that we should place a redacted version of the TTU data into the public docket. This will make it clear that EPA has such data and we can consider the data in the context of the current glider rulemaking, but that per TTU's request, we are not releasing the detailed emissions test data.

A copy of the information we have placed into the public docket is attached.

Please let me know if you have any questions on this topic, and also your thoughts regarding EPA following up with the sponsor of this research program.

Best regards,

Bill

Bill Charmley
Director
Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory
2000 Traverwood Drive
Ann Arbor, MI 48105

desk ph. 734-214-4466
cell ph. 734-545-0333
e-mail: charmley.william@epa.gov

From: Charmley, William
Sent: Thursday, December 21, 2017 4:49 PM
To: 'Brewer, Tom' <TBrewer@tntech.edu>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>; Carpenter, Kae <kcarpenter@tntech.edu>; Soni, Bharat <bsoni@tntech.edu>; Wray, Lee <lwray@tntech.edu>
Subject: RE: Tennessee Tech University - Follow Up

Dear Tom,

Thank you for this response below regarding the additional test data. I was out of the office last week and I'm still catching up.

Is it possible I could ask the sponsor of the research program if the test data can be made available to the public?

Please let me know your thoughts on this.

Have a peaceful holiday,

Bill

Bill Charmley
Director
Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory
2000 Traverwood Drive
Ann Arbor, MI 48105

desk ph. 734-214-4466
cell ph. 734-545-0333
e-mail: charmley.william@epa.gov

From: Brewer, Tom [mailto:TBrewer@tntech.edu]
Sent: Tuesday, December 12, 2017 11:25 AM
To: Charmley, William <charmley.william@epa.gov>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>; Carpenter, Kae <kcarpenter@tntech.edu>; Soni, Bharat <bsoni@tntech.edu>; Wray, Lee <lwray@tntech.edu>
Subject: RE: Tennessee Tech University - Follow Up

Bill .... Thank you for your email.

The document you reference is part of a Sponsored Research project.

Consequently, Tennessee Tech University does not have the authority to grant permission to publish it.

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

TECH_Logo_Horizontal_Purple_RGB

From: Charmley, William [mailto:charmley.william@epa.gov]
Sent: Friday, December 08, 2017 3:22 PM
To: Brewer, Tom <TBrewer@tntech.edu>
Cc: Cullen, Angela <cullen.angela@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>
Subject: RE: Tennessee Tech University - Follow Up

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I have attached to this email the spreadsheet that you provided at my request in mid-November which includes the additional NOx and CO data the TTU team collected during your testing of several reman and OEM tractors.

My staff and I would like to place this data into the public docket for our current rulemaking, that is, the proposal EPA issues last month to repeal the current EPA standards that apply to glider tractors. This would make the TTU test data for the additional test modes available for stakeholders to review.

Can you please let us know if that is acceptable to TTU?

Please not that next week, December 11-15, I will not be in the office. If you have any questions you can respond to this mail, and Angela or Brian can follow up with you.

Best regards,

Bill

Bill Charmley
Director
Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

National Vehicle and Fuel Emissions Laboratory
2000 Traverwood Drive
Ann Arbor, MI 48105

desk ph. 734-214-4466
cell ph. 734-545-0333
e-mail: charmley.william@epa.gov

From: Brewer, Tom [mailto:TBrewer@tntech.edu]
Sent: Friday, November 17, 2017 3:43 PM
To: Charmley, William <charmley.william@epa.gov>
Subject: Tennessee Tech University - Follow Up

Bill .... Per your request for the TTU Heavy Duty Truck Emissions Field Testing results ..... please see the attached details of the data for the (15) vehicles.

And to follow up from our Conference Call, the minutes you sent for us to review are accurate !

Lastly, TTU is requesting two pieces of information from the EPA :

- Specifications (Cetane Rating etc) for the Fuel used in Emissions Testing at the EPA Ann Abor Lab
- How many / What Make and Model of Glider Kits are you currently testing ?

Thank you so much and don't hesitate contacting me for further information.

Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

TECH_Logo_Horizontal_Purple_RGB

From: Charmley, William [mailto:charmley.william@epa.gov]
Sent: Friday, December 08, 2017 3:22 PM
To: Brewer, Tom <TBrewer@tntech.edu>
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Thomas Brewer
Associate Vice President

Executive Director
TCIM – Tennessee Center for Intelligent Mobility

Tennessee TECH

EPA-HQ-2019-30664

TCIM

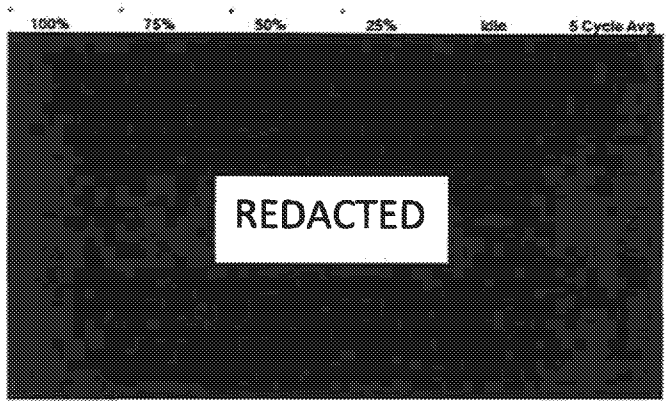
Tennessee Center for Intelligent Mobility

Heavy Duty Vehicle Emissions Testing Cycle Results - Nitrogen Oxide (NOx)

Purpose : Gather Field Test Emissions Data to compare Glider Kits Remanufactured Engines versus OEM 'Certified' Engines

Vehicle	Engine	Test Date	Mileage	Type	Model Yr
1	Detroit Diesel Series 60 12.7 Liter	09/19/16	52	ReMan	Pre 2003
2	Detroit Diesel Series 60 12.7 Liter	09/19/16	556,419	ReMan	Pre 2003
3	Detroit Diesel Series 60 12.7 Liter	09/22/16	52	ReMan	Pre 2003
4	Detroit Diesel Series 60 12.7 Liter	09/22/16	53	ReMan	Pre 2003
5	Detroit Diesel Series 60 12.7 Liter	10/17/16	53	ReMan	Pre 2003
6	Detroit Diesel Series 60 12.7 Liter	10/17/16	53	ReMan	Pre 2003
7	Detroit Diesel DD15	11/09/16	63	ReMan	2007
8	Caterpillar C13	11/09/16	67,958	ReMan	Pre 2003
9	Detroit Diesel DD15	11/29/16	375	OEM	2017
10	Detroit Diesel DD15	11/29/16	375	OEM	2017
11	Detroit Diesel DD15	11/29/16	364	OEM	2017
12	Detroit Diesel DD15	11/29/16	378	OEM	2017
13	Detroit Diesel DD15	11/29/16	356	OEM	2017
14	Volvo D13	09/27/17	700,000	OEM	2014
15	Volvo D13	10/16/17	250,721	OEM	2017

NOx (g / HP * hr)



Notes :

- > Field Tested (15) Heavy Duty Class 8 Vehicles for NOx / CO / Particulate Matter
- > (8) Remanufactured Engines vs (7) OEM 'Certified' Engines
- > Vehicles # 1 & 3 Same Truck ... # 1 with Small Turbocharger / # 3 with Large Turbocharger
- > Vehicle # 4 recorded unusable data except for 100% Load Test Cycle
- > 'Off the Lot' Representative Vehicle Samples / Low & High Mileage
- > All Vehicles Field Tested on common Chassis Dynamometer @ common Location
- > Uncontrolled Variables - Air Density / Ambient Temperature / Humidity / Fuel Mixture & Cetane Rating / Oil Type
- > Utilized EPA 40 CFR 1065 Field Test Procedures and (PEMS) Portable Emissions Measurement System

Prepared By:
Thomas Brewer
Executive Director
TN Center for Intelligent Mobility
Tennessee Tech University
Dated : 11 / 15 / 2017

ED_002386B_00002603-00020

Vehicle	Engine	Test Date	CO					NOx (g/HP * hr)					
			Idle	Allowed	75%	100%		75%	50%	25%	Idle	5 State Avg	
Show truck smaller turbo	Detroit Diesel Series 60 12.7 Liter	09/19/16	[redacted]										
ad1772	Detroit Diesel Series 60 12.7 Liter	09/19/16											
39251 ECU 2	Detroit Diesel Series 60 12.7 Liter	10/17/16											
39252 ECU 1	Detroit Diesel Series 60 12.7 Liter	10/17/16											
432833.00	Detroit Diesel DD15	11/09/16											
Post 2007 new 1	Detroit Diesel DD15	11/29/16											
Post 2007 new 2	Detroit Diesel DD15	11/29/16											
Post 2007 new 3	Detroit Diesel DD15	11/29/16											
Post 2007 new 4	Detroit Diesel DD15	11/29/16											
Post 2007 new 5	Detroit Diesel DD15	11/29/16											
Show truck. Large turbo	Detroit Diesel Series 60 12.7 Liter	09/22/16											
498201.00	Cat CT13	11/09/16											
Volvo VNL 300 2(	Volvo D13	09/27/17											

REDACTED

The purpose of this test was to gather preliminary data as to how close to certified vehicles glider kits are and to gather data to investigate how to improve their emissions.

Cells marked 0 are below detection threshold of 1 part per million mass.
"N/A" is marked when the EPA documentation says "N/A" for a rating
HP is measured horsepower. An SAE recommended 85% mechanical effeciency is assumed.
Data for gx7384 was unusable except for full load. All data for it is at full load
While the preliminary tests were as controlled as possible without disrupting daily activities, the following variables can change the resulting emmissions:
Air temperature
Air density
Humidity
Wear
Fuel is 'as driven'
Fuel Temperature
Oil type
Ambient emissions
Mechanical Effeciency
Intake irregularities
Exhaust irregularities

Message

From: Atkinson, Emily [Atkinson.Emily@epa.gov]
Sent: 3/2/2018 1:07:27 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: FW: Confirmed 3/2 at 1pm: Request for meeting with Mr. Bill Wehrum
Attachments: Tech assessment for Wehrum March 2 vF.pptx

Importance: High

Hi Bill and Mandy,

Please advise if you all want to keep your 1pm today or if I should advise them it will be rescheduled.

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Drew Kodjak [mailto:drew@theicct.org]
Sent: Friday, March 02, 2018 7:48 AM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>
Cc: John German <john@theicct.org>; Nic Lutsey <nic@theicct.org>; Brigitte Bernal <b.bernal@theicct.org>; Anup Bandivadekar <anup@theicct.org>; Rachel Muncrief <rachel@theicct.org>
Subject: Re: Confirmed 3/2 at 1pm: Request for meeting with Mr. Bill Wehrum

Dear Emily,

Well, it appears that high winds are conspiring to prevent us from meeting today.

Given that the federal government is closed today, we are all assuming that our meeting is cancelled. If not, please alert us as soon as possible.

The slides we have prepared for our meeting today are attached. Please feel free to send along to Bill. And it would be great to reschedule our meeting at your earliest convenience. Brigitte will follow up on Monday to find a time.

Stay safe out there - the winds are fierce!

Drew

Drew Kodjak, J.D. | Executive Director
Tel: +1 (202) 534-1608 | Email: drew@theicct.org | Web: www.theicct.org
1225 I Street, NW, Washington DC
www.transportpolicy.net

On Feb 13, 2018, at 8:29 AM, Atkinson, Emily <Atkinson.Emily@epa.gov> wrote:

Hi Drew,

You are confirmed for a 45 minute meeting on Friday, March 2, 2018 at 1:00pm with Bill Wehrum.

Directions and procedures to 1200 Pennsylvania Avenue NW:

Metro: If you come by Metro get off at the Federal Triangle metro stop. Exit the metro station and go up two sets of escalators to the surface level and turn right. You will see a short staircase and wheelchair ramp leading to a set of glass doors with the EPA logo - that is the William Jefferson Clinton Federal Building, North Entrance.

Taxi: Direct the taxi to drop you off on 12th Street NW, between Constitution and Pennsylvania Avenues, at the elevator for the Federal Triangle metro stop - this is almost exactly half way between the two avenues on 12th Street NW. Facing the building with the EPA logo and American flags, walk toward the building and take the glass door on your right hand side with the escalators going down to the metro on your left – that is the North Lobby of the William Jefferson Clinton building.

Security Procedures: A government issued photo id is required to enter the building and it is suggested you arrive 15 minutes early in order to be cleared and arrive at the meeting room on time. Upon entering the lobby, the meeting attendees will be asked to pass through security and provide a photo ID for entrance. Let the guards know that you were instructed to call 202-564-7404 for a security escort.

Please feel free to contact me should you need any additional information.

Emily

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Drew Kodjak [mailto:drew@theicct.org]
Sent: Tuesday, February 13, 2018 8:02 AM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>
Cc: John German <john@theicct.org>; Nic Lutsey <nic@theicct.org>; Brigitte Bernal <b.bernal@theicct.org>
Subject: Request for meeting with Mr. Bill Wehrum

Hi Emily,

Yes, that time will work for us.

You can expect me and John German in person, and very likely Nic Lutsey on the phone.

We will have some materials to provide in advance. Is there a protocol for materials (ie. does Bill like to receive them in a certain format, a day in advance, etc)?

We look forward to the meeting.

Drew

From: "Atkinson, Emily" <Atkinson.Emily@epa.gov>
Subject: FW: Request for meeting with Mr. Bill Wehrum
Date: February 12, 2018 at 10:11:22 AM EST
To: "drew@theicct.org" <drew@theicct.org>
Cc: "john@theicct.org" <john@theicct.org>, "nic@theicct.org" <nic@theicct.org>, "b.bernal@theicct.org" <b.bernal@theicct.org>

Hi Drew,

It looks like Bill Wehrum could be available for a 45 minute meeting on Friday, March 2, 2018 at 1:00pm.

Please advise if this could work on your end.

Emily

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
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Cc: John German <john@theicct.org>; Nic Lutsey <nic@theicct.org>; Brigitte Bernal <b.bernal@theicct.org>
Subject: Request for meeting with Mr. Bill Wehrum

Dear Emily,

My name is Drew Kodjak. I'm the executive director of the International Council on Clean Transportation, a global research organization dedicated to supporting government policies to address air pollution from vehicles and fuels.

Attached is a letter requesting a meeting with Mr. Wehrum. From our side, we would have two participating in person: myself and my colleague John German copied on this note.

If Bill is interested in a meeting, would you please work with my assistant Brigitte to find a time that works for everyone.

Warm regards,

Drew

Drew Kodjak, J.D. | Executive Director
Tel: +1 (202) 534-1608 | Email: drew@theicct.org | Web: www.theicct.org
1225 I Street, NW, Washington DC
www.transportpolicy.net

US Technology Update

Drew Kodjak
John German

Assistant Administrator Bill Wehrum
US EPA, OTAQ
March 2, 2018

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What have we been working on?

- Supplier briefs
- Technology assessment
- 2018 Camry case study
- Consumer payback
- Off-cycle credits
- Safety

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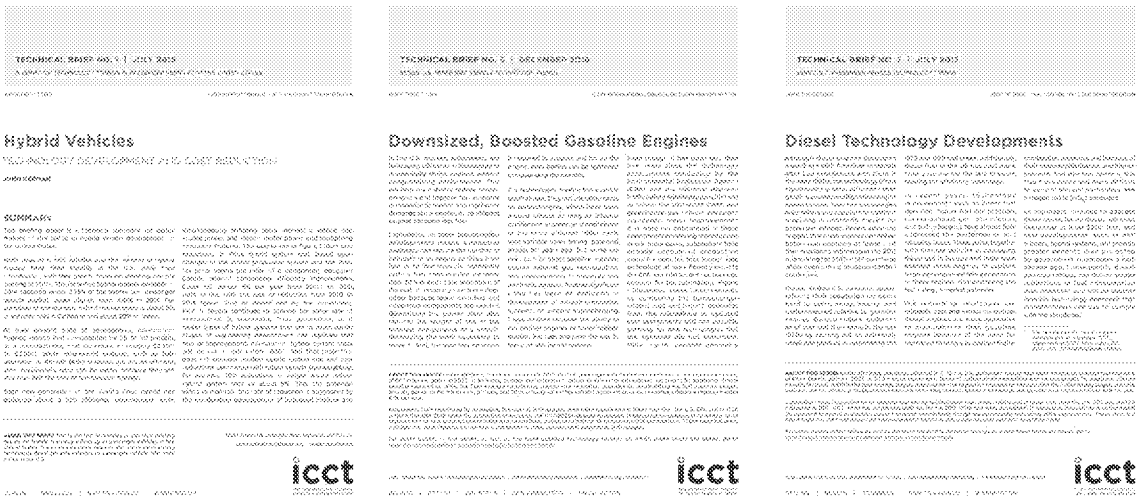
"Technology Updates" with major suppliers

- Seven tech briefs in collaboration with major international auto parts suppliers
- Evaluated rate of progress compared to analyses in the 2017-25 rule
- Evaluated technology developments that were not considered in the rule



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http://www.theicct.org/series/us-passenger-vehicle-technology-trends

Summary of Tech. Briefs and Suppliers

Company	Gasoline Turbo	Gasoline Nat. Asp.	Diesel	Trans-missions	Light-weighting	Thermal management
Aluminum Association					X	
BorgWarner	X	X	X	X		X
Dana				X		
Detroit Materials					X	
Eaton	X	X				
FEV				X	X	
Honeywell	X		X			
ITB	X	X	X	X	X	X
JCI	X					
Ricardo	X				X	
SABIC					X	

Several other suppliers and one OEM participated anonymously

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Technologies not in the 2025 rulemaking

- Technologies not anticipated or even considered in the 2017-2025 rule, which are already in production or for which production plans have been announced:
  - **High-efficiency naturally aspirated engines** with Atkinson cycle *and* high compression ratio
  - **Dynamic cylinder deactivation** - each individual cylinder is shut off every other revolution of the engine
  - **Miller cycle** for turbocharged engines
  - **Variable Compression Ratio**
  - **E-boost** – small, 48v electric compressor motor within a turbocharger or electric supercharger
  - **48-volt hybrid systems**
  - Improved **Continuously-variable transmissions (CVTs)**
  - **Lightweighting** advances
  - Numerous **Thermal Management** technologies

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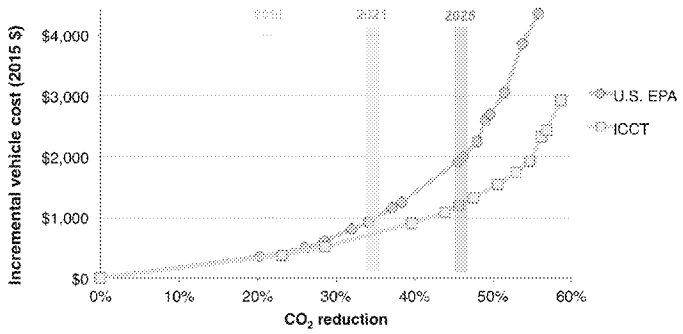
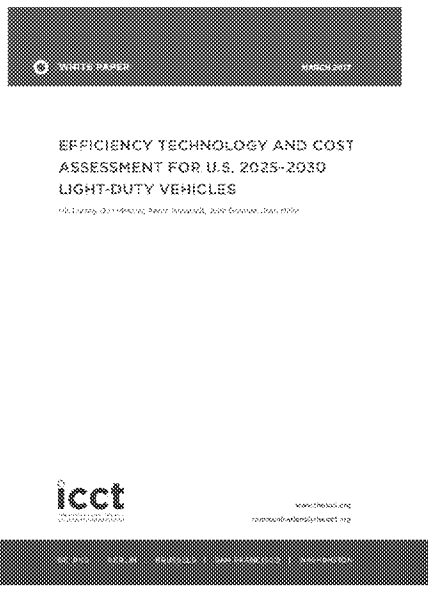
ICCT technology assessment using updated OMEGA modeling

- Costs of compliance with 2025 standards (vs. 2015) have decreased dramatically
  - 2012 rulemaking: $1800
  - EPA assessment (PD-2016): $1300
  - ICCT assessment (2017): $886





Note: EPA modeling updated from 2012 to 2016 (Proposed Determination)

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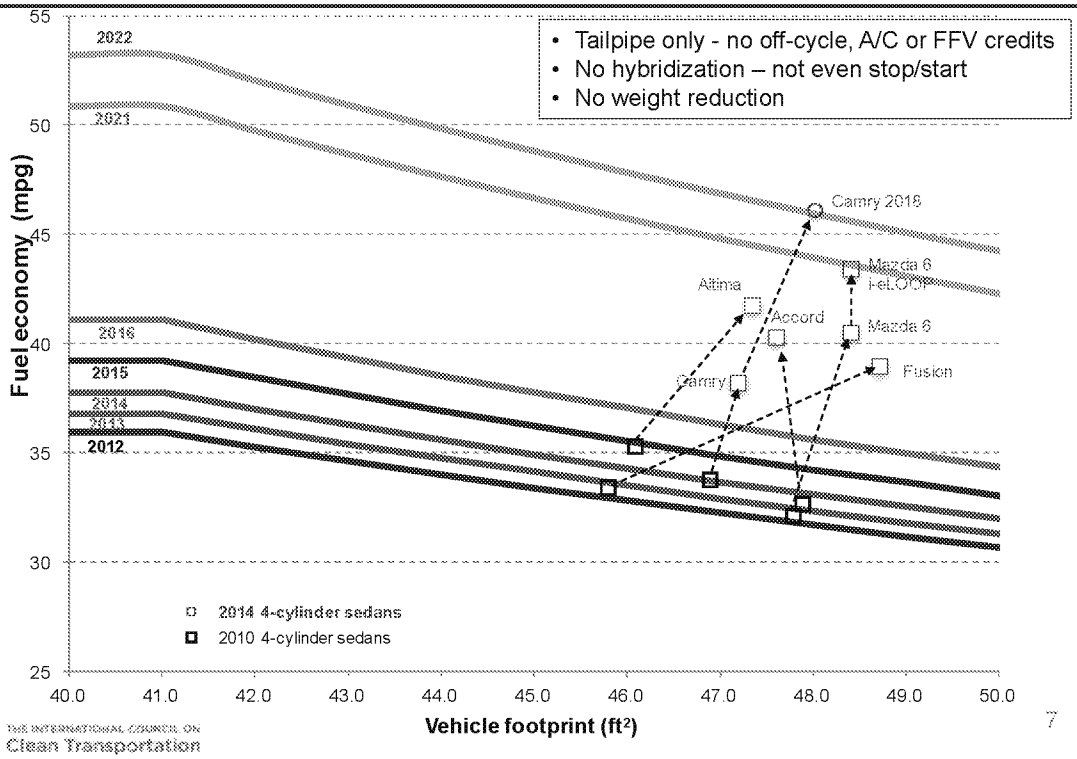
http://www.theicct.org/US-2030-technology-cost-assessment

6

http://www.theicct.org/US-2030-technology-cost-assessment

Groundtruthing our technology results



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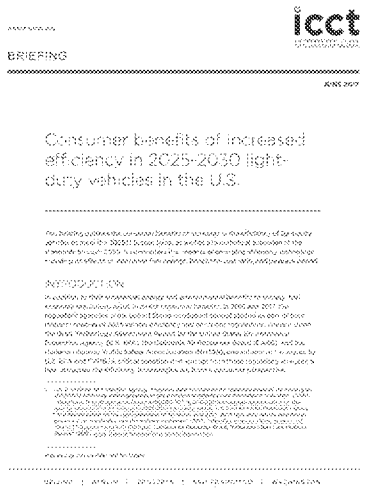
Consumer payback

- Consumer payback increased to 5 years due to lower oil price forecasts
- Based on ICCT's updated compliance costs, consumer payback period is back to 3 years.



Scenario	Year of Ownership	Vehicle Technology	Vehicle Taxes	Insurance	Maintenance	Fuel Savings	Cumulative Operational Savings
U.S. EPA 2025	1	-863	-47	-16	-5	236	-693
	2	0	0	-15	-6	232	-483
	3	0	0	-14	-5	223	-279
	4	0	0	-13	-5	213	-86
	5	0	0	-12	-5	202	5th 100
	6	0	0	-11	-5	189	274
	7	0	0	-10	-4	178	437
	8	0	0	-9	-4	168	589
ICCT 2025	1	-543	-30	-10	-7	236	-357
	2	0	0	-10	-7	232	-136
	3	0	0	-9	-7	223	3rd 72
	4	0	0	-8	-6	213	270
	5	0	0	-8	-6	202	458
	6	0	0	-7	-6	189	636
	7	0	0	-6	-6	178	801
	8	0	0	-6	-5	168	959

Figure 1. Technology costs, benefits, and payback period for the average model year 2025 vehicle purchased with cash.

https://www.theicct.org/sites/default/files/publications/US-LDV-Efficiency-Consumer-Benefits_ICCT_Briefing_21062017_vF.pdf

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http://www.theicct.org/consumer-benefits-ldv-efficiency-us-2030

Technology Leapfrog:
Even 2017 analyses are already out of date

- 2018 Camry leapfrogged the Mazda Skyactiv engine by adding a lot of small improvements
- Mazda will introduce the first **gasoline compression ignition** engine in 2019: 20-30% efficiency increase
- **48v hybrids**
  - Volvo: 48v systems standard on all redesigns starting in 2019
  - 2019 RAM pickup: 48v hybrid standard on the base V6 engine
- 2019 Silverado pickup will have **dynamic cylinder deactivation** standard – first application
- Ford and GM introducing **diesels** for their pickup trucks

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EPA modeling assessment: 2018 Camry case study

- Manufacturers have claimed there is systematic bias in EPA's lumped parameter model
- Camry added 8 technologies, providing an excellent case study
- Actual CO2 emissions decreased from 232.0 g/mi in 2015 to 188.9 in 2018, or 18.6%. After correcting for performance changes, EPA's models predict a 17.7% decrease in CO2 emissions.

	Actual Camry technology	
	2015	2018
Oil	0W-20	0W-16
Engine friction		
Cam phasing	dual VVT-i	VVT-iE (I)
Transmission	6A w ECT-i	8A w ECT-i
Steering	electric	electric
Accessories		var. cooling & oil pump
Fuel injection	SPI	DI + SPI
Atkinson cycle		13:1 CR
EGR		cooled
Rolling resistance		-11.3 % road load
Aero	Cd = 0.28	
Weight (ETW)	3,500 pounds	3,500 pounds

The Camry exceeded EPA's projection, indicating that there are no biases – if anything EPA's modeling is conservative.

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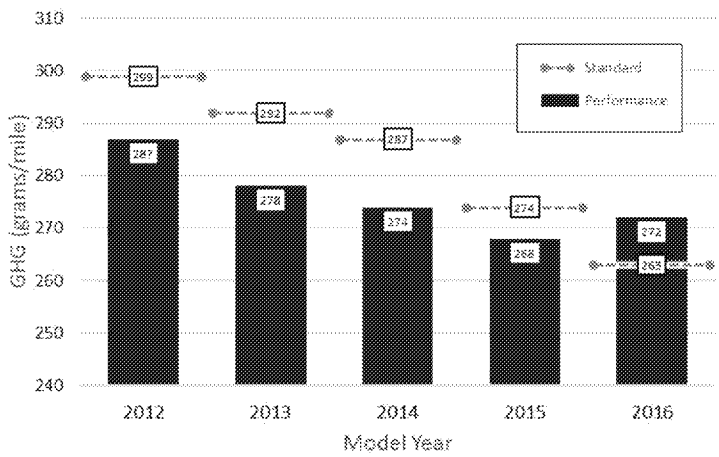
https://www.theicci.org/publications/how-things-work-omega-modeling-case-study-based-2018-toyota-camry

Industry performance versus standards

- Manufacturer claims that latest EPA reports mean standards are increasingly difficult to meet are incorrect, as they ignore:
  - Expiration of FFV credits (9 gCO2/mile in 2014 and 6 gCO2/mile in 2015)
  - Lull in product redesign cadence (e.g. no high-volume mid-size cars or pickup trucks redesigned since 2014)
  - Manufacturers have **stock-piled credits worth $12 to $18 billion dollars** – can save billions of dollars by slowing down technology introduction

Figure ES-1. Industry Performance versus Standards, 2012-2016 Model Years



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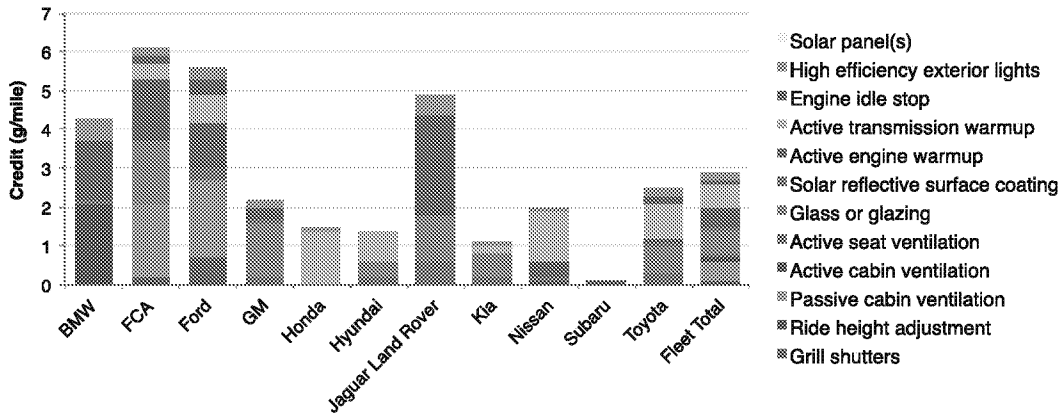
https://www.theicct.org/blog/staff/us-fuel-economy-trend-reflects-business-strategy-not-tech-challenge

Off-cycle credits could become a major compliance pathway for the 2025 standards



- Off-cycle credits forecast in 2012 rulemaking: 2.5 grams per OEM.
- In 2015, OEMs were granted 3 – 6 grams/ mile off cycle credits (see above)
- By 2025, ICCT expects OEMs to reach 15 – 20+ grams with profound implications on stringency and technology.

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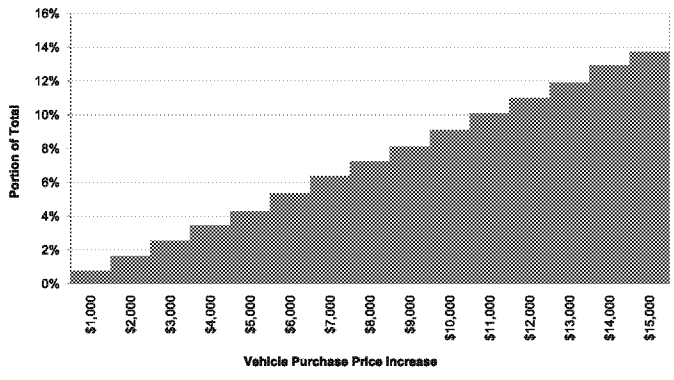
NADA: vehicle affordability

- As long as the fuel saving payback period is shorter than the auto loan, customers will have extra money in their pocket every month
- Only issue is obtaining a loan – NADA claimed:
  - "These upcoming fuel economy rules will price millions of potential buyers out of the market, simply because auto lenders will not finance a new fuel efficient vehicle based on its future fuel savings."
- 2012 NADA assessment was based upon new vehicle price increase of $2,937, $4,803, and $12,349 – with the same increase for cheap cars and luxury trucks
- For lower costs, less than 1% of households would be removed from the market

NATIONAL AUTOMOBILE DEALERS ASSOCIATION, The Effect of Proposed MY 2017-2025 Corporate Average Fuel Economy (CAFE) Standards on the New Vehicle Market Population. David Wagner, Paulina Nusinovich, Esteban Plaza-Jennings. 2/13/2012

Figure 3: Portion of Households Removed from New Vehicle Market after Price Increases from the $12,750 Benchmark



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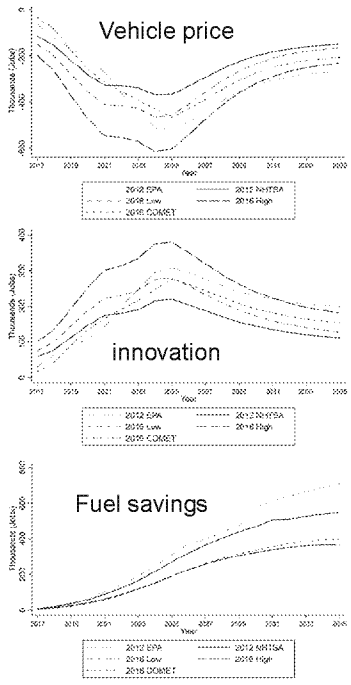
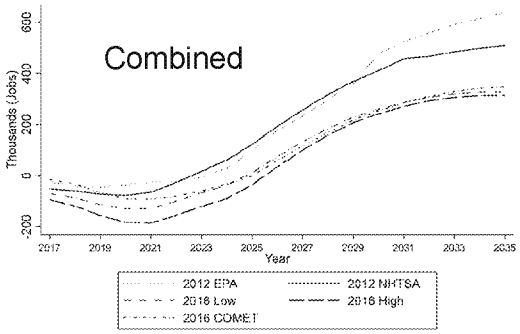
Indiana U. (Graham) Macroeconomic study of CAFE/CO2 Standards



- Contracted for by Alliance
- Properly considered all 3 factors affecting jobs and GDP

1. Higher vehicle price decreases jobs
   - Did not consider consumer value of fuel savings
   - Used older, high vehicle cost estimates
2. Auto supply chain innovation increases jobs – offsets about half of price increase
3. Fuel savings increase jobs

- Net is a small jobs decrease for first 6-8 years followed by large job increases after 2023-2027



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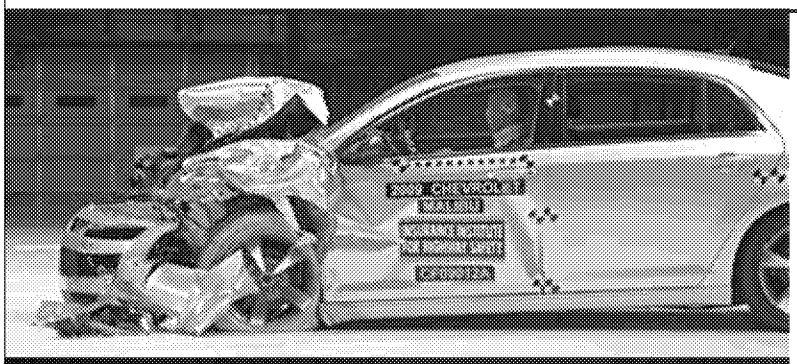
Safety – Design dominates
IIHS 50th Anniversary Crash Test



2009 Chevy Malibu
3452 pounds
192” long

1959 Chevy Bel Air
3629 pounds
209” long

Need forward-looking safety analyses

- High strength steel and aluminum have better crash properties than conventional steel
- NHTSA's safety analyses are backwards looking, so they ignore this factor – which is more important than either size or weight
- Need analyses of the multiple crash simulations with advanced materials, to estimate the safety impacts of using high strength steel and aluminum to reduce weight

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Key Points

- The 2017-25 rule and even the TAR failed to consider a lot of currently available technology
- Rate of technology innovation is accelerating – developments since the rulemaking will make it much easier and cheaper for manufacturers to comply with the standards than originally forecasted
- Imperative to use the most recent technology analyses - EPA's modeling is accurate and more up to date than the inputs to the Volpe model
- ICCT would be happy to provide further information

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Further Information

ICCT/supplier working papers

- http://www.theicct.org/lightweighting-technology-development-and-trends-us-passenger-vehicles
- http://www.theicct.org/downsized-boosted-gasoline-engines
- http://www.theicct.org/automotive-thermal-management-technology
- http://www.theicct.org/PV-technology-transmissions-201608
- http://www.theicct.org/naturally-aspirated-gas-engines-201606
- http://www.theicct.org/diesel-engines
- http://www.theicct.org/hybrid-vehicles-trends-technology-development-and-cost-reduction

ICCT technology briefs

- http://www.theicct.org/lightweighting-technology-developments-briefing
- http://www.theicct.org/downsized-boosted-gasoline-engines-briefing
- http://www.theicct.org/tech-brief-thermal-management-technology-nov2016
- http://www.theicct.org/transmissions-techbrief-oct2016
- http://www.theicct.org/naturally-aspirated-engines-techbrief-jun2016
- http://www.theicct.org/diesel-tech-developments-tech-brief

Other ICCT technology assessments and modeling

- http://www.theicct.org/sites/default/files/publications/PV-LCV-Powertrain-Tech-Analysis_FEV-ICCT_2015.pdf
- http://www.theicct.org/next-generation-electric-vehicle-technologies
- http://www.theicct.org/US-2030-technology-cost-assessment
- https://www.theicct.org/blog/staff/technology-leapfrogging
- https://www.theicct.org/publications/how-things-work-omega-modeling-case-study-based-2018-toyota-camry
- https://www.theicct.org/blog/staff/us-fuel-economy-trend-reflects-business-strategy-not-tech-challenge
- https://www.theicct.org/sites/default/files/publications/US-LDV-Efficiency-Consumer-Benefits_ICCT_Briefing_21062017_vF.pdf

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HDV NOx

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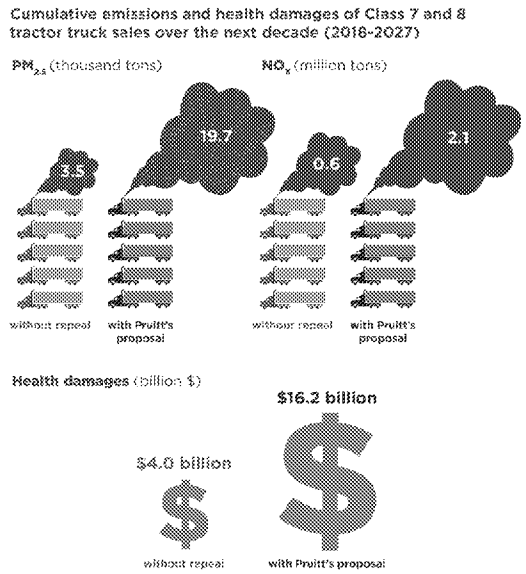
Health impacts of repealing the Glider truck rule are excessive

- EPA has explicit authority under the Clean Air Act to regulate rebuilt engines in glider trucks
- No regulatory impact assessment was conducted for the proposal
- Benefits a small number of business at the expense of citizen's health and globally competitive U.S. engine manufacturers



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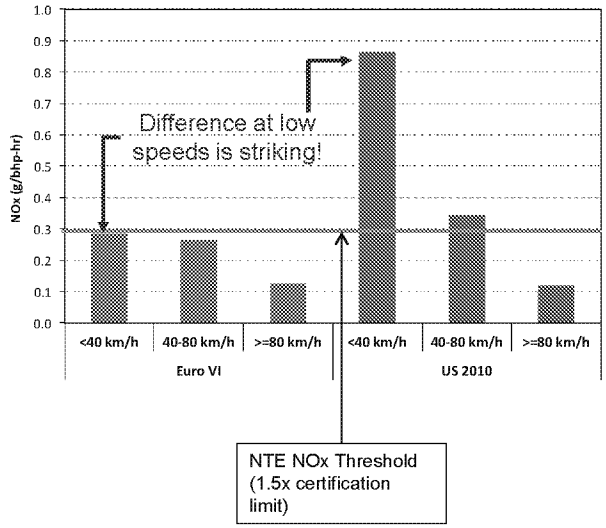
https://www.theicct.org/blog/staff/glider-proposal-means-resurrecting-dirty-diesel
https://www.theicct.org/blog/staff/glider-industry-petition-support-glider-trucks-debunks-itself

Improved HD Engine emissions tests could lead to lower urban NOx emissions

- We are not receiving the full benefit of the 2010 HD standards
- Current "NTE" test protocol for U.S. HD engines does not cover most urban driving conditions.
- In-use HDV emissions data from the US and Europe (WBW protocol) indicates significant urban NOx reductions are possible – using existing hardware
- Harmonization of test procedures with Europe would reduce costs for US companies competing in international markets



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EU Data sources: TNO, VTT, TIL. US Data sources: CARB, EPA, WVU, UCR. Note: Some conversion assumptions had to be made in cases where the NOx emissions were not reported in units of g/bhp-hr

Thank You

Thoughts, questions, suggestions?

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Message

From: Maranion, Bella [Maranion.Bella@epa.gov]
Sent: 12/22/2017 5:46:30 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: Automatic reply: Request for No Action Assurance on defense & bear sprays

I will be out of the office until Monday, January 8, 2018. If you need immediate assistance, please contact the following:
- Dec. 21-22 and Jan. 2-5, Margaret Sheppard at Personal Phone / Ex. 6
- Dec. 26-29, Gerald Wozniak Personal Phone / Ex. 6

Appointment

From: Zimmer, Nathaniel [zimmer.nathaniel@epa.gov]
Sent: 12/4/2018 6:47:09 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]

Subject: FW: Meeting with Canadian Association of Petroleum Producers
Attachments: CAPP EPA Meeting Request Form - Acting Administrator Wheeler.docx
Location: Adminsitrator's office

Start: 12/6/2018 7:15:00 PM
End: 12/6/2018 7:45:00 PM
Show Time As: Tentative

-----Original Appointment-----
From: Personal Email / Ex. 6
Sent: Monday, December 3, 2018 5:29 PM
To: Adm15Wheeler.Calendar; McIntosh, Chad; Nishida, Jane; McIntosh, Chad; Nishida, Jane
Cc: Zimmer, Nathaniel
Subject: Meeting with Canadian Association of Petroleum Producers
When: Thursday, December 6, 2018 2:15 PM-2:45 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Adminsitrator's office

Message

From: McConkey, Diane [Mcconkey.Diane@epa.gov]
Sent: 12/22/2017 5:46:30 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: Automatic reply: Request for No Action Assurance on defense & bear sprays

I will be out of the office from Friday, December 22nd until Tuesday, January 2nd.
During my absence, please contact Karen Bianco for anything related to the Montreal Protocol.
Please contact Jan Tierney for anything SNAP-related.

Message

From: Shaw, Betsy [Shaw.Betsy@epa.gov]
Sent: 11/22/2017 7:48:14 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]
CC: Hyde, Courtney [Hyde.Courtney@epa.gov]; Walters, Margaret [Walters.Margaret@epa.gov]; LaRue, Steven [LaRue.Steven@epa.gov]; Wolfe, Michael [Wolfe.Michael@epa.gov]
Subject: FY18 Appropriations Update
Attachments: FY18 house_senate report language 11.22 v2.docx

Hi all,

Now that both House and Senate proposals for EPA's FY2018 funding are available, we have a slightly better, (although still incomplete), idea of what the resource picture might look like for the remainder of this fiscal year. The Senate version, which funds the Agency at approximately $7.9 billion, is over $500 million greater than the House version of $7.4 billion. Both versions would provide the Agency with less funding than we received in FY 2017, which was approximately $8.1 billion. Across the individual accounts included in the funding bills, there are also significant differences which complicate understanding the exact funding amounts at an individual program level.

There are, however, some notable funding specifics, like the overall Agency State and Tribal Assistance Grant (STAG) funding in both the House and Senate versions, which is nearly equal to the FY 2017 funding level of $3.5 billion and includes:

- State and Local Air Quality Management grants ($228.2 million in FY 2017) – $238.2 million (Senate), $228.2 million (House)
- Tribal Air Quality Management grants ($12.8 million in FY 2017) - $12.8 million (both)
- Diesel Emissions Reduction Act (DERA) grants ($60 million in FY 2017) - $40 million (Senate), $75 million (House)
- Radon grants ($8.1 million in FY 2017) - $8.1 million (both)
- Targeted Airshed grants ($30 million in FY 2017) - $30 million (Senate), $40 million (House)

Based on news reports, a short-term Continuing Resolution (CR) will likely be needed to give the House and Senate additional time to come to agreement on final funding levels across the government. Once the Agency has a final appropriation, funding at the individual account level will be determined during development of the FY 2018 Operating Plan.

Included in the attached file are policy directives from both the House and Senate explanatory statements (report language). It is likely that these directives will carry the same emphasis as the conference report language that may eventually accompany a final appropriation.

Please let me know if you have any questions.

Thanks,

Betsy

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 2/5/2018 1:23:28 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
CC: Atkinson, Emily [Atkinson.Emily@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
Subject: Additional background info for NAM energy/environment committee meeting
Attachments: Spring 2018 EE Committee Agenda.docx; EE Committee Spring 2018 attendee list.xlsx

From Ross at NAM yesterday. ~175 attendees in the room or by phone.

From: Ross Eisenberg [mailto:REisenberg@nam.org]
Sent: Sunday, February 04, 2018 10:49 AM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>; Alexandra Williams <AWilliams@nam.org>
Subject: RE: Speaker invitation: Feb 5 NAM energy/environment committee meeting

Emily,

We're looking forward to having Bill Wehrum and Mandy Gunasekara address our energy and environment policy committees Monday afternoon at 2:30 pm. Attached is the current agenda for the meeting and the most recent attendee list for the event. Right now we're looking like we'll have 115 people in the room and another 60 or so on the phone. I expect a few drop-offs between now and tomorrow but not many.

NAM Headquarters is located at 733 10th St. NW, Suite 700. The location is the corner of 10th and G Streets, NW; our office is on the 7th floor. The meeting itself will be in the NAM's Global Room, which is our largest conference room, located just to the side of the front lobby. We'll have someone waiting in the lobby to meet Bill and Mandy when they get here. The room will probably be set up with a large table at the front and rows of chairs facing the speakers. Bill and Mandy will be on at 2:30 pm.

This is a joint meeting of the NAM's energy and environment policy committees, which have jurisdiction over all energy, environment and natural resources issues for the NAM. Chris Keuleman, International Paper's VP of government affairs, chairs the energy committee and will be chairing Monday's meeting. He will introduce Bill and Mandy and moderate Q&A. The room is wired for teleconference, and Bill and Mandy will have microphones for their remarks so attendees on the phone can listen. I will also be at the table to help with any unexpected issues. We'll have staff roaming the room with microphones for the Q&A portion.

We have 45 minutes slotted for tomorrow's presentation. Bill and Mandy are likely very familiar with the range of issues our members care about; our top environmental priorities tend to be the big issues the air office is focusing on. Top of mind for the members in the room will be ozone, the Clean Power Plan, New Source Review, the light-duty vehicle midterm review, heavy-duty vehicle phase 2 GHG regs, the upcoming PM2.5 NAAQS, and process-related issues that deal with the underlying framework for the regulations (e.g. cost-benefit analysis, CASAC, etc.). This will be a friendly crowd; they are big supporters of the work the air office is doing. Given the diversity in the room it's possible they could get a curveball on a climate issue or something like the glider rule for heavy-duty trucks (NAM expressed concern with this rule). But even if that happens I expect things to be very friendly.

The meeting is off-the-record and we will make an announcement to that effect at the start of the meeting and again right before Bill and Mandy begin speaking. Committee membership is open to any NAM member company or association, and you can see from the attached attendee list that we have a pretty diverse turnout.

Let me know if you have any other questions, and thanks again for working with us on tomorrow's meeting. We're really looking forward to it.

Ross Eisenberg
Vice President, Energy and Resources Policy
National Association of Manufacturers
Direct: 202.637.3173
Mobile: 703.517.1655
Email: reisenberg@nam.org

From: Atkinson, Emily [mailto:Atkinson.Emily@epa.gov]
Sent: Wednesday, January 31, 2018 12:06 PM
To: Ross Eisenberg <REisenberg@nam.org>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>; Alexandra Williams <AWilliams@nam.org>
Subject: RE: Speaker invitation: Feb 5 NAM energy/environment committee meeting

Thank you Ross.

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Ross Eisenberg [mailto:REisenberg@nam.org]
Sent: Wednesday, January 31, 2018 12:00 PM
To: Atkinson, Emily <Atkinson.Emily@epa.gov>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>; Alexandra Williams <AWilliams@nam.org>
Subject: RE: Speaker invitation: Feb 5 NAM energy/environment committee meeting

Emily, that would be wonderful. Thank you so much for making it work on their schedules.

Location is NAM Headquarters, 733 10th St. NW, Suite 700, Washington DC 20001 (corner of 10th and G streets NW). They'll be speaking from 2:30 to 3:15. We will get you an attendee list ahead of time so Bill and Mandy can see who is in the room.

If there are additional logistics that you need from us, just let me know. Thanks again for confirming; we're very excited that Bill and Mandy can make it.

From: Atkinson, Emily [mailto:Atkinson.Emily@epa.gov]
Sent: Wednesday, January 31, 2018 11:51 AM
To: Ross Eisenberg <REisenberg@nam.org>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>
Subject: RE: Speaker invitation: Feb 5 NAM energy/environment committee meeting

Hi Ross,

It looks like Bill Wehrum and Mandy Gunasekara could be available to join you for 45 minutes starting at 2:30pm on Monday, February 5.

Please confirm this timing works on your end and the location of the event.

Thank you.
Emily

Emily Atkinson
Management Analyst/Office Manager
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
Room 5412B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

From: Ross Eisenberg [mailto:REisenberg@nam.org]
Sent: Monday, January 29, 2018 3:29 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: Speaker invitation: Feb 5 NAM energy/environment committee meeting

Bill,

I hope all is well. I'd like to invite you to speak at the NAM's upcoming meeting of its energy and environment committees. The meeting is scheduled for Feb. 5 from 2-4 pm at NAM headquarters and would be off-the-record. Audience would be member companies and trade associations, all of whom are NAM members. We usually get 100 in the room and another 70-80 by phone. We have flexibility on time, so if you are able to attend at any point during the 2-4 pm window, we will carve out a 30-45 minute spot on the agenda for you.

As you know, your portfolio at EPA is far and away the most requested issue area from our committee members. If you have time to provide an update I'm sure the members would love it.

Ross Eisenberg
Vice President, Energy and Resources Policy
National Association of Manufacturers
Direct: 202.637.3173
Mobile: 703.517.1655
Email: reisenberg@nam.org

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 11/8/2018 9:02:47 PM
To: Bennett, Tate [Bennett.Tate@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gordon, Stephen [gordon.stephen@epa.gov]
Subject: Re: Fitzgerald Tuesday

Our suggestion is no.

Sent from my iPhone

On Nov 8, 2018, at 1:18 PM, Bennett, Tate <Bennett.Tate@epa.gov> wrote:

> Double Double Double checking bc of glider issue----- are we good inviting Fitzgerald to the event? I know they have a meeting request with the Admin in the queue.
>
> Elizabeth Tate Bennett
> Associate Administrator for Public Engagement & Environmental Education
> Office of the Administrator
> U.S. Environmental Protection Agency
> (202) 564-1460
> Bennett.Tate@epa.gov

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 11/22/2017 7:15:08 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Charmley, William [charmley.william@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Subject: Re: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

Bill,

We refer to the heavy-duty rule that we finalized in August 2016 with DOT as the "Phase 2" rule, as it was a follow-on to an earlier EPA and DOT rulemaking to establish heavy-duty GHG standards (EPA) and fuel efficiency standards (DOT). The industry and other stakeholders started calling the first rule "Phase 1" and the 2016 rule "Phase 2".

This year the Administrator has directed us to work on two actions related to the 2016 "Phase 2" program:

- Propose to rescind the PM, NOx, HC, CO and GHG standards EPA established in the 2016 Phase 2 final rule for glider vehicles. This is the NPRM that EPA issued a few weeks ago.

- Develop a proposal to revisit EPA's CO2 standards established in the 2016 Phase 2 final rule for trailers that are pulled by highway heavy-duty tractors. While we are working on this action, the Administrator directed OAR to focus on the glider regulations first. DOT/NHTSA also stated they will take another look at the standards they established for trailers.

Bill Charmley referred to the "Phase 2" rule docket because that is the public docket we are utilizing for the glider reconsideration rulemaking – the same docket used for establishing the standards. This has been our typical practice when we are re-visiting part of a previous rulemaking.

Chris

Christopher Grundler, Director

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202.564.1682 (Washington DC)

734.214.4207 (Ann Arbor MI)

734.645.5221 (mobile)

www.epa.gov/otaq

On Nov 22, 2017, at 1:53 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Thanks Chris. Is there a phase 2 HD rule underway?

From: Grundler, Christopher
Sent: Wednesday, November 22, 2017 1:47 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: Fwd: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

FYI. These results were previously shared with Mandy and David. This testing will be part of the tour next week.

Happy Thanksgiving!

Chris

Christopher Grundler, Director

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202.564.1682 (Washington DC)

734.214.4207 (Ann Arbor MI)

734.645.5221 (mobile)

www.epa.gov/otaq

Begin forwarded message:

From: "Charmley, William" <charmley.william@epa.gov>
To: "Grundler, Christopher" <grundler.christopher@epa.gov>
Cc: "Cullen, Angela" <cullen.angela@epa.gov>, "Haugen, David" <haugen.david@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Sargeant, Kathryn" <sargeant.kathryn@epa.gov>, "Cook, Leila" <cook.leila@epa.gov>

Subject: RE: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

Dear Chris –

Yesterday we submitted to the heavy-duty phase 2 docket the OTAQ test report which documents the emissions testing program we have done on the two glider vehicles.

Attached is a copy of that test report.

Many thanks to the TATD staff for their very responsive and excellent work on performing this testing, and also many thanks to Angela, George Mitchell, James Sanchez, and Connie Hart in ASD for working with the TATD staff, and for writing the test report.

Thanks
Bill

From: Charmley, William
Sent: Friday, November 17, 2017 5:25 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Angela Cullen <Cullen.Angela@epa.gov>; Haugen, David <haugen.david@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Kathryn Sargeant (sargeant.kathryn@epa.gov) <sargeant.kathryn@epa.gov>
Subject: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

Dear Chris,

On November 13, I sent you an email summarizing the emission results from the first glider vehicle that we tested at the laboratory, and I mentioned we had a second glider vehicle undergoing tests. That second vehicle testing is now complete. This email summarizes the results from both of the glider's we have tested. We continue to look at the possibility of testing a third glider vehicle, but no decisions have yet been made on testing a third vehicle.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Please let me know if you have any questions on this topic.

Bill

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 12/20/2018 9:36:06 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]
Subject: FW: Call with Bill W. tomorrow re: Posey glider response
Attachments: DRAFT - POSEY_Gliders, v3, clean.docx; DRAFT - POSEY_Gliders, v3.docx

Updated version of the Poesy response. I'll have hard copy for you to take home tonight.

From: Charmley, William
Sent: Thursday, December 20, 2018 4:31 PM
To: Burch, Julia <Burch.Julia@epa.gov>
Cc: Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Moulis, Charles <moulis.charles@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>
Subject: RE: Call with Bill W. tomorrow re: Posey glider response

Julia –

Attached is an updated draft response to the Posey letter.

We had a discussion this morning with AA Wehrum, and in response to his input, Chuck has made a few updates that I reviewed.

Attached is a redline/strikeout, and also a clean version.

I am not sure if we should put this back into CMS, or if AA Wehrum wants to review it outside of CMS first.

Thanks
Bill

From: Lewis, Josh
Sent: Wednesday, December 19, 2018 5:03 PM
To: Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Burch, Julia <Burch.Julia@epa.gov>
Subject: Call with Bill W. tomorrow re: Posey glider response

Could we find 15 minutes tomorrow morning? Bill has some questions about the current response…mainly related to the 4th paragraph and wanting a better understanding of

Deliberative Process / Ex. 5

eliberative Process / Ex. 5

Or suggest another time, if that doesn't work.

Thanks
Josh

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 12/22/2017 5:31:01 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Dunham, Sarah [Dunham.Sarah@epa.gov]; Newberg, Cindy [Newberg.Cindy@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; McConkey, Diane [Mcconkey.Diane@epa.gov]; Maranion, Bella [Maranion.Bella@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]
Subject: RE: Request for No Action Assurance on defense & bear sprays
Attachments: Wehrum Letter Requesting SNAP July 2015 Rule NAA for Bear Sprays 2017-12....docx

Bill,

Attached is the latest draft of the memo that OECA needs from OAR before acting on the NAA request. OAP staff worked w/ OECA staff on this, and all comments from OECA have been addressed in this draft.

Next step would be your review. If you're good w/ this draft, I'll ask Mandy to sign the memo on your behalf and we'll get it to OECA today. If your review goes into next week, or if there are issues you want to discuss w/ Susan or Patrick prior to sending, then we'll likely ask that you send directly to Susan in an email, and hope that an unsigned version will be ok.

Josh

From: Wehrum, Bill
Sent: Wednesday, December 20, 2017 6:58 PM
To: Krieger, Jackie <Krieger.Jackie@epa.gov>
Cc: Dunham, Sarah <Dunham.Sarah@epa.gov>; Newberg, Cindy <Newberg.Cindy@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; McConkey, Diane <Mcconkey.Diane@epa.gov>
Subject: Re: Request for No Action Assurance on defense & bear sprays

Hi Jackie. Let's go ahead with the NAA. I will not be in the office, but will be able to authorize signature when the memo from me to Susan is ready.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Dec 20, 2017, at 6:43 PM, Krieger, Jackie <Krieger.Jackie@epa.gov> wrote:

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Jackie Krieger / Chief of Staff / Office of Atmospheric Programs / U.S. EPA / O: 202-343-9905 / C: 202-236-3934

From: Wehrum, Bill
Sent: Tuesday, December 19, 2017 8:40 PM
To: Krieger, Jackie <Krieger.Jackie@epa.gov>
Cc: Dunham, Sarah <Dunham.Sarah@epa.gov>; Newberg, Cindy <Newberg.Cindy@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>
Subject: Re: Request for No Action Assurance on defense & bear sprays

Thanks Jackie. Let's wait to hear what they have to say.

Bill Wehrum

Assistant Administrator

Office of Air and Radiation

U.S. Environmental Protection Agency

(202) 564-7404

On Dec 19, 2017, at 5:21 PM, Krieger, Jackie <Krieger.Jackie@epa.gov> wrote:

> Thanks, Bill. Sorry so long to reply; Cindy's been trying all day to speak with the company's attorney.

Deliberative Process / Ex. 5

Jackie Krieger / Chief of Staff / Office of Atmospheric Programs / U.S. EPA / O: 202-343-9905 / C: 202-236-3934

From: Wehrum, Bill
Sent: Tuesday, December 19, 2017 8:26 AM
To: Dunham, Sarah <Dunham.Sarah@epa.gov>
Cc: Lewis, Josh <Lewis.Josh@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Newberg, Cindy <Newberg.Cindy@epa.gov>; Krieger, Jackie <Krieger.Jackie@epa.gov>
Subject: Re: Request for No Action Assurance on defense & bear sprays

Two things:

Deliberative Process / Ex. 5

Bill Wehrum

Assistant Administrator

Office of Air and Radiation

U.S. Environmental Protection Agency

(202) 564-7404

On Dec 18, 2017, at 4:22 PM, Dunham, Sarah <Dunham.Sarah@epa.gov> wrote:

Hi Bill-

Deliberative Process / Ex. 5

DRAFT Note:

Susan-

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 12/8/2017 1:05:25 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; DeMocker, Jim [DeMocker.Jim@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Cyran, Carissa [Cyran.Carissa@epa.gov]; Millett, John [Millett.John@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
Subject: OAR weekly report
Attachments: OAR Weekly Report.12072017.docx

OAR Weekly Report – December 8, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Ken Kimmell [KKimmell@ucsusa.org]
Sent: 11/8/2018 7:35:35 PM
To: Wheeler, Andrew [wheeler.andrew@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Dickerson, Aaron [dickerson.aaron@epa.gov]; Michelle Robinson [MRobinson@ucsusa.org]; Andrew Rosenberg [ARosenberg@ucsusa.org]
Subject: FW: Documents
Attachments: UCS Comments_ACEProposedRule_10-31-18.pdf; UCS MY2021-2026 NPRM Public Comment.pdf; UCS CSD Strengthening Transparency in Regulatory Science Comment.pdf; UCS MY2021-2026 NPRM Technical Appendix.pdf

Dear Administrator Wheeler, Chief of Staff Jackson, and Assistant Administrator Wehrum:

This is a belated thank you for meeting with my team and me a few weeks ago. We appreciated the time you gave to us and the robust discussion, though in all candor we were disappointed that the meeting did not seem to yield a higher level of resolve to address climate change and scientific integrity.

Among other things, at the meeting we discussed the so called "safety" rationale for the flatlining of the fuel economy standards. I had mentioned that we would refute that rationale in our comments, and we have done so. I have attached those comments which come in the form of a letter, and a separate technical appendix.

As we also discussed the clean power plan and the proposal regarding the scientific studies that will be considered by EPA, I have also attached our recently filed comments on those subjects.

Thank you for your attention to these matters and I hope our comments are informative.

Best,

Ken

Ken Kimmell
President
Union of Concerned Scientists
Tel: (617) 547-5552
Twitter: @KenKimmell

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www.ucsusa.org | Join our action network or expert network | Support our work.

Comments Concerning the Proposed Rulemaking to Revise Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards: Technical Appendix

Referencing docket ID numbers:

EPA-HQ-OAR-2018-0283

NHTSA-2018-0067

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These technical comments were prepared on behalf of the Union of Concerned Scientists by David W. Cooke, in consultation with Don Anair, Samantha Houston, David Reichmuth, and Alyssa Tsuchiya.

Dr. Cooke is a senior vehicles analyst in the Clean Vehicles Program at Union of Concerned Scientists, specializing in both light- and heavy-duty fuel economy. He conducts research on fuel efficiency technologies and the implications for oil consumption and greenhouse gas emissions across the transportation sector.

I. Agencies have failed to propose maximum feasible standards

NHTSA is required by the EPCA, as amended by EISA, to issue "maximum feasible" standards for manufacturers' fleets by balancing a number of factors the must include technological feasibility, economic practicability, the effect of motor vehicle standards of the Government on fuel economy, and the need for the United States to conserve energy (49 USC 32902(a), (f)). NHTSA may consider additional factors, namely safety and consumer choice, as it has chosen to do in this proposed rulemaking (83 FR 43206). In Section V.A.(e), NHTSA discusses how it has "balanced" the four required factors alongside the two optional factors. On its face, the discussion might seem like a reasonable balance of factors. However, the Agency has seriously mischaracterized several of the factors under consideration, which has led to an erroneous conclusion about the appropriate stringency of a standard to satisfy the maximum feasibility requirement. Furthermore, it has ignored its statutory obligation to support the ultimate purpose of EPCA: energy conservation.[1] In the following sections, we demonstrate critical flaws in how the Agency's analysis of technological feasibility, economic practicability, effect of other standards, and need to conserve energy has been conducted.

While the arguments below are constructed around NHTSA's statutory requirements, all of the data supporting our conclusions about the technical feasibility, socioeconomic benefits, and interaction with other rules are directly relevant to EPA's statute as well. We have identified in specific instances where the precise rationale may be more pertinent to a particular agency, but generally these comments should be read as broadly relevant to both agencies' authority and obligations to set strong standards which will benefit the American people.

A. Agencies' modeling of the standards is overly conservative and does not accurately demonstrate the technological feasibility of stronger standards.

1. *The agencies' characterization of the current state of technology is overly conservative and inconsistent with previous agency conclusions*

The agencies have invited comment on "all aspects of the analysis discussed" in Section II.D Characterization of Current and Anticipated Fuel-Saving Technologies (83 FR 43022). In this section, we respond to the agencies' treatment of technology in modeling the proposed rule. In response to agencies' specific requests for comment on technology costs, effectiveness, and applicability to vehicles in the fleet (83 FR 43029), we demonstrate that the agencies have overestimated costs and underestimated the effectiveness and applicability of many fuel saving technologies considered. We further point out that agencies have failed to consider some technologies at all, including spark-assisted compression ignition and variable compression ratio engines. Such conservative treatment of included fuel-saving technologies and failure to consider other technologies at all leads the agencies to erroneous conclusions about the technological feasibility of strong vehicle standards.

In the 2017 Final Determination (EPA 2017a, b), EPA documented how manufacturers have responded to strong fuel economy and emissions standards. The manufacturers innovated—they have invested in robust research and development efforts that have yielded unforeseen technology developments,

[1] ***CBD*** v. ***NHTSA***, 538 F. 3d 1172, 1197 (9th Cir. 2008). "Whatever method it uses, NHTSA cannot set fuel economy standards that are contrary to Congress' purpose in enacting the EPCA—energy conservation."

including high compression ratio engines, improved continuously variable transmissions, cheaper and wider deployment of lightweight materials, and more (EPA et al. 2016; EPA 2016a). Since the 2017 Final Determination, advancements in conventional vehicles have continued apace, with even further breakthroughs like spark-assisted compression ignition and variable compression ratio engines. Unfortunately, in the analysis supporting this NPRM, the agencies have chosen to ignore these advances and instead used conservative assumptions that underestimate the potential for future reductions in fuel use and emissions, as outlined below.

A) MILD HYBRIDIZATION

While the agencies have acknowledged in the supporting documentation some of the recent progress in mild hybridization, particularly with the addition of 48V mild-hybrid technology to the Volpe model, the costs included in this proposal are far too high. In practice, costs have continued to come down for 48V systems and today already match those projected for 2025 less than two years ago in EPA's analysis for the Final Determination (EPA 2017a). Continued volume-based learning will drive the cost down further (see presentations by Johnson Controls and FCA, Lee 2017), consistent with near-term plans from a number of manufacturers, including Fiat-Chrysler, Ford, General Motors (NemoTec presentation, Lee 2017).

Of particular interest, mild hybridization is also showing strong potential in pick-up trucks, proving that standards could be stronger for these vehicles. Recent deployment of a limited fleet of eAssist Silverado pick-ups in California shows not just significant emissions reductions in city driving (13 percent), but also yields significant benefit on the highway as well, for an overall improvement of 9 to 11 percent, dependent upon whether it is utilized on a 2WD or 4WD vehicle (GM 2016). This low-cost technology (GM offered it at just a $500 premium) can work synergistically with other technologies on the truck to further reduce fuel use—General Motors noted in its press materials, "the electric motor also enables the Active Fuel Management [cylinder deactivation] system on the 5.3L V-8 engine to operate in 4-cylinder mode for longer periods, resulting in additional fuel economy benefits" (GM 2016).

Such performance exceeds the agencies' assessment of the technology. The Autonomie modeling results estimated just a 6 to 7 percent improvement above the conventional engine across all vehicle classes (PRIA Figure 6-155), well below not only certification data from Ram and GM,[2] but below the latest assessments of the National Academies[3] and EPA,[4] and even previous Autonomie results

[2] According to the test data submitted by General Motors, the eAssist system deployed on its heavy-duty pick-ups achieves a 10 percent reduction in fuel consumption on the CAFE cycle in its 2WD pick-ups and a 5.5 percent improvement on its 4WD pick-ups (comparing models 550/645, 551/646, 558/643, and 559/644) (EPA 2018a). FCA data shows that there is a 10 percent difference on the CAFE test cycle between similarly configured 2019 Ram 1500 4x2 and 4x4 pick-ups with and without their eTorque mild hybrid system (comparing models 504/505, and 506/507) (EPA 2018b).

[3] "The [2015 National Research Council] committee concludes that the effect of hybridization is a 10 percent reduction in fuel consumption for the mild hybrid." (p. 4-40, NAS 2015)

[4] In its Technical Support Documentation supporting the 2016 Proposed Determination, EPA found a technology effectiveness for mild hybrids of 7 to 9.5 percent (Table 2.90, EPA 2016a).

incorporated into NHTSA analysis.[5] This drastic departure from previous Autonomie results is especially notable in the case of crank-integrated starter generator (CISG) mild hybrids, which showed a 4 to 5 percent improvement over the belt-integrated starter generator (BISG) in previous analysis (ANL 2016), while the data supporting this proposal instead shows virtually no benefit whatsoever for CISG over BISG, and in many cases actually shows an ***increase*** in fuel consumption (PRIA Figure 6-155; FC1_Improvements.csv, NHTSA 2018a)—no explanation whatsoever is given in the technical support for the administration's proposed rule for this radical decrease in technology potential.

It is not just the effectiveness of this widely deployable and relatively low-cost conventional vehicle technology that has been inexplicably downgraded—the agencies' costs have also been raised substantially. Little documentation is available to support this change—the data presented in the PRIA for the choice of battery technology and cost of batteries conflicts with that presented in the proposal and provided as inputs to the Volpe model, as noted in an as-yet unfulfilled request for further information and clarity about the administration's proposal (Peter 2018).

The PRIA (Table 6-29) lists the direct manufacturing costs ("BatPaC DMC Cost") for a BISG battery as $391.12 and a CISG battery as $588.44, regardless of vehicle size or demand configuration. However, the input files for the Volpe model show battery costs (field "BatPaCCost") of $649.95 and $847.24 for BISG and CISG respectively (ANL 2017a—j). The source of the additional $258 cost is not explained.

Because these mild hybrid technologies are broadly adopted by the fleet (34 percent, PRIA Table 7-64), overestimation of the battery costs results in a substantial increase in vehicle cost that has broad ramifications for the efficacy of the regulation. Even the lower of the values presented in the PRIA overestimates the cost of mild hybrid batteries. A recent report by ANL (Islam et al. 2018a) for the US Department of Energy estimates the battery component cost for a mild hybrid system to be $159.35 (Component Cost, ANL 2017k). In a recent teardown study of the Chevrolet Malibu eAssist with BISG hybrid system (FEV 2014), the total battery subsystem direct costs were estimated to be $166, including thermal management. The battery modules, power distribution, and covers totaled $120 in direct manufacturing costs. These estimates for BISG battery costs from ANL and a teardown study are less than half the costs listed in the PRIA and approximately one quarter of the "BatPaCCost" value given in the ANL input files.

The agencies have not sufficiently explained why their newly presented data differs so substantially, not only from freely available public reports mentioned above, but costs previously presented in studies paid for by NHTSA (NAS 2015[6]) and published by both agencies (Table 5.131, EPA et al. 2016; Table 2.132, EPA 2016a).

B) CYLINDER DEACTIVATION

While the agencies have acknowledged the existence of dynamic cylinder deactivation, they have not appropriately included it as an available technology, dramatically limiting its availability and using

[5] On average, Autonomie modeling in support of NHTSA's analysis for the Draft Technical Assessment Report found that mild hybridization resulted in a 7 to 13 percent improvement over the conventional powertrain, with all but pick-ups in the high end of that range (11 to 13 percent) (ANL 2016 [data]; Moawad et al. 2016 [methodology]).

[6] The ***total*** direct manufacturing cost for the system (Table S.2, NRC 2015) is even lower than the integrated starter generator system's cost ***excluding the battery*** (i.e. only for the non-battery components; Table 6-30, PRIA).

"speculative" (PRIA, p. 232) modeling of the technology without providing any data or documentation in justification. These actions severely constrain the modeled adoption of the technology, an unnecessarily conservative approach which does not reflect the advanced state of technology in the industry.

Dynamic cylinder deactivation (ADEAC) is restricted to naturally aspirated, low-compression ratio engines—it cannot be combined with turbocharged engines, high compression ratio engines, or variable compression ratio engines due to pathway exclusivity in the Volpe model (PRIA, footnote 470). However, the first production application was for a turbocharged engine, ***which the agencies acknowledge***—to be clear, the first ever deployment of this technology ***is excluded as a possibility*** in the agencies' current model.

This restriction is not limited to dynamic cylinder deactivation—conventional cylinder deactivation (DEAC) has been deployed in combination with a high-compression ratio engine (2018 Mazda CX-5; Pleskot 2017), yet in the Volpe model DEAC cannot be combined with high-compression ratio engines (NHTSA 2018b, Table 13).

Modeling of the effectiveness of this technology further ignores real-world deployment. The agencies have simplistically assumed a constant 3 percent improvement for four-cylinder and 6 percent improvement for larger engines, above traditional cylinder deactivation. However, this ignores the complementary effect of dynamic cylinder deactivation, particularly with technologies like 48V systems which General Motors is already deploying this technology in its 2019 full-size pick-ups (Halvorson 2018). When combined with a 48V system, which can act synergistically with the dynamic cylinder deactivation, Delphi claims to achieve as much as a 20 percent reduction in fuel use and emissions (Birch 2017), at a cost roughly half that of other approaches to reducing emissions from conventional powertrains (Beckwith 2017).

C) ADVANCED BOOSTED ENGINES

Turbocharged engines were not deployed as quickly as anticipated by the agencies in the rulemaking for MY 2012-2016 because auto makers were able to utilize cheaper technologies to exceed the rules and build credits for future compliance. However, nearly every major manufacturer has taken steps to incorporate boosted engines into their portfolio as a relatively low-cost option to improve the efficiency of the internal combustion engine going forward. As more manufacturers have moved into this development, a number of new types of advanced boost have made their way into the market, including variable geometry turbochargers (e.g., Porsche Boxster S), electrically assisted turbochargers (or "e-boost", e.g., Audi SQ7), and supercharged engines (e.g., Volvo 2.0L T6 engine), all of which are available today.

Between the 2012 Final Rulemaking (FRM) for MY 2017-2025 vehicles (EPA and NHTSA 2012a) and the 2016 Proposed Determination (EPA 2016a), EPA adjusted its assessment of the advanced turbocharged engine to reflect the use of variable geometry turbocharging, which reflected an improvement to 24-bar engines that may be deployed in the nearer term than the 27-bar boosted engines identified in the FRM. Recent innovations in this space include the dual-volute turbocharger, which was recently ported over from diesel vehicles to the first four-cylinder engine in a full-size pick-up truck, indicating some of the further potential for downsizing (Sherman 2018). However, the

agencies have incorporated no advancements beyond twin scroll turbos nor any supercharged engines whatsoever in its proposed rule, despite models from Volvo, Audi, and now GM all hitting the road with these features.

E-boost allows for a more rapid spin-up of the turbocharger, essentially eliminating the "turbo lag" which hinders both performance and efficiency. Suppliers like BorgWarner and Delphi have both developed multistage turbochargers which incorporate e-boost to help provide boost on demand, which improves the overall efficiency of the system by allowing for more "right sizing" of the engine relative to the power demands it will see in the real world. Because e-boost requires a significant amount of power, it is made possible in part by the development of 48V electrical systems, which allows for a synergistic effect that could rival the fuel economy improvements of a conventional hybrid (Kendall 2015).

There are also performance gains which could be made, such as in Valeo's recent demonstration on a Kia Optima (Lee 2017). Based on supplier data, International Council on Clean Transportation (ICCT) has estimated that this improvement could net an additional 5 percent reduction in fuel consumption at a cost of just $338, indicating its strong potential for adoption within the timeframe of the rule (Isenstadt et al. 2016a).

Supercharged engines are also available on the market, but are excluded from the agencies' analysis, again indicating a conservative approach. In some cases, the supercharger is a complement to a turbocharger. With Volvo's Polestar supercharged, turbocharged family of engines, the primary use is for performance; however, it is indicative of the potential for generating significant amounts of power in a very small engine, replacing a V8 with an I4 (e.g., Murphy 2017). Similarly, Eaton's Electrically Assisted Variable Speed (EAVS) supercharger system can be a complementary technology package to 48V mild hybrids. The EAVS supercharger allows for direct control of airflow in the engine without having to rely upon exhaust gas energy, and the National Academies committee identified it as a potential technology excluded from the agencies' 2017-2025 TSD which could be used for downsizing an engine by 50 percent (NAS 2015, p. 63). While the EAVS system is not on the market currently, OEMs are currently testing the technology for possible deployment (Truett 2017).

D) HIGH COMPRESSION RATIO ENGINES

Atkinson- and Miller-cycle engines are available on the market today and represent a cost-effective alternative to the strategy of deploying downsized, boosted engines, but the agencies' approach to date has been conservative in terms of the effectiveness of this technology. The Volpe model ignores advanced high-compression ratio (HCR) engines and limits the adoption of HCR to just the four manufacturers who have already deployed the technology, even though it is an incredibly cost-effective pathway (Section I.B, ICCT 2018).

EPA recently completed hardware testing on the "Advanced Atkinson Tech Package", which increases the compression ratio further and adds both cooled exhaust gas recirculation (CEGR) and cylinder deactivation (DEAC) (Schenk and Dekraker 2017). While the Alliance of Automobile Manufacturers asserted that "EPA's modeled effectiveness values for the ATK2+CEGR+DEAC pathway...are seriously overestimated," hardware testing rebuts this—EPA's data shows up to a 9.5 percent improvement over the baseline configuration of the Atkinson engine for a future vehicle, which taken together with the

level of improvement of the Atkinson engine over the "null vehicle" well exceeds the 15 percent level of improvement claimed by the Alliance to be an "overestimate."[7] This is consistent with the range indicated by both the International Council on Clean Transportation (ICCT) (Isenstadt et al. 2016b) and NAS (2015).

While HCR2 was incorporated in previous analyses, the agencies are now claiming that this engine would potentially have durability issues if the engine were operated on Tier 3 fuel (PRIA, p. 302). To support this, the agencies cite a report that does not exist in the docket.[8] Because such information was not provided with the agencies' proposal, we will have to speculate on its assessment. The agencies appear to have relied upon the differences between anti-knock properties of Tier 2 and Tier 3 fuels, mistakenly focusing solely on octane while ignoring ethanol content. As will be described further in Section I.A.1.i), this fails to acknowledge the anti-knock benefit of charge cooling related to ethanol, which more than compensates for the change in octane. HCR2 therefore should not be omitted out of concerns around knock.

EPA's model of an advanced HCR engine is not the only engine which outlines the vast potential capability of high compression ratio engines beyond the baseline HCR technology—the 2018 Toyota Camry far exceeds the base level of HCR technology assumed by the agencies (German 2018). While this engine does not have all of the features of the HCR2 package constructed by EPA, it achieves similar levels of performance, thus rendering the agencies' rationale for excluding HCR2 moot—this is a production vehicle using Tier 3 fuel which achieves performance equivalent to HCR2.

E) NOVEL ENGINE DESIGNS

Moving beyond the high compression ratio SKYACTIV-G platform, Mazda recently announced its SKYACTIV-X engine, which utilizes a combination of compression ignition and spark ignition to improve engine efficiency by 20 to 30 percent over the current generation of SKYACTIV-G engines, with volumetric fuel efficiency matching that of their diesel engines (Mazda 2017). In another bold step beyond conventional engine platforms, Achates Power is testing its 2.7L opposed-piston diesel engine in an F-150, which it claims can both meet Tier 3 emissions standards and would achieve a 2-cycle test fuel economy of 37 mpg, about 10 percent higher than the level needed for fuel economy standards in 2025 (Brooke 2017). These and other developments speak to the ability for manufacturers to push conventional vehicles even further than anticipated.

While agencies have conservatively estimated high compression ratio engines, they have not incorporated variable compression ratios at all—the technology was not modeled, nor was it incorporated into the Volpe model underpinning the proposal. Currently, Nissan's VC-Turbo engine, found in both the 2019 Infiniti QX50 and 2020 Nissan Sentra, can vary the compression ratio of the engine (from 8:1 to 14:1) and can run under both Atkinson and Otto cycles, essentially allowing tuning of

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[7] The Alliance cites a 15 percent effectiveness relative to the "null vehicle," while the EPA study compares HCR1 to HCR2, indicating a 9.5 percent improvement from HCR1 to HCR2. HCR1 itself showed an improvement of about 9 percent in each vehicle class over the null vehicle (EPA 2016b), indicating that together these technologies well exceed the 15 percent threshold cited as "overestimated."

[8] PRIA, fn. 244: "IAV advanced engine modeling phase 3 test data comparison of cEGR and different combustion stability. Report submitted to docket." As of October 24, 2018, no such document has been uploaded to either agency docket.

the right mode of operation for the precise set of load conditions (Nissan 2017). Paired with a turbocharger to provide increased performance under high load, similar to a boosted and downsized engine, the VC-Turbo is part of a strategy to improve fuel efficiency by 30-35 percent over the previous model, enough for this luxury vehicle to exceed its regulatory targets without any credits. Given that this is being put in production in a high-volume vehicle, there is no reason for the agencies to exclude its adoption.

F) BATTERIES FOR HYBRID AND PLUG-IN ELECTRIC VEHICLES

The choice of materials for hybrid and electric vehicle battery cathodes and anodes (or "battery chemistry") can have a large impact on performance and materials cost and therefore impact the modeled cost of drivetrain electrification (Vaalma et al. 2018). The choice of battery chemistries in the proposed rule contains internal inconsistencies, does not reflect current industry practice, and does not use the most recent model data (despite references to the contrary).

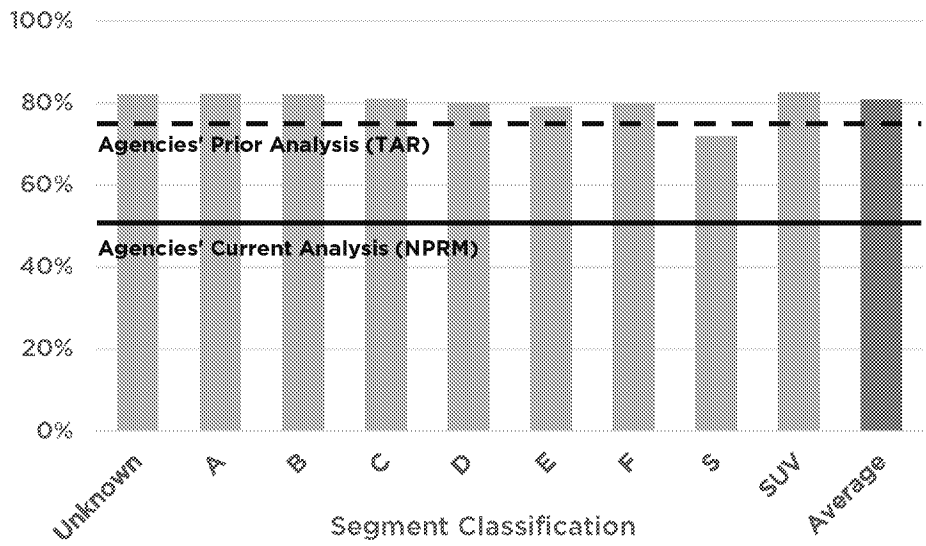
The choice of battery chemistry modeled in the proposed rule is unclear. In the PRIA (p. 368), plug-in hybrid electric vehicles (PHEV) and battery electric vehicles (BEV) are listed as using the NMC441-Gr chemistry. In the detailed description of the modeling, PHEV and BEV are listed as using NMC333-Gr chemistry (p. 210, Islam et al. 2018b). However, the rulemaking also states that the most recent version of ANL's BatPaC model was used to estimate battery costs. The default lithium ion chemistry in the current BatPaC model is NMC622 (ANL 2018). The choice of NMC variant effects battery costs, as NMC622 replaces more expensive cobalt with nickel. Because the underlying BatPaC calculations are not available, and due to the inconsistency between the PRIA and ANL supporting information, it is not possible to determine the magnitude of the cost error in the PHEV and BEV battery pack costs, only that the costs are likely higher than current battery cost data supports. Previous requests for clarity in this matter have gone unfulfilled (Peter 2018).

The chemistry chosen for mild and strong hybrids also differs from those used in current and announced hybrids. All non-plug-in hybrids in the proposed rule analysis use lithium iron phosphate (LFP) chemistry. In practice, most hybrids on the road do not use this chemistry. The most prevalent strong hybrid, the Toyota Prius, does not use the LFP chemistry. Mild hybrids, like the new Ram 1500 pickup are also not using LFP chemistry (FCA 2018). The cost of strong hybrid batteries as modeled in this proposed rulemaking are greater than $1,200, even for the most efficient small car class, while an estimate from ANL in 2017 estimated current power-split hybrid battery pack costs at $614 (2017k). Because of the lack of detailed information on the battery cost modeling, it is not possible to determine if the choice of battery chemistry is responsible for this discrepancy, but what is clear is that there are serious concerns about the methods and results for battery costs.

G) MASS REDUCTION

There are a whole host of problems with the way in which the agencies have considered mass reduction, which we describe below. Many of these issues stem from a change regarding the fraction of the vehicle assumed to be the "glider" vehicle, which the agencies do not even attempt to justify yet has a profound effect on safety and technological feasibility.

FIGURE 1. Glider weight as a function of curb weight, for over 600 production vehicles



The share of a vehicle's curb weight assigned to the "glider" is shown to be greater than the agencies' current analysis for all vehicle segments. In fact, it is shown to be even greater than previous analyses for all segments except for S (Sport), for which lightweight materials are frequently already deployed—and even that class is only a marginally lower fraction (72 percent, compared to 75 percent in prior analyses).

Note: Glider is defined here as everything but the engine, transmission, clutch, cooling system, and fuel system.
SOURCE: A2MAC1 2018

(1) *The agencies assumption that mass reduction can only be applied to 50 percent of the curb weight is unjustified and inaccurate*

In the NPRM, the agencies have determined that the "glider" of a vehicle, which is essentially everything minus the powertrain,[9] accounts for only 50 percent of the vehicle's curb weight. This is a substantial change from prior analyses, when the glider was assumed to represent 75 percent of the vehicle's curb weight, and this change is not justified by the agencies in any way.[10]

Incredibly, the agencies' own analysis in the NPRM disagrees with this fraction. The agencies base their analysis of the costs for lightweighting on two studies, one passenger car (2011 Honda Accord) and one light truck (2014 Chevrolet Silverado)—these studies themselves show the glider making up 79 percent of the vehicle in the case of the Accord (PRIA p. 393), and 73.6 percent of the curb weight for the Silverado (PRIA p. 399). Both of those percentages are substantially higher than 50 percent and essentially in line with the agencies' prior analyses.

This assumption also disagrees with industry data, which shows that not only does the glider represent a more significant share of the curb weight than assumed by the agencies in this analysis, but it even exceeds the share of curb weight assumed in prior analyses (Figure XXX). It should be noted that for its

[9] Formally, NHTSA's definition of the glider is everything but the engine, transmission, thermal systems, and some safety components.
[10] The change is acknowledged on p. 417 of the PRIA, but there is literally no documented explanation given for it.

own study of mass reduction, NHTSA had access to this database (PRIA Section 6.3.10.1.16)—it is therefore impossible to imagine that the agencies were unaware of such data and have instead arbitrarily and capriciously chosen to ignore it in order to assert a more conservative conclusion.

(2) *Reducing the glider fraction inaccurately limits the potential and applicability of mass reduction*

Representing the glider as a reduced fraction of the curb weight causes the agencies to significantly underestimate the potential for mass reduction. Because mass reduction is applied at the glider level, reducing the share of the glider inherently caps the potential reduction in the curb weight—this single change has cut the potential improvement from mass reduction by one-third (PRIA Table 6-57).

Previous agency analysis as well as analysis from independent organizations including CARB, the National Academies, and industry consultants has placed the total potential for mass reduction by 2025 at between 15.8 and 32 percent overall reduction in curb weight (Caffrey et al. 2013, Caffrey et al. 2015, Lotus 2012, NAS 2015, Singh et al. 2012, Singh et al. 2016, Singh et al. 2018,). In contrast, the NPRM claims a maximum reduction of 10 percent, well below not just the maximum potential identified, but even the lowest maximum potential identified by papers cited in agency analysis.

The agencies' assessment of the maximum achievable mass reduction is so low that the Ford F-150 was able to exceed that in 2015 through the deployment of aluminum alone, and a number of the vehicles identified by the agencies' as meeting its highest level of mass reduction in MY2016 (PRIA Table 6-58) have deployed little, if any, lightweight material (e.g., Nissan Versa, Kia Soul, Honda Civic). This is in stark contrast to the agencies' discussion of the maximum potential for lightweight materials (e.g., PRIA Sections 6.3.10.1.1.2 and 6.3.10.1.1.3.3)

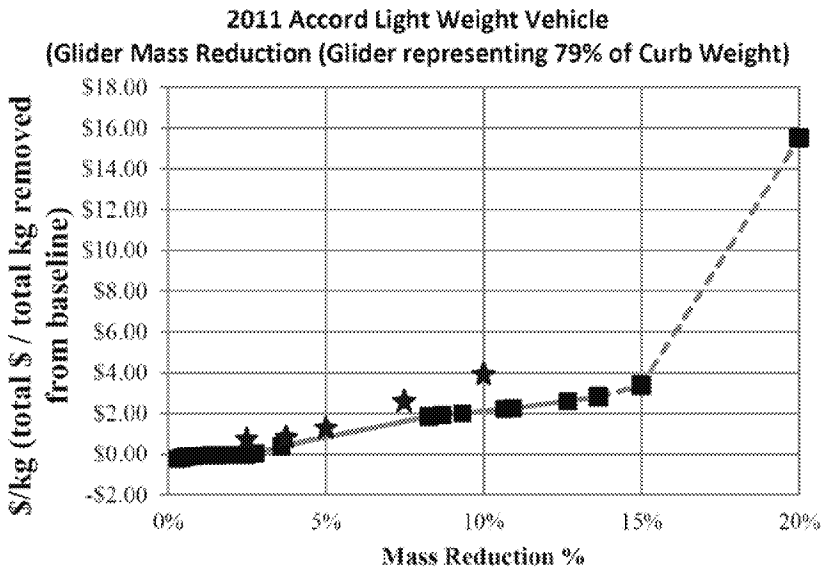
The impact of this is twofold: 1) as noted in Section I.A.1.j), increasing the fraction of vehicles in the baseline fleet which have already applied mass reduction significantly diminishes the future potential for the vehicle fleet; and 2) by capping the total potential for mass reduction at such a low level, much lower than in any previous analysis, it artificially reduces the potential for this cost-effective technology and therefore increases the required use of more expensive and advanced technologies.

(3) *The agencies have inflated the costs of mass reduction, per their own analysis*

The agencies have based the costs for mass reduction on glider weight reduction; however, the need for more expensive materials and more advanced engineering and design strategies only results from the need for greater levels of absolute mass reduction on the vehicle. In effect, these costs have been derived from the assumption of reductions as great as 16.8 percent reduction in curb weight in the case of the Silverado (Singh et al. 2018) and as great as 18 percent reduction in curb weight in the case of the Honda Accord (Singh et al. 2016), but they have been applied to curb weight reductions approximately two-thirds that magnitude. This is completely invalid and significantly overstates the costs for mass reduction.

This is clearly demonstrable by examining the actual reports relied upon by the agencies, both of which refer to direct manufacturing costs as a function of curb vehicle weight, not just glider weight. The procedure the agencies have used to generate cost data is like arbitrarily scaling the x-axis by a factor of 1.5, yielding the same costs at two-thirds the amount of mass reduction. In fact, in the case of the

FIGURE 2. Agency manufacturing costs for mass reduction of cars, compared to source



The agencies' costs for mass reduction (blue stars) are in direct conflict with the data cited as a source for those costs (black squares) because the agencies have improperly normalized them to different glider mass shares. This leads to costs for the highest levels of mass reduction that are nearly twice as large as those the agencies claim result from the source data.

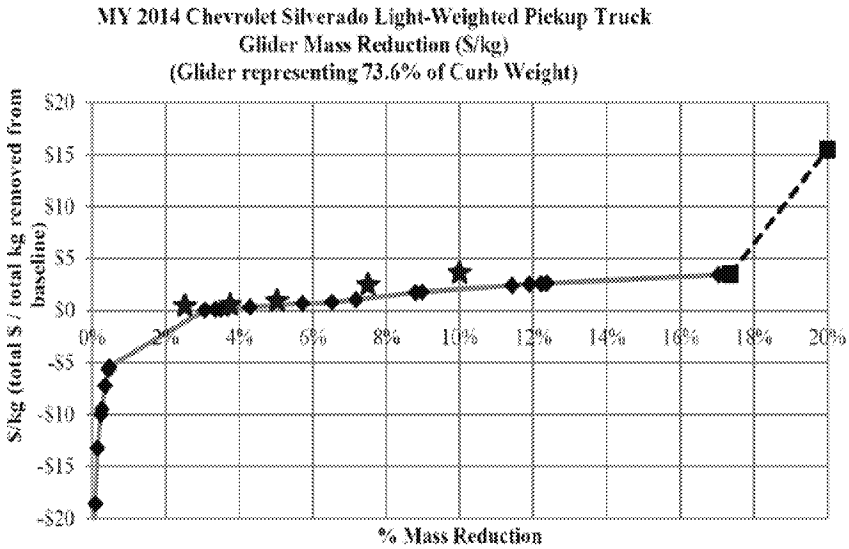
Note: Table 6-39 data is divided by 1.5 to account for the retail price equivalent (RPE) used by the agencies
SOURCE: PRIA FIGURE 6-160, TABLE 6-39

Silverado, the agencies' study shows costs that are ***less than one-quarter the cost*** if one were to limit the total mass reduction to 10 percent as the agencies have done.[11] This is even evident in the data as presented by the agencies in PRIA Figures 6-161 and 6-163, which do not agree at all with the supposedly identical data in PRIA Tables 6-38 and 6-41, respectively (Figures 2 and 3).

It is also worth noting that while the agencies have listed a large number of studies that have examined the costs of and potential for the deployment of lightweight materials (PRIA Table 6-43), the entire cost basis for the agencies' analysis is in just two studies commissioned by NHTSA. While the agencies claim that "those studies often did not consider many important factors or...made unrealistic assumptions about key vehicle systems," the agencies have not specifically identified these factors or assumptions that should merit disregarding a much broader suite of evidence in assessing the costs of this technology. Moreover, these peer-reviewed studies were included previously in agency analysis as part

[11] Section 10.10 in Singh et al. 2018 notes the potential for up to 10.5 percent mass reductions in vehicle mass at a premium of $0.83 per kg as compared to $3.48 per kg for up to 16.8 percent; it is the latter value on which the agencies have relied to calculate the costs for mass reduction. For even further clarity, we can compare the value "derived from light truck light-weighting study" with the actual values in the study—PRIA Table 6-41 lists an estimated direct manufacturing cost of $3.09 per kg for a percentage mass reduction of 11.0 percent, leading to a total cost of $829.67, while the actual report shows a manufacturing cost increase of $0.83 per kg for a percentage curb weight reduction of 10.5 percent for a total cost of $212.

FIGURE 3. Agency manufacturing costs for mass reduction of trucks, compared to source



The agencies' costs for mass reduction (blue stars) are in direct conflict with the data cited as a source for those costs (black squares) because the agencies have improperly normalized them to different glider mass shares. This leads to costs for the highest levels of mass reduction that are approximately 70 percent larger than those the agencies claim result from the source data.

Note: Table 6-42 data is divided by 1.5 to account for the retail price equivalent (RPE) used by the agencies.
SOURCE: PRIA FIGURE 6-163, TABLE 6-42

of the record when deriving previous estimates for the costs of mass reduction (Section 2.2.7.4, EPA 2016a; Section 5.2.7.4.1, EPA et al. 2016).

(4) Assessing the impact of the agencies' inaccurate characterization of mass reduction

Because mass reduction is one of the most cost-effective strategies for reducing fuel use and greenhouse gas emissions from the fleet, any limits on or inaccuracies in the effectiveness of this technology can have a significant effect on the modeling results. Here, we attempt to quantify the modeling impact of a shift from prior agency assumption of a 75 percent glider share downwards to 50 percent.

The Autonomie model results used as inputs to the Volpe model were based on the application of each level of mass reduction technology (MR1, MR2, etc.) to a glider share of 50 percent. Therefore, it is necessary to revise these values to reflect an increased level of curb weight reduction for each MR level. Reductions in fuel use as a function of mass reduction have a generally linear response, making it fairly straightforward to extrapolate the results from ANL to different levels of curb weight reduction. In Figure 4, we illustrate the average fuel consumption improvement for packages compared to the "null vehicle" as a function of mass reduction. While there is a notable "kink" in the data around 5 percent, this is the direct result of the agencies' determination not to hold performance constant for low levels of mass reduction, meaning that a significant share of the benefit of a few percent reduction in mass has gone towards improved performance rather than improved fuel economy, leaving a substantial

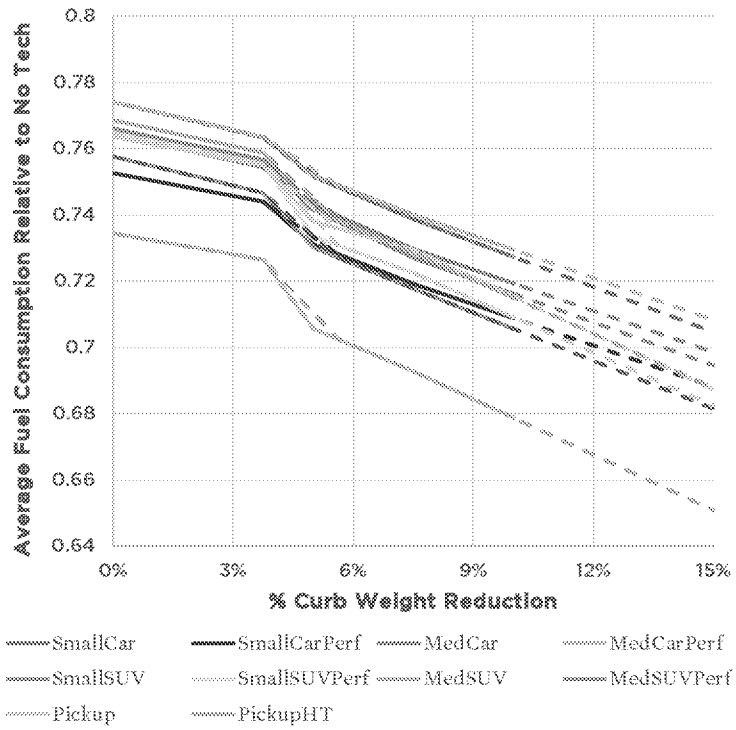
TABLE 1. Curb weight reduction for different shares of curb weight assigned to the glider

Tech	Glider mass reduction %	Agency defined		Adjusted	
		Glider share	Curb Weight Reduction	Glider Share	Curb Weight Reduction
MR0	0%	50%	0.000%	75%	0.000%
MR1	5%	50%	2.500%	75%	3.750%
MR2	7.5%	50%	3.750%	75%	5.625%
MR3	10%	50%	5.000%	75%	7.500%
MR4	15%	50%	7.500%	75%	11.250%
MR5	20%	50%	10.000%	75%	15.000%

Consideration of a glider share of 75 percent enables a 50 percent greater potential in curb weight reduction, up to 15 percent from just 10 percent for the highest level of technology applied in the Volpe model.

SOURCE: PRIA TABLES 6-39/6-42, AND UCS ANALYSIS

FIGURE 4. Fuel consumption relative to the "null vehicle," as a function of curb weight reduction



Fuel consumption modeled with Autonomie for different vehicle classes is strongly linear (solid lines), allowing for clear interpolation and extrapolation of the data (dashed lines). Mass reduction less than 5 percent total curb weight reduction resulted in significantly greater fuel consumption than might be expected from that modeled at higher levels of mass reduction due to a lack of performance neutrality.

SOURCE: SOLID LINES DERIVED FROM FCI_IMPROVEMENTS, NHTSA 2018A; DASHED LINES ARE UCS ANALYSIS

TABLE 2. Costs for compliance with current greenhouse gas standards, in MY2028, by manufacturer, after correcting for increased glider share of curb weight

Manufacturer	NPRM	Corrected	Diff	% Diff
BMW	$ 4,265	$ 4,055	$ (210)	-5 %
Fiat-Chrysler	$ 4,096	$ 3,532	$ (563)	-14 %
Ford	$ 3,437	$ 2,948	$ (490)	-14 %
General Motors	$ 3,151	$ 2,752	$ (399)	-13 %
Honda	$ 1,851	$ 1,529	$ (322)	-17 %
Hyundai	$ 1,201	$ 1,152	$ (48)	-4 %
Jaguar Land Rover	$ 4,994	$ 5,569	$ 575	12 %
Kia	$ 1,755	$ 1,644	$ (110)	-6 %
Mazda	$ 2,691	$ 2,147	$ (544)	-20 %
Mercedes	$ 4,485	$ 4,307	$ (178)	-4 %
Nissan-Mitsubishi	$ 1,141	$ 1,113	$ (28)	-2 %
Subaru	$ 1,247	$ 1,299	$ 52	4 %
Tesla	$ 4	$ 4	$ 0	3 %
Toyota	$ 2,235	$ 1,973	$ (262)	-12 %
Volkswagen	$ 5,004	$ 4,380	$ (623)	-12 %
Volvo	$ 3,538	$ 3,167	$ (371)	-10 %
INDUSTRY TOTAL	**$ 2,785**	**$ 2,477**	**$ (309)**	**-11 %**

Adjusting the mass reduction technologies to accurately reflect higher, more appropriate share of curb weight available for mass reduction results in substantially reduced costs for nearly every single manufacturer. as well as the industry as a whole.

Note: The substantial increase in cost for Jaguar Land Rover is the result of a correction to the baseline levels of mass reduction. The levels of mass reduction assumed for the Jaguar XJ platform in the NPPM baseline market data did not correspond to PRIA Table 6-58. We corrected this discrepancy, which thus reduced the availability for future mass reduction from jaguar land rover's fleet of vehicles, increasing cost for that specific manufacturer.

benefit of mass reduction underutilized and/or uncounted. For our correction, we have not altered this assumption.

While only the average data is shown in Figure 4 for simplicity, we have considered and modified every single package for every single modeled vehicle, interpolating/extrapolating the results according to the improvement relative to an equivalent package with 0 mass reduction (e.g., ";;;;;TURBO2;AT9;BISG;ROLL0;MR3;AERO0" vs. ";;;;;TURBO2;AT9;BISG;ROLL0;MR0;AERO0"). It should be noted that no interpolation was necessary for the adjusted MR1 and MR3 results, which correspond exactly to the agencies' MR2 and MR4 values.

In addition to adjusting the FC1_Improvements.csv file input into the Volpe model, it is also necessary to edit both the technology file and market data file (NHTSA 2018d). In the case of the technology file, we have simply corrected the glider share in the Parameters tab to reflect 0.75 (instead of 0.5), so that the costs for mass reduction are applied to an appropriate level of reduced mass. In the case of the market data file, we have had to correct the baseline vehicles who've "USED" a given level of mass

reduction—these were adjusted based on the levels of mass reduction for each platform in PRIA Table 6-58. No adjustment to technology costs were necessary because, as was explained in Section I.A.1.g)(3), these costs already correspond to the adjusted technology levels detailed in Table 1.

Using the Volpe model provided in the NPRM with these updated datafiles yields a reduction in the average costs of compliance in MY2028 of about $300 (Table 2).

H) HIGH OCTANE FUEL

The agencies request comment on the impact of high-octane blends (83 FR 43041). While we agree there are exciting potential efficiency improvements associated with higher octane gasoline, particularly for high compression turbocharged cars (DOE 2017, Leone ***et al.*** 2015, Speth ***et al.*** 2014), it is premature to consider high octane fuels in this round of rulemaking.

An orderly transition to high-octane fuel would take several years to complete. It will take time for the necessary regulations to be finalized, for vehicles optimized for high-octane gasoline to come to market and to build out the fuel distribution infrastructure to make this fuel broadly available. And even once high-octane gasoline is in use, it will take more time for automakers to phase-in new models optimized for high-octane fuel and to fully replace the legacy E10 fleet. Another factor to consider is that the rising share of high-octane gasoline will be buffered by falling sales of gasoline, given increasing fuel efficiency, such that the overall demand for ethanol will change more slowly. Our expectation is that high-octane gasoline will not significantly enter commerce before 2026, and subsequently will only gradually gain market share through 2040.[12] There is no realistic prospect of completing this process before 2025 or 2026, the timeframe of this rulemaking. The appropriate context for this discussion within vehicle rules is the next round of fuel economy and emission standards. Even then, an expeditious rulemaking process will be required to achieve adequate regulatory clarity to facilitate rapid adoption post-2026.

We strongly oppose granting fuel economy credits based on the technical potential of vehicles to operate on high-octane fuel before there is clear evidence that high-octane fuel is in use and the potential fuel economy benefits are being realized on the road. The history of the CAFE flex-fuel vehicle (FFV) program provides clear evidence that credits given based on unrealized potential and in advance of adequate fuel distribution infrastructure are counterproductive. Recent analysis demonstrates that the FFV program actually increased gasoline consumption and emissions (Jenn, Azevedo, and Michalek 2016) without substantially increasing the use of alternative fuels. In its 2016 final Renewable Fuel Standard Program: Standards for 2017, EPA found that, despite the fact that 21 million FFVs on the road had the technical capacity to use up to 13 billion gallons of E85, only 275 million gallons of E85, or 2% of the potential, were likely to be used (EPA 2016c).

To determine the public costs and benefits of a high-octane gasoline program requires an examination of not only vehicle policy, but fuel policy as well. A transition of the light duty vehicle fleet to a higher

[12] However, these qualitative expectations need to be quantified and subject to public review before such significant changes are used as the basis for revised fuel economy standards.

ethanol blend has obvious implications for the quantity of ethanol consumed in the United States. However, the implications are far more complex than simply increasing the use of ethanol by 150% compared to the ethanol blended into E10 today. A rapid expansion of fuel ethanol use that is supplied primarily by corn ethanol could have negative impacts on other users of corn as well as land use change impacts, water pollution and other problems, as occurred during the rapid transition to E10 between 2005 and 2010 (Martin 2016). We recommend a more predictable and gradual phase-in, which would allow for the parallel growth of lower carbon cellulosic ethanol sources and could supply increasing quantities of ethanol without the associated negative impacts.

I) AGENCIES HAVE INCORRECTLY ADJUSTED FOR A SWITCH FROM TIER 2 TO TIER 3 GASOLINE

The modeling packages have been improperly adjusted to reflect behavior related to differences between Tier 2 and Tier 3 fuels, primarily resulting from the lack of recognition in fuel properties.

(1) Adjustment related to energy content instead of carbon content

The agencies cite concerns from the Alliance of Automobile Manufacturers regarding a discrepancy between the Tier 2 fuel used for testing and the Tier 3 fuel to which manufacturers will be required to test and which is more reflective of the fuel used in the marketplace. Little information is available on precisely how the model handles the difference between Tier 2 and Tier 3 fuel. There are just two sentences in the PRIA describing what was done: "An adjustment factor was applied to the Autonomie simulation results to adjust them to reflect Tier 2 certification fuel. ANL adjusted the vehicle fuel economy results to represent certification fuel by using the ratio of the lower heating values of the test and certification fuels" (p. 257).

This adjustment factor completely ignores a detailed study by EPA on exactly this question, which found that while fuel consumption increases with the switch from Tier 2 to Tier 3 fuel, emissions are reduced (EPA 2018c). In fact, not only does the adjustment factor applied by Autonomie exaggerate the switch (converting solely with energy density would assume a 3.7 percent increase in fuel consumption compared to the observed 2.7 percent increase), but it actually goes ***in the wrong direction*** when applied to greenhouse gas emissions, which show a reduction of 1.4 percent on the test cycle as a result of the fuel switch.[13] As a result, Autonomie's model is overstating greenhouse gas emissions on Tier 3 fuel ***by 4.2 percent***.

This issue underscores a key problem with the approach taken when it comes to a switch to Tier 3 fuel—the agencies are trying to account for it in the modeling data while ignoring its impacts in the certification tests, and therefore measurements of compliance. This effectively double counts any penalty in fuel economy (the rules are reduced by the factor because the modeling incurs the penalty, but then the measurements to comply with those are corrected to account for the switch, boosting the test value by exactly this penalty) and ignores the beneficial impact of CO_2 reductions at the tailpipe, which will result in an improvement on the test cycle.

Just two vehicles in the MY2016 test car database were certified using Tier 3 fuel (EPA 2017c), amounting to less than 1 percent of the market, so the impacts of this fuel switch moving forward will

[13] To obtain the test cycle improvement, we have simply weighted the changes in the FTP and HWFET fuel consumption and emissions observed in EPA 2018cc by the 55/45 ratio used for the regulatory tests.

play a significant role in future emissions profiles. The CAFE test procedure already has an adjustment in place for fuel properties relative to the 1975 test fuel (40 CFR § 600.113-12(h)(1))—however, carbon-related exhaust emissions (CREE) do not have a similar corrective factor (40 CFR § 600.113-12(h)(2)), which means this fuel switch could play a significant role in reducing compliance if it is taken into account appropriately...or lead to drastically conservative fuel economy and greenhouse gas emissions curves if it is not.

(2) Adjustment related to knock threshold

The agencies have incorrectly modified the engine maps developed on Tier 2 fuel (83 FR 43036). In the discussion in the PRIA, they focus primarily on a single fuel property, octane (PRIA Section 6.3.2.2.17.4). However, of equal importance in the difference between Tier 2 and Tier 3 fuels are the unique properties of ethanol, including charge cooling. Unfortunately, the effect of charge cooling cannot be directly determined from the standard test of Research Octane Number (RON) (Foong, et al. 2013), and therefore it is inherently excluded from the agencies' discussion because of their singular focus on octane. Data on different fuel blends of ethanol shows that charge cooling can have a tremendous impact to reduce knock in direct injection engines—precisely the engines which the agencies have modified—resulting in an "effective octane" difference of +6 for E10,[14] thus potentially compensating for the difference in octane between Tier 2 (E0 93 AKI) and Tier 3 (E10 87 AKI) fuels (Kasseris and Heywood 2012). In fact, this is borne out in experiments comparing E0 91 and E10 87 fuels, where E10 87 actually exhibits *lower* knock intensity at high load, exactly where the agencies are claiming the fuel switch would have an adverse effect (Joshi 2017).

This error affects the efficiency of virtually ***all*** advanced engines—it was used to preclude the use of HCR2 (PRIA Section 6.3.2.2.20.18) as well as reduce the effectiveness of all turbocharged engines and engines with cooled EGR (PRIA, Figures 6-84, 6-89, 6-94). Without an A/B analysis, it is impossible to judge the severity of this error. However, at the very least the agencies should not exclude the HCR2 technology on such basis, and according to their own analysis, this correction alone would result in a reduction in MY2029 costs in the Baseline Standards of $700-$850 (PRIA Table 13-4), or about ***one-third*** of the difference in cost between the Baseline and Proposed Standards. Correcting the effectiveness of the affected engines would only further reduce costs—clearly this error has a significant impact on the ability for manufacturers to comply with future standards and should be corrected in future modeling efforts.

It should also be noted that there are a number of different strategies manufacturers can use when considering approaches to different fuels, and not all of them necessitate reductions in efficiency as the agencies ***a priori*** assumption suggests. The agencies even point out one such unique knock-reduction strategy for the 2014 SkyActiv-G on which their HCR data is based (PRIA Figure 6-43). An additional example of how engines can be reoptimized without suffering a penalty for using a lower octane fuel is in the spark-assisted compression ignition engine developed by Mazda—the managing executive in charge of powertrain and vehicle development and product planning even noted that "as a matter of fact actually, 91 RON give you better performance than 95 RON" (Mathioudakis 2017). This remark was consistent with the preliminary torque curves for the SkyActiv-X spark-assisted compression ignition

[14] E10 refers to gasoline with 10 percent ethanol. E0 refers to gasoline with 0 percent ethanol.

engine, a technology that the agencies have completely neglected despite it coming to production next year in a mass market vehicle (Mazda 2017).

J) ARBITRARY CHANGES IN THE WAY THE AGENCIES ASSESSED BASELINE TECHNOLOGY DEPLOYMENT OVERSTATES THE TECHNOLOGY ALREADY PRESENT IN THE FLEET

One of the major confounding aspects of the agencies' analysis is how much more advanced technologies appear to be required to comply with the 2025 regulations than in any previous analysis. This goes against all prior data from the agencies, which has shown that manufacturers have been able to comply with less technology than anticipated, at reduced costs, and with new technologies being developed constantly (e.g., EPA et al. 2016).

One reason the modeling in the NPRM erroneously requires greater technology adoption is that NHTSA technical staff have reassessed baseline technology improvements, claiming that many vehicles throughout the fleet already have more advanced technology than had been previously determined (e.g., PRIA Figures 6-168, 6-175, and 6-177). By attributing the baseline levels of fuel economy and greenhouse gas emissions to greater application of technology, agency staff are "baking in" those performance improvements related to the more cost-effective technologies, thus requiring the addition of less cost-effective technologies to compensate.

Because the previous version of the Volpe model used a MY2015 baseline, and the version supporting the NPRM uses a MY2016 baseline, there is some expectation of improved technologies—approximately 15 percent of the fleet will have been redesigned between the two model years, and there will also be discrepancies related to specific marketshare changes. However, there is much greater disparity between the two years than can be expected due to year-over-year sales shifts and product cycles.

While powertrain technologies generally have much clearer distinctions on marketshare and are therefore fairly objective to assess, marketshare of vehicle accessory and road-load reduction technologies are often highly subjective. And it is precisely these classes of technology which exhibit abnormal year-over-year deviations (Table AAA).

(1) Assessing the impact of this subjective analysis

It is difficult to quantify the exact impact this reassessment has on the modeled fleet because the incremental effectiveness of a technology is generally dependent upon the other technologies available on the vehicle. However, as a reasonable assessment, we can use the range of impacts used by the National Academies in its latest analysis (NRC 2015).

Table AAA lists the differences between the two baseline scenarios. This difference is then multiplied by the range of potential impacts identified in the National Academies study. These impacts are then aggregated using a multiplicative approach that takes into account the reductions from the other technologies.[15]

[15] Fuel consumption reduction $\boldsymbol{FCR}_{\text{TOTAL}} = 1 - \prod(1 - FCR_i)$.

TABLE 3. Comparison of MY2015 and MY2016 baseline technology data from the Volpe model, including estimated impact of this additional assessment of technology.

				Cumulative NRC Impacts	
Technology	**2015 Baseline%**	**2016 Baseline%**	**Difference**	**Low**	**High**
Electronic Power Steering	38.5%	88.8%	+50.3%	0.4%	0.7%
Improved Accessories	0.0%	20.0%	+20.0%	0.2%	0.3%
Low-drag Brakes	0.0%	13.3%	+13.3%	0.1%	0.1%
Secondary Axle Disconnect	15.4%	5.4%	-9.9%	-0.3%	-0.1%
Rolling Resistance &&					
10%	0.0%	18.9%	+18.9%	0.4%	0.4%
20%	0.0%	27.1%	+27.1%	1.0%	1.0%
Mass Reduction **					
Level 2	9.6%	7.5%	-2.1%	-0.0%	-0.0%
Level 3	8.6%	9.0%	+2.4%	0.0%	0.0%
Level 4	8.2%	4.6%	-3.5%	-0.2%	-0.2%
Level 5	0.2%	7.7%	+7.5%	0.5%	0.7%
Aero Drag Reduction &&					
10%	5.7%	20.9%	15.2%	0.3%	0.3%
20%	1.8%	1.2%	-0.7%	-0.0%	-0.0%
CVT					
Level 1	20.4%	10.2%	-10.1%		
Level 2	0.0%	12.1%	+12.1%	0.4%	0.4%
Total Shift in "Reassessed" Tech:				**3.1%**	**3.9%**

A comparison of the MY2015 and MY2016 baseline assessments indicates that NHTSA has significantly altered its criteria for assessing vehicle technologies, and that in doing so they have eliminated approximately 3.1 to 3.9 percent of improvement from the vehicle fleet. Such a level of improvement is comparable to the annual rate of performance improvement required under the fuel economy and emissions program, but data shows that there was no improvement whatsoever in the CAFE performance of the MY2016 fleet compared to the MY2015 fleet.

Note:

&& In the Draft TAR, rolling resistance and aerodynamic drag technologies were limited to 10 and 20 percent improvement levels. In the NPRM, those have been further refined to 5 percent increments. However, for consistency, we round down (e.g., AERO15 is considered as compared to the AERO10 bin from the Draft TAR).

** Mass reduction has been reclassified in error as applied to just 50 percent of the vehicle, whereas previous classification estimated the glider weight to be 75 percent of the weight of the vehicle. Because of this, what was previously classified as MR1, which would result in 3.75 percent curb weight reduction, is now classified as MR2 in the NPRM. Similarly, MR3 is now classified as MR4. MR1 roughly corresponds to MR2 (5.625 percent compared to 5 percent), and MR4 approximately corresponds to MR5 (11.25 percent compared to 10 percent). The MR1 category in the NPRM is below the resolution previously considered, so therefore is excluded from this table.

This data indicates that an additional 3.1 to 3.9 percent of technology improvement was incorporated into the MY2016 baseline fleet compared to MY2015, even though there was ZERO change in the fleet CAFE performance (32.2 mpg in both MY2015 and MY2016, NHTSA 2018e). For comparison, the average annual fuel consumption reduction required by the 2017-2021 final and 2022-2025 augural fuel

economy standards is 3.5 percent for trucks and 4.3 percent for passenger cars. This "engineering judgment" is comparable to manufacturers placing on one year's worth of technology improvements with absolutely nothing to show for it.

K) AGENCIES HAVE UNDERESTIMATED THE POTENTIAL FOR FUTURE INNOVATION

Generally, agencies have tended to overestimate the total costs of regulations (Carey 2016, pp. 12-13; Harrington ***et al.*** 1999). With regards to the Clean Air Act and the automotive industry in particular, automakers have shown an even worse track record, vastly overestimating the costs of compliance (Hwang and Peak 2016). As illustrated earlier in our comments on the agencies' proposal, this propensity for overestimation has continued—our analysis shows clearly that the costs for compliance are lower than originally anticipated by the regulators.

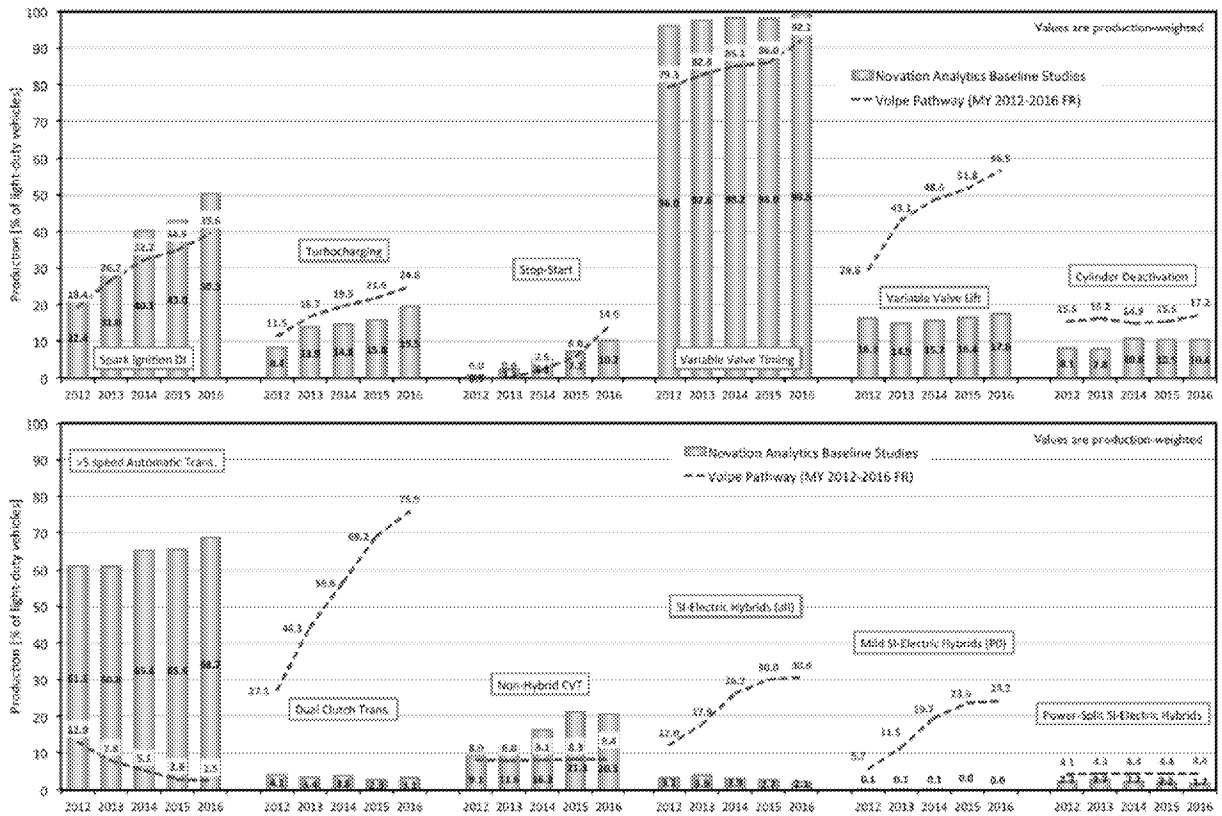
One way of illustrating the effect of innovation is to compare technology adoption to the pathways originally envisioned by the regulators. The pathways illustrated by the OMEGA and Volpe model represent particular low-cost analysis by EPA and NHTSA, respectively, resting almost entirely on the assumption that a rational manufacturer would choose the lowest-cost pathway to comply with the regulation. However, manufacturers may not necessarily choose this pathway, for a number of other constraints of which the agency could not possibly be aware, e.g., segment-specific strategies centered around a manufacturer's specific target markets, including global production. In fact, trying to impose some of these constraints designed to anticipate a manufacturer's mindset can lead to overly conservative analysis, as it will inevitably miss unforeseen technology developments.

Industry has repeatedly erred in its analysis of this historical look at whether the pathways projected by either the OMEGA or Volpe models have come true (e.g., Novation Analytics 2016). Mistakenly, the authors of the Novation Analysis consider the agencies' technology deployment rates as "over optimistic"; in truth, the data indicates that the agencies' technology assumptions were ***conservative.*** It is clear from Figure 5 that the agencies' pathways[16] differ from actual technology deployed in a number of significant ways:

- ***Cylinder control***—The Volpe model pathways projected that a higher penetration of both variable valve lift and cylinder deactivation would be needed for compliance; however, much lower penetrations of these technologies exist in the marketplace. The reason for this is simple—these technologies represent incremental steps up the cost ladder, and because manufacturers have been able to wring more out of the simpler, and cheaper, variable valve timing approach to cylinder control, ***less*** technology deployment was needed. This is representative of innovation used to reduce costs of compliance.
- ***Engine technology***—Similar to the above example, a greater penetration of the less expensive SIDI exists in the market, as compared to turbocharged engines and stop-start, which are represented in the Volpe model as more expensive steps up the efficiency curve. The Volpe

[16] Thought the rates of penetration shown are for the Volpe model, the OMEGA model for MY2012-2016 was qualitatively in agreement with the types and share of technology deployed in its pathway analysis, so we will treat the Volpe model results as representative of both agencies' analyses.

FIGURE 5. Production-weighted technology penetration for the 2016 model year



A comparison of the pathway modeled by NHTSA to comply with the MY2012-2016 regulations and the actual technology deployed in the fleet. Note that much lower penetration of expensive and complex technologies was needed to comply with the regulation, indicating that the technologies being deployed are more ***cost-effective than the agencies anticipated.***

SOURCE: NOVATION ANALYTICS 2016

model required that manufacturers would need to deploy these more expensive technologies at a greater rate for compliance than is actually required, again indicating that manufacturers are getting more effectiveness than anticipated out of the cheaper technologies.

- ***Transmissions***—In the agencies' original analysis for the 2017-2025 rule, dual-clutch transmissions were deemed more cost-effective than conventional automatic transmissions, and manufacturers like Ford, Volkswagen, Chrysler, and Honda all indicated plans to deploy the technology—therefore, the Volpe model inevitably selected this as the likely pathway to improving the efficiency of the transmission. After a number of quality problems and consumer complaints, however, the technology was not deployed as widely as industry anticipated (Sedgwick 2015). Instead, the market has still moved to transmission with wider gear spreads—they just largely happen to be conventional torque-converter automatics, although in some cases manufacturers have decided to go with a continuously variable transmission instead. Incidentally, this is an example of why we supported EPA's move to a more generic

representation of transmissions in its OMEGA modeling (Cooke 2016a)—ATs, DCTs, and CVTs can all be made more efficient at relatively similar costs, and manufacturers choose which technology to deploy based on a range of factors beyond simple cost-effectiveness having to do with specifics about their target consumers of which regulators can simply not be aware. And at the end of the day, the 2012 Volpe model suggested that 87% of the market would need to move towards more efficient transmissions to comply with the regulations, only slightly less than the 92% deployed—this is a far smaller difference in total powertrain effectiveness than suggested by the differences in efficiency used in the Volpe model (an additional 5.5-7.5% fuel efficiency for DCTs compared to ATs; see Table 3-28), indicating that manufacturers again have been able to generate much greater effectiveness out of a technology than anticipated by regulators.

- ***Hybridization***—The figures on hybridization are perhaps the most telling and indicative of just how conservative the technology assumptions of the regulators were. Mild and full hybrids are one of the most costly technologies in the Volpe model—projecting that nearly a third of the fleet would have to deploy some type of hybridization to meet 2016 standards indicates that regulators felt these standards were relatively stringent. Because manufacturers have deployed less than 10% of these most costly technologies while complying with the regulations indicates that they were able to compensate for a tremendous amount of fuel savings with much less costly technologies.

The technology penetrations presented by industry are entirely consistent with our assessment that the agencies generally ***overestimate*** the costs of compliance. Target-based, technology neutral standards provide manufacturers with a goal, and they have proven capable of meeting it through unforeseen innovation that reduces the technology costs and enables greater efficiency from "low hanging fruit" than regulators have anticipated. If anything, this is an argument for regulators to err on the side of setting more aggressive standards than pathway modeling suggests is feasible.

L) THE AGENCIES HAVE GROSSLY MISCHARACTERIZED THE STATE OF ELECTRIC VEHICLES

The agencies' proposal to eliminate state Zero Emission Vehicle (ZEV) policies would damage a policy that is working to put California on a path to reducing climate changing emissions and improving public health. Such action is not only illegal (see Section II.C), but it is founded in a fundamentally inaccurate portrayal of the state of EV technology and its current success in the marketplace.

(1) ZEV is working to improve consumer choice

Despite the proposed rule's characterization of the ZEV regulations as "overly ambitious" (83 FR 43243), automakers to-date have substantially over-complied with the requirements, in both California and the other states that have adopted the ZEV program through Section 177 of the Clean Air Act. Analysis of the program in 2017 showed that manufacturers have banked ZEV credits and produced longer-range ZEVs, allowing compliance with ZEV regulations with less than 8 percent ZEV sales by 2025 (CARB 2017a). Plug-in sales in California were over 6 percent for the first half of 2018 (Pyper 2018), indicating that the ZEV requirements are achievable with current technologies.

Californian car buyers have more choices to choose an electric vehicle when they go to a dealership than buyers in any other state, both in the number of models and number of vehicles available

(Reichmuth and Anair 2016). Some automakers have restricted sales of ZEVs such that they were not available in all of the states that have adopted California's ZEV regulation. For example, the Fiat 500e battery electric car was only made available in California and Oregon. Other ZEV models were technically available outside of California but were available in short supply or needed to be special ordered. In a 2016 study of the availability of ZEV cars (based on a popular online car shopping website), prospective ZEV buyers in Boston would see 10 times fewer ZEVs available on dealers lots than buyers in the San Francisco-Oakland Bay Area. The increased availability of ZEV models and vehicles has contributed to higher sales in California and make ZEV sales outside of California a poor indicator of consumer interest in ZEVs in those states. Therefore, EPA's assertion that past market penetration of ZEV technologies in these states shows an inability of automakers to comply with the ZEV regulations is erroneous. In addition, the comprehensive review of the ZEV program by CARB has shown that compliance with ZEV will require less than 8 percent ZEV sales in 2025 in California and less than 7.5 percent sales in the other ZEV regulation states (CARB 2017a, p. A-15). Given the increasing number of ZEV models coming to market and availability of the vehicles outside of California, these requirements are not only achievable, but it is likely that they will be exceeded. The agencies' statement that the ZEV program is technologically infeasible (and therefore in violation of lead time requirements; see 83 FR 43240) is clearly false, and there is no data shown in the rulemaking to support this claim. On the contrary, CARB has provided extensive technical support for continuation of the ZEV regulations.

(2) The ZEV program has consumer and economic benefits

The ZEV program is not only beneficial for public health and reducing climate change. Consumers also benefit by having more choices in the market, including ZEVs. Plug-in vehicles can offer high performance while also saving drivers money by switching to a cheaper fuel. UCS analysis of gasoline prices and recharging costs shows that drivers could save on average almost $800 in fuel costs per year by switching from gasoline to electricity (Reichmuth 2017), and maintenance costs can also be reduced by going from a combustion engine to electric motor. Advanced vehicle technologies are also driving innovation and jobs in the U.S.—manufacturers like Tesla and Daimler have made significant investments in battery manufacturing facilities (DNA 2018, Lambert 2018). The ZEV regulations have been pivotal to bringing over 40 ZEV models to market in California, putting US automakers in a competitive position as major automotive markets like China and the European Union move towards increasing electrification.

The agencies have mischaracterized consumers' ability to identify these benefits (Section I.B.2.c), but even more importantly, the Proposal's elimination of the ZEV program would cut short technical developments which are working to provide significant social and economic benefit to the country, in addition to the obvious environmental and public health benefits of the program.

2. The agencies' compliance modeling is inadequate and irrational

While the assumptions regarding technology potential can be most generously described as "conservative," the way in which these assumptions are converted into potential paths for compliance borders on the absurd. The agencies have reduced their modeling effort to a single value, compromising robustness, and that model is so fraught with errors that it does not even perform its basic functions

accurately. Basing a regulation on such an incomprehensibly inadequate modeling effort would be arbitrary and capricious.

A) THE AGENCIES' NPRM MODELING IGNORES ITS OWN UPDATED MODELING EFFORTS

In all three previous joint technical assessments, EPA and NHTSA relied upon separate, complementary modeling efforts. By using independent assessments guided by different expertise and technical assumptions, a comparison of the two results provided the agencies with clear, verifiable evidence as to the robustness of their findings. Unfortunately, the agencies are now relying upon a single set of technical inputs and a single modeled set of outputs, which results in extremely flawed analysis on both counts. Worse still, the agencies are ignoring the most up-to-date and state-of-the-art data available by ignoring recent peer-reviewed analysis and benchmarking data.[17]

(1) Full vehicle simulation

We have commented previously on the conservative technology assumptions used by NHTSA in its approach to modeling technology effectiveness with Autonomie (Cooke 2016b). The ANL work previously used outdated engine maps, and the lab has concentrated its benchmarking efforts on electrified powertrains, which are not especially relevant for the MY2022-2025 regulations. Furthermore, a number of additional flaws continue to exist with the Autonomie modeling, including that ANL's transmission shift strategy does not deploy gear-skipping or other more modern control strategies, which indicates that some if not many of the hard-coded assumptions in the model may be out-of-date. Perhaps recognizing some of these flaws, NHTSA utilized additional engine maps developed by IAV for DOE; however, these engine maps were not developed for this purpose and have not been benchmarked against the latest engines either on the road or in development, and as has already been described above in Section I.A.1.i)(2), these new engines maps have incorrectly "updated" these engine maps for Tier 3 fuel. , as described above in, and Lastly, all of these inputs represent a "black box"—it is impossible to verify, replicate, or alter the work done by Autonomie for NHTSA due to the expensive nature of the tools used and lack of open source or peer-reviewed output, and the underlying modeling work was finalized more than one year ago.[18] Perhaps this why the NPRM analysis does not even utilize the most recent ANL benchmarking data (Lohse-Busch et al. 2018a, 2018b)—not only isn't relying upon the most up-to-date industry data, but it doesn't even reflect the most recent data collected by the agencies themselves!

In contrast, EPA's ALPHA model has been thoroughly peer-reviewed and is constantly being updated to reflect the latest technology developments, thanks to the efforts of the National Vehicle and Fuel Emissions Laboratory. And because EPA has direct control over the model and its interface to OMEGA, EPA can better ensure that the inputs into OMEGA reflect the most up-to-date data, unlike the Autonomie work, which effectively has to be "locked in" before it can be deployed in the Volpe model. Moreover, the ALPHA model is readily downloadable, editable, and accessible to anyone with a

[17] Peer review: RTI International 2018; benchmarking: Stuhldreher et al. 2018 (Honda L15B7 1.5L turbo), Dekraker et al. 2018 (Toyota TNGA 2.5L)

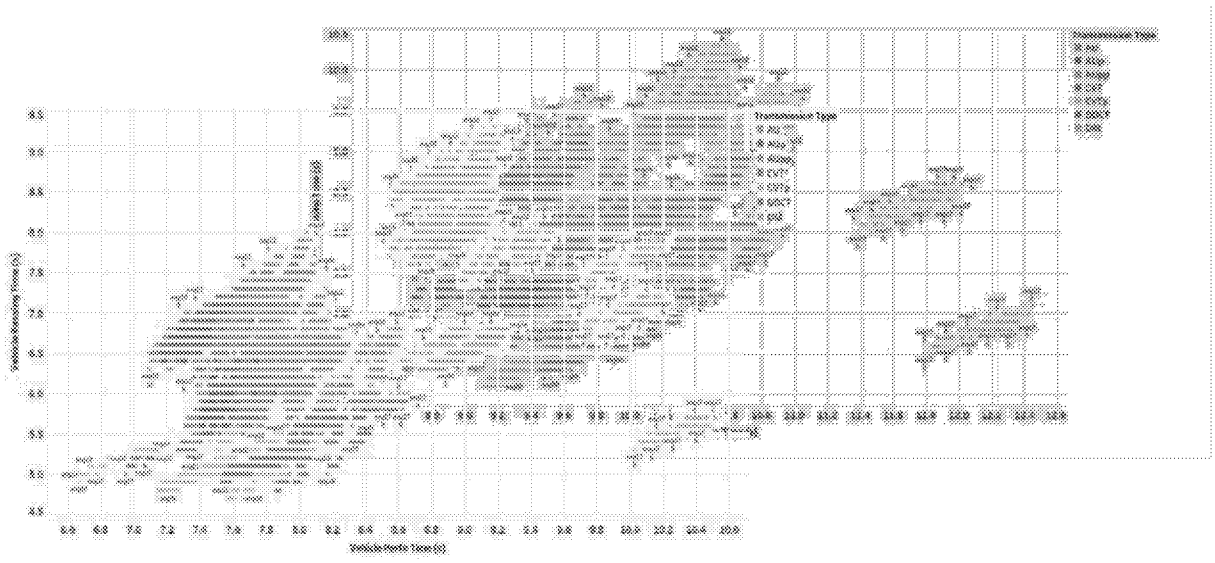
[18] The vehicle simulation database accompanying the Volpe model (NHTSA 2018a) is dated August 25, 2017, indicating that the data underpinning the Volpe model is significantly less recent than many of the peer-reviewed publications from EPA.

MATLAB license. It is also based on the GEM model, which is a model used to measure compliance with the heavy-duty vehicle regulations that has been meticulously reviewed and updated not just by EPA but by a number of heavy-duty vehicle manufacturers and suppliers. In fact, NHTSA has such confidence in the GEM model that they accept its simulation-based results as compliance with the heavy-duty fuel economy regulations.

The National Academies of Science noted that "the use of full vehicle simulation modeling in combination with lumped parameter modeling and teardown studies contributed substantially to the value of the Agencies' estimates of fuel consumption and costs, and [the committee] therefore recommends they continue to increase the use of these methods to improve their analysis" (NAS 2015, Recommendation 8.3). We agree that full vehicle simulation can significantly improve the estimates of technology effectiveness; however, we also think it critical that this process be as open and transparent as possible. Publishing results in peer-reviewed journals has provided the ALPHA modeling effort with significant and valuable feedback, particularly when it comes to assessing the most state-of-the-art engines. The "black box" approach by Autonomie does not lend itself to similar dialog, nor does it make it easy to assess the validity of its results.

There is an additional difference between how the full vehicle simulations are incorporated into their respective tools. In the case of the Volpe model, improvements in each vehicle are based on the

FIGURE 6. 0-to-60 and passing time of modeled compact vehicles



Performance "creep" in ANL's Autonomie modeling results in such dramatic changes in vehicle performance characteristics that technology packages applied to non-performance compact vehicles (blue chart) show significant overlap with technology packages applied to performance compacts (green chart) (figures have been aligned to share common x-y coordinates). These performance improvements can significantly diminish the potential reductions in fuel consumption, but remain unaccounted for as a benefit in the Volpe model.

SOURCE: ISLAM 2018B, FIGURES 241 AND 242.

improvements to an average vehicle in a given vehicle class—while the performance characteristics of vehicles within a class will differ which could significantly impact the relative fuel consumption of a particular technology (for example, based on a different power-to-weight ratio), only class average characteristics are considered (Islam et al. 2018b). Thus, in the Volpe model, the behavior of a particular technology package is severely stepped based on its classification by NHTSA staff—for example, applying TURBO2 to a vehicle with a 10-speed automatic, TURBO1, and BISG mild hybridization results in a 1.9 percent reduction in fuel consumption for a small performance car (and 30.8 percent below a "null vehicle") but only a 0.4 percent improvement for a small non-performance car (and 27.6 percent below a "null vehicle"). In the latest version of OMEGA, a vehicle's specific performance characteristics are taken into account through response-surface modeling based on relative deviation from the class average vehicle modeled in ALPHA (RTI International 2018), thus minimizing such step discontinuities.

It is also worth noting in this discussion that the modelers at ANL have allowed significant performance "creep" in their modeling—rather than maintaining performance neutrality with applied technology, vehicle characteristics can vary dramatically through increased technology adoption (Sectoin 11.5, Islam et al. 2018b). While some performance creep may be reasonable, many of these packages are so wildly different that they actually cause an overlap between performance and non-performance vehicles of the same size class (Figure 6). Performance characteristics in the OMEGA model as a result of ALPHA full vehicle simulation do not vary as significantly and are approximately held fixed.

(2) Pathway modeling

The Volpe and OMEGA models were designed for two very different objectives under different statutes. Volpe was designed with EPCA, as modified by EISA, in mind—for example, because of its focus on oil reduction, it does not appropriately model climate impacts from electrification or emissions from flex-fueled vehicles. Similarly, because the OMEGA model was designed under the "technology-forcing" paradigm of the Clean Air Act, it cannot allow manufacturers to pay fines in lieu of compliance, and it allows for the setting of more aggressive product cycles. Therefore, though these models can be complementary, one cannot be used in place of another and still meet the statutory obligations of each agency.

These models are largely constructed based on a similar foundational principle, that manufacturers will choose the most cost-effective technology pathway to comply with the regulations. However, the technology pathways produced by the two models will not necessarily agree due, in part, to the differences in structure of the models directly related to differences in statutory obligations. Furthermore, the latest version of the Volpe model indicates that it fails this basic task (see discussion in Section I.A.2.b)).

The Volpe model attempts to replicate in full a manufacturer's decisionmaking process across multiple platforms. To this end, the model uses rigid schedules as to when a vehicle can be updated and restricts initial deployment of technology to the "leader" of a platform, preventing other vehicles on that platform from adopting the technology even if their product cadence would allow it. The model also imposes phase-in caps to limit the rate at which a technology can be deployed. It also confines the decisionmaking process of a manufacturer to specific pathways—for example, there is no feasible way

for a manufacturer to deploy a high-compression ratio engine with cylinder deactivation because the decision tree splits before this technology.

These rigid constraints represent conservative assumptions, often which do not prove true. For example, while historically a low-volume luxury model may have been first on a platform to receive a more expensive technology, a high-volume vehicle on that platform may now deploy the technology first in order to ensure compliance in the most rapid and cost-effective fashion. Similarly, while historically manufacturers may have stuck to rigid product redesign and refresh cycles, manufacturers are breaking that mold today.[19] For example, the Ford F-150 is having virtually continuous powertrain updates in its current cycle: it was redesigned in 2015, but in 2017 it gained both a 10-speed automatic transmission and a new, high-output engine, in 2018 they refreshed the vehicle by introducing four new engines, and by 2020 it will get a hybrid variant. Similarly, Hyundai has announced that it is cutting its product design cycle in half (Greimel 2017). And finally, the high-compression ratio engine with cylinder deactivation combo disallowed by the Volpe model is actually already deployed in the Mazda CX-5.

Another aspect of these constraints which makes the Volpe model susceptible to inaccuracies are that all of these constraints represent decisions made by the regulators based on Confidential Business Information (CBI) discussions with automakers. Manufacturers clearly have an incentive to provide conservative information to the regulators, but this is the primary source of data on which the Volpe modeling team is basing these constraints. This creates an asymmetric feedback loop which will always lead to conservative estimates: if the regulators err in a way in which automakers feel is "too aggressive", they will provide CBI data to "correct" the assumption, but if the regulators err in a way which may be more conservative than automakers' data, industry has no incentive to correct the record because such correction would inevitably result in stricter standards. This is why in the Volpe model the refresh and redesign cycle for the F-150 does not actually reflect what has transpired—Ford obviously knew its plans well in advance of the TAR for how it would be deploying its future powertrains to the vehicle, but they were not going to share it with the regulators. Even besides that, because there is little transparency on the data behind the "engineering judgments" made in the Volpe model assumptions, it is difficult to understand precisely why so many vehicles' announced redesign/refresh cycles differ from that in the model, or the justification for skipping certain technologies on specific vehicles or even entire manufacturers' product lines, as was done for the high-compression ratio engines.

The OMEGA model, on the other hand, is designed to be more consistent with EPA's obligations to set technology-based standards under the Clean Air Act. It does not presuppose to know precisely how manufacturers may strategize their fleet decisions because it is clear that manufacturers keep much of this information to themselves and have a disincentive to provide accurate information to regulators. Instead, it starts from the simple premise that vehicles will essentially have the ability to significantly overhaul their powertrain and vehicle technologies once every five years through the redesign cycle. This acts as a complementary approach to the Volpe model, which is inherently conservative and no

[19] For further discussion on the ways in which the Volpe model does not accurately reflect manufacturers' product cycles, see Baum 2018, Meszler and Baum 2018.

more predictive. And, it is more consistent with EPA's requirements under 202(a)—applying artificial constraints as is done in the Volpe model does not reflect technological feasibility but attempts to impose self-identified economic constraints which artificially constrict the actual technological possibilities.

One constraint that does exist in the OMEGA model explicitly because of the technological feasibility aspect of the statutory obligations underpinning the design of the model is that it does not allow for credit trading to reduce the costs of compliance. By requiring manufacturers to comply in its model on a technological basis, it inevitably increases the costs to comply. This is clearly a conservative assumption.

Aside from structural differences found in the models due to differences in legal obligations, there are differences in assumptions which underlie the models. For example, in the most recent version of the OMEGA model, EPA reclassified vehicles according to power and road load and incorporated power-to-weight ratio in its effectiveness modeling. This significantly improves the accuracy of its modeling and responds to one of the strongest industry concerns. This technique helps differentiate powertrain options within a given model, reflecting the diversity of consumers' choices and better representing the breadth of vehicle performance characteristics available within a given vehicle class. This strengthens the agency's results, both by narrowing the error bars and more accurately representing the real vehicle fleet.

The differences between the two models encourage complementary analysis, ensuring that between the two analyses, a diverse set of possible technology pathways are assessed. Having two analyses thus strengthens the argument for the feasibility of these standards, even if the eventual pathway is not precisely identified, since a diversity of hidden decisionmaking processes by manufacturers will inevitably sort the pathways as relevant to each manufacturer's precise overall goals, only one of which is compliance with the standards. And speaking to the strength of these complementary assessments, in the end both models yield generally similar costs for compliance—the agencies themselves showed this in the MY2017-2025 rulemaking (Section I.D.3), although the raw values disagreed substantially due to different underlying regulatory constraints. This further underscores that it will be the unknown OEM decisions which will help define the path, rather than solely the most cost-effective strategy, of which the agencies' complementary analyses prove there are many.

By restricting themselves to a single model, the agencies have undermined the natural complementarity of the approaches, enforcing only a single, more conservative approach that lacks robustness, transparency, and ultimately exposes the agencies to a series of modeling errors that would have been caught had the agencies appropriately considered their full complement of expertise and models.

B) THE VOLPE MODEL DOES NOT PRODUCE ECONOMICALLY RATIONAL RESULTS

The basic purpose of the Volpe model according to NHTSA "is to facilitate estimation of the potential impact of new CAFE standards" (NHTSA 2018f, p. 1). As part of this process, the model "estimate[es] ways each manufacture[sic] could (not 'should' or 'is projected to') respond to standards," which it does by "appl[ying] technologies based on their relative cost-effectiveness...subject to a variety of user-controlled constraints" (NHTSA 2018b, p. 1).

The model's constraints play a significant role in the estimation of these costs and generally serve to drive costs upwards by limiting the application of technologies. NHTSA claims that "because the CAFE model simulates a wide range of actual constraints and practices related to automotive engineering, planning, and productions...the analysis produced by the CAFE model provides a transparent and realistic basis to show pathways manufacturers could follow," (83 FR 43001). But there are numerous examples of behavior modeled by Volpe which do not comport with realistic product deployment. These errors flow from both erroneous inputs to the model (such as inaccurate product design cycles (Baum and Meszler 2018) and erroneous "engineering judgment" regarding technology uptake and manufacturer decisionmaking (Meszler 2018)) and intrinsic behaviors from the coding of the model (including irrational product application due to hardcoded pathways (Meszler 2018) and deficient coding of credit banking and trading, further discussed below).

Most fundamental to the rational operation of the model, however, is the algorithm determining the order in which technologies are applied by a manufacturer. Clearly, the optimal strategy chosen by a manufacturer would result in the lowest costs of compliance, within a given set of constraints—indeed, this is precisely how the model is described in its earliest incarnations, with manufacturers applying technology "based on comparative estimated cost-effectiveness" (p. VI-13, NHTSA 2006), and "identifying the 'best next' (in terms of cost-effectiveness) technology available on each of the parallel technology paths...and applying the best of these" (p. VI-13, NHTSA 2006). This is also precisely the recommendation of the National Academies: "All else equal, it would be economically efficient to implement first the technology that offered the greatest reduction in fuel consumption per dollar of cost" (NAS 2011, p. 125).

Unfortunately, the algorithm governing the current iteration of the Volpe model falls well short of a rational, cost-effective pathway (even within the engineering constraints imposed by the model), as illustrated below. We also provide a new, more efficient algorithm to replace this flawed approach.

(1) Flaws in the efficiency algorithm

We are not the first to point out that the efficiency algorithm does not work as it should—technical staff at EPA provided the Office of Management and Budget pages of detailed analysis illustrating that the algorithm does not function properly (Charmley 2018). There are two primary operational failures in the Volpe model's algorithm, one which affects modeling of both the CAFE and GHG programs, and one which solely affects the model's ability to model compliance with the GHG program. Each of these failures individually results in completely irrational behavior that must not be used to underpin major regulatory action.

(a) <u>The Volpe model does not consider overcompliance in estimating efficiency</u>

The efficiency of technology application in the previous iteration of the Volpe model appears in the formula (NHTSA 2016a, p. 25):

$$COST_{eff} = \frac{\sum_{i \in k}\left(\sum_{j=baseMY}^{j=MY} TECHCOST_{i,j} - TECHVALUE_{i,j} - (VALUE_{FUEL})_{i,j} + \Delta FINE_{MY}\right)}{TOTALSALES}$$

A similar formula appears in the model documentation accompanying the version of the Volpe model used to support the NPRM (Section 5.3.2, NHTSA 2018):

$$EffCost = \frac{TechCost_{Total} - FuelSavings_{Total} - \Delta Compliance}{AffectedSales_{Total}}$$

The ***TECHVALUE*** term representing "the net change in consumer valuation" (NHTSA 2016a, p. 25) has been removed from the formula. Previous versions of Volpe had set this term to zero for virtually all technologies, so it did not have a significant impact on the calculation of cost-effectiveness in previous rulemakings. But given the completely inaccurate and inflated assumptions regarding consumer welfare for hybrid and plug-in electric vehicles in ***this*** Proposal (see Section I.B.2.c)), it is likely that this term was eliminated because it resulted in absurd and irrational behavior of the model. However, because there is no documentation of this change, it is impossible to say for certain NHTSA's rationale for the sudden and unexplained exclusion.

The Δ***Compliance*** term is set equal to the Δ***FINE*** term when calculating compliance with the CAFE program, but its value under the GHG program (defined as Δ***CO2CreditValue*** in the source code) is irrational and discussed in more detail in the next section. However, both definitions of Δ***Compliance*** suffer the same deficient behavior when it comes to handling overcompliance.

If a manufacturer undercomplies with the CAFE program, it can pay fines in lieu of compliance. In this scenario, however, the manufacturer then does not receive money for overcompliance—the manufacturer simply need not pay fines. Therefore, the fines paid by a manufacturer under any scenario have a floor of zero. But because the model imposes this floor on ***all*** methods of compliance, it irrationally caps gains from all forms of overcompliance, i.e., if a manufacturer moves from a situation of undercompliance (e.g., a fleet 10,000 vehicles averaging 0.5 mpg below the standard, for ***FINE*** = $14/(0.1 mpg)/vehicle × 5(× 0.1 mpg) × 10,000 vehicles = $700,000), to a situation of overcompliance (e.g., that same fleet of 10,000 vehicles now overcomplying by 0.5 mpg), the Δ***FINE*** value of the technology application only considers the value of the reduced fines ($700,000), ignoring the additional benefit of 0.5 mpg in credited overcompliance for the fleet.

This floor thus means that a technology which would result in significant overcompliance is dramatically undervalued, since that overcompliance is banked and available in later years for compliance. And because the algorithm supplies no benefits for overcompliance, it also prioritizes technologies not on how cost-effective they might be overall, but how close the technology's effectiveness matches the gap in compliance (i.e., how closely the technology approaches the algorithm's artificial ceiling for compliance benefits).

For example, take two technologies: Technology A costs $200 per vehicle and results in a benefit of 1 mpg on average across the fleet; Technology B costs $150 per vehicle and results in just 0.5 mpg improvement on average across the fleet. Clearly, Technology A is more cost-effective—it offers twice the level of improvement at just one-third more the cost. However, according to the Volpe formula, because both technologies do nothing more than reduce the fine in our 10,000-vehicle fleet example by the same amount ($700,000), the Δ***FINE*** term will prioritize the superficially "cheaper" Technology B, ignoring the additional benefit of overcompliance.

This deficiency in the algorithm and its impact were promptly identified by the technical staff at EPA during interagency review (Figure 10, Charmley 2018). NHTSA's response to this criticism was wholly

TABLE 4. Costs for compliance with current greenhouse gas standards, in MY2028, by manufacturer, when correcting to consider overcompliance for technology application

Manufacturer	NPRM	Corrected	Diff	% Diff
BMW	$ 4,265	$ 4,039	$ (226)	-5 %
Fiat-Chrysler	$ 4,096	$ 3,139	$ (956)	-23 %
Ford	$ 3,437	$ 2,672	$ (765)	-22 %
General Motors	$ 3,151	$ 2,459	$ (692)	-22 %
Honda	$ 1,851	$ 1,738	$ (114)	-6 %
Hyundai	$ 1,201	$ 1,031	$ (169)	-14 %
Jaguar Land Rover	$ 4,994	$ 5,162	$ 167	3 %
Kia	$ 1,755	$ 1,511	$ (243)	-14 %
Mazda	$ 2,691	$ 1,778	$ (913)	-34 %
Mercedes	$ 4,485	$ 3,972	$ (512)	-11 %
Nissan-Mitsubishi	$ 1,141	$ 1,107	$ (34)	-3 %
Subaru	$ 1,247	$ 1,262	$ 15	1 %
Tesla	$ 4	$ 3	$ (1)	-23 %
Toyota	$ 2,235	$ 1,849	$ (386)	-17 %
Volkswagen	$ 5,004	$ 4,383	$ (620)	-12 %
Volvo	$ 3,538	$ 3,283	$ (254)	-7 %
INDUSTRY TOTAL	**$ 2,785**	**$ 2,307**	**$ (478)**	**-17 %**

Altering the Volpe "effective cost" algorithm to consider overcompliance results in substantially reduced costs for nearly every single manufacturer, as well as the industry as a whole. The two manufacturers who showed increases in costs were of marginal significance (3 percent for JLR and 1 percent for Subaru, both of whom are relatively low-volume manufacturers), while many of the largest manufacturers saw costs reduced by 20 to 30 percent.

inadequate to this criticism, ignoring the substance of the critique (#28, NHTSA 2018g). Moreover, NHTSA's response tacitly acknowledges that the model does not fully value a manufacturer's overcompliance ("the compliance simulation algorithm applies a ceiling at 0 (zero) to each calculated value of the CO_2 credits"), but bizarrely tries to justify the oversight by identifying another, self-inflicted flaw in the model: the lack of manufacturer-to-manufacturer trading that, if permitted, would "raise" the ceiling for compliance benefits (see further discussion of this in Section I.A.2.c)(2)(c)). But NHTSA is legally obligated to model regulated parties with respect to reality and to the facts of manufacturer compliance, which do not change merely because the agency says as much in ***other*** flawed analyses. And in any event, the agency's "two wrongs make a right" mentality ignores that the manufacturer themselves—not their potential trading partners—would be the more likely beneficiary of these banked credits.

The real proof that NHTSA ignored EPA's criticism can be found by simply running the model with and without eliminating this "ceiling." If NHTSA is correct in its rebuttal—that eliminating this ceiling would result in additional costs—then the output would validate the agency's argument. However, as

shown in Table 4, costs of compliance when eliminating this ceiling are reduced significantly.[20] This is an indication that the algorithm at the core of the Volpe model is sub-optimal, with nearly every single manufacturer accruing greater technology costs as a result of this error.

Averaged across the fleet, the results of NHTSA's irrational modeling decision yield costs of compliance that are more than 20 percent higher than if the Volpe modeling staff had heeded the advice of the interagency reviewers. Knowingly inflating the costs of regulation by choosing to use a sub-optimal algorithm is clearly an arbitrary and capricious decision. Any future modeling efforts by the agency must more reasonably reflect a rational strategy for technology adoption by manufacturers.

(b) Efficiency for technologies in the GHG program are derived from CAFE fines

According to NHTSA, "the model uses an estimated value of CO2 credits to place a value on progress toward compliance with CO2 standards" (#28, NHTSA 2018g). However, this value is fixed in a given model year for all manufacturers and is explicitly tied to the value of CAFE fines in that model year, neither of which is a reasonable estimate of how a manufacturer will value compliance with the greenhouse gas standards. The flaws in this approach are numerous and were identified by EPA in interagency review (Charmley 2018, pp. 22-23). We concur with these criticisms. Moreover, NHTSA did not defend the validity of the approach used in the Volpe model, nor did the agency provide any justification for translating the value of CAFE fines directly into $/g CO_2-equivalent, even while acknowledging that "noncompliance with CO2 standards effectively means a prohibition on sales rather than a potentially-manageable civil penalty" (#28, NHTSA 2018g).

Manufacturers will compare technologies based on the marginal cost-effectiveness of that technology (i.e., the "bang for your buck" from a given technology). In the case of the greenhouse gas standards, where credits are defined as megagrams (Mg) of CO_2-equivalent, this amounts to an efficiency in dollars per metric ton, where the "cost" term in the numerator is simply the perceived difference in profit by applying a technology, $\boldsymbol{TechCost}_{\text{Total}} - \boldsymbol{FuelSavings}_{\text{Total}}$.

Modeling the cost-effectiveness in this way ensures that there is no pre-ordained "value" of CO_2—each manufacturer will value compliance relative to the technology pathways and credit strategies available to it to reduce tons of emissions, and it is precisely this marginal cost that is important when evaluating a strategy. It also ensures that manufacturers' "value" of greenhouse gas reduction ***increases*** over time, reflecting that compliance with more stringent emissions standards becomes more challenging as options are exhausted and that only after the low hanging fruit is utilized will manufacturers see economic value in more expensive emissions reductions pathways.

The above strategy is precisely the recommendation given by the National Academies (NAS 2011). Deploying the more accurate model in place of the default algorithm in the Volpe model results in reduced costs of compliance (Table 5), indicating that at its core the Volpe model is fundamentally flawed.[21]

[20] See Appendix A-1 for corrections to the source code.
[21] See Appendix A-2 for corrections to the source code.

TABLE 5. Costs for compliance with current greenhouse gas standards, in MY2028, by manufacturer, utilizing a "cost per ton" algorithm

Manufacturer	NPRM	Corrected	Diff	% Diff
BMW	$ 4,265	$ 3,988	$ (277)	-6 %
Fiat-Chrysler	$ 4,096	$ 3,945	$ (151)	- 4 %
Ford	$ 3,437	$ 2,612	$ (825)	-24 %
General Motors	$ 3,151	$ 2,277	$ (874)	-28 %
Honda	$ 1,851	$ 1,741	$ (110)	-6 %
Hyundai	$ 1,201	$ 973	$ (227)	-19 %
Jaguar Land Rover	$ 4,994	$ 4,849	$ (145)	-3 %
Kia	$ 1,755	$ 1,447	$ (308)	-18 %
Mazda	$ 2,691	$ 1,753	$ (938)	-35 %
Mercedes	$ 4,485	$ 3,991	$ (494)	-11 %
Nissan-Mitsubishi	$ 1,141	$ 1,147	$ 6	1 %
Subaru	$ 1,247	$ 1,246	$ (1)	0 %
Tesla	$ 4	$ -	$ (4)	-100 %
Toyota	$ 2,235	$ 1,810	$ (425)	-19 %
Volkswagen	$ 5,004	$ 4,478	$ (525)	-11 %
Volvo	$ 3,538	$ 3,043	$ (495)	-14 %
INDUSTRY TOTAL	**$ 2,785**	**$ 2,360**	**$ (425)**	**-15 %**

Replacing the Volpe "effective cost" algorithm with a "cost per ton" algorithm results in substantially reduced costs for nearly every single manufacturer, as well as the industry as a whole. The only manufacturer which showed an increased cost was Nissan-Mitsubishi, which saw a mere $6 difference, while many of large manufacturers saw costs reduced by 20 to 30 percent.

(2) Evidence of irrational behavior in the current Volpe model

In the sections above, we illustrated that the Volpe model's algorithm is sub-optimal and does not produce the most economically efficient behavior. While we have illustrated examples of how to correct this behavior and lower costs, it is perhaps even more illustrative to demonstrate the types of irrationality that drive the increased costs in the model.

Due to errors in the Autonomie model, many simulations of improved transmissions and turbocharged engines show little incremental improvement over less complex technologies (e.g., Figures 6-119 (CEGR1) and 6-151 (AT8 and better)), yet the model routinely adopts these technologies at significant cost: in the NPRM analysis, 0 percent of vehicles had an AT6L2 transmission while 52.4 percent adopted AT10L2 transmissions, even though the latter supplies virtually identical modeled efficiency but is hundreds of dollars more expensive (Table 6-22, PRIA).

Under the model, it is actually possible to significantly reduce the cost of compliance by prohibiting the adoption of the entire AT8+ branch (AT8, AT8L2, AT8L3, AT9, AT10, AT10L2) as well as CEGR (Table

TABLE 6. Costs for compliance with current greenhouse gas standards, in MY2028, by manufacturer, when preventing the adoption of advanced transmissions and cooled EGR

Manufacturer	NPRM	Low Tech	Diff	% Diff
BMW	$ 4,265	$ 4,126	$ (139)	-3 %
Fiat-Chrysler	$ 4,096	$ 3,624	$ (472)	-12 %
Ford	$ 3,437	$ 2,809	$ (628)	-18 %
General Motors	$ 3,151	$ 2,769	$ (382)	-12 %
Honda	$ 1,851	$ 1,649	$ (203)	-11 %
Hyundai	$ 1,201	$ 1,390	$ 189	16 %
Jaguar Land Rover	$ 4,994	$ 4,710	$ (284)	-6%
Kia	$ 1,755	$ 1,678	$ (77)	-4 %
Mazda	$ 2,691	$ 2,008	$ (684)	-25 %
Mercedes	$ 4,485	$ 4,011	$ (473)	-11 %
Nissan-Mitsubishi	$ 1,141	$ 1,026	$ (115)	-10 %
Subaru	$ 1,247	$ 1,246	$ (0)	0 %
Tesla	$ 4	$ 4	$ (0)	0 %
Toyota	$ 2,235	$ 2,024	$ (211)	-9 %
Volkswagen	$ 5,004	$ 4,598	$ (405)	-8 %
Volvo	$ 3,538	$ 3,104	$ (433)	-12 %
INDUSTRY TOTAL	**$ 2,785**	**$ 2,474**	**$ (311)**	**-11 %**

Preventing manufacturers from adopting advanced transmissions and cooled EGR results in substantially reduced costs for nearly every single manufacturer, as well as the industry as a whole. The only manufacturer which showed an increased cost was Hyundai, which saw increased costs as a result of significant adoption of mild hybrids to replace the synergistic benefits of its high population of HCR engines with advanced transmissions. Most large manufacturers saw costs reduced by about 10 percent, or nearly 20 percent in the case of Ford.

6).[22] This makes absolutely no sense whatsoever: by restricting the pool of technology a manufacturer can choose, costs should always go up. The only way costs can go down by eliminating technology availability is if the manufacturer inexplicably selects more expensive, less cost-effective technologies, ***which is completely irrational behavior.*** But this is exactly what these modeling results indicated—manufacturers were modeled as unnecessarily applying hundreds of dollars in additional technology.

(3) Creating a more efficient model

Combining the two approaches we recommended above yields to further reduced costs (Table 7). This approach is merely a first attempt at correcting the many flaws in the Volpe model. Because the agencies did not accept our request for an extension of the comment period, we were unable to both fully assess why the model behaves so irrationally, and how to fix such problems in the source code itself. It is all but certain that many potential improvements remain.

[22] To prevent adoption of these technologies, we modified the technologies file (NHTSA 2018d), replacing the applicability of each technology in the branch (as well as CEGR) with "FALSE" in every vehicle class to create a premature stopping point in the technology selection pathways.

TABLE 7. Costs for compliance with current greenhouse gas standards, in MY2028, by manufacturer, when preventing the adoption of advanced transmissions and cooled EGR and utilizing a cost-per-ton algorithm

Manufacturer	NPRM	Combined	Diff	% Diff
BMW	$ 4,265	$ 3,867	$ (398)	-9 %
Fiat-Chrysler	$ 4,096	$ 2,729	$ (1,366)	-33 %
Ford	$ 3,437	$ 2,327	$ (1,111)	-32 %
General Motors	$ 3,151	$ 2,182	$ (969)	-31 %
Honda	$ 1,851	$ 1,391	$ (461)	-25 %
Hyundai	$ 1,201	$ 1,271	$ 70	6 %
Jaguar Land Rover	$ 4,994	$ 4,245	$ (749)	-15 %
Kia	$ 1,755	$ 1,653	$ (102)	-6 %
Mazda	$ 2,691	$ 1,591	$ (1,101)	-41 %
Mercedes	$ 4,485	$ 3,958	$ (526)	-12 %
Nissan-Mitsubishi	$ 1,141	$ 1,093	$ (48)	-4 %
Subaru	$ 1,247	$ 1,255	$ 8	1 %
Tesla	$ 4	$ -	$ (4)	-100 %
Toyota	$ 2,235	$ 1,817	$ (417)	-19 %
Volkswagen	$ 5,004	$ 4,021	$ (983)	-20 %
Volvo	$ 3,538	$ 3,451	$ (87)	-2 %
INDUSTRY TOTAL	**$ 2,785**	**$ 2,103**	**$ (682)**	**-25 %**

Combining a more efficient algorithm while preventing the unnecessary adoption of some more advanced technologies substantially reduced costs for nearly every single manufacturer, as well as the industry as a whole. The domestic manufacturers saw costs cut by more than 30 percent, while the industry as a whole cut its costs by 25 percent.

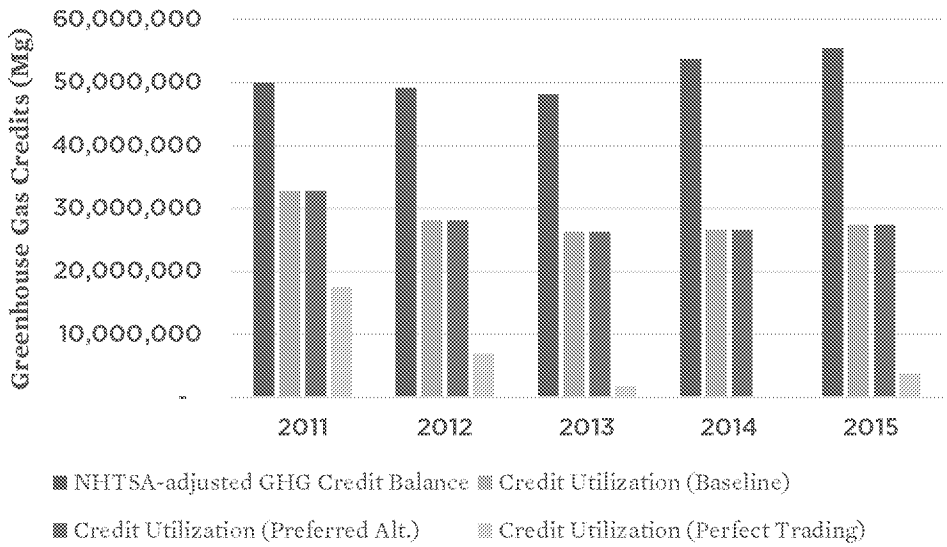
In the meantime, because the Volpe model remains severely flawed and incapable of performing its core function appropriately, we recommend that any modeling effort by the agencies draw upon the additional models developed by EPA explicitly to assess compliance with the greenhouse gas emissions rules, the ALPHA and OMEGA models. These models are both 100 percent transparent and available to the public and have each been updated and peer-reviewed since the finalization of the mid-term review in 2017.[23] This "latest and greatest" scientific data is exactly what the agencies should be relying upon, and we recommend that the ALPHA and OMEGA models be made available as part of the rulemaking and be incorporated into the final rule. This additional layer of complementary analysis would provide a layer of robustness clearly lacking from the agencies' current, flawed proposal.

[23] Peer review: EPA-HQ-OAR-2018-0283-0025; benchmarking: SAE 2018-01-0319 (Honda L15B7 1.5L turbo), SAE 2018-01-1412 (Toyota TNGA 2.5L)

C) THE VOLPE MODEL DOES NOT ACCURATELY REFLECT THE BANKING AND TRADING PROVISIONS FOR COMPLIANCE WITH FUEL ECONOMY OR EMISSIONS STANDARDS

The latest version of the Volpe model does not correctly utilize credits in its projections of how manufacturers would comply with future standards, including credits for overcompliance which have

FIGURE 7. The total of banked credits for model years 2011-2015 under different scenarios



NHTSA attempted to model the greenhouse gas credit balance for manufacturers in MY2011-2015 based on anticipated usage (blue bars). However, for both the Baseline Standards and the Preferred Alternative (green and red bars, respectively), roughly half of manufacturers' banked credits are allowed to expire, something which directly conflicts with manufacturers' rationale for generating that overcompliance in the first place. This effect is even more pronounced when "perfect trading" is considered (yellow bars), where the industry as a whole is able to minimize its compliance costs—in that case, the industry is assumed by the model to use virtually none of its banked credits.

already been banked by manufacturers under the current program. As such, it exaggerates the costs of compliance, assuming that manufacturers will apply additional technologies and allow credits to expire, something which no rational manufacturer would do, particularly under the Clean Air Act where-in non-compliance does not result in an undervalued fine but can result in a stop-sale of vehicles in the United States. This inexplicable behavior was previously observed in interagency review,[24] but no corrective measures were identified by NHTSA in response.

NHTSA staff have acknowledged that they are not accurately reproducing credits in the Volpe model—for example, even though EPA allowed a one-time exemption of the five-year credit lifetime for MY2010-2015 to be carried through to MY2021, the Volpe model does not reflect this (83 FR 43183). NHTSA staff then modified the EPA greenhouse gas credit banks to "anticipate the years in which those credits might be needed" (83 FR 43183)—as is shown in the following discussion, this "guessing"

[24] Charmley 2018, p. 9: "The model tends to produce fleets that overcomply and make sub-optimal use of available credits, resulting in an unrealistic over-estimation of costs."

method is inadequate to accurately replicate rational manufacturer behavior, and artificial limits set within the Volpe model exacerbate this "finger-in-the-air" methodology, as is described below.

(1) The Published Volpe Model Inexplicably Lets Credits Expire

Figure 7 details both the credit bank defined by NHTSA staff in the Volpe model inputs and the credit trading outputs, compiled from the debugging files associated with running the model.[25] Here we show the credits utilized in three different modeling cases, compared to the default inputs: 1) the baseline case (EPA standards as they stand today), 2) the preferred alternative (holding standards flat after MY2020), and 3) the baseline case with perfect trading (further described below). Because the default inputs limit credit lifetime to 5 years and both the preferred alternative and the baseline case have the same standards through 2020 (the year when NHTSA's GHG credit bank would expire), there is no difference whatsoever in credit application from the 2011-2015 bank between those two scenarios. However, it is clear in all scenarios that credits are not fully utilized.

As is apparent from the figure, significantly fewer credits are being applied by the model than are available to manufacturers. This is a serious flaw. Essentially, the model is saying that manufacturers are willing to let nearly half of their credits expire, which is simply not rational. What rational manufacturer would leave all of this money on the table? And why would a Board of Directors exercising their fiduciary responsibilities allow such financial folly to occur? Yet the model allowed 141 million Mg of credits to expire, while at the same time overcomplying with the regulations by 188 million Mg—clearly there is an arbitrary and outright irrational projection.

Currently, these credits trade at approximately $42 per metric ton, directly to the manufacturer (Cooke 2016a, p. 7)—this would put the value of these expired credits at nearly **$6 billion**, in the case of the Baseline Standards. In this same time period (MY2016-2021), the model projects that manufacturers applied technology at a direct cost of $275 per metric ton in order to over-comply with the standards as an industry. Using that average cost, manufacturers applied nearly **$40 billion** in direct technology costs to make up for the difference in expired credits.

This modeling suggests that manufacturers were willing to discard $6 billion in sunk costs and pay an additional $40 billion to make up for that difference—under no economic theory is such behavior rational. Manufacturers could have applied credits at a net cost of zero in order to eliminate approximately 75 percent of the technology costs accrued in these model years—instead, the model has evaluated these credits to be worthless.

(a) Defining the Volpe Model Compliance Strategy

At the core of the Volpe model is a series of steps which is responsible for the decisionmaking process assumed manufacturers will take to comply with the regulations. These compliance steps are the key source of much of the dysfunctional and irrational behavior of the model, so it is worth defining in plain terms the assumptions and order of the process as clearly as possible.[26]

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[25] i.e. (Output directory)\debug-logs\credit_trades_sn#.csv, where # represents the scenario number.

[26] This is a plain text description of the RunManufacturer() method within Compliance.cs (lines 528-719) of the provided source code (NHTSA 2018c). While ostensibly such discussion should occur in the accompanying NHTSA

The model breaks the process for manufacturers to determine a strategy for compliance into 5 steps, which are laid out below. However, we will sub-divide these steps further in order to more clearly assess the way in which compliance is processed:

1) Apply all cost-effective solutions, regardless of manufacturer's compliance

   All technologies which pay for themselves within the assumed payback period are applied to all manufacturers, regardless of credit status.

2) Register manufacturer and year with "credit bank"

   In this version of the Volpe model, the credit bank is not used. Currently, it appears to be designed solely for CAFE compliance (`CreditBank.cs`), and references to this module consist in the main methods solely as "`//TODO:`" statements outlining future development.

3) A three-step credit application process: a) apply expiring credits; b) apply all credits from oldest to newest, preferentially choosing carrying forward credits over fleet transfers; and c) for the GHG program only, credits are transferred between car and truck fleets within the same model year.

   The degree to which each of these steps do what they are purportedly designed to do is a key factor in the inefficiency and irrationality of the Volpe model.

4) Apply non-cost-effective technologies until compliance is achieved.

   This is the model's algorithm for effective cost, by which it ranks technology application. The hard-wired inefficiencies in this algorithm unnecessarily result in more and/or more costly technologies being selected.

5) Transfer all available credits.

   This is not explicitly called out as "Step 5" in the model, but it occurs at the same level as the other steps in the procedure and represents a catch-all of sorts.

Step 1 is curious because it assumes that manufacturers will apply cost-effective technologies towards fuel economy despite no historical precedent for such behavior, as is discussed elsewhere in this comment. However, this function can be easily overridden in the input files, where payback is declared—in fact, in previous rulemakings, NHTSA has assumed that manufacturers would only apply technologies with just a one-year payback or less once in compliance with the standards (see NHTSA 2012a, NHTSA 2016a, NHTSA 2016c).

Step 4 is a critical mis-step, as was already discussed in detail in Section I.A.2.b)(1).

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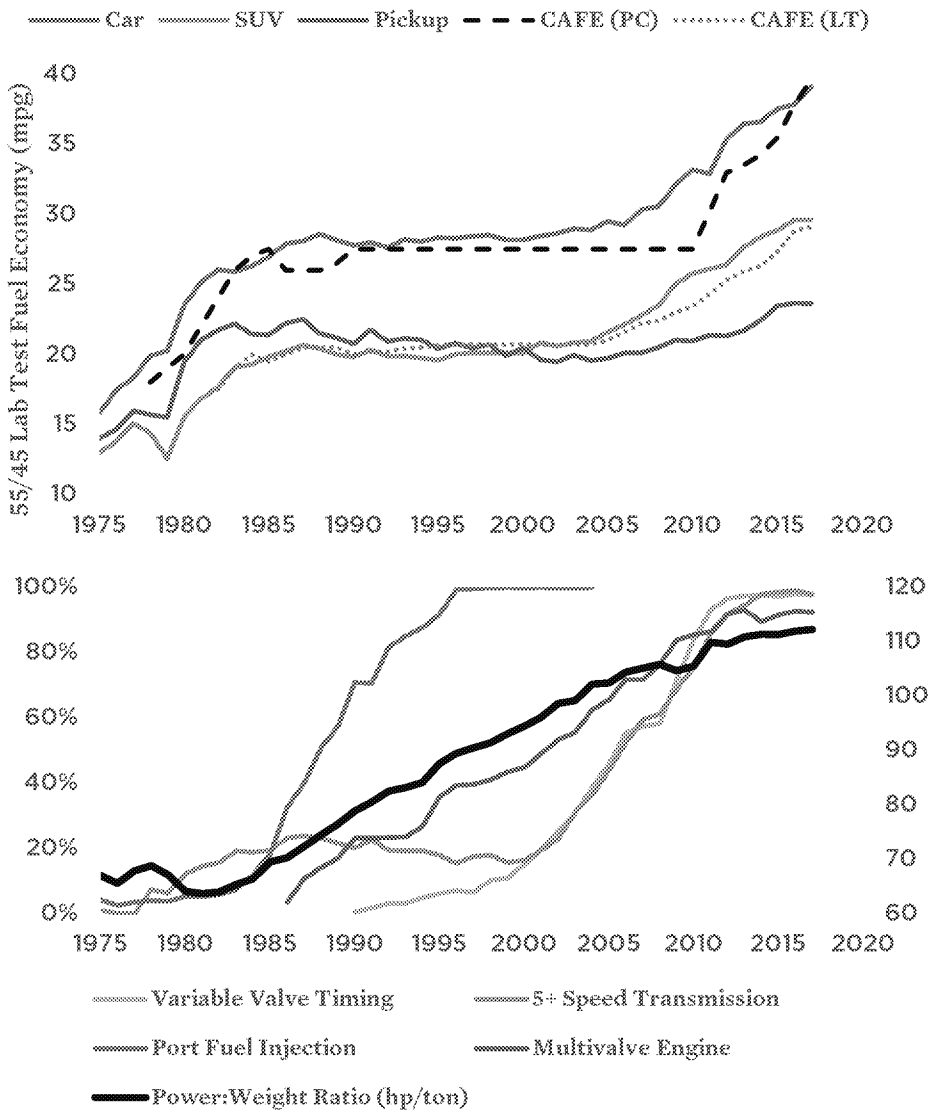
documentation, (e.g., Section S5.3, NHTSA 2018b), the most complete description is Figure 10, which is not the most straightforward diagram to assess quickly.

Steps 3 and 5 deal directly with credit trading, and deficiencies in these processes are described below because they go to the core of why model is not accurately applying credits already earned by manufacturers in lieu of forcing additional compliance costs by adding technology.

FIGURE 8. Fuel economy and technology penetration for conventional technologies, since 1975



(Top) Lab test fuel economy has not historically changed irrespective of changes in regulatory stringency. (Bottom) At the same time, technology advances did not stop in the interim—rather, manufacturers applied cost-effective engine technologies like variable valve timing, port fuel injection, and multivalve engine design to improving performance (indicated by power-to-weight ratio, right axis), rather than fuel economy. Technologies like improved transmissions which did not translate as directly to improved performance characteristics did not see the same deployment until increases in fuel economy and emissions standards again necessitated them to be a (cost-effective) strategy for compliance.

SOURCE: EPA 2015d

(2) Why Manufacturers Do Not Fully Utilize Credits in the Volpe Model

There are a number of interacting bugs in the Volpe model's programming that cause it to behave irrationally when it comes to credit application. These are described below.

It is important to note that in the model credits can only be applied to a fleet with a deficit—therefore, a number of these issues are in essence pushing fleets into overcompliance via the application of technology, preventing the use of credits manufacturers have already earned.

(a) "Cost-effective" technology application is prioritized above credit utilization, bucking historic trends

The first step of compliance within the model assumes that manufacturers will apply technology deemed by the model's algorithm to be "cost-effective." There are questions raised by the agency about the efficiency of the algorithm itself which are explored in Section I.A.2.b)(1), but this step means that manufacturers incur additional technology costs ***regardless of a manufacturer's level of compliance within its fleet or a specific regulatory class***.

This step defies historical precedent—without binding fuel economy and greenhouse gas emissions standards, manufacturers have not historically applied ***any*** technology towards improving fuel economy (Figure 8). Even at historic lows in gas prices, a number of cost-effective technologies were available that pay for themselves in short order (less than one year) and were capable of providing significant gains in fuel economy (e.g., NAS 1992). Manufacturers applied these technologies towards improved performance instead of improved fuel economy. It was not until California's landmark passage of California Assembly Bill 1493, which pushed the state to adopt global warming emissions standards for vehicles in 2004, and increased fuel economy standards first finalized in 2003, that manufacturers began to again improve fuel economy of their vehicles.

No justification is given by NHTSA for this behavior in the model. Furthermore, the input files used in the proposal represent a shift in behavior from previous versions of the model, when manufacturer behavior regarding the application of "efficient" technology was dependent upon whether or not the manufacturer was already in compliance.[27]

(b) NHTSA did not accurately reflect unique attributes of EPA's credit bank

As was mentioned earlier, in its input files NHTSA did not accurately reflect either the full bank of credits accrued by manufacturers under EPA's greenhouse gas program or the actual expiration timeframe for these credits, which were granted a one-time exemption to the five-year credit lifetime (40 CFR § 86.1865-12(k)(6)(ii)). The credits earned in 2010 and 2011 represented nearly one half of the credit balance available to manufacturers entering the 2016 year. However, a five-year lifetime would have resulted in the expiration of the vast majority of these credits, since the vast majority of manufacturers' car and truck fleets remained in compliance with the 2016 standards. While NHTSA adjusted the Volpe model credit balance to try to limit the effect of this five-year expiration, again it

[27] While manufacturers would prioritize such application in either case, previous versions of the model considered different payback periods, using a much shorter assumed payback period for such voluntary technology deployment (one year, compared to three years under binding standards) (e.g., NHTSA 2012a).

results in a number of credits being expired simply because manufacturers are already overcomplying in the early years modeled by Volpe, planning to reserve these earlier credits for the 2019-2021 timeframe. While 100 percent of the EPA credit bank would have been available to manufacturers in this transition period between the two phases of the program, only 42 percent of NHTSA's approximation to this bank is still available in this timeframe because the 2011-2013 credits are incorrectly given a five-year lifetime.

The impact of this is so severe that even when credits are the ***only*** available compliance option (i.e. no technology is allowed to be applied to meet the current 2021-2025 standards), nearly 12 percent of them are allowed to expire. Similarly, this is why the credit utilization under a scenario of "perfect trading" is so low—manufacturers do not develop a strong enough net deficit before the vast majority of credits expire.

The source of this issue may be related to a mistake made by NHTSA in the source code to the Volpe model. Its model applies a single credit lifetime to all credits earned prior to any modeled year of compliance due to an unnecessary "`if`" statement (Appendix A-3). This error likely led to NHTSA to jury-rig a workaround to the fact that their code as-is cannot accurately reflect the use of credits banked under the GHG program. As noted already, this resulted in a miscalculation of how those credits would be used in the future.

The effect of this is, simply, to raise the cost of compliance by mischaracterizing manufacturers' plans to utilize banked credits already earned for overcompliance. We have corrected the source code (Appendix A-3) and the parameters Excel input file (NHTSA 2018d) which further ignored the uniqueness of EPA's one-time carryforward lifetime exemption.

Because the Volpe model analyzes MY2016, it would not be appropriate to utilize the MY2016 credit bank (EPA 2018e)—these credits reflect the ***outcome*** of MY2016, including manufacturers' use in MY2016 of credits carried forward from the credit bank, which we would expect the model to simulate. However, credit trading did occur which manufacturers may have used to comply with MY2016. Therefore, our modeled credit bank takes the final credits banked entering MY2016 (Table 5-2, EPA 2016d), and adjusts to reflect credit trading updated in the MY2016 compliance report (differences between Table 4-1 in EPA 2016d, 2018e). Though credits under the EPA program are freely transferable between passenger cars and light trucks and are reported only in aggregate, the Volpe model splits credits between the two classes; therefore, we have allocated those credits based on proportional levels of under/overcompliance in each vehicle class as approximated by using the data in EPA 2013, 2014, 2015a, 2015b, 2016d, 2018e and accounting for any credit trades.[28]

[28] This data is not 100 percent consistent with the credit banks in EPA 2018 due to impacts of infractions by Hyundai, Kia, FCA, and Volkswagen, as well as because some manufacturers like Toyota have carried forward credits from an early model year to offset compliance in one category while maintaining net overcompliance overall, which affects the relative "age" of available credits but is not explicitly tracked by EPA in its compliance reports (only final credit tallies are shown). However, it is a reasonable estimate for credit usage, and because credits are freely transferred between the two classes in the GHG program, such an estimated allocation does not have a significant impact on the ability for manufacturers to comply ***if the model is accurately representing credit usage as a compliance pathway.***

(c) Credits are not traded between manufacturers

As even EPA admits, credit trading between manufacturers represents a key provision designed to allow the industry to comply with the standards at as low a cost as possible while preserving reductions in oil use and emissions (83 FR 43231). However, this flexibility is entirely absent from the Volpe model's implementation of the greenhouse gas program. The effect of this is to prevent manufacturers who've already complied in cost-effective ways to use their advantageous position to deploy further reductions in emissions at a lower cost than their competitors. It is also a constraint entirely disconnected from the reality of how the program is currently functioning.

Through the 2016 model year, more than 30 million Mg of credits have been traded between manufacturers (EPA 2018e). While this may seem small (comparable to just over 10 percent of the net overcompliance to date), manufacturers are still determining their product plans for 2021 and beyond, and since the vast majority of manufacturers have been credit generators through MY2016, it is unlikely that most manufacturers would solicit credits from their competitors until there is more certainty around the actual deficit they would be facing in a given model year.

It is possible to model perfect trading between manufacturers in order to assess the impact of neglecting this feature of the greenhouse gas regulations, by considering all brands as part of a single manufacturer. This preserves the Volpe model's constraints around shared platforms, vehicle leaders, etc., but it allows for more efficient deployment of technology industrywide by using the most cost-effective strategy (as deemed by the Volpe model).

Because of deficiencies within the Volpe model's cost-effectiveness algorithm (Section I.A.2.b)(1)), modeling trading in such a way creates substantially less fleet deficits (by implicitly correcting them with current-year fleet trading), negating the need for using banked credits. This is why the utilization of banked credits in such modeling runs drops to virtually zero (Figure 7).

In order to circumvent this failure of the model, it is possible to force the use of banked credits by preventing technology adoption. In this way, it is possible to show that, according to the Volpe model, manufacturers can comply with EPA's greenhouse gas regulations through 2020 ***without changing the MY2016 fleet*** thanks to the credits they've already earned under the EPA greenhouse gas program.

It is even possible to adapt the Volpe model to incorporate credit trading among manufacturers as a path to compliance, more accurately reflecting the real world, where we have seen such trading occur. For credit trading between manufacturers to occur, we assume two central features: 1) a manufacturer will only trade credits if the cost of compliance of the other manufacturer (per ton CO2-equivalent) exceeds its own marginal cost of compliance (ensuring that selling such credits would be profitable to a manufacturer) and 2) the credits are set to expire in the year traded. Such restrictions still allow some credits to expire, which is improbable in reality (expiration of a significant amount of credits is not likely since one would suppose a rational manufacturer would aim to achieve at least marginal return for that investment rather than nothing at all), but enabling at least some form of manufacturer-to-manufacturer trading serves to both lower the total compliance cost and provide a rational, albeit conservative, basis for trading. The changes to the source code necessary for this trading can be found in Appendix A-4.

TABLE 8. Actual credit trading through MY2016

Credits dispursed

Manufacturer	2010	2011	2012	2013	2014	2015	2016
CODA			5,524	1,727			
HONDA	14,182,329	6,590,901					
NISSAN-MITSUBISHI	950,000	1,345,570	250,000	1,000,000			
TESLA	35,580	14,192	177,941	1,049,384	1,020,296	1,337,853	2,452,519
TOYOTA	2,507,000				831,358		
Total 33,752,174	**17,674,909**	**7,950,663**	**433,465**	**2,051,111**	**1,851,654**	**1,337,853**	**2,452,519**

Credits acquired

Manufacturer	2010	2011	2012	2013	2014	2015	2016
BMW	2,000,000						
DAIMLER	3,985,580	814,192	427,941	1,000,000			
FERRARI	265,000						
FCA	11,424,329	7,090,901		1,049,384	1,020,296	1,337,853	2,452,519
GENERAL MOTORS			5,524	1,727			
JLR		39,063			831,358		
McLAREN		6,507					
Total 33,752,174	**17,674,909**	**7,950,663**	**433,465**	**2,051,111**	**1,851,654**	**1,337,853**	**2,452,519**

Just over 30 million Mg worth of credits have been traded to date under EPA's greenhouse gas program. This represents just over 10 percent of the total overcompliance with the standards thus far.

SOURCE: EPA 2018d

Table 8 shows the trading that has occurred to date. Table 9 outlines trading of credits that occurs under the simulated compliance pathways through MY2021, which is when banked credits expire and is therefore most similar to the scenario to date.

A few things are apparent when looking at the data of modeled credit trading:

1) Though manufacturers carried nearly 300 million Mg of overcompliance into MY2016, the vast majority of those credits are utilized by the earning manufacturers, with our modeled manufacturer trading resulting in only 54 million Mg of utilization by manufacturers other than those who earned the credits through overcompliance (18 percent).

TABLE 9. Modeled manufacturer-to-manufacturer trading MY2016-2021 using banked credits

Credits dispursed

Manufacturer	2010	2011	2012	2013	2014	2015	2016
FORD			386,226		751,885	980,697	
HONDA	100	911,989	2,346,013	2,297,323	1,881,029	2,052,383	
HYUNDAI	4,890,103	4,012,969	348,728	353,607	75,430	54,131	
KIA		1,726,043					
MAZDA	2,102,696	208,773	14,339				
NISSAN-MITSUBISHI	5,353,515	812,460	1,057,202	807,013	668,140	974,284	
SUBARU	1,454,845	2,106,676		1,165,481	3,001,354	1,580,583	
TOYOTA	9,232,715					1,456	
Total	**53,610,188**	**23,033,974**	**9,778,910**	**4,152,508**	**4,623,424**	**6,377,838**	**5,643,534**	**-**

Credits acquired

Manufacturer	2010	2011	2012	2013	2014	2015	2016
DAIMLER	1,867,095	1,810,307	14,339				
FCA	12,578,370	812,460	1,057,202	2,896,152	2,549,169	3,028,123	
GENERAL MOTORS	3,777,463	1,619,296	2,346,013	1,261,523	1,407,588	54,131	
JLR	4,191,367	3,122,441	608,923	5,772	2,421,081	2,561,280	
VOLVO	93,451			165,389			
VWA	526,228	2,414,406	126,031	294,588			
Total	**53,610,188**	**23,033,974**	**9,778,910**	**4,152,508**	**4,623,424**	**6,377,838**	**5,643,534**	**-**

Our model of manufacturer-to-manufacturer trading results in a level of future trades comparable to that seen to date, incorporating many of the same manufacturers on both the "dispursed" and "acquired" categories.

SOURCE: EPA 2018d

2) The manufacturers which our modified version of the model suggests would buy credits (Table 9) have nearly all already previously purchased credits from other manufacturers (Table 8). The two exceptions are Volvo, who is entering 2017 at a slight overall deficit, and Volkswagen,

whose MY2016 deficit was comparable to its remaining credit bank (EPA 2018e). Thus, the model is predicting a reasonable selection of buyers on the credit market.

3) Similarly, of those modeled as selling credits, three have run a surplus in every single one of the five years of the EPA program (MY2012-2016), and three more are sitting on three of the largest four banks of credits for overcompliance entering MY2017, indicating that such manufacturers would be in a significantly better position of compliance than their competitors. The remaining two manufacturers represent just 7.5 percent of credits traded between manufacturers.

(d) NHTSA does not model credit carryback for compliance

Manufacturers are able to maintain a deficit for up to three years before they are required to offset the deficit, assuming no credits are already available to offset the deficit (40 CFR § 86.1865-12(k)(8)(i)). This allows manufacturers to offset past shortfalls with future overcompliance, a provision known as credit "carryback".

In the peer review of the Volpe model, this issue was raised by one of the reviewers, Wally Wade: "It has been my experience in the corporate compliance world that manufacturers do use carry back" (NHTSA 2018f, p. 47). To this suggested change, NHTSA responded that "thus far, Volpe Center staff have not attempted to include simulation of credit carry-back in the CAFE model, but have provided some of the placeholder material with a view toward potentially doing so in the future if we decide that it is appropriate to consider.

The Volpe model used in the two prior rulemakings has considered this flexibility in its approach to multiyear modeling.[29] Nowhere in the modeling documentation (NHTSA 2018b) is it explained why NHTSA has abruptly discontinued support of this method of compliance—in fact, in the source code itself, it is explicitly called out as a failure of the EPA compliance module but not the CAFE module.[30]

The implication of this failure is that manufacturers are generally incentivized to overcomply, regardless of whether carrying forward a deficit to be compensated by later overcompliance would be a more cost-effective method of compliance. Manufacturers such as Jaguar-Land Rover and Volvo are currently carrying forward deficits under the EPA greenhouse gas program (EPA 2018e), indicating that this is a strategy manufacturers are choosing to take in order to reduce compliance costs—by eliminating this pathway, the Volpe model both reduces the use of credits to offset deficits and, as a result, forces more technology adoption by manufacturers than would be expected under the most cost-effective compliance strategy.

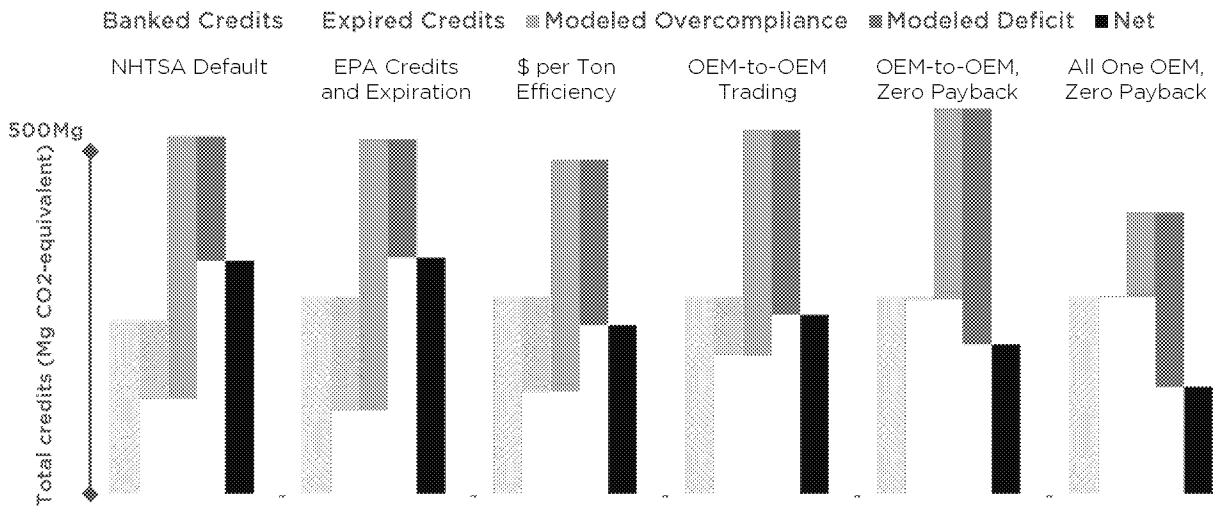
(3) Conclusions on credit inefficiencies

The laundry list of flaws listed above for how the Volpe model handles credits speaks directly to the question of whether the model accurately reproduces rational behavior for how manufacturers would comply with the standards—put simply, it does not.

[29] See CT_CarryBackward() method in CreditTrading.cs of NHTSA 2012b, 2016b.

[30] `CreditTradingCO2.cs` ln 18: "`Stages 3 and 4 (carry back and mfr trading) are not supported.`"

FIGURE 9. Credit balances under compliance with current standards through 2025



Compliance with the Baseline Standards using the Volpe model with different modifications helps illustrate the different suboptimal strategies the model utilizes for manufacturers and how that can be corrected through modification. Under improvements in credit trading, increased prioritization of credits, and improved algorithm for assessing technology efficiency, it is possible to reduce aggregate overcompliance by more than half (54 percent).

Given the constraints of the model's design and implementation, as well as the limited window of time to incorporate any modifications into our comments, it is not expected that these modifications can solve all of the irrational behavior in the model. Much of the limitations on credit use ultimately come down to artificial limiting behaviors intrinsic to the design of the Volpe model itself, such as the inefficient and irrational way in which it applies technologies across the fleet. However, it is possible to try to describe how much more efficient these modifications make the model.

Because of the 3-year carryback, compliance with 2025 regulations does not need to be finalized until 2028. However, any credits earned and unused through 2028 represent overcompliance—these are credits in excess of what was necessary for manufacturers to comply. A perfectly rational manufacturer would achieve zero overcompliance in an ideal scenario—one would expect that a model such as Volpe would be targeting precisely this ideal, since it is unencumbered by the uncertainty which may cause manufacturers to hedge against doing the barest minimum for compliance (i.e., maintaining a buffer as insurance against unanticipated shifts in the market). However, it is clear that the target would be minimization of this overcompliance as much as possible, since such credit is wasted technology expense.

Figure 9 depicts credit activity while complying with the 2025 Baseline Standards,[31] under different modifications to the Volpe model: 1) the default scenario; 2) utilizing EPA's actual credit bank and one-time carryforward exemption (Appendix A-3); 3) modifying the efficiency algorithm to weight

[31] Credit balances shown are through 2028, the last year in which manufacturers would be able to use carryback to comply with the 2025 standards.

technologies on $/ton reduction (see Section I.A.2.b)(3) and Appendix A-2); 4) using $/ton and allowing manufacturers to trade with each other to lower overall industry compliance costs (Appendix A-4); 5) including manufacturer-to-manufacturer trading while eliminating manufacturers' application of technology while in compliance;[32] and 6) perfect trading[33] while assuming no application of technology while in compliance.

There is little difference in net credit usage between using the more accurate credit bank (2) and the NHTSA default (1)—this is because credit utilization in the early years is limited by the lack of deficits, so while there are more credits available, those credits are simply forced to expire due to limitations of the Volpe model provided with the NPRM. This is a similar issue when modifying the efficiency algorithm (3); however, shifting the algorithm to $/ton decreases the amount of overcompliance in all years, allowing for greater reliance upon credits. Enabling trading between manufacturers does not drastically shift the net credit usage, but it has the effect of shifting overcompliance to manufacturers with lower marginal costs and therefore allowing those manufacturers with greater costs to generate greater deficits to be offset with credits purchased from other manufacturers. By assuming that manufacturers will not adopt any technology voluntarily, it is possible to eliminate virtually all expiration of credits entirely, since it is this Volpe model assumption that is preventing deficit generation prior to the expiration of the banked credits—this also helps reduce unnecessary levels of overcompliance. Assuming a perfect model of trading between manufacturers ensures even more efficient technology adoption to reduce industry costs. In total, these factors help cut the net "extra" credits accrued through 2028 in half compared to the unmodified Volpe model (a 54 percent reduction).

As a result of this more reasonable (yet still sub-optimal) assessment of credit trading and usage within the Volpe model, the industry's total cost of compliance with the current standards is ***reduced by $60 billion***, or 16 percent of the agencies' modeled technology costs (MY2016-2028). Compliance with the agencies' Preferred Alternative ("rollback") is reduced by $30 billion, a reduction of more than one-third of the total cost (34 percent)—these reduced costs of compliance for the rollback are only 6 percent greater ($3.1 billion) than what the agencies project manufacturers would adopt without any standards in place, emphasizing that these standards are nowhere near maximum feasible.

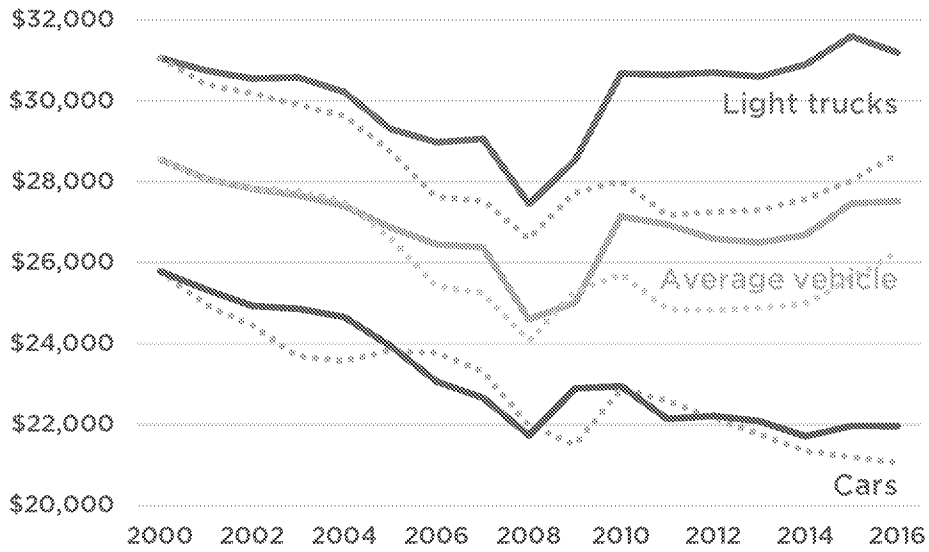
B. The agencies have underestimated the social and economic benefits of fuel economy and greenhouse gas emissions standards

Footprint-based fuel economy and greenhouse gas emissions standards increase consumer choice, ensuring that the vehicles available for purchase in every vehicle class continue to get more efficient. This results in both greater investment and jobs in the automotive sector and fuel savings which can be reinvested in more job-creating sectors than the oil industry. It also improves consumers' overall outcomes by increasing resiliency in a volatile oil market.

[32] To restrict the voluntary adoption of technologies, we restrict manufacturers' assumed consumer payback to zero. This means that the only technologies adopted while in compliance are those with negative cost to a manufacturer and positive greenhouse gas benefits.

[33] Perfect trading is defined here by treating all manufacturers as a single entity—while each manufacturer maintains their unique platforms, this allows the model to determine the lowest cost pathway for the industry to follow as a whole.

FIGURE 10. New light-duty vehicle price, by class, in constant dollars (2007$)



A comparison of the prices for new light-duty vehicles (solid lines) and the expected consumer price based solely on improvements in quality (dotted lines; see BLS n.d.). The price for new cars largely maps the improvements in quality, but a growing gap appears in the light truck segment, which is increasingly mirrored in the new average vehicle price as the share of light trucks has increased.

SOURCE: UCS ANALYSIS, BLS 2016, BEA 2017 TABLE 7.2.5S

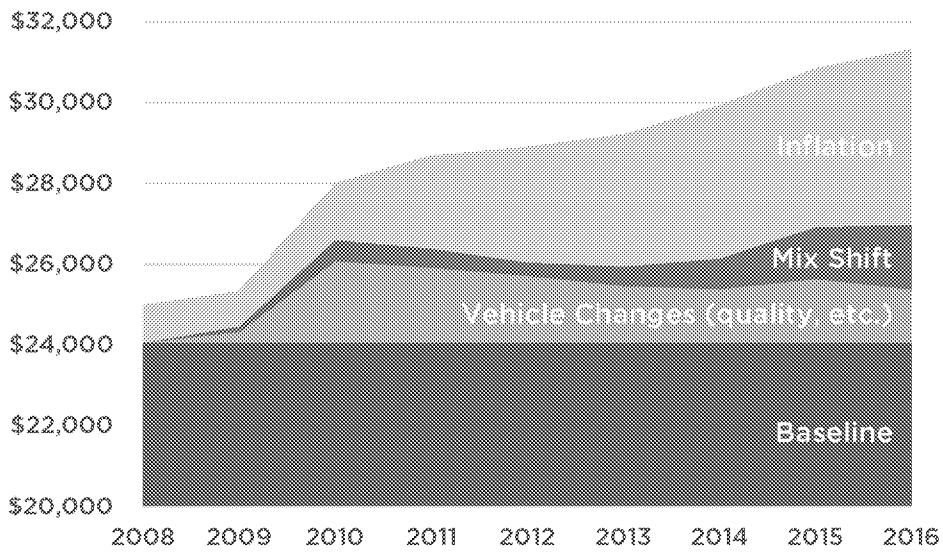
The agencies have greatly underestimated consumers' interest in and willingness to pay for these fuel-efficient vehicles, while ignoring additional benefits many of these technologies provide, leading to a significant overestimate of any potential negative impact on sales which could result from new standards. They have also greatly overstated the degree to which manufacturers will incorporate these technology costs into vehicle price, further overstating any potential impacts on sales.

Finally, they have mischaracterized the impact of new vehicle sales on transportation behavior overall, wildly overestimating social impacts by utilizing an inaccurate, untested model which has neither been peer-reviewed nor is consistent with established literature in this space. Such extrapolation not only leads to incredible erroneous results—it violates basic economics.

1. *Agencies overestimate costs to consumers and underestimate consumer benefits of stronger standards*

The agencies have requested comment "on the relationship between price increases, fuel economy, and new vehicle sales" (83 FR 43075). We demonstrate that increasing fuel economy standards have not led to the vehicle purchase price increases modeled in the agencies' proposal. Relative to inflation, the cost of the average new vehicle has not increased significantly over the past two decades. In fact, for new cars, the average retail price has increased at a rate less than inflation and essentially matches any

FIGURE 11. Average new light-duty vehicle price to consumers for 2008-2016



An examination of the factors underlying the recent nominal price increases of the average new vehicle. It is clear from the data that general inflation is the greatest factor, but mix shift plays a greater role than improvements in the vehicle related to compliance with the fuel economy and greenhouse gas standards.

SOURCE: UCS ANALYSIS

changes in price one would expect for improvements in quality (Figure 10).[34] This supports previous agency conclusions that "the low-priced vehicle segment still exists...[but] appear to be gaining more content" (Section B.1.6.4, EPA 2016e). This has also been affirmed by recent work from Consumers Union (Comings and Allison 2017).

Even in recent years, when there has been a slight increase in the average new vehicle transaction price, the cost of compliance is a small fraction of the total increase. Since the first phase (MY 2012-2016) of the coordinated CAFE and Greenhouse Gas Emission Standards were set in 2010, the largest contribution to price increases by far is inflation, as indicated in data from the Bureau of Labor and Statistics, which tracks changes to vehicle price over time (BLS 2016). Figure 11 shows vehicle price from 2008 to 2016, broken down into the major contributions to total price:

- Baseline: This is the cost of the average new 2008 vehicle, in 2007$ (as determined by OECD 2017).
- Vehicle Changes: These are improvements to the vehicle over time, including improvements in quality, safety, or additional features like entertainment technologies.

[34] Here we define quality in the same way as the Bureau of Labor and Statistics, which tracks in detail prices paid by manufacturers and consumers for vehicles and considers factors including improvements related to increased fuel economy, safety, and both standard and optional equipment (BLS 2016b).

- Mix Shift: The average vehicle is a mix of cars and light trucks—because the sales of light trucks has increased, and the average price of light trucks well exceeds that of cars, mix shift has significantly raised the average transaction price (Zummallen 2017).
- Inflation: This represents the different in price in constant dollars (2007$) compared with what the consumer actually sees, which is nominal dollars. As noted in BLS 2016, manufacturers see the cost of inflation in supplied parts and pass that on to consumers.

The average new vehicle price to consumers rose from $25,536 in 2008 to $31,394 in MY2015 (nominal$), which equates to a difference of $2,862 in 2007$.[35] As indicated in Figure 11, nearly half of this difference is directly related to the mix shift, which at $1,277 (2007$) is actually larger than the cost of compliance with the regulation assessed in the previous section. This is consistent with previous agency discussion of price increases noting the significant impacts on transaction price from factors such as the mix shift or additional push towards high-end trim packages (Section B.1.6.2, EPA 2016e). This result is further reinforced by analysis from Baum and Associates that showed the rise in high-end trim packages over this time period (Baum and Luria 2016).

2. *Agencies inconsistently evaluate and arbitrarily utilize consumers' willingness to pay for fuel economy technologies to generate predetermined, conservative outcomes*

The agencies have requested comment on the degree to which consumers value fuel savings, and to what extent they should consider the value of fuel savings as a social good (83 FR 43074). They also request comment on how to incorporate such estimates into the rulemaking (83 FR 43180). It is clear from the literature that there is vast uncertainty about consumers' willingness to pay (WTP); however, the agencies appear to incongruously rely upon conclusions about WTP and inconsistently apply the literature in order to consistently produce more conservative results.

A) ESTIMATES FROM THE LITERATURE

There have been a number of studies that explore purchasing decisions examines a consumer's WTP for different attributes, including a recent literature review funded by EPA (Greene et al. 2018). These studies help to illuminate the relative values that consumers place on different choices in a purchase and whether they are willing to pay more for performance or fuel savings, in particular. This latest analysis shows that there is wild inconsistency in the results of these studies—nearly every attribute had a WTP whose average value was less than the standard error in the estimate (Greene et al. 2018). Not only does this show that there is no consensus in the literature regarding WTP, but it provides a strong warning to anyone about "cherry-picking" a particular study or analysis on which to draw conclusions.

A recent study paid for by the auto industry (Carley ***et al.*** 2017) acknowledges the broad assessment in the literature, citing both recent work that indicates myopic consumer behavior and work which "find[s] very little evidence" of such behavior (Section 4.8222). At the same time, the authors recognize the difficulty in trying to infer future consumer behavior based on past market behavior—for example, they find that hybrid sales fall below what one would expect from a rational consumer model, but they

[35] Here we have used the Bureau of Economic Analysis data from Table 7.2.5S, weighting average new car and new truck expenditure to consumers (lines 46 and 22) by the relative sales volumes to consumers.

cannot distinguish between whether that is because of an undervaluation of fuel savings or other characteristics of the hybrid vehicle which perhaps do not make the comparison truly "performance neutral" (Section 4.8222).

This perspective seems consistent with the view of the National Academies of Science, which noted that "to support effective policy making, a much better understanding of how markets and technology will interact is likely to be highly beneficial" (NAS 2013, p. 127), but "empirical knowledge of the barriers to major energy transitions is currently inadequate to make robust assessments of public policies" (p. 129). Given such uncertainty, such analysis may be qualitatively illustrative but is not robust enough to fundamentally determine the costs and benefits of a given policy.

B) HOW THE AGENCIES HAVE INCONSISTENTLY EVALUATED WILLINGNESS TO PAY

The agencies acknowledge the uncertainty about consumers' WTP for fuel economy and other vehicle attributes (83 FR 43071; PRIA p. 943: "Published literature has offered little consensus about consumers' willingness-to-pay for greater fuel economy"); however, this result is applied inconsistently throughout their analysis.

The agencies have requested comment on consumer choice modeling (83 FR 43077)—appropriately, the uncertainty around consumer WTP is especially important with regards to consumer choice modeling, of which both agencies are well aware. EPA previously examined the possibility of marrying the OMEGA model with a consumer choice model—in the peer review for that model, significant emphasis was placed on the need for adequate caveats around the large uncertainty of the model, and one reviewer noted that "it is not possible to know whether any ***apparent*** differences in the point estimates in the baseline versus the alternative scenarios are actually substantive (statistically different from zero)" (EPA 2012). It turns out that this concern was justified—when EPA attempted to validate the predictive powers of the model, the agency found that the null hypothesis (no change in marketshare) was a better predictor of the future (Helfand et al. 2015). Similarly, NHTSA developed its own consumer choice model—it found as well that at best the model was "suitable for short-term (2-3 model years) forecasting of market response to higher standards, but longer-term forecasts require projecting changes in joint distributions of household characteristics" (Tamm 2014), which means that long-term forecasts are extremely sensitive to unknown, forecasted demographic characteristics. This is consistent with EPA's assessment on different approaches to such models: "Vehicle choice models that incorporate demographic factors and vehicle attributes may be better suited to testing across time; on the other hand, when they are ultimately used for simulation purposes, such models require projections of those demographic factors and vehicle attributes, which may not be of great reliability" (Helfand et al. 2015).

This is all consistent with the historical record on consumer choice models—one such analysis of the predictive power of these models noted "the models we construct are fairly poor predictors of future shares" (Helfand et al. 2015). Thus, trying to forecast consumer behavior in response to these standards appears at this time to be a fool's errand. Extrapolating this forecast into secondary impacts on vehicle sales seems like it would only further exacerbate this uncertainty—and in fact, that's precisely what

independent evaluation of the agencies analysis concludes, finding that the agencies' outcomes are statistically insignificant based upon the uncertainty in their models.[36]

The latest Volpe model, however, treats these impacts as certain, ignoring all of the data presented above about the validity of consumer choice:

- it ignores the historical record on cross-subsidization across a fleet even while acknowledging that this is an ongoing facet of manufacturers' compliance strategies (83 FR 43083, 43222);
- it treats manufacturer assumptions on consumer payback as monolithic across all vehicles, despite acknowledged inhomogeneity in consumers and uncertainty about such valuation (83 FR 43077); and
- it relies upon extrapolated data that are statistically insignificant according to its own model.[36]

In addition to this, the agencies selectively include or exclude consumer willingness-to-pay solely in ways which increase costs to consumers and/or decrease the benefits of fuel economy and greenhouse gas emissions standards:

- Agencies assess a "cost burden" for electrification, citing scant and erroneous analysis of costs related to plug-in electric vehicles (83 FR 43084), thus causing the adoption of any such technology to result in a social cost;
- Agencies model performance improvements as a result of the application of technologies without assessing any potential benefit to consumers or reduction in cost as a result (Islam et al. 2018b), implicitly assuming that consumers do not value performance and ensuring that more technology is required to achieve reductions in fuel usage and emissions;
- Agencies assume that consumers do not value fuel economy in both developing and applying its sales and scrappage model (83 FR 43075), a declarative statement that runs counter to its argument about the uncertainty of such a proposition (and at the very least, one which merits a sensitivity analysis assuming that consumers ***do*** value fuel economy), and one which is not supported by the literature cited by the agencies (83 FR 43093);
- In contrast, the agencies have explicitly highlighted a particular subset of studies they say are better able "to isolate differences in...fuel economy from the many other attributes," noting that "these studies point to a somewhat narrower range of estimates...consistently suggest[ing] that buyers value a large proportion—and perhaps even all—of the future savings that models with higher fuel economy offer," (83 FR 43072) questioning "the degree to which private fuel savings should be considered as private benefits of increasing fuel economy standards" (83 FR 43074); and
- Agencies assume that manufacturers can recoup the costs of 30 months of fuel savings from consumers (83 FR 43179), implicitly assigning a floor to consumer WTP, but this fuel savings is ignored in its model of how consumers will respond to increasing costs, wherein it is assumed not the ***net*** cost but merely the retail price increase that factors into a consumers' decision, i.e. assigning a 0 month payback.

[36] See comments to the docket from Drs. David S. Bunch and David L. Greene.

Each and every example above serves to exaggerate the impact of increased technology costs on sales by devaluing the benefits for consumers. Such modeling is arbitrary and capricious and must be corrected before any final rulemaking.

C) THE "TECHNOLOGY COST BURDEN" ASSOCIATED WITH ELECTRIFICATION IS BIASED, INACCURATE, AND DOES NOT REFLECT THE TECHNOLOGY INCLUDED IN THE RULEMAKING

The agencies use a flawed assessment of the willingness of consumers to consider electrified powertrains, particularly their assessment of plug-in electric vehicles. A regression analysis of used car prices using MY2013 through MY2016 is used to infer a consumer's willingness to pay more for electrification technologies. However, the analysis of battery electric vehicles (BEVs) is fundamentally flawed. Tesla vehicles were excluded from the analysis, leaving only shorter range BEVs (less than 100 miles) in the analysis, since longer range BEVs from manufacturers other than Tesla (like the Chevrolet Bolt) were not available until MY2017. Therefore, the WTP metrics listed in Table II-37 of the NPRM are only applicable to first-generation, short-range battery electric vehicles, but the agencies propose to use this data to evaluate the willingness to consider ***all*** BEVs. For example, the rule states: "In general, the incremental willingness-to-pay falls well short of the costs currently projected for HEVs, PHEVs, and BEVs; for example, BEV technology can add roughly $18,000 in equipment costs to the vehicle after standard retail price equivalent markups (with a large portion of those costs being batteries), but the estimated willingness-to-pay is only about $3,000" (83 FR 43084). The BEV technology examined in the current proposed rule assumes mature 200 mile-range electric vehicles, but the agencies explicitly compare the costs of this technology to the willingness-to-pay for a 75-mile BEV. If the agencies had considered Tesla vehicles, they would likely find a much higher willingness-to-pay. Based on depreciation data, the Tesla Model S has retained more value than similar gasoline cars (NADA 2016).

3. The proposed standards will decrease employment and reduce economic output

The agencies have requested comment on "assumptions and approaches in the labor analysis" (83 FR 43079) as well as on the "potential for changes in stringency to result in new jobs..." (83 FR 43436). We agree with the agencies conclusion that reducing stringency will result in a loss of employment in the auto sector.[37] This is consistent both with recently observed employment trends during implementation of existing fuel economy standards as well as with independent macroeconomic analysis of existing standards through 2025 that show increasing stringency results in increased employment in the auto sector. However, the agencies fail to examine the broader macroeconomic impacts of the proposed weakening of standards. Not only will weaker efficiency and greenhouse gas standards result in automotive sector job losses as noted, but increased consumer spending on gasoline and diesel result in even greater negative economy wide impacts on labor and gross domestic product.

A) CURRENT EMPLOYMENT BENEFITS FROM EXISTING STANDARDS

The current fuel economy and greenhouse gas emissions standards have been a boon for automotive jobs, and for U.S. manufacturing jobs more broadly, as evident by the strong growth in automotive jobs since the standards were enacted. A recent 2017 study from the NRDC and the Bluegreen Alliance found that "the past seven years have constituted the first period of sustained growth in automotive

[37] 83 FR 43436: "...the reduced outlays for fuel-saving technology slightly reduce estimated U.S. auto sector labor..."

manufacturing jobs—and in U.S. manufacturing jobs as a whole—since 1999" (BGA and NRDC 2017). One-third of total automotive manufacturing jobs in the U.S.—more than 288,000 workers—are in facilities that engineer, manufacture, and supply the fuel-efficient technology that automakers use to meet the standards. The authors go on to note that EV component manufacturing in the U.S. has increased and that "[c]ontinuing this progress will be important to building U.S. jobs as the industry grows globally." Strong vehicle efficiency standards have been and continue to be critical to growing U.S.-based employment in automotive jobs, and U.S. manufacturing in general. Promulgating weaker standards would put automotive supplier jobs at risk.

Over the past five years, the auto industry has emerged from the economic crisis even while over complying with the regulations. Nearly half of the jobs added since the crisis have been in the manufacture of parts and assembly of vehicles, which remains a strong and diverse part of the American economy. Nearly 300,000 workers, in more than 1200 facilities spread across 48 states, are working to supply fuel efficiency technology to help automakers comply with these regulations (BGA and NRDC 2017).

B) POSITIVE FUTURE EMPLOYMENT BENEFITS FROM EXISTING STANDARDS

Moving forward, the existing Baseline Standards will continue to increase employment in the auto industry, as well as the U.S. economy as a whole. Analysis of federal and state fuel economy and emissions standards for model years 2017 through 2025 show that existing regulations are expected to result in an additional 122,000 job-years economy-wide by 2025 and more than 250,000 by 2035 (Synapse 2018a). Gross Domestic Product (GDP) also will increase by an estimated $14 billion in 2025 and $16 billion in 2035. These positive economic gains are a result of direct investment in the automotive industry as well as the even greater consumer fuel savings on gasoline and diesel fuel. Notably this study shows economic gains in both the short- ***and*** long-term. An earlier study by researchers from Indiana University found only longer-term economic gains (Carley ***et al.*** 2017). However, as described below, this study did not account for vehicle financing and consumer valuation of fuel economy in their macroeconomic modeling.

C) SHORTCOMINGS OF MACROECONOMIC ASSESSMENT BY CARLEY, ET AL.

The Carley study paid for by the Auto Alliance (Carley ***et al.*** 2017) also finds positive employment impacts from existing standards. The study examines the potential changes in vehicle sales from both state and federal vehicle standards as well as possible changes in employment, GDP, and income. Overall, the direction of the long-term macroeconomic impacts from vehicle standards is positive, primarily a result of fuel savings and industry investment outweighing increased vehicle technology costs, even with lower projected fuel prices than anticipate in 2012 and higher technology cost assumptions which do not reflect the most current estimates. The negative employment impacts from reduced spending in the oil and gas sectors are more than offset by reinvesting those savings in other sectors of the economy which employ more people per dollar of output (Figure 3). However, the Carley study also finds small negative near-term macroeconomic impacts resulting primarily from projected decreases in vehicle sales. There are numerous reasons why these near-term projections are questionable and do not accurately reflect the impact of vehicle standards.

The primary flaws in the macroeconomic REMI modeling by Carley et. al are related to two factors: the way in which they have handled vehicle price increases in the macroeconomic modeling and their

treatment and cost estimates of the Zero Emission Vehicle program. These flaws are further compounded in their treatment of "Total Cost of Ownership" (TCO) modeling in trying to assess more specifically the vehicles sales and jobs impact on the automotive sector. These issues are outlined in full below. While the agencies have not explicitly considered this study in its analysis, it is representative of the type of macroeconomic impacts the agencies should consider, and many of the flaws contained in the report are mirrored in the agencies' own economic analysis, including an undervaluation of fuel savings benefits to consumers, lack of recognition of the importance of vehicle financing in the economic model, and lack of sufficient proof of the model's fidelity and predictability through backcasting.

Figure 8.16 in the study illustrates the range of jobs impacts projected by the researchers. While they all show a small initial decrease in employment (impacted by flawed assumptions about upfront vehicle price effects, as described in the following section), it is clear from this picture that even extremely conservative assumptions about the way in which manufacturers would comply with both federal and state light-duty vehicle greenhouse gas emissions programs results in a ***positive*** impact on the economy and leads to job growth.

This finding, of course, is in direct conflict with job loss numbers cited by the automakers in communications with the agencies (Bainwol 2017), which stemmed from the deeply flawed study by McAlinden, ***et al.*** (2016), on which we have previously commented (Cooke 2016).

(1) Concerns around IU's model of vehicle price effects

One of the curious characteristics of the REMI modeling undertaken by Carley et. al. is the fact that the 2017-2025 standards immediately result in a reduction of employment. This is a curious fact because the price increases moving forward are actually less in the initial years than we have already seen to date, so if the model were backcast, it would have predicted a reduction in employment over the past six years, contrary to the hundreds of thousands of jobs that have been created in the industry since the Great Recession (BLS 2018), not to mention the continued economic growth. While one would be tempted to argue that there could be a decrease masked by greater macroeconomic effects, it is worth noting the levels of employment reduction in the short-term the IU model predicts are quite significant compared to the magnitude of the job growth over the past 8 years.

The most apparent reason for this discrepancy can be found in Figure 8.5 of the report, which shows a large reduction in disposable personal income. For a typical loan, a new car buyer is actually saving money in fuel that is greater than the increase in loan payment, (Comings and Allison 2017) so there should actually be an ***increase*** in disposable personal income. As noted in the footnote for Table 7.11, Carley et. al. have not taken into account the financing of the new vehicles, but rather front-loaded any purchase price increases. This will significantly magnify any potential for decreases in vehicle sales and short-term job losses. Incorporating vehicle financing into the modeling would spread-out the upfront vehicle technology costs over several years instead of resulting in an immediate decrease in disposable personal income equivalent to the vehicle purchase price.

Not only are the effects of vehicle financing ignored in the REMI modeling, but consumer valuation of fuel economy benefits are also ignored. As a result, the REMI model simply assumes a negative impact in vehicle sales for a given increase in vehicle price with no accounting for the fact that vehicle

purchaser will receive a return on investment in future fuel savings. The price elasticity assumed in the REMI modeling is also outside the range of recent estimates for automobile purchases (-0.30 to -1.28; see Fujita 2015) and is significantly higher than that assumed in the total cost of ownership (TCO) calculations carried out separately in the study (-1.65 for REMI modeling vs -1.0). The impact of this REMI modeling limitation is most acute in the early years of modeling since fuel savings accrue over the life of the vehicles and increase in significance overtime. Eventually, the combination of fuel savings and investment in innovation overwhelm the erroneous reductions in vehicle sales leading to long-term economic benefits.

One curious aspect of this is that the authors acknowledge these limitations of their REMI modeling and cite these limitations as a rationale for carrying out a separate TCO modeling effort (page 110). However, they have not "closed the loop" between the REMI and TCO models to ensure consistency between the results and yet still point to the short-term macroeconomic results from the REMI modeling as valid. The study authors further point to regionalized REMI results, in particular pointing out the larger negative near-term job impacts in the auto-sector heavy upper East North Central region (ES-3 and page 94). However, for the same reasons above, these results are misleading and inaccurate as they derive from incorrect assessment of the impact on vehicle sales in the REMI model.

Several of these biases and flaws in the REMI modeling and TCO modeling are pointed out in comments by Synapse Energy Economics, Inc. (Synapse 2017). Synapse points to the study's use of higher discount rates (as high as 10 to 15 percent in some cases compared standard practice of 3 and 7 percent) and above average vehicle financing interest rates (7 percent versus a current rate which is below 4.5 percent) which negatively bias vehicle sales results. In addition, analysis by the American Council for an Energy Efficient Economy (ACEEE 2017) demonstrates that with more reasonable input assumptions to TCO modeling, the impact on vehicle sales are actually positive rather than negative.

While the agencies have not relied upon Carley et al. 2017 significantly in the NPRM, they have made many of the same mistakes, including ignoring vehicle financing and consumer fuel savings in their own economic models, even while refusing to assess any macroeconomic analysis of the impacts of rolling back the Baseline Standards.

(2) Concerns around IU's treatment of compliance with state zero-emission vehicle regulations

In both the "2016 Low" and "2016 High" cases, the Carley et. al. study has included costs for ZEV compliance in line with that projected in Table 7.8 of that report. However, these values are far too high for real compliance with the program, for two clear reasons.

First, they ignore interactions between the ZEV program and the EPA program—compliance with ZEV will reduce the additional technology costs needed under EPA's program, so while the state regulations will spur adoption of the more expensive EV technology which would not occur as a result of pure minimization in the cost-curve, you would still need to subtract off the compliance costs for those technologies which are not needed. It may be that this is part of the reason why the COMET costs for EV compliance are lower than outlined in Table 7.8 (Carley et al. 2017, p. 83).

Second, Carley et. al. have incorrectly modeled compliance with ZEV based on the assumption that 16% of new vehicles sales would be required in all ZEV states by 2025 (Table 7.7). However, electric vehicles have evolved much faster than CARB anticipated, as noted in its mid-term assessment of the ZEV program: "While this revised compliance picture reflects a lower volume of vehicles than originally projected in 2012, the resultant improvements in ZEV and PHEV attributes, such as all-electric range and vehicle price, are expected to further broaden the appeal of these vehicles beyond the initial consumers and help achieve necessary future market expansion" (CARB 2017b, p. ES-7). This is further complicated by the credit glut which manufacturers currently enjoy (CARB 2017b, Figure 11). Annual sales in California are expected to be just over 140,000 total electric vehicles in 2025 (CARB 2017a, Figure 3), compared to an original projection of nearly 250,000 vehicles (CARB 2017a, Figure 2) or the equivalent of 7.5 percent new vehicle sales in CA and the 177 states by 2025. Even when combined with the annual ZEV sales in the Section 177 states (CARB 2017a, p. A-15), that amounts to a total nationwide fraction of ZEVs of 7.5% × 30% = 2.25 percent needed to comply with the state programs, less than half of the 4.62 percent assumed in the IU study. At a minimum, the cost estimates by IU for the ZEV program are at least two times too high.

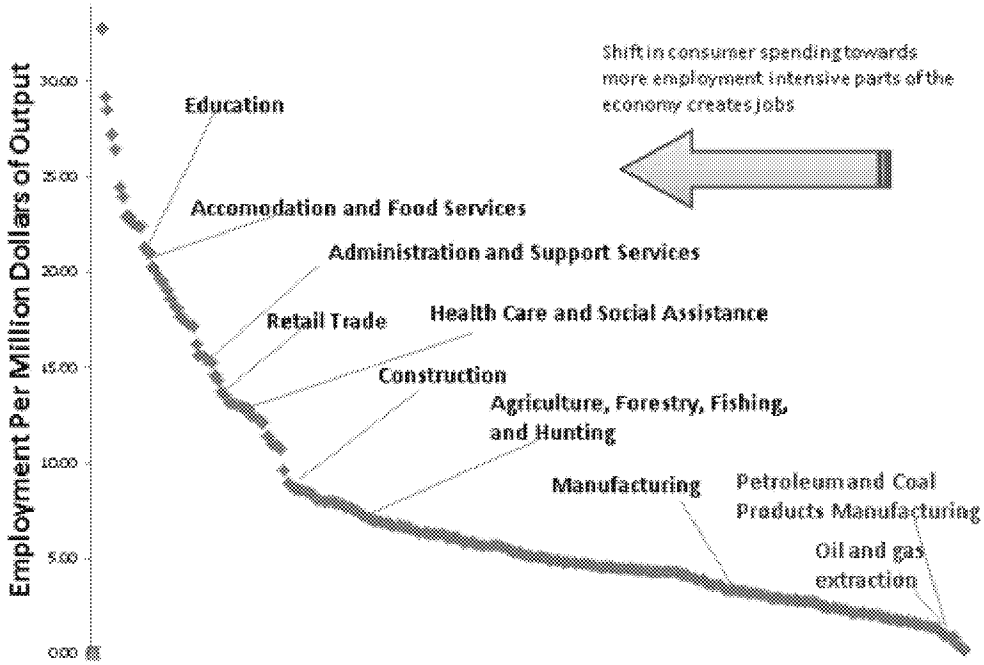
D) EPA AND NHTSA UNDERESTIMATE THE NEGATIVE EMPLOYMENT IMPACTS OF ITS PREFERRED ALTERNATIVE

A decision to weaken the standards would put jobs and the global competitiveness of U.S. auto manufacturing at risk. Strong vehicle efficiency standards provide the certainty necessary to foster investment in fuel-saving technologies. Currently, regulations are on a path that is driving relatively consistent standards around the globe (Wilson 2017). These standards in the U.S., Europe, and Asia allow automakers and their suppliers to leverage the efficiency of global platforms and powertrains, adding scale and reducing costs to lower prices and increase profits. Further, with ongoing innovation and higher volumes of fuel-saving components that are required to meet U.S. standards, domestic manufacture of these fuel-saving technologies becomes more likely. Strong standards through 2025 and beyond will help make sure that investments in technology and the jobs needed to make new components are sustained.

The agencies' NPRM analysis shows that less labor will be required in the U.S. auto industry as a result of weakened standards (83 FR 43436-7). By 2030, the agencies' Preferred Alternative results in 56,000 fewer job-years under the CO2 program (Table VIII-40) and 60,000 fewer job-years under the CAFE program (Table VIII-39) compared to the Baseline Standards. These deleterious effects on employment are the result of fewer investments in automotive technologies resulting from weaker standards.

However, there are additional macroeconomic impacts the agencies failed to examine in their analysis including those from changes in spending on gasoline and diesel. Under its Preferred Alternative, Americans will spend an estimated $20 billion more in 2025 and nearly $50 billion more in 2035 than under the Baseline Standards (Synapse 2018b). As illustrated in Figure 12, a shift in spending to the petroleum sector from other more job-intensive sectors of the economy results can results in a net decrease in employment. Economic modeling by Synapse Energy Economics, Inc finds that the net decrease in economy wide employment from the Preferred Alternative would total an estimated 60,000 job-years in 2025 and 126,000 job-years in 2035, significantly more than estimated employment decreases in the auto industry alone by the agencies (Synapse 2018b). Furthermore, reduced investment

FIGURE 12. Job intensity by economic sector



Petroleum refining and oil and gas extraction have relatively low employment levels per million dollars of economic output. As a result, a dollar saved on gasoline reinvested in the other sectors of the economy can have a net positive effect on jobs.

SOURCE: UCS ANALYSIS, BLS 2017

in the U.S. auto industry and increases in consumer spending on petroleum would reduce U.S. gross domestic product by an estimated $8 billion in 2025 and 2035.

The agencies' economic modeling is inadequate to assess the employment impacts of the proposed rules. Most importantly, it fails to include the effects of changes in consumer spending on gasoline and diesel which are much greater in magnitude than the changes in cost to the auto industry sector, which is the only economic sector examined by the agencies.

4. *The agencies' cost-benefit model is fundamentally flawed*

The Volpe model used to assess the cost and benefits of future fuel economy and greenhouse gas emissions standards has been drastically modified since not just the last rulemaking in which it was used, but also since the joint Technical Assessment Report (EPA et al. 2016), which showed the significant benefits of the Baseline Standards. These modifications include a complete revision of the dynamic fleet-share model, which modifies the relative marketshare of passenger cars and light trucks; doubling the "rebound effect," which reflects an increase in travel as a result of reduced costs of driving; projecting future new vehicle sales through the use of a statistical extrapolation; and projecting changes in the overall vehicle fleet as a result of changes in vehicle scrappage.

While the agencies in many of these alterations attempt to justify these modifications by pointing to peer-reviewed literature, these changes themselves have not been peer-reviewed. Moreover, many of the agencies' interpretations of the literature and the way in which this literature is reflected in the model are incorrect and frequently run counter to accepted economic theory and common sense.

Fundamentally, the completely erroneous outputs of the Volpe model underpin the agencies' proposal. Until these errors are corrected and the final model peer reviewed, reliance upon this untested and inaccurate model in its rulemaking can only be seen as arbitrary and capricious.

A) THE AGENCIES' MODEL GOES AGAINST BASIC ECONOMIC THEORY

It does not take a great economic scholar to assess the fundamentally absurd conclusions reached by the agencies' model, nor to understand why the model arrives at such erroneous results. The model separately considers new vehicle technologies, new vehicle sales, scrappage of old vehicles, and miles traveled by the vehicle fleet—despite the fact that all of these aspects of light-duty vehicle travel inherently interact. By failing to consider these interactions, the model yields fleet results which go against basic economic theory, both in the size of the total light-duty vehicle fleet and the miles traveled by these vehicles.

(1) Total light-duty vehicle fleet size

The simple explanation given by the agencies of its vehicle scrappage model is that fuel economy and greenhouse gas emissions standards will drive up the costs of new vehicles, which will in turn drive down the sales of new vehicles, and therefore result in more older vehicles remaining on the road (83 FR 43093). However, this simplistic explanation ignores the market interaction of all these terms and the fundamental economic drivers of any of this behavior.

As mentioned in Section I.B.2.b), the agencies do not consider consumers' willingness to pay for fuel economy in the sales model, even though they assume that manufacturers can recoup the costs from consumers for 30 months of fuel savings and that they believe a subset of the literature strongly supports that consumers value a large proportion of fuel savings. Therefore, any increased costs for technology result in decreased sales, thus ignoring the benefits resulting from these costs.

If increased new vehicle prices result in decreased new vehicle sales, this will in turn raise the price of used vehicles as well, due to increasing demand from buyers at the margins of the new vehicle market who will now choose to buy used vehicles. As a result of increased prices of used vehicles, those at the margins of the used vehicle market will choose not to enter the market, either holding onto a vehicle that otherwise would have been scrapped or shifting travel demand to alternative modes of transportation. While this model does suggest there could be an increase in the average age of the total vehicle fleet, because the prices of both new and used vehicles increase, there is less demand for light-duty vehicles overall, and therefore the total vehicle fleet should shrink, ***in contrast to the large growth exhibited by the Volpe model.***

If instead, consumers are enticed to the market by improvements to vehicles as a result of the standards (e.g., because they value greater fuel savings than assumed by manufacturers, as proposed by the agencies' own rationale), then vehicle sales will actually go up despite an increase in vehicle price. This added value will drive new people to the market, increasing demand for new vehicles but decreasing demand for used vehicles. Thus, used car prices will decrease, which will lead to folks at the margin to

enter the used vehicle market and purchase a car that otherwise might not have occurred. This will result in an increase in the vehicle park, again counter to the agencies' model.

In both cases, the agencies have gotten the sign wrong when it comes to the impact of new vehicle sales on the total vehicle fleet by ignoring that consumers will enter/exit the market at the margins as a result of pricing effects in the market.[38]

(2) *Fleet vehicle miles traveled*

Even more important than fleet size is the extent to which vehicles in that fleet are driven. Here again the agencies' model leads to fundamentally irrational behavior because they have disconnected a service (travel) from demand.

Setting aside the effect of rebound, travel demand should be independent of vehicle fleet mix, being generally related to the state of the economy on the whole.[39] How that economically driven demand for transportation is shared amongst passenger vehicles and other modes of transportation is then dependent upon relative price that could relate to factors including fuel economy of the fleet. The agencies, however, do not consider travel demand as part of their modeling effort—instead, demand for travel is assumed to be directly connected to the size of the vehicle fleet, with a vehicle of a given age and model year traveling a fixed quantity of miles for the years it is on the road. As noted in the section above, because they mischaracterize the market for vehicles, the agencies get wrong the direction of the change in the fleet size—this leads to a proportional error in miles traveled.

More correct would be to recognize that it is demand for travel which fuels the car market, not the other way around.[40] As noted above, an increase in the overall price of owning a vehicle will reduce demand for light-duty vehicles. Therefore, total LDV VMT should decline in the absence of rebound, with some VMT shifting to alternate modes of transportation. However, the agencies' modeling inexplicably shows LDV VMT increasing with increasing costs, even in the absence of a rebound effect (Sensitivity Case 00, NHTSA 2018h). This is clear evidence that the model does not behave in a reasonable way.

(3) *Engineering scrappage*

In deriving their statistical model for scrappage, the agencies describe two separate forms of scrappage, engineering scrappage and cyclical scrappage (83 FR 43093). Cyclical scrappage stems from macroeconomic effects, while engineering scrappage is related to the useful life of the vehicle, specifically the cost to maintain a vehicle compared to its replacement (which, as mentioned above, does not necessarily mean a new vehicle but simply a substitute for its demand for travel).

By treating each aspect of the vehicle market independently, the agencies have misjudged the impact of fuel economy standards on scrappage, specifically with regards to engineering scrappage. The agencies have considered engineering scrappage to be a function of vehicle age; however, this is grossly

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[38] This argument is further elaborated upon in comments to the docket from Dr. Ken Gillingham and the Institute for Policy Integrity.

[39] In fact, the agencies even acknowledge the challenge of trying to tease out behavior related to fuel economy because of the strong dependency of sales on macroeconomic conditions (83 FR 43074). Even the agencies acknowledge that such analysis is inherently "noisy," consistent with the analysis of Dr. David Bunch (see comments submitted to the docket).

[40] For a more thorough discussion of this, see comments submitted to the docket by Dr. David Bunch.

inaccurate because engineering scrappage is largely a function of ***miles traveled***. This creates a form of diminishing returns which acts to bind the degree to which use of an older vehicle can replace miles which, in the absence of a change in vehicle price, would have been covered by a newer vehicle. Furthermore, this means that the rebound effect actually acts to accelerate scrappage in a way that is not considered by the agencies.

For example, if we compare the Baseline Standards to the Proposed Standards, the average vehicle sold in 2028[41] will achieve about 36 mpg on-road for the Baseline Standards as compared to about 30 mpg for the Proposed Standards. This difference of 17 percent in cost-per-mile leads to a 3.3 percent increase in travel according to the agencies' 20 percent rebound effect. That means MY2028 vehicles will accrue lifetime VMT 3.3 percent faster under the Baseline Standards than the Proposed Standards, meaning that for an equivalent quality of vehicle, one would expect the rebound effect to "pull forward" the rate of scrappage, something which is not considered in the agencies' model. This is consistent of course with literature cited in the NPRM (Jacobsen and van Bentham 2015), even though this effect is not discussed by the agencies.

B) THE AGENCIES' MODEL IS INCONSISTENT WITH ACADEMIC LITERATURE

In addition to yielding results that do not make sense given basic economic theory, the agencies have mischaracterized and/or misapplied much of the literature which is cited to support their modeling effort. For simplicity we focus upon the two most significant areas of change from previous rulemakings, scrappage and rebound.

(1) Literature data on modeling scrappage

While the agencies have shown a superficial understanding of the Gruenspecht effect as it pertains to scrappage, they have ignored the constraints imposed by Gruenspecht and other researchers who've adopted this. These constraints help bound the model—ignoring them leads to precisely the types of absurd behavior outlined above. Moreover, the agencies have not developed a bottom-up approach rooted in economic theory but merely a top-down mathematical fit unconstrained by economic rigor, which further explains why the model yields irrational, inconsistent results.

Though the agencies cite the Gruenspecht effect for its basis for the scrappage model, they ignore a central constraint of Gruenspecht's work—namely, his assumption that ***fleet size and total VMT are insensitive to price***.[42] Thus, it would be completely inappropriate to extrapolate the model to "slower non-replacement scrappage rates" for the exact same reason as the agencies recognized was impossible for the California Air Resources Board study (83 FR 43094-5). Similarly, Jacobsen and van Bentham themselves note that their work cited by the agencies does not estimate any impact on total fleet size and should not be interpreted as doing so.[43]

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[41] MY2028 is chosen because manufacturers have a three-year carryback period for which they can rely on overcompliance to offset deficits, so therefore it will not be until MY2028 that manufacturers will have to fully comply with MY2025 standards.

[42] See comments submitted to the docket by the Institute for Policy Integrity for further detail.

[43] See letter submitted by Drs. Mark Jacobsen and Arthur Van Bentham to the agencies: EPA-HQ-OAR-2018-0283 and NHTSA-2018-0067-7788.

While the agencies acknowledge that the Gruenspecht effect is only relevant to "any increase in price (net of the portion of reduced fuel savings valued by consumers)" (83 FR 83093), the agencies do not recognize this constraint in their modeling of the effect. This is grossly negligent behavior. Furthermore, two additional studies cited by the agencies emphasize the importance of adjusting for quality improvements (Bento et al. 2018, Greenspan and Cohen 1996)—in fact, while the agencies explicitly chose not to use the new vehicle price index (PRIA, p. 1017-8), Greenspan and Cohen 1996 emphasized that Parks 1977 (which the agencies also cite) shows clearly that the ratio of the new vehicle price index to the cost of repair index is "highly significant in explaining total scrappage." Thus, the agencies are not only not justified in using transaction price data in their model, but they are 1) explicitly going against what the literature utilizes and 2) potentially ignoring a critical factor to assess rates of scrappage as a result.

(2) Rebound

The agencies have selectively culled the literature data used to support a 20 percent rebound effect and, in many cases, have misinterpreted and/or mischaracterized the basis for this data. Furthermore, by giving the studies selected equal weight, the agencies have neglected to actually interpret or consider the robustness and applicability of the various data, choosing to list a range of values without consideration of merit. This is why experts in the field "urge the agencies to adopt a more rigorous approach to evaluating the recent literature."[44]

One example of the way such an approach results in erroneous data can be found in the subset of papers by Dr. Kenneth Small, et al.—in Table II-44 the agencies claim that Hymel and Small 2015 yields a "range of estimate" of 18 percent, when in fact as Dr. Small himself pointed out, "it finds a long-run rebound effect of 18 percent under a simpler model but 4.0 percent or 4.2 percent under two more realistic models that are supported by the data."[45] The agencies have similarly misinterpreted the work of Dr. Kenneth Gillingham, citing a 2014 report with a range of 22 to 23 percent which the author himself notes "is inappropriate to use for the rebound effect" in place of Gillingham 2011 (with a rebound estimate of 1 percent) and Gillingham, et al. 2015 (yielding an estimate of 10 percent).[46]

In addition to misinterpretation of the data, the agencies have included a significant number of less relevant studies (such as those studying the rebound effect in Europe) and have ignored a number of more recent studies.[46] Similarly, in a number of instances the agencies have included the same papers as were included in previous rulemakings but have inexplicably come to different conclusions.[47] Taking all of this into account, the data is much more supportive of a rebound effect of no more than 10 percent.

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[44] Quoted from the letter of Dr. Joshua Linn to the agencies (EPA-HQ-OAR-2018-0283-1642 and NHTSA-2018-0067-7188); however, the comment submitted to the docket by Dr. Kenneth Gillingham echoes the remark.

[45] See letter from Dr. Kenneth Small, submitted to the docket; EPA-HQ-OAR-2018-0283-2698 and NHTSA-2018-0067-7789.

[46] See comment submitted to the docket by Dr. Kenneth Gillingham.

[47] See comment submitted to the docket by EDF et al. (including UCS).

C) IMPLICATIONS OF THESE FLAWS ARE VIRTUALLY THE ENTIRE PURPORTED "BENEFIT" OF THE STANDARD

The impact of these untested and deeply flawed models are significant—the vast majority of the net benefits identified by the agencies are net benefits which are purported to accrue not to vehicles explicitly covered by the regulation, but vehicles already on the road today. That these benefits are included at all is legally questionable, and the net social benefits of the agencies' Preferred Alternative on the vehicles actually covered by the Proposal are actually negative relative to the Baseline Standards (83 FR 43434-5).

C. Agencies mischaracterize the relationship between fuel economy and greenhouse gas regulations and other federal laws

The agencies have heavily relied upon an argument that safety is a main reason to rollback the fuel economy and greenhouse gas regulations. However, this argument is heavily overstated due to flaws in the Volpe model, and the agencies further ignore the benefits to public health and welfare due to state Zero Emission Vehicle policies which the Proposal eliminates.

1. Agencies have mischaracterized the impact of fuel economy and greenhouse gas emissions standards on safety

The agencies have noted "safety" as a key benefit of the proposal (e.g., 83 FR 42995); however, as has been emphasized in Section I.B.4, the model underpinning these assertions is deeply flawed. Moreover, the impacts which the agencies characterize as "safety" stem primarily from consumers driving less[48] (and therefore crashing less), which the agencies themselves acknowledge is a net cost of the proposal (83 FR 43067). The agencies' own analysis shows that the sales and scrappage model, which are in conflict with basic economic theory, represent 93.5 percent of the total fatalities presented in the Proposal (83 FR 43148). Historically, fuel economy standards have been shown to yield a net safety ***benefit*** (Bento et al. 2017)—while the agencies cite this paper in the Proposal (83 FR 43016), they have not sufficiently explained why this would no longer hold true.

2. Agencies have erroneously ignored the interaction between Zero Emission Vehicle standards and federal requirements of the Clean Air Act

Electrification of the light-duty vehicles has been identified by CARB and regional air quality control boards as a key strategy to meet federal ozone and particulate matter standards. California's San Joaquin Valley and South Coast air basins are classified as nonattainment areas for both PM and ozone, including an extreme nonattainment status for the 8-hour ozone standard in the San Joaquin Valley. The proposed rule correctly notes that "California continues to be in widespread non-attainment with Federal air quality standards" (83 FR 42999). While the fleet tailpipe LEV III standards serve as a limit on direct vehicle emissions, ZEV standards provide additional criteria pollutant reductions from upstream emissions reductions such as refining, fuel transportation, and refueling operations. In the 2015 CARB waiver application for the Advanced Clean Cars regulations (including ZEV), the Board

[48] See comments submitted to the docket by the American Council for an Energy-Efficiency Economy, which notes that the overall safety of the fleet remains fairly flat, in spite of the agencies' incorrect assessment of the impacts of mass reduction. This leads to changes in VMT being a far more substantial factor in the total number of fatalities in the Proposal.

estimated that ZEV regulations would by 2030 reduce smog-forming criteria pollution in the state by 10 tons per day beyond the LEVIII tailpipe standards alone (CARB 2012, p. 16).

Given the continuing challenges California faces in reducing both criteria and climate pollution, it is entirely inconsistent with the Clean Air Act to impede or remove regulations that will lead to significant reductions in air pollution. Because of the need for the state to address both air quality and climate pollutants, the EPA has approved over 100 waivers, including five waivers or in-scope determinations allowing ZEV regulations (EPA 2017d). There is no evidence in the proposed rule that disproves the benefits of the ZEV program for public health and reduction of climate changing pollution, and therefore no basis for the unprecedented withdrawal of the properly granted waivers.

The ZEV program is designed to complement other pollution control standards by ensuring that light-duty vehicles move from combustion-based engines to inherently cleaner electric drive motors. ZEVs result in lower emissions even when upstream emissions from electricity generation are considered. For example, the average plug-in vehicle in California produces global warming emissions equal to a 109 MPG gasoline car, when considering the emissions from driving, gasoline production, and electricity generation. Criteria air pollution is also reduced by switching from gasoline to California's increasingly clean electricity, both from the reduction in tailpipe emissions and reduced gasoline refining and transport within California. Overall, CARB projects that electric-drive vehicles would displace on-road vehicle emissions of over 1,200 tons per year of reactive organic gases and 720 tons per year of NOx by 2030 in California alone. For these reasons, California's State Implementation Plan for Federal Ozone and PM2.5 Standards relies heavily on electrification programs like the ZEV regulations and the local air districts in the state are reliant on these state-level standards to control mobile source pollution. For example, the San Joaquin Valley Air Pollution Control District's 2016 Plan for the 2008 8-Hour Ozone Standard relies on reducing mobile source emissions 70 and 76 percent for reactive organic gases and NOx respectively. In the South Coast AQMD, the plan to meet NOx emissions targets relies on 100 percent adoption of the SULEV-20 standard by 2031, significant increases in vehicle electrification (approximately 40 percent of new car sales), and an additional 5 tons per day of NOx reductions from the light duty fleet that have yet to be identified. Impairing California's ability to move forward with vehicle electrification standards would make an already difficult air quality problem even harder to solve.

D. Agencies mischaracterize the need for the nation to conserve energy

The fourth factor in setting maximum feasible standards, "[t]he need of the nation to conserve energy" includes the issues of consumer costs and fuel prices and environmental implications such as climate change (42 FR 63184, 63188). However, the NPRM states: "Given the discussion above, NHTSA of the U.S. to conserve energy may no longer function as assumed in tentatively concludes that the need previous considerations of what CAFE standards would be maximum feasible" (83 FR 43216). We fundamentally disagree with this assessment on all counts. The United States is still consuming millions of barrels of oil every day; consumers are spending billions at the pump every year; and climate change is threatening our communities and our planet. NHTSA has completely misunderstood the implications of a global marketplace for oil and the stabilizing role fuel economy standards can play in reducing

demand and therefore limiting the United States' economic exposure, and it has similarly exaggerated the benefits of increased U.S. production of tight oil (Bordoff 2018).

Compared to the augural fuel economy standards and baseline greenhouse gas standards the agencies' preferred alternative would:

- Increase consumer spending on gasoline by about $20 billion in 2025 and nearly $50 billion by 2035 (Synapse 2018b);
- Increase oil consumption by about one million barrels per day in 2040, or a cumulative total of 200 billion gallons of gasoline by 2040—that's as much oil as we've imported from the Persian Gulf since the standards were first finalized in 2010 (Cooke 2018a); and
- Increase global warming emissions by 2.2 billion metric tons by 2040, equivalent to keeping 43 coal-fired power plants online (Cooke 2018a).

We strongly encourage the agencies to look beyond the temporary dip in oil prices and scarcity and to commit to creating a future in which we live in healthier communities, prosper from a strong economy, and help safeguard our planet against the disastrous effects of climate change. Cutting our oil use also means that we have an insurance policy against oil price shocks and the dramatic rise in prices and economic impacts that accompany them.

II. The agencies' proposal suffers from critical legal errors

The Proposal's legal underpinnings are badly flawed and flatly incompatible with the requirements set forth by Congress in the Clean Air Act, the Energy Policy Conservation Act, the Administrative Procedure Act, and several other statutes. Detailed accountings of these errors are available in the joint legal comments (supplied by UCS, the Environmental Defense Fund, and other NGOs) in response to both the Proposal and its Draft Environmental Impact Statement. UCS joins these comments in full and incorporates them here by reference. For purposes of the below submission, however, UCS highlights four particularly egregious oversights in the Proposal's legal analyses.

A. Withdrawal of the California waiver would be unprecedented, unwarranted attack on state authority

The Proposal illegally withdraws the waiver for more stringent GHG and ZEV standards initially supplied to California and later adopted by several states under Clean Air Act Section 177. EPA's efforts on this score are a direct affront to the citizens of those states, to their sovereign governments, and to Congress, which drafted the Clean Air Act and its amendments to ***encourage*** novel means of safeguarding human health and welfare. It is therefore unsurprising that the revocation authority recently "discovered" by EPA exists nowhere in the statute itself or in any "inherent" agency powers. ***See Util. Air Reg. Grp. v. EPA***, 573 U.S. 302 (2014) ("We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast economic and political significance.") (quotation omitted). And even if EPA possessed the authority to strip California citizens of decades-old environmental protections, revocation in this instance is patently illegal, since the waiver at issue represents an unassailable judgment by local decisionmakers that cleaner cars will meaningfully protect their communities from both local pollutants and the worst effects of global climate change.

B. Vehicle emission standards are not inherently fuel economy standards and therefore are not pre-empted by EPCA

The Proposal unlawfully contends that EPCA preempts the Clean Air Act and thus permits the EPA to shirk its obligations under Section 209 of that Act. But for over four decades, Congress has consistently tailored EPCA to preexisting requirements in the Clean Air Act, not vice versa. That is why EPCA's plain text, its volumes of legislative history, and agency practice to-date ***predicate*** NHTSA's fuel economy standards on independent scientific judgments concerning human health. EPA's sudden and misguided supplication to NHTSA on this score not only disregards almost a half century of authority across all three branches of government, but also misapprehends rudimentary concepts like the relationship between "fuel economy standards," "actual fuel economy," and "emissions standards." These threadbare readings of federal law and transportation policy fall well short of the demanding standard for statutory preemption. ***See, e.g., Blanchette v. Conn. Gen. Ins. Corps.***, 419 U.S. 102, 134 (1974).

C. Zero Emission Vehicles standards are not inherently fuel economy standards and therefore are not pre-empted by EPCA

The ZEV program in particular is mischaracterized by the agencies as a fuel economy regulation. The ZEV regulation is part of the Advanced Clean Cars (ACC) regulations, which are permissible motor vehicle emissions regulations, designed to limit generation of criteria air pollutants and global warming emissions. The ZEV regulation is designed to encourage the necessary development of technologies to meet target in the California's air quality attainment plans and reduce the harmful emissions of climate-changing pollutants. The regulations also provide surety for infrastructure and component providers that the needed technology will be sold and deployed. As such the regulation requires the adoption of technologies that eliminate or reduce combustion, irrespective of the impacts on fuel efficiency. Credits are assigned in the ZEV program for the inclusion of certain low emissions technologies, not on the elimination or reduction of fuel use. For example, ZEV-compliant plug-in hybrids receive credits solely based on having qualifying electric drive systems and the electric range of the vehicle. The efficiency of the plug-in hybrid's engine (and therefore the fuel economy of the vehicle) is not considered in the ZEV regulations, as this part of the ACC regulations only consider the deployment of advanced technologies.

Underlying the ZEV program is an understanding that switching vehicles from petroleum-based fuel combustion to electric drive allows for the use of low-carbon and non-combustion energy sources. Electric drive systems (both plug-in and fuel cell) allow vehicles to be powered by a number of clean sources, like solar, wind, and hydroelectric power. The ZEV regulation requires the inclusion of technologies that allow for this switch to reduce air pollution and GHG emissions but does not mandate the fuel economy of these vehicles.

D. The technical basis for the Proposal is fundamentally flawed

Particularly relevant to these comments (and to UCS' mission), the Proposal is consummately irrational and anti-scientific, the product of agenda-driven decisionmaking instead of reasonable disagreements as to the underlying data. To take only a few examples, the Proposal conspicuously overlooks well publicized developments in relevant automobile technology, substitutes political for expert judgments

vis-à-vis consumer behavior, and deploys an untested scrappage model with no "rational relationship to the real world." ***W. Va. v. EPA***, 362 F.3d 861, 866–67 (D.C. Cir. 2004) (quotation omitted). Taken individually, any one of these many mistakes would suffice to render the agencies' radical prescriptions for fuel economy arbitrary and capricious. Together, the mistakes corroborate an unlawful effort to "cloak . . . fiat judgments" in agency expertise, and render the Proposal void on its face. ***Tennessee Gas Pipeline Co. v. FERC***, 926 F.2d 1206, 1211 (D.C. Cir. 1991).

III. Additional requests for comment

The agencies have requested comment on a number of issues which do not have a significant impact on the merits of the Proposal—we have included our input on a select number of those requests below. Had the agencies granted respondents additional time for comment, as requested, we would have been able to respond to a number of other requests for comment.

A. Incentives for autonomous and connected vehicle technologies

EPA has requested comment on flexibilities and incentives related to autonomous and connected vehicle technologies (83 FR 43464). The evidence to-date does not warrant incentivizing such technologies—there is no provable environmental benefit of such technologies, and the agencies have previously correctly acknowledged that any such potential impacts would be related to indirect benefits, which raise serious concerns about compliance and enforcement to ensure the integrity of the program.

1. Autonomous and connected vehicle technologies do not directly reduce emissions

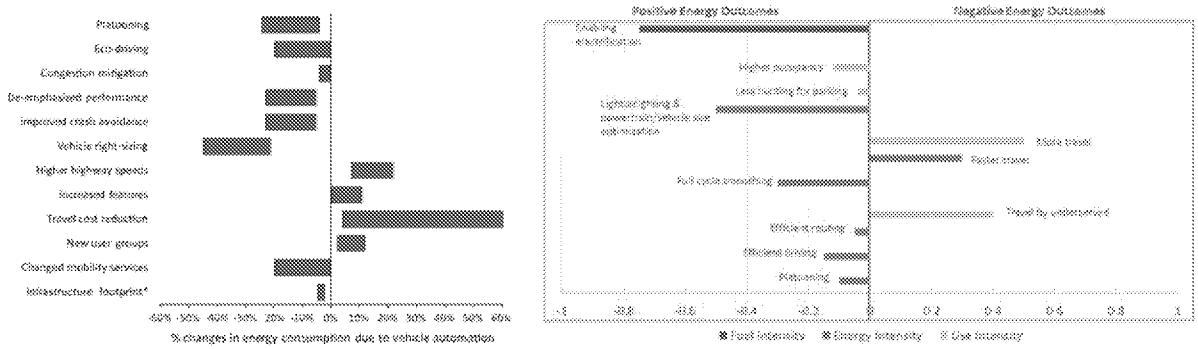
Technologies which could improve the transportation system include those related to safety, such as crash avoidance or lane-departure, as well as features that are better described as semi-autonomous or autonomous vehicle features, ranging from SAE Level 1 features that are widespread in the marketplace like adaptive cruise control to SAE Level 5 full automation which at present does not exist.

It should be emphasized that while these features ***could*** improve the efficiency of the transportation system, it is by no mean guaranteed to be the case. This has been explained at length in studies such as Wadud et al. 2016 (Figure 13a) and Brown, Gonder, and Repac 2014 (Figure 13b), which illustrate much of the range of uncertainty around potential (dis)benefits of vehicle automation.

In nearly all technology scenarios, impacts to energy consumption could be relatively small, and in many potential scenarios, there may actually be a net energy increase, especially for fully automated vehicles which could significantly increase the amount of miles of travel for the fleet.

Given these uncertainties, it seems particularly problematic to credit manufacturers for reductions which "might" happen. Such a credit program would be akin to the flex-fuel vehicle credit granted under CAFE for many years, which was supposed to lead to reductions in oil consumption but instead led to an ***increase***, as manufacturers were able to comply with less efficient vehicles than would otherwise have been required and the widespread use of bio-based ethanol as a fuel (E85) never materialized (Jenn, Azevedo, and Michalek 2016).

FIGURE 13. The uncertain impacts of autonomous vehicles



Numerous studies indicate the inherent uncertainty surrounding the impacts on energy and emissions from the adoption of autonomous vehicles. Differences in future technology and use could result in dramatically different possibilities; as such, it would be imprudent to credit such potential technology (dis)benefits with such wildly uncertain outcomes.

SOURCE: WADUD, MACKENZIE, AND LEIBY 2016 (LEFT) AND BROWN, GONDER, AND REPAC 2014 (RIGHT)

Furthermore, crediting a manufacturer for the use of a technology creates an inherent asymmetry—today, we do not credit a vehicle based on whether it is sold to a driver with a "lead foot" or whether it is sold to a hypermiler, and yet driving behavior can affect a vehicle's fuel use and emissions by nearly 30 percent (Dunkle Werner 2013). Similarly, the agency should not credit a vehicle for the use of a "computer driver" without similarly discrediting a manufacturer for all of its owners' inefficient driving behaviors as well.

Finally, the data previously provided by manufacturers (e.g., Mercedes 2011) is at odds with the evidence to-date. For example, Mercedes noted in its comments on the 2017-2025 FRM that lane-assist and crash avoidance technologies were becoming widespread, and indeed we are seeing that across the industry. However, in that same timeframe, vehicle miles traveled have increased and the rate of traffic fatalities (per mile traveled) has increased (FHWA 2016), and congestion has ultimately gotten worse (FHWA 2017), increasing real-world emissions. While this does not necessarily speak to the efficacy of the technology itself, it may be that features being deployed by manufacturers such as increased infotainment may be creating a countervailing effect by increasing distracted driving (AAA 2017), and again shows the inherent asymmetry problem in such credits. Either way, there is no strong basis for the proposed "congestion reduction credits", and the agencies should continue not to credit them under the fuel economy and emissions program.

2. *The agencies have previously appropriately excluded crediting indirect emissions*

As noted above, the agencies have already weighed in on the issue of indirect credits and appropriately excluded them from the National Program (77 FR 62732). It bears repeating some of the reasoning behind that decision.

First, the deployment of these technologies is already being appropriately incentivized by NHTSA under its safety obligations. There is no need to provide a manufacturer additional incentive such as off-cycle credits to deploy these technologies when NHTSA is already promoting some of them through its New Car Assessment Program (NCAP) and has extensive procedures in place for analyzing the potential safety impacts and accelerating their deployment.

Second, all technologies credited under the off-cycle program result in direct emissions impacts for the vehicle in question, which are verifiable and attributable to the technology deployed. The agencies did not consider indirect improvements for the fleet as a whole because those improvements are "not reliably quantifiable, and may be speculative (or in many instances, non-existent)." There is no reasonable way for EPA to verify that these emissions reductions are occurring in the real-world, which could significantly undermine its obligations under the Clean Air Act.

This reasoning remains consistent with the intent of the off-cycle program, the principles of which have been previously laid out in comments directly responding to automaker requests to alter the off-cycle program (ACEEE et al. 2017). Those principles, summarized, are: 1) demonstration of off-cycle benefits must be rigorous and fully documented; 2) off-cycle credits should be limited to new and innovative technologies; and 3) to be eligible for credit, a technology must reduce emissions from the vehicle receiving the credit. The program was established on these three principles, and they continue to remain prudent in order to ensure that real-world reductions in fuel use and emissions are achieved.

B. Incentives for hybrid and alternative fuel vehicles

The agencies have requested comment on a number of incentives already adopted in some form in the greenhouse gas program (e.g., 83 FR 43461, 43464, 43465). We strongly discourage the agency from such incentives, broadly—the technologies in question are not new to the market, and these incentives directly undermine the benefits of the rule by crediting vehicles with benefits incommensurate with the actual greenhouse gas emissions from these vehicles. More specific points related to individual requests for comment are detailed in brief below.

1. Hybrid incentives

The first mass market hybrid vehicle was developed over 20 years ago, reaching the United States shortly thereafter. Since then, hybrid-electric vehicles have appeared in every class, including Small SUVs (MY2005 Ford Escape), Large SUVs (MY2009 Chevy Tahoe/GMC Yukon), and Pickups (MY2005 Chevrolet Silverado/GMC Sierra). Currently, the gap between a conventional "strong" hybrid and "mild" hybrids including 48V systems offer nearly as much benefit as many of the earliest generation systems, and the gap between non-electrified powertrains and hybrid powertrains has also closed, as a result of continuous evolution of internal combustion engines and diminishing returns on strong hybrids. With technology as seamless and effective as the mild hybrid systems on vehicles like the 2019 Ram 1500 and Chevrolet Silverado, in addition to hybrid versions of powerful vehicles like the F-150 and Mustang on the way, it seems that there is no need to incentivize this long-established technology. Hybrids are not innovators or game-changing vehicles—they are simply one of many strategies by which manufacturers can reduce emissions and should not receive special treatment.

2. Natural gas vehicles

Natural gas is a potent greenhouse gas, and any direct emissions of methane pose a significant threat to any effort to limit climate change. As was noted in comments on heavy-duty vehicle regulations, these direct emissions upstream significantly undermine any potential benefit that could come from the pump-to-wheel benefits of displacing gasoline or diesel with natural gas. Furthermore, the technology underpinning any natural gas-powered vehicle is exceptionally mundane—natural gas has been deployed previously in vehicles like the Honda Civic, and aftermarket CNG conversions have long been available on the market. Again, there is no critical hurdle to overcome with CNG powered vehicles, and there is little if any benefit to any such incentives. We strongly recommend that EPA eliminate all incentives for natural gas vehicles and instead ensure such vehicles are credited commensurate with their impact on the environment.

3. Incentives for electric vehicles

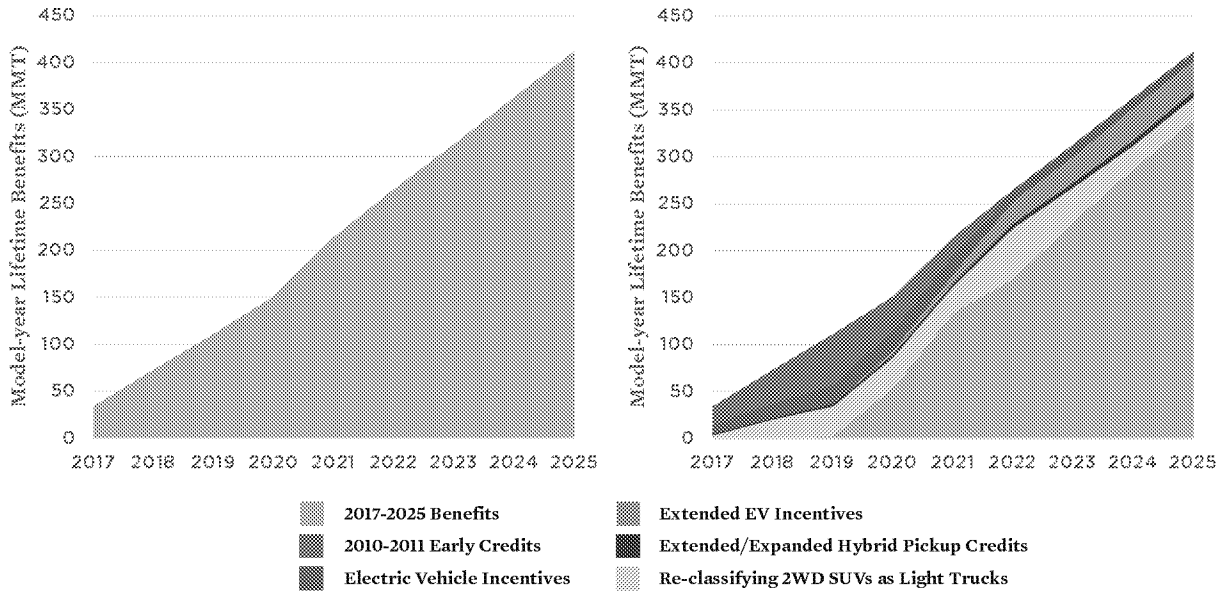
UCS strongly supports electrification of light-duty vehicles, recognizing the long-term potential electric vehicles have in moving towards a more sustainable transportation future. However, current electric vehicle adoption is being driven by state, not federal regulatory policies, so current federal EV incentives within the fuel economy and emissions standards serve not to drive additional adoption but largely only give extra credit for meeting requirements already in place. To date, more than half of the electric vehicles sold have been in California and the states that have adopted California's ZEV standards; however, federal standards ignore the upstream emissions for all vehicles sold, no matter what is driving their adoption. Furthermore, multipliers that began to take effect with MY2017 significantly enhance the amount of emissions reductions given away as an incentive to each EV, effectively treating them as negative emissions vehicles in a manufacturer's fleet. Comparing the total emissions given away to the fraction of vehicles sold in states that have not already mandated electric vehicles be sold yields a ratio of lost benefits that is nearly 6:1. This has a significant impact on the efficacy of the standard, and extending these regulatory incentives are more likely to result in a credit giveaway than they are to drive additional deployment of electric vehicles.

4. Combined impact of incentives

Given the potential interaction for a number of incentives, it is important to consider the potential impact of any such "flexibility" on the overall stringency of the regulation. For example, in Figure YYY, we summarize a number of flexibilities either already granted by EPA or requested by automakers (Cooke 2018b). The total impact of these flexibilities in full is nearly equivalent in reduction of greenhouse gas benefits to the freeze proposed by the agencies in its Preferred Alternative—yet on paper, manufacturers under such a scenario would be compliant with MY2025 standards.

Given the potential for widespread harm, credits within the program should be severely limited, and the agencies' assessment of the impacts of such incentives should be extremely conservative in order to best ensure the environmental benefits of the fuel economy and greenhouse gas emissions standards.

FIGURE 14. Annual greenhouse gas emissions benefits under the 2017-2025 standards finalized by EPA compared to those under possible incentive programs



While some benefits have already been given away (such as early credits and EV incentives), incentives requested by automakers including extension of multipliers for EVs, exclusion of upstream emissions, expanded credits for hybrid light trucks, and reclassification of 2WD small SUVs would erode the benefits of the 2017-2025 greenhouse gas emissions standards nearly as much as the agencies' current, deeply flawed and harmful proposal.

C. Disclosure of credit trading under the CAFE program

NHTSA is requesting comment on disclosure of credit trading under the CAFE program (83 FR 43450). We strongly support increased information availability related to manufacturer credit trading, under both the CAFE and EPA programs. Such information aids manufacturers in assessing the current market for credits, which makes compliance for the industry more efficient (Leard and McConnell 2017), and such disclosure also improves transparency for assessing the ways in which manufacturers are complying with the program. While the CAFE Public Information Center is a substantial improvement upon the previous form of disclosure, there is little clarity about how manufacturers may be dividing up credits to offset shortfalls in their other vehicle fleets or whether they may instead be selling these credits. Increased transparency is especially important given that "manufacturers have largely traded or transferred credits in lieu of paying civil penalties" since the introduction of such flexibilities (83 FR 43451). We strongly encourage NHTSA to disclose at least as much information as is currently disclosed by EPA under its program (volume and vintage bought or sold by a given manufacturer) and encourage the agency to further include regulatory class (which is more relevant to NHTSA's program because of transfer caps and the domestic minimum passenger car standard) as well as transaction price, in order to ensure the market operates more efficiently. We would also encourage EPA to adopt such price disclosure, as it relates directly to the marginal cost of compliance.

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APPENDIX A: Modifications to Volpe model source code

There were a number of noted deficiencies in the version of the Volpe model released with the proposal. We have been able to correct a number of these flaws and have included these corrections to the source code below. These corrections are referred to in the main text of our comments, along with the rationale for such corrections.

A-1: Modification to consider overcompliance in cost-effectiveness

Replace line 604 of `ComplianceFinding.cs` with:

```
deltaCO2CreditValue[rc] = this._newCO2CreditValue[rc] - this._curCO2CreditValue[rc];
```

A-2: Modification to utilize a cost-per-ton algorithm in place of effective cost

Replace line 692 of `ComplianceFinding.cs` with:

```
this._efficiency = cp.IsCO2() ? (this._techCost - this._totalFuelSavings) /
(this._newCO2Credits.Total - this._curCO2Credits.Total) : (this._techCost -
totalDeltaComplianceValue - this._totalFuelSavings) / this._totalAffectedSales;
```

A-3: Modification to correct inaccurate assignment of carryforward expiration

Replace `if{}` procedure at lines 160-163 of `CreditTradingCO2.cs` and lines 162-165 of `CreditTrading.cs` with:

```
carryFwdYears = scen.ScenInfo[rc].CreditCarryFwd[i];
```

In the code provided with the NPRM, all years prior to the first modeled year of compliance were given the default expiration value rather than the value provided in the scenario file, which would prevents the correct application of expiration to banked credits under EPA's one-time carryforward exemption.

A-4: Modifications made to support manufacturer trading as a compliance tool

In the "manufacturer loop", line 564 of `Compliance.cs` is replaced with:

```
// creditBank.RegisterMfr(mfr, year);
```

and before line 680 of `Compliance.cs` the following is inserted:

```
double eff = finding.Efficiency;

List<int> tradingMfrs = CreditTradingCO2.CheaperMfr(eff, mfr.Index, MfrCount, scenData,
year, this.Settings);

foreach (int nextMfrIdx in tradingMfrs)
   {
   Manufacturer uMfr = scenData[year.Index].Manufacturers[nextMfrIdx];
   CreditTradingCO2.CT_CarryForwardM2M(scenData, scen, year, nextMfrIdx, mfr.Index,
this.Settings, true, year); // expiring credits only, from this year
```

```
  if(mfr.GetNetCO2Credits().Total > 0) { break; } // if mfr is in net compliance, break

  }

if (mfr.GetNetCO2Credits().Total > 0) { break; } // if mfr is in net compliance, break
```

A number of new methods are added to `CreditTradingCO2.cs` as a result:

- CheaperMfr() — Creates a list of manufacturers with compliance costs per ton less than finding
- CT_CarryForwardM2M() — An adapted version of the CT_Carryforward() function which trades between two different manufacturers within a regulatory class, carrying forward credits from earning manufacturer until compliance in using manufacturer.
- Mfr2MfrTransfer() — Trades credits between manufacturers; 2-OEM analog to DoTransfer() helper method. Includes updated logging routine which separately logs earned and used credit manufacturers on two different lines.
- costPerTonCO2() — Calculates a manufacturer's average cost of compliance to date based on total costs and total CO2 reductions from baseline, scaled to reflect current fleet sales to diminish impact of mix shift.

```
public static List<int> CheaperMfr(double eff, int mfrIdx, int mfrCount, Industry[]
modelData, ModelYear year, ModelingSettings settings)
{
   Manufacturer mfr = modelData[year.Index].Manufacturers[mfrIdx];

   List<int> mfrList = new List<int>();

   int minComplianceYearIndex = modelData[year.Index].MinYear - ModelYear.MinYear;
   int minBankedCredYearIndex = mfr.Description.BankedCO2CreditsMinYear -
ModelYear.MinYear;
   int minYearIndex = Math.Min(minComplianceYearIndex, minBankedCredYearIndex);

   for (int i = 1; i < mfrCount; i++)
   {
      int nextMfrIdx = (mfrIdx + i) % mfrCount; // resets at length of array

    Manufacturer nextMfr = modelData[year.Index].Manufacturers[nextMfrIdx]; //
transferring retiring credits from previous years i to expiring year

    double costPerTonNextMfr = costPerTonCO2(nextMfr, modelData, year, settings);

    if(costPerTonNextMfr < eff) { mfrList.Add(nextMfrIdx); } // add manufacturer to
list of mfrs with costs less than current finding
   }

   if (mfrList.Count <= 1) return mfrList; // don't randomize list with one or no
items

   Random rnd = new Random();

   for (var m=0; m < mfrList.Count; m++) // loop randomly swaps items in list to
minimize trading bias
   {
      var temp = mfrList[m];
      int n = rnd.Next(m, mfrList.Count);
      mfrList[m] = mfrList[n];
      mfrList[n] = temp;
   }
```

```
    return mfrList;
}

public static void CT_CarryForwardM2M(Industry[] modelData, Scenario scen, ModelYear
year, int mfrIndex, int mfrIndex2,ModelingSettings settings, bool expiringOnly, int
expiringYrIndex)
{
    CT_CarryForwardM2M(RC.AllPassengerCar, modelData, scen, year, mfrIndex, mfrIndex2,
    settings, expiringOnly, expiringYrIndex);
    CT_CarryForwardM2M(RC.LightTruck, modelData, scen, year, mfrIndex, mfrIndex2,
    settings, expiringOnly, expiringYrIndex);
    CT_CarryForwardM2M(RC.LightTruck2b3, modelData, scen, year, mfrIndex, mfrIndex2,
    settings, expiringOnly, expiringYrIndex);
}

/// <summary>
/// Performs a credit carry forward operation into a compliance category defined by
the specified model
/// year, between two manufacturers (mfrSource, mfrReceive), into regulatory class rc.
/// A carry forward operation will only be performed if credit trading settings allow
and the destination
/// compliance category is at a deficit.
/// </summary>
public static void CT_CarryForwardM2M(RC rc, Industry[] modelData, Scenario scen,
ModelYear year, int mfrSource, int mfrReceive, ModelingSettings settings, bool
expiringOnly, int expiringYrIndex)
    {
    CreditTradingValues ct = settings.Parameters.CreditTradingValues;
    if (!settings.OperatingModes.AllowCreditTrading ||
    settings.OperatingModes.LastCreditTradingYear < year.Year || !ct.AllowCarryForward)
    { return; }

    Manufacturer mfr = modelData[year.Index].Manufacturers[mfrSource];
    Manufacturer uMfr = modelData[year.Index].Manufacturers[mfrReceive];

    double credits = uMfr.GetNetCO2Credits(rc);

    // the fleet has positive credits (is in compliance) for this reg-class
    if (credits >= 0) { return; }

    // scan each year to see if credits can be carried forward
    int minComplianceYearIndex = modelData[year.Index].MinYear - ModelYear.MinYear;
    int minBankedCredYearIndex = mfr.Description.BankedCO2CreditsMinYear -
    ModelYear.MinYear;
    int minYearIndex = Math.Min(minComplianceYearIndex, minBankedCredYearIndex);
    //
    for (int i = minYearIndex; i < year.Index; i++)
    {  // get carry forward years
       int carryFwdYears = 0;
      carryFwdYears = scen.ScenInfo[rc].CreditCarryFwd[i]; // determined by input file
      if (carryFwdYears == 0)
      {  // no scenario/year specific value defined -- use global setting
          carryFwdYears = ct.CarryForwardYears;
       }

      // if only expiring credits should be used, skip all other years
      if (expiringOnly && (i > expiringYrIndex - carryFwdYears)) { continue; }

      // if credits already expired, skip year
      if (i + carryFwdYears < year.Index) { continue; }

      Manufacturer pMfr = null;
      double eCredits = 0;
```

```
      bool useBank = false;
      if (i >= minComplianceYearIndex)
      {  // checking one of analysis years -- check for credits generated during
   compliance
         pMfr = modelData[i].Manufacturers[mfrSource];
         // **note: when computing available credits from previous years,
      CO2CreditsIn should not be considered,
         // since there is no way of tracking where they came from or their
      expiration
         eCredits = Math.Max(0, pMfr.ModelData.CO2Credits[rc] -
         pMfr.ModelData.CO2CreditsOut[rc]);
      }
      else
      {  // checking a year prior to start of modeling -- check for banked credits
         pMfr = mfr;
         eCredits = mfr.Description.GetBankedCO2Credits(rc, i + ModelYear.MinYear);
         useBank = true;
      }

       // continue to the next year if did not earn any credits in the "i-th" year
      if (eCredits <= 0) { continue; }

      // perform a credit transfer between the two manufacturers
       Mfr2MfrTransfer(settings, scen, eCredits, -credits, rc,
       ModelYear.NewFromIndex(i), pMfr, useBank, rc, year, uMfr);

      // update credits; if compliance achieved, return
      credits = uMfr.GetNetCO2Credits(rc);

       if (credits >= 0) { return; }

   } // next i (carry forward credit year)
}

public static double costPerTonCO2(Manufacturer mfr, Industry[] modelData, ModelYear
year, ModelingSettings settings)
{
   int minComplianceYearIndex = modelData[year.Index].MinYear - ModelYear.MinYear;

   Manufacturer mfr0 = modelData[minComplianceYearIndex].Manufacturers[mfr.Index]; //
   clone for baseline year

   var mmd = mfr.ModelData;
   var mmd0 = mfr0.ModelData;

   double BaselineCO2PC = mmd0.CO2RatingSum.CalcSum(RC.AllPassengerCar);
   double BaselineCO2LT = mmd0.CO2RatingSum.CalcSum(RC.LightTruck);
   double CurrentCO2PC = mmd.CO2RatingSum.CalcSum(RC.AllPassengerCar);
   double CurrentCO2LT = mmd.CO2RatingSum.CalcSum(RC.LightTruck);

   double MfrTonsRedux = (BaselineCO2PC / mmd0.Sales[RC.AllPassengerCar] -
   CurrentCO2PC / mmd.Sales[RC.AllPassengerCar]) * StandardsCO2.GetVMT(settings, year,
   RC.AllPassengerCar) * mmd.Sales[RC.AllPassengerCar] + (BaselineCO2LT /
   mmd0.Sales[RC.LightTruck] - CurrentCO2LT / mmd.Sales[RC.LightTruck]) *
   StandardsCO2.GetVMT(settings, year, RC.LightTruck) * mmd.Sales[RC.LightTruck]; //
   calculates tons of reductions to date, relative to baseline and scaled to current
   sales

   double costPerTon = mfr.ModelData.TechCost.Total / MfrTonsRedux; // divides
   manufacturer's tech cost in current model year by tons of reduction

   return costPerTon;
}
```

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 2/22/2018 8:05:47 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]
Subject: RE: Situational Awareness: new items in Glider Rule docket from Tennessee

I talked with RJ this morning and reiterated what David has been telling our press folks – t Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

From: Wehrum, Bill
Sent: Thursday, February 22, 2018 2:59 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: RE: Situational Awareness: new items in Glider Rule docket from Tennessee

Thanks.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Grundler, Christopher
Sent: Thursday, February 22, 2018 2:57 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: Situational Awareness: new items in Glider Rule docket from Tennessee

FYI

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington DC)
734.214.4207 (Ann Arbor MI)
734.645.5221 (mobile)
www.epa.gov/otaq

Begin forwarded message:

> **From:** "Sargeant, Kathryn" <sargeant.kathryn@epa.gov>
> **To:** "Charmley, William" <charmley.william@epa.gov>, "Grundler, Christopher" <grundler.christopher@epa.gov>

Cc: "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>
Subject: RE: Glider rule, new submissions from TTU

Attached are the documents Bill referred to. The letters to Rep. Black and to Fitzgerald are the same as the letter to the EPA Administrator (first attachment), just addressed differently.
The last attachment is the one from the Dean of the College of Engineering.

From: Charmley, William
Sent: Thursday, February 22, 2018 8:31 AM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Sargeant, Kathryn <sargeant.kathryn@epa.gov>
Subject: Glider rule, new submissions from TTU

Chris

At some point today Ben and/or Kathryn will send you a few new letters and memos from TTU that David Orlin saw were placed into the Glider rule docket in the last day or 2.

One is a letter to the Administrator, asking EPA to not rely upon the TTU emission study. There is a similar letter to Representative Black and another one to Mr Tommy Fitzgerald. There is also a memo from the Dean of the College of Engineering. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

You should think about whether you would want to share the letter to the Administrator and the memo from the Dean of the College of Engineering with AA Wehrum.

Thanks
Bill

Sent from my iPhone

Message

From: Gilbride, Patrick [Gilbride.Patrick@epa.gov]
Sent: 12/3/2018 3:56:11 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Jackson, Ryan [jackson.ryan@epa.gov]; Molina, Michael [molina.michael@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Fine, Steven [fine.steven@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Trent, Bobbie [Trent.Bobbie@epa.gov]; Benton, Michael [benton.michael@epa.gov]; Vincent, Marc [Vincent.Marc@epa.gov]; Burch, Julia [Burch.Julia@epa.gov]; Brazauskas, Joseph [brazauskas.joseph@epa.gov]; Regional AFC List [Regional_AFC_List@epa.gov]; Sheehan, Charles [Sheehan.Charles@epa.gov]; Shields, Edward [Shields.Ed@epa.gov]; Larsen, Alan [Larsen.Alan@epa.gov]; Christensen, Kevin [Christensen.Kevin@epa.gov]; Nussbaumer, James [nussbaumer.james@epa.gov]; Eyermann, Richard [Eyermann.Richard@epa.gov]; El-Zoghbi, Christine [El-Zoghbi.Christine@epa.gov]; Kaplan, Jennifer [Kaplan.Jennifer@epa.gov]; Lagda, Jeffrey [Lagda.Jeffrey@epa.gov]; Elbaum, Kentia [elbaum.kentia@epa.gov]; Dutton, Allison [Dutton.Allison@epa.gov]; Stolz, Luke [Stolz.Luke@epa.gov]; Goldman, Todd [Goldman.Todd@epa.gov]; Anthony, Sherri [Anthony.Sherri@epa.gov]; Deane, Benita [Deane.Benita@epa.gov]; Osterman, Adam [Osterman.Adam@epa.gov]; Ulmer, Craig [Ulmer.Craig@epa.gov]
Subject: OIG Project Notification - Glider Congressional Request - Rulemaking
Attachments: OIG Project Notification Memo-Glider Rulemaking 12-3-18.pdf

Bill,

The Office of Inspector General plans to begin a project in response to a congressional request that raised concerns regarding the Notice of Proposed Rulemaking, "Repeal of Emission Requirements for Glider Vehicles, Glider Engines and Glider Kits." The OIG will determine whether the EPA acted in compliance with Executive Orders 12866 and 13045 in relation to the development of the proposed rulemaking.

We will contact you to arrange a mutually agreeable time to discuss our objectives. We will answer any of your questions about the project process, reporting procedures, methods used to gather and analyze data, and what we should expect of each other during the project.

Should you have an question, please contact me at (303) 312-6969 or gilbride.patrick@epa.gov, or Alli Dutton, who will be the Project Manager at Personal Phone / Ex. 6 or dutton.allison@epa.gov.

Thanks,
Pat

Patrick Gilbride
Director, Environmental Research Programs
U.S. EPA, Office of Inspector General
1595 Wynkoop St.
Denver, CO. 80202
303-312-6969

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INSPECTOR GENERAL

December 3, 2018

MEMORANDUM

SUBJECT: Project Notification:
Response to Congressional Request on Glider Repeal Actions
Project No. OA&E-FY19-0053

FROM: Patrick Gilbride, Director
Environmental Research Programs Directorate
Office of Audit and Evaluation

TO: William L. Wehrum, Assistant Administrator
Office of Air and Radiation

The Office of Inspector General (OIG) for the U.S. Environmental Protection Agency (EPA) plans to begin a project in response to a congressional request that raised concerns about the Notice of Proposed Rulemaking, "Repeal of Emission Requirements for Glider Vehicles, Glider Engines and Glider Kits." The OIG will determine whether the EPA acted in compliance with Executive Orders 12866 and 13045 in relation to the development of the proposed rulemaking.

We will contact you to arrange a mutually agreeable time to discuss our objective. We will answer any of your questions about the project process, reporting procedures, methods used to gather and analyze data, and what we should expect of each other during the project. In preparation for this project, please provide by December 7, 2018, a list of all EPA employees involved in drafting and editing the Notice of Proposed Rulemaking.

We respectfully note that the OIG is authorized by the Inspector General Act of 1978, as amended, to have timely access to personnel and all materials necessary to complete its objectives. We will request that you resolve the situation if an agency employee or contractor refuses to provide requested records to the OIG or otherwise fails to cooperate with the OIG. We may report unresolved access matters to the Administrator and include the incident in the *Semiannual Report to Congress*.

The project will be supervised by me and the Project Manager will be Alli Dutton. Any information related to the project should be addressed to me at (303) 312-6969 or gilbride.patrick@epa.gov, or Alli Dutton at (215) 814-2349 or dutton.allison@epa.gov.

cc: Henry Darwin, Acting Deputy Administrator
Ryan Jackson, Chief of Staff
Michael Molina, Special Advisor, Office of the Administrator
Elizabeth Shaw, Career Deputy Assistant Administrator for Air and Radiation

Mandy Gunasekara, Principal Deputy Assistant Administrator for Air and Radiation
Clint Woods, Deputy Assistant Administrator for Air and Radiation
Steven Fine, Senior Advisor to the Assistant Administrator, Office of Air and Radiation
Christopher Grundler, Director, Office of Transportation and Air Quality, Office of Air and Radiation
Bob Trent, Agency Follow-Up Coordinator
Michael Benton, Audit Follow-Up Coordinator, Office of the Administrator
Marc Vincent, Audit Follow-Up Coordinator, Office of Air and Radiation
Julia Burch, Audit Follow-Up Coordinator, Office of Transportation and Air Quality, Office of Air and Radiation
Joseph Brazauskas, Audit Follow-Up Coordinator, Office of General Counsel
Nancy Grantham, Principal Deputy Associate Administrator for Public Affairs
Regional Audit Follow-Up Coordinators, Regions 1–10
Charles Sheehan, Acting Inspector General
Edward Shields, Acting Deputy Inspector General
Alan Larsen, Counsel to the Inspector General
Kevin Christensen, Assistant Inspector General for Audit and Evaluation
Craig Ulmer, Acting Assistant Inspector General for Investigations
James Nussbaumer, Acting Assistant Inspector General for Management
Richard Eyermann, Deputy Assistant Inspector General for Audit and Evaluation
Christine El-Zoghbi, Deputy Assistant Inspector General for Audit and Evaluation
Jennifer Kaplan, Deputy Assistant Inspector General for Congressional and Public Affairs
Jeffrey Lagda, Congressional and Media Liaison, Office of Inspector General
Tia Elbaum, Congressional and Media Liaison, Office of Inspector General

AMERICAN LUNG ASSOCIATION.

Harold P. Wimmer
National President and
CEO

December 20, 2017

The Honorable William Wehrum
Assistant Administrator for Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Re: *Proposed Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits – 60-day comment deadline extension request*
Docket ID No. EPA–HQ–OAR–2014–0827

Dear Mr. Wehrum:

The American Lung Association respectfully requests a 60-day extension of the January 5, 2018, comment deadline on the proposed rule "Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits" (Docket ID No. EPA–HQ–OAR–2014–0827) to March 5, 2018.

The Lung Association requests this extension because, under the current comment timeline, we will have difficulty completing detailed comments that fully analyze the proposal and its far-reaching and long-lasting adverse impacts on the nation's air quality. With three major federal holidays falling during the comment period and the recent posting of significant documents to the docket after the initial proposal publication, quite simply, we need more time.

We note that EPA has not conducted any air quality modeling nor completed a regulatory impact analysis fully quantifying the health impacts of the proposal. EPA has failed to do this analysis despite the significant increases in emissions associated with the proposal and their unacceptable impact on public health. Just to cite three of the well-documented harms from these emissions: particulate matter causes thousands of premature deaths; the World Health Organization has classified diesel exhaust as a group 1 carcinogen; and nitrogen oxides are a primary precursor of ozone.

Advocacy Office:
1331 Pennsylvania Avenue NW, Suite 1425 North
Washington, DC 20004-1710
Ph: 202-785-3355 F: 202-452-1805

Corporate Office:
55 West Wacker Drive, Suite 1150 | Chicago, IL 60601
Ph: 312-801-7630 F: 202-452-1805 info@Lung.org

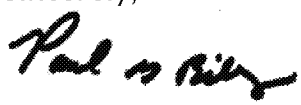
Providing further evidence of the health risks, EPA added an important analysis of glider truck emissions to the docket on November 22, 2017 that requires more time for review than is currently available. The analysis, "Chassis Dynamometer Testing of Two Recent Model Year Heavy-Duty On-Highway Diesel Glider Vehicles," indicates that glider trucks under transient testing conditions may emit up to 450 times more particulate matter as comparable 2014 and 2015 model year trucks.

Further, on November 22, 2017, EPA added a memorandum to the docket: "EPA Teleconference with Tennessee Tech University Regarding Glider Test Report Summarized in June 2017 Letter." The proposed repeal cites the analysis from Tennessee Technological University as justification for the proposal; however, the EPA memorandum raises many questions about the University's analysis, the test procedures followed and the results presented. The memorandum indicates that EPA will request additional information about "each of the test articles regarding engine and vehicle mileage and age" and "NOx emission levels associated with each test article." However, as of December 19, 2017, no additional information has been posted to the docket.

In light of the significant public health ramifications of the proposal, the new information added to the docket and the challenge of the brief comment period with the proposal publication in the November 16, 2017 Federal Register, we respectfully request that the comment period be extended until March 5, 2018 to permit all stakeholders to provide comments on this proposal.

Thank you for your consideration of this request.

Sincerely,



Paul G. Billings
Senior Vice President, Advocacy

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 12/20/2017 9:36:02 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: 3 reminders (given I likely won't see you for the rest of the day)
Attachments: DRAFT Response Letter Glider Repeal Comment Period_NESCAUM.DOCX

1. Trends – OTAQ looking for a decision on 1 vs. 2 documents

2. Touch base w/ Mandy re: Japan

3. Glider comment period extension – denial letter coming from OTAQ…hopefully in time for you to sign today before you leave. Draft attached

Office of the President

TENNESSEE TECH

February 19, 2018

Honorable Scott Pruitt
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N. W.
Mail Code: 1101A
Washington, DC 20460

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Mr. Pruitt:

Please be advised that regarding the "Environmental & Economic Study of Glider Kit Assemblers" report, knowledgeable experts within the University have questioned the methodology and accuracy of the report. Therefore, Tennessee Tech University is actively pursuing a peer review of the report and supporting data to assure its validity. The University also is investigating an allegation of research misconduct related to the study. We request that you withhold any use or reference to said study pending the conclusion of our internal investigations.

We sincerely regret any inconvenience this imposes, but our aim is to ensure the absolute integrity and objectivity of any scholarly product of Tennessee Tech. We anticipate a timely and thorough review following which we will inform you of the outcome. Thank you for your assistance and patience as we work through the concerns raised.

Sincerely,

Philip B. Oldham

PBO/ds

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

Office of the President

TENNESSEE TECH

February 19, 2018

Mr. Tommy C. Fitzgerald
Fitzgerald Glider Kits
575 Technology Dr.
Sparta, TN 38583

Reference: Tennessee Tech University – Summary of Heavy Duty Truck Study and Evaluation of the Phase II Heavy Duty Truck Rule

Mr. Fitzgerald:

Please be advised that regarding the "Environmental & Economic Study of Glider Kit Assemblers" report, knowledgeable experts within the University have questioned the methodology and accuracy of the report. Therefore, Tennessee Tech University is actively pursuing a peer review of the report and supporting data to assure its validity. The University also is investigating an allegation of research misconduct related to the study. We request that you withhold any use or reference to said study pending the conclusion of our internal investigations.

We sincerely regret any inconvenience this imposes, but our aim is to ensure the absolute integrity and objectivity of any scholarly product of Tennessee Tech. We anticipate a timely and thorough review following which we will inform you of the outcome. Thank you for your assistance and patience as we work through the concerns raised.

Sincerely,

Philip B. Oldham

PBO/ds

Tennessee Tech / Box 5007 Cookeville, TN 38505 / 931-372-3241 / F: 931-372-6332 / www.tntech.edu/president

MEMORANDUM

TO: Christy Killman, President TTU Faculty Senate
Melissa Geist, Faculty Representative, TTU Board of Trustees
Julia Gruber, President, AAUP

FROM: Darrell Hoy, Interim Dean, College of Engineering

DATE: 02/16/2018

SUBJECT: Request for Your Groups to Continue to Urge President Oldham to Publically Suspend TTU Support for the Results of the Fitzgerald Study and Letter to Congresswoman Dianne Black

---

On behalf of the College of Engineering, I would like to request your assistance, as elected representatives of the TTU faculty, to continue to urge President Oldham to immediately and publically suspend TTU support of the results of the Fitzgerald testing, and withdraw the letter sent to Congressman Dianne Black on June 15, 2017, which contained assertions based on the aforementioned testing. The suspension of this support and withdrawl of the letter would be temporary, pending the results of the internal and external investigation.

By not publically suspending the support for the Fitzgerald testing and the letter to Congressman Black, pending the results of the investigations, the University is effectively remaining in support of these studies by their non-response. This lack of a public response has, and is continuing to do significant damage to the reputation of this Institution and in particular, the College of Engineering.

I contend that the evidence placed into the public arena and public docket of the EPA by both Fitzgerald and TTU themselves, cast sufficient doubt that the burden of proof is now on President Oldham to show why the administration continues to lend its tacit support to the Fitzgerald testing and his letter to Dianne Black.

Furthermore, as clearly revealed in the questioning of Associate Vice-President Tom Brewer and Vice-President Bharat Soni during the Faculty Senate meeting on Jan 29, 2018 (minutes available on the faculty Senate website) that <u>no qualified, credentialed engineering faculty member</u> (1) oversaw the testing, (2) verified the data or calculations of the graduate student, (3) wrote or reviewed the final report submitted to Fitzgerald, or (4)

Tennessee Tech / Box 5041 / 1010 Peachtree Avenue / Cookeville, TN 38505 / 931-372-3172 / F: 931-372-6172 / tntech.edu

wrote or reviewed the letter submitted to Dianne Black with the farfetched, scientifically implausible claim, that remanufactured truck engines met or exceeded the performance of modern, pollution-controlled engines with regards to emissions.

Since no qualified, credentialed engineer was involved, the work performed is by definition not a scientific research study and therefore afforded the protections offered by TTU Policy 780 "Misconduct in Research". Furthermore, there is no policy that prevents the President from putting the University's support of this testing on hold, pending the results of an official investigation.

The damage already done and continuing to be done to the reputation of the University is significant, and as an institution, we cannot afford to wait weeks and months until these investigations are completed. The recent article on the front page of the New York Times (published on 15 February 2018) referred to the "engineering experts" on the Fitzgerald study. The study was, of course, not conducted by engineering experts at all, yet the damage to our College has already been done.

Since I did not start in my current position until August, 2017, after the Fitzgerald testing had been completed and the letter had been sent to Dianne Black, I first learned about this issue via a Nov. 10, 2017 article in the Washington Post. As more negative press and questions began arising in the national and local media, I became increasingly concerned as I learned more about the details of the testing and claims that had been made in the letter. On Dec. 22, 2018, in a cellphone conversation with President Oldham, I mentioned the fact that several faculty in the College had raised concerns in this regard. In a follow-up phone call the next day to his Chief of Staff, Lee Wray, I further emphasized that I did not believe that the University could defend this study. On Jan. 23, 2018, myself and Associate Dean Vahid Motevalli met with Lee Wray and Karen Lykins (Director of the Office of Communications & Marketing. During this meeting, we expressed our grave concerns about the Fitzgerald project, including the devastating five-page critique of the "flawed TTU study" that appeared in the public docket of the EPA by the Environmental Defense Fund (EPA-HQ-OAR-2014-0827) on January 5, 2018. I concluded the meeting by urging (almost begging) that the Administration immediately suspend support for the project, pending an internal investigation. In a follow-up meeting, with Chief of Staff Lee Wray on Jan. 26, 2018, he confirmed that he had delivered the message to the President, the President had considered my input, but that they also had other input supporting the study. On the following Monday, Jan. 29, 2018 the members of the Faculty Senate from the College of Engineering proposed a draft resolution to the Senate, which after modification, became the Faculty Senate Resolution that was approved by a vote of 33 to 1, and was sent to the President on Tuesday, Jan. 30, 2018. Item 2 in this Resolution stated: "Issue a letter, signed by the President, withdrawing all Tennessee Tech support from the study, pending the results of the aforementioned investigation". In his response, the President declined to issue such a letter, and based on his email yesterday, Feb. 15, 2018, addressed to "Faculty/Staff", he is maintaining that position.

I realize this memo and the facts that I have brought to light may be a "professional suicide" with regard to my position as Interim Dean. However, if that is what it takes to help force a more

active response from the University and stop the damage to the College, I do it willingly and without hesitation.

Tennessee Tech / Box 5041 / 1010 Peachtree Avenue / Cookeville, TN 38505 / 931-372-3172 / F: 931-372-6172 /
tntech.edu

Message

From: Vincent, Marc [Vincent.Marc@epa.gov]
Sent: 12/12/2018 6:09:00 PM
To: Gilbride, Patrick [Gilbride.Patrick@epa.gov]
CC: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dutton, Allison [Dutton.Allison@epa.gov]; Burch, Julia [Burch.Julia@epa.gov]; Goldman, Todd [Goldman.Todd@epa.gov]; Stolz, Luke [Stolz.Luke@epa.gov]; Hyde, Courtney [Hyde.Courtney@epa.gov]; Walters, Margaret [Walters.Margaret@epa.gov]; Marusiak, Eleanor [Marusiak.Eleanor@epa.gov]
Subject: RE: OIG Request - Glider Repeal Rule Significance Determination

Thanks for clarifying, Pat. We are working on it and will get you a response by Friday.

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Gilbride, Patrick
Sent: Wednesday, December 12, 2018 1:05 PM
To: Vincent, Marc <Vincent.Marc@epa.gov>
Cc: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Dutton, Allison <Dutton.Allison@epa.gov>; Burch, Julia <Burch.Julia@epa.gov>; Goldman, Todd <Goldman.Todd@epa.gov>; Stolz, Luke <Stolz.Luke@epa.gov>
Subject: OIG Request - Glider Repeal Rule Significance Determination

Hi Marc – Thanks for setting up the meeting today. As we all know, there were many different folks involved in the drafting and editing the glider repeal proposed rulemaking. We would prefer not to take up too much of everyone's time. What would be most useful, and save everyone's time, is if you could provide us with the name(s) of EPA employees that were directly involved in the decision to change the EO 12866 designation and EO 13045 wording in the NPRM. To be clear, what I am looking for is who at EPA made the decision to change the two sections of the draft NPRM below. If you could let me know that by Friday 12/14/18 that would be very helpful.

(1) Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is an economically significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review. Any changes made in response to OMB recommendations have been documented in the docket.

(8) Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not an economically significant regulatory action as defined by Executive Order 12866. However, Tthe Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits was anticipated to lower ambient concentrations of $PM_{2.5}$ and some of the benefits of reducing these pollutants may have accrued to children. Our evaluation of the environmental health or safety effects of these risks on children

Thanks Marc,
Pat

Patrick Gilbride
Director, Environmental Research Programs
U.S. EPA, Office of Inspector General
1595 Wynkoop St.
Denver, CO. 80202
303-312-6969

Message

From: Millett, John [Millett.John@epa.gov]
Sent: 1/25/2018 7:47:08 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: FW: SAE slides and TPs
Attachments: Bill Wehrum Event Form AA form.docx; TimetableFridayopening.docx; SAE TPs_1 25 2018 -- draft.docx; Wehrum SAE Meeting 2018.pptx

Hi Bill – slightly updated talkers for you for SAE tomorrow, plus slides, event form and run of show for tomorrow morning.

From: Millett, John
Sent: Thursday, January 25, 2018 2:45 PM
To: OAR Briefings <OAR_Briefings@epa.gov>
Subject: SAE slides and TPs

For Bill's SAE speech tomorrow. I'll send this electronically to him separately.

Thanks!

John

~~~~~~~~~~~~~~~~~~

John Millett
Director, OAR Communications
Desk: 202-564-2903
Cell: 202-510-1822
~~~~~~~~~~~~~~~~~~

Message

From: Millett, John [Millett.John@epa.gov]
Sent: 1/24/2018 8:56:40 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: RE: Auto Show Speeches
Attachments: DC Auto Show TPs_1 24 2018 -- draft.docx; Bill Wehrum Event Form AA.DOCX; Remarks for John O'Donnell Wehrum_Lunch Press Day V1.docx; Press Luncheon - Sked V1 1_25_18.docx

Thanks, Bill – here's an updated version – with some blanks filled in and some optional bullets on the Tier 3 standards for you to consider. There are a couple of points where you can add points from your background and overall approach to regulation.

Also attached as FYI are the event form, run of show and the John O'Donnell's introductory remarks (He's the President & CEO, WANADA & The Washington Auto Show). These will all be in your book.

From: Wehrum, Bill
Sent: Wednesday, January 24, 2018 3:50 PM
To: Millett, John <Millett.John@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>
Subject: Auto Show Speeches

John – I think your outline looks great.

Message

From: Cyran, Carissa [Cyran.Carissa@epa.gov]
Sent: 12/5/2017 11:23:13 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: E-Folder for Wednesday, December 6, 2017
Attachments: EPA Transformation Strategy at a Glance - 20170927 (002).pdf; ssp_factsheet-final-11-22_1.pdf; DRAFT HD NOx briefing for EPA leadership Dec 2017 Current Version.pptx; Climate PCC one pager for Bill Wehrum (120517).docx; Wehrum_EEI_12.6.17.pptx

Hi Bill,

Below is your calendar for Wednesday. Have a great evening!

Deliberative Process / Ex. 5

Message

From: Whiteman, Chad S. EOP/OMB EOP / Ex. 6
Sent: 2/28/2018 5:37:45 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Charmley, William [charmley.william@epa.gov]; Olechiw, Michael [olechiw.michael@epa.gov]; Bolon, Kevin [Bolon.Kevin@epa.gov]
CC: Achanta, Chandana L. EOP/OMB EOP / Ex. 6
Subject: Pre-Decisional Deliberative Draft: Feedback on CAFE Analysis Items
Attachments: CAFE NPRM Transmissions and Engines 02272018 Deliberative PreDecisional.xlsx; Electrification Technology Description 180228 Deliberative Pre-Decisional.xlsx; NHTSA-EPA-OIRA Items 180228 Deliberative Pre-Decisional.docx

All, DOT asked us to share this with you. Chad

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 12/19/2017 7:54:31 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Charmley, William [charmley.william@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Subject: RE: Urgent: States Request to Extend Public Comment Period on Glider Repeal

Chris,

Yes, if you all could do that, that would be great. Thanks.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Grundler, Christopher
Sent: Tuesday, December 19, 2017 2:12 PM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: RE: Urgent: States Request to Extend Public Comment Period on Glider Repeal

Thanks for the prompt reply. Would you like us to draft letter for Bill's sig?

From: Gunasekara, Mandy
Sent: Tuesday, December 19, 2017 2:02 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: RE: Urgent: States Request to Extend Public Comment Period on Glider Repeal

I discussed with Bill. We will deny the request. Thank you.

From: Grundler, Christopher
Sent: Tuesday, December 19, 2017 12:37 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: Urgent: States Request to Extend Public Comment Period on Glider Repeal

Bill,

Late last week EPA received the attached request from the Northeast States for Coordinated Air Use Management (NESCAUM) for a 30-day extension of the comment period on the glider vehicle repeal proposal. As of now, the comment period ends on January 5, 2018. OGC staff spoke with Erik Baptist

Deliberative Process / Ex. 5

Given that the comment period ends on January 5, it would be helpful for EPA to make a decision this week either way on the NESCAUM request. A denial of the request can be done with a letter, and granting the request for an extension requires a Federal Register Notice, which I believe you could sign.

Please let me know if you would like more information regarding this topic.

Chris

Message

From: Ford, Hayley [ford.hayley@epa.gov]
Sent: 11/17/2017 10:37:15 PM
To: Abboud, Michael [abboud.michael@epa.gov]; Baptist, Erik [baptist.erik@epa.gov]; Beck, Nancy [Beck.Nancy@epa.gov]; Bennett, Tate [Bennett.Tate@epa.gov]; Bodine, Susan [bodine.susan@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]; Bolen, Derrick [bolen.derrick@epa.gov]; Bowman, Liz [Bowman.Liz@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Burke, Marcella [burke.marcella@epa.gov]; Chmielewski, Kevin [chmielewski.kevin@epa.gov]; Cory, Preston (Katherine) [Cory.Preston@epa.gov]; Darwin, Henry [darwin.henry@epa.gov]; Darwin, Veronica [darwin.veronica@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Dourson, Michael [dourson.michael@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; Falvo, Nicholas [falvo.nicholas@epa.gov]; Feeley, Drew (Robert) [Feeley.Drew@epa.gov]; Ferguson, Lincoln [ferguson.lincoln@epa.gov]; Ford, Hayley [ford.hayley@epa.gov]; Forsgren, Lee [Forsgren.Lee@epa.gov]; Fotouhi, David [Fotouhi.David@epa.gov]; Frye, Tony (Robert) [frye.robert@epa.gov]; Gordon, Stephen [gordon.stephen@epa.gov]; Greaves, Holly [greaves.holly@epa.gov]; Greenwalt, Sarah [greenwalt.sarah@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Hewitt, James [hewitt.james@epa.gov]; Hupp, Millan [hupp.millan@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Kelly, Albert [kelly.albert@epa.gov]; Konkus, John [konkus.john@epa.gov]; Letendre, Daisy [letendre.daisy@epa.gov]; Lovell, Will (William) [lovell.william@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]; McMurray, Forrest [mcmurray.forrest@epa.gov]; Munoz, Charles [munoz.charles@epa.gov]; Palich, Christian [palich.christian@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]; Rodrick, Christian [rodrick.christian@epa.gov]; Sands, Jeffrey [sands.jeffrey@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Shimmin, Kaitlyn [shimmin.kaitlyn@epa.gov]; Traylor, Patrick [traylor.patrick@epa.gov]; Wagner, Kenneth [wagner.kenneth@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; White, Elizabeth [white.elizabeth@epa.gov]; Wilcox, Jahan [wilcox.jahan@epa.gov]; Yamada, Richard (Yujiro) [yamada.richard@epa.gov]
CC: Dickerson, Aaron [dickerson.aaron@epa.gov]; Woodward, Cheryl [Woodward.Cheryl@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]
Subject: Draft LxL / Weekly Report
Attachments: Final Weekly Report 11.17.2017.docx; November 20 - December 15 2017- Draft Line X Line.pdf

See attached for draft LxL and weekly report. Will update you this weekend on whether we have a brief COS meeting Monday morning.

Have a nice weekend!

Hayley Ford
Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: 202-306-1296

Message

From: Ford, Hayley [ford.hayley@epa.gov]
Sent: 12/1/2017 11:28:32 PM
To: Abboud, Michael [abboud.michael@epa.gov]; Baptist, Erik [baptist.erik@epa.gov]; Beck, Nancy [Beck.Nancy@epa.gov]; Bennett, Tate [Bennett.Tate@epa.gov]; Bodine, Susan [bodine.susan@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]; Bolen, Derrick [bolen.derrick@epa.gov]; Bowman, Liz [Bowman.Liz@epa.gov]; Brown, Byron [brown.byron@epa.gov]; Burke, Marcella [burke.marcella@epa.gov]; Chmielewski, Kevin [chmielewski.kevin@epa.gov]; Cory, Preston (Katherine) [Cory.Preston@epa.gov]; Daniell, Kelsi [daniell.kelsi@epa.gov]; Darwin, Henry [darwin.henry@epa.gov]; Darwin, Veronica [darwin.veronica@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Dourson, Michael [dourson.michael@epa.gov]; Dravis, Samantha [dravis.samantha@epa.gov]; Falvo, Nicholas [falvo.nicholas@epa.gov]; Feeley, Drew (Robert) [Feeley.Drew@epa.gov]; Ferguson, Lincoln [ferguson.lincoln@epa.gov]; Ford, Hayley [ford.hayley@epa.gov]; Forsgren, Lee [Forsgren.Lee@epa.gov]; Fotouhi, David [Fotouhi.David@epa.gov]; Frye, Tony (Robert) [frye.robert@epa.gov]; Gordon, Stephen [gordon.stephen@epa.gov]; Greaves, Holly [greaves.holly@epa.gov]; Greenwalt, Sarah [greenwalt.sarah@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hanson, Paige (Catherine) [hanson.catherine@epa.gov]; Harlow, David [harlow.david@epa.gov]; Hewitt, James [hewitt.james@epa.gov]; Hupp, Millan [hupp.millan@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Kelly, Albert [kelly.albert@epa.gov]; Konkus, John [konkus.john@epa.gov]; Kundinger, Kelly [kundinger.kelly@epa.gov]; Letendre, Daisy [letendre.daisy@epa.gov]; Lovell, Will (William) [lovell.william@epa.gov]; Lyons, Troy [lyons.troy@epa.gov]; McMurray, Forrest [mcmurray.forrest@epa.gov]; Munoz, Charles [munoz.charles@epa.gov]; Palich, Christian [palich.christian@epa.gov]; Ringel, Aaron [ringel.aaron@epa.gov]; Rodrick, Christian [rodrick.christian@epa.gov]; Sands, Jeffrey [sands.jeffrey@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]; Shimmin, Kaitlyn [shimmin.kaitlyn@epa.gov]; Traylor, Patrick [traylor.patrick@epa.gov]; Wagner, Kenneth [wagner.kenneth@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; White, Elizabeth [white.elizabeth@epa.gov]; Wilcox, Jahan [wilcox.jahan@epa.gov]; Yamada, Richard (Yujiro) [yamada.richard@epa.gov]
CC: Dickerson, Aaron [dickerson.aaron@epa.gov]; Woodward, Cheryl [Woodward.Cheryl@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]
Subject: Draft LxL / Weekly Report / No COS Meeting Monday
Attachments: Final Weekly Report 12.01.2017.docx; December 4-15 2017- Draft Line X Line.pdf

See attached for draft LxL for the next 2 weeks and weekly report. No COS meeting Monday.

Have a nice weekend!

Hayley Ford
Deputy White House Liaison and Personal Aide to the Administrator
Environmental Protection Agency
ford.hayley@epa.gov
Phone: 202-564-2022
Cell: 202-306-1296

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 11/17/2017 2:23:13 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; DeMocker, Jim [DeMocker.Jim@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Cyran, Carissa [Cyran.Carissa@epa.gov]; Millett, John [Millett.John@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]
Subject: OAR Weekly Report
Attachments: OAR Weekly Report.11172017.docx

OAR Weekly Report – November 17, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 11/17/2017 1:56:34 PM
To: Baptist, Erik [baptist.erik@epa.gov]; Harlow, David [harlow.david@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: RE: OTAQ Article on GHG Rules

Flag: Flag for follow up

Adding in Bill for awareness.

From: Baptist, Erik
Sent: Friday, November 17, 2017 8:48 AM
To: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: OTAQ Article on GHG Rules

Mandy and David:

Thought you would be interested in this article.

https://insideepa.com/daily-news/pruitt-freezing-out-otaq-expertise-epa-vehicle-ghg-rule-overhauls

Pruitt 'Freezing Out' OTAQ Expertise In EPA Vehicle GHG Rule Overhauls

November 16, 2017

EPA Administrator Scott Pruitt is "freezing out" technical input from his Office of Transportation & Air Quality (OTAQ) as the agency reopens Obama-era greenhouse rules for heavy-duty trucks and passenger cars, say sources who fear the agency's vast engineering expertise on emissions controls it has built up over decades could be marginalized.

"What you have is an administrator who is determined to repeal as much as possible," says one environmentalist, even if that means giving short shrift to public health considerations. "He doesn't trust that the staff is going to follow his direction and he is just avoiding them. What you end up with is proposals that have almost no technical analysis."

Most egregious so far, sources say, is a proposal published in the Nov. 16 *Federal Register* to repeal the portion of the 2016 heavy-duty GHG rule that applies to "glider" vehicles, which combine new truck bodies with rebuilt drivetrains, with virtually no new technical review. Critics cite the proposal's heavy emphasis on new legal claims that Congress did not intend for EPA to regulate gliders, adding it largely brushes aside concerns that the vehicles will boost pollution.

Similarly, the *Washington Post* reported about ongoing testing of gliders at the agency that had not been completed prior to release of the proposal, and which was thus unable to inform the agency's technical rationale for the repeal plan.

EPA is also expected to issue a proposal early next year to repeal the portion of the heavy-duty rule that applies to tractor trailers based on a legal interpretation advanced by trailer manufacturers that they do not make "motor vehicles" subject to Clean Air Act regulation. That would reverse Obama EPA conclusions -- supported by the National Academy of Sciences -- that a trailer is an integral component of a regulated motor vehicle.

Also, EPA is reopening a "mid-term review" of Obama-era rules for model year 2022-2025 light-duty vehicles, and it is widely expected to try to give automakers some relief from the current standards that were projected to significantly boost vehicle fuel economy.

OTAQ's role in the light-duty rule review is murky, with sources noting that if EPA wants to legally justify a weaker standard, it would have to develop a robust technical record for why the current standards -- which are backed by an Obama-era technical assessment report (TAR) that is not expected to be redone -- are not achievable.

EPA has sought comment on its plan to reopen the rule. The next steps are not clear, other than it has said it will issue a new determination by April 1 about whether the MY22-25 rules are "appropriate" under the air law. However, that deadline might slip, according to one informed source.

OTAQ's role in the mid-term review was already undercut by political staff who re-wrote the notice seeking public comment on the reopening. The *Center for Public Integrity* reported earlier this month that career EPA staff drafted a concise version of the notice, but political appointees expanded the number of vehicles affected and made the Department of Transportation (DOT) the lead agency in the Aug. 21 *Register* notice from both agencies.

"This was a much more major rewrite" than would have happened under previous administrations, an EPA employee told the publication. "At least one plausible outcome of this process," the employee said, "is that the EPA would unilaterally abdicate its [legal] responsibility" to DOT.

DOT and EPA, along with California, jointly developed the MY17-25 standards in 2012, and agreed to conduct a mid-term review by April 2018 to determine if the out-year requirements were still appropriate. DOT also must write rules for MY22-25 because its statute limits how far in advance it can craft standards.

NHTSA Schedule

Furthering concern about EPA's role is a new regulatory schedule from DOT's National Highway Traffic Safety Administration (NHTSA) that differs from EPA's. That agency planned to present a recommendation to Transportation Secretary Elaine Chao this month, and submit a draft proposal to the White House in December.

EPA did not respond to requests for comment about these concerns, though several sources outside the agency point to the recent Senate confirmation of air chief Bill Wehrum as a positive sign for strengthening OTAQ's role and relying more on the agency's longstanding emissions expertise rather than NHTSA, which is primarily a safety agency.

However, Dan Becker of the Safe Climate Campaign tells *Inside EPA* that it seems "the administration is freezing out the technical staff at EPA who have substantive knowledge of emissions standards, and they are relying on -- whether other people within the agency, or, I suspect, other people on K Street who work for the auto companies. . . . It is hard to see how they're going to make a rule that sticks if they don't include the substantive efforts."

A third environmentalist agrees that EPA's political efforts are risky, pointing to the glider proposal as a prime example of changing rules without a technical basis. "The agency will have a difficult time writing defensible rules if they are shutting out their well-informed technical staff. And any ignoring of their own staff suggests they don't have a real robust case against the rule."

As evidence of issues EPA must address with new technical analysis in that proposal, the Volvo Group in a statement to *Inside EPA* said it supports existing glider vehicle GHG rules, backing them as an "effort to curtail the rapidly growing practice of installing outdated emissions controls into what are otherwise new vehicles."

Becker says the agency has had just one substantive briefing on the light-duty rules in which three political officials met with OTAQ technical experts for one hour and only asked questions about timing of the mid-term review.

The technical experts are uneasy but are continuing to work on the issue because "they haven't been told not to," Becker says. However, there is no indication that their work will be used in any formal proposal or final decision on the MY22-25 standards.

'In A Pickle'

OTAQ Director Chris Grundler has sent mixed signals on his office's role as the Trump EPA focuses on deregulation, telling an annual automotive conference in early August in Michigan that there is a "golden opportunity" for the agency to work more cooperatively with industry, according to local press reports.

But other sources say he is indicating private concerns over his staff's diminished role, including at an off-the-record conference in California, Asilomar 2017: Transportation Innovation & Policy in a Fragmenting World, which took place later in August.

A California source says Grundler was in the audience at that event, adding that it clear that OTAQ staff is "very uneasy with what is going on. They've spent years and years building up the record, developing the rules, doing the technical research, and California was

part of that. And California said, 'We agree with the record, we think [the vehicle rules are] strong, we stand behind them and see no reason to make changes.' I'm sure OTAQ career staff has a similar sense."

This source notes that the White House recently reached out for the first time to California Air Resources Board chairwoman Mary Nichols to being negotiating over the rules. But it is unclear on how sincere those talks will be, given that NHTSA's draft rule is expected to soon go to the White House and that Nichols is in Germany for the annual United Nations climate conference.

The California source does not believe the light-duty rules will change much in the end, in part because of strong public support for them. "Maybe the White House or Pruitt feel like they have to do something . . . but at the end of the day it is hard to see anything major happening."

This source also suggests that automakers that originally sought to reopen the rules are now "in a pickle" because they only wanted small tweaks rather than a large rollback, particularly because they know the Golden State would not agree to such a move, resulting in separate standards for California and the rest of the country.

The White House is working behind the scenes to persuade automakers to oppose California, the source says, but adds that automakers are signaling to state officials that they do not intend to take that step.

The Alliance for Automobile Manufacturers did not respond to a request for comment.

The third environmentalist says the jury is still out on what happens with the light-duty rule. "The issue here is, we really don't know what's coming. . . . At this point it's really unclear how they would build a case that counters the existing case that the agency has already made, that the standards are not only appropriate but could be stronger."

Yet, one industry source says that because of the "NHTSA ascendancy" -- signaled by the new schedule and White House statements that the DOT agency should have a more prominent role -- it certainly appears that EPA is poised to cede its technical expertise. That could include the modeling it uses to evaluate the rules, a step automakers have sought.

Also, this source and a former EPA source both say Wehrum could change the outcome at OTAQ.

"Wehrum is just getting there and staff feel like he is someone they know and trust. He is more conservative than many would like, but he is someone who has worked with staff and respected them, who understands the institution and how to get decisions made," the industry source says. -- *Dawn Reeves* (dreeves@iwpnews.com) *& Doug Obey* (dobey@iwpnews.com)

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207033

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Office of General Counsel
U.S. Environmental Protection Agency
1200 Pennsyvlania Ave., NW
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Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 11/16/2017 6:48:05 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Cyran, Carissa [Cyran.Carissa@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: Fwd: OAR Weekly Report
Attachments: OAR Weekly Report.11162017.docx; ATT00001.htm

Bill,

Here's the final report for the week (exactly as you saw yesterday, with the SIP info updated). Options are for you to send tomorrow when back in the office or Betsy can send on your behalf today.

(This is technically due today but I personally don't see much difference between sending at 5 pm today vs 8 am tomorrow)

OAR Weekly Report – November 16, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Cyran, Carissa [Cyran.Carissa@epa.gov]
Sent: 12/1/2017 2:29:47 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; DeMocker, Jim [DeMocker.Jim@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Cyran, Carissa [Cyran.Carissa@epa.gov]; Millett, John [Millett.John@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Fonseca, Silvina [Fonseca.Silvina@epa.gov]
Subject: OAR Weekly Report
Attachments: OAR Weekly Report.11302017.docx

OAR Weekly Report – November 30, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 11/30/2017 10:58:11 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Heads Up; Glider Hearing

Thanks, Chris. I'll certainly be interested in the public reaction and look forward to your briefing. I've been perusing the docket on regulations.gov, out of curiosity to what early comments may have been filed, but, understandably, the pickings have been pretty slim so far.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Grundler, Christopher
Sent: Thursday, November 30, 2017 5:12 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: FW: Heads Up; Glider Hearing

+ David and Mandy

From: Grundler, Christopher
Sent: Thursday, November 30, 2017 5:12 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: Heads Up; Glider Hearing

Bill,

A quick reminder for you that this upcoming Monday, December 4, we are holding the public hearing for EPA's recent proposal to rescind the heavy-duty glider provisions. The hearing will be held here at EPA headquarters . Several of the OTAQ staff from D.C. and Ann Arbor will run the hearing. Kathryn Sargeant and Bill Charmley will be the presiding officers, and we will also have David Orlin and/or Mark Kataoka from OGC attending.

As of today there are 60 testifiers signed up, from a wide range of stakeholders: truck dealerships, rebuilders, truck OEMs, industry trade groups, state/local government agencies, public health NGOs, environmental NGOs,a number of private citizens, and one member of Congress (Rep. Jamie Raskin (D-MD))

Later in December, or after the close of the public comment period (January 5), we will give you a briefing on the rulemaking and the public comments.

Thanks,

C--

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 11/30/2017 12:07:19 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: fyi Monday not a good day for a tech mtg with NHTSA--it is day of Glider hearing

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 11/15/2017 5:48:55 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Cyran, Carissa [Cyran.Carissa@epa.gov]
Subject: For your review: draft OAR Weekly Report

Below is a draft of the report that goes to the 3rd floor every Thursday. Sarah would typically send around 5 pm, and it goes to a group that includes Ryan, Samantha, etc. (I'll get you the distribution list when we send you the final version tomorrow). Sending you a draft a day early in case you want to talk about the substance/lay out of it. And note the info in yellow will be updated tomorrow (Carissa works w/ the Regions to get the most updated SIP-related info. Ryan has asked that this info be included each week)

OAR Weekly Report – November 16, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 12/7/2018 2:52:48 PM
To: Harlow, David [harlow.david@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Following Request from Carper and Udall, EPA OIG Agrees to Broaden Investigation into Legally Questionable Loophole for High-Polluting Glider Trucks - Press Releases - United States Senator Tom Carper

https://www.carper.senate.gov/public/index.cfm/2018/12/following-request-from-carper-and-udall-epa-oig-agrees-to-broaden-investigation-into-legally-questionable-loophole-for-high-polluting-glider-trucks

Following Request from Carper and Udall, EPA OIG Agrees to Broaden Investigation into Legally Questionable Loophole for High-Polluting Glider Trucks

Dec 04 2018

WASHINGTON, D.C. – Today, Senators Tom Carper (D-Del.), top Democrat on the Environment and Public Works Committee (EPW) and Tom Udall (D-N.M.), ranking member on the Senate Appropriations Subcommittee on the Interior, Environment, and Related Agencies issued the following statement after the Environmental Protection Agency Office of the Inspector General (EPA OIG) agreed to expand the scope of its project regarding the repeal of emission requirements for glider vehicles, glider engines, and glider kits in response to the senators' request.

"We have reason to believe EPA's decision to exempt manufacturers of the dirtiest trucks on the road from the Clean Air Act's public health protections disregarded the health and economic effects and violated requirements of the rulemaking process," said the lawmakers. **"We have questions that we want answers to regarding industry's involvement and legal, procedural, and technical irregularities in the proposal. We're glad the Office of the Inspector General has agreed to get to the bottom of this and hope to receive its findings in a timely manner."**

Specifically, Senators Carper and Udall asked EPA OIG to broaden the current audit to include investigations into the discredited, industry-funded study former EPA Administrator

Pruitt used to support his decision to deregulate glider vehicles; the apparent decision to rush signature and publication of the likely illegal proposal without EPA having reviewed likely health effects associated with deregulating the rule; last minute changes to the proposed rule purposefully designed to avoid legally required health and economic analyses; and the promise Mr. Pruitt made on his last day to the glider industry that it would not be required to comply with current glider rules. Yesterday's announcement covered portions of the Senators' request.

A copy of the Senators request for an investigation can be found HERE.

In March, Senators Carper and Udall raised concerns over EPA's decision to repeal air emissions standards for high-polluting glider trucks.

###

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 1/19/2018 8:21:23 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: E-folder for Monday
Attachments: Discussion with Bill Wehrum on CAAAC_Jan18_rev.docx; Glider Reconsideration Briefing for Bill Wehrum, Part 1, Final.pptx; Amendments Discussion 011918.docx

Materials attached for:

(1) 4:45 CAAAC meeting

(2) Glider materials that OTAQ was planning to cover in "Gliders Part I" on Monday. We have cancelled that briefing and are looking to schedule a glider briefing the week of 1/29 for OTAQ to brief you on the comments.

Deliberative Process / Ex. 5

Margaret Walters just emailed meeting materials for the 3:10 OAR business meeting. As you'll see, there's a lot there. We'll print copies for Monday.

Finally, regarding Monday's schedule, there's the possibility of a meeting w/ Senator Carper Monday afternoon. If it happens, the most likely time is in the 4:30-5:30 range.

Wehrum, Bill Calendar
Wehrum.Bill@epa.gov
On Monday, January 22, 2018
Time zone: (UTC-05:00) Eastern Time (US & Canada)
(Adjusted for Daylight Saving Time)

January 2018

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	**22**	23	24	25	26	27
28	29	30	31			

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Millett, John [Millett.John@epa.gov]
Sent: 1/19/2018 6:23:09 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: FW: Draft auto speeches
Attachments: DC Auto Show TPs_1 19 2018 -- draft.docx

Hi Bill – here's a starting point on the auto speeches for next week. This draft is primarily geared for the auto show

Deliberative Process / Ex. 5

Thanks and have a great trip this weekend.

John

~~~~~~~~~~~~~~~~~~

John Millett
Director, OAR Communications
Desk: 202-564-2903
Cell: 202-510-1822

From: Millett, John
Sent: Friday, January 19, 2018 1:15 PM
To: OAR Briefings <OAR_Briefings@epa.gov>
Cc: Stevens, Katherine <stevens.katherine@epa.gov>
Subject: Draft auto speeches

Early draft with placeholders to be filled in next week for the auto show on Thurs and SAE on Fri.

Deliberative Process / Ex. 5

~~~~~~~~~~~~~~~~~~

John Millett
Director, OAR Communications
Desk: 202-564-2903
Cell: 202-510-1822

Message

From: Cyran, Carissa [Cyran.Carissa@epa.gov]
Sent: 12/15/2017 9:55:59 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Woods, Clinton [woods.clinton@epa.gov]
CC: Cyran, Carissa [Cyran.Carissa@epa.gov]; Clarke, Deirdre [clarke.deirdre@epa.gov]; Mcquilkin, Wendy [Mcquilkin.Wendy@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; South, Peter [South.Peter@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Millett, John [Millett.John@epa.gov]; Henigin, Mary [Henigin.Mary@epa.gov]; Rush, Alan [Rush.Alan@epa.gov]; Scoville, Pat [Scoville.Pat@epa.gov]; Lee, Raymond [Lee.Raymond@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Eagles, Tom [Eagles.Tom@epa.gov]; Sutton, Tia [sutton.tia@epa.gov]; Iglesias, Amber [Iglesias.Amber@epa.gov]; Cortelyou-Lee, Jan [Cortelyou-Lee.Jan@epa.gov]; Burch, Julia [Burch.Julia@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]; Morris, Joseph [Morris.Joseph@epa.gov]; Nazmi, Niloufar [Nazmi.Niloufar@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Lubetsky, Jonathan [Lubetsky.Jonathan@epa.gov]; Stevens, Katherine [stevens.katherine@epa.gov]; Welderufael, Miriam [welderufael.miriam@epa.gov]; Veal, Lee [Veal.Lee@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Kurpius, Meredith [Kurpius.Meredith@epa.gov]; Ashley, Jackie [Ashley.Jackie@epa.gov]; Perrin, Alan [Perrin.Alan@epa.gov]; Thundiyil, Karen [Thundiyil.Karen@epa.gov]; Wright, Rhonda [Wright.Rhonda@epa.gov]
Subject: OAR Regulatory Report and Weekly for December 15, 2017
Attachments: OAR WEEKLY Dec 15.docx; OAR Regulatory Report 12-14-2017.docx

Hello,

Attached are the latest versions of the OAR Regulatory Report that goes through March 1, 2018 and the OAR Weekly.

Thank you and have a great weekend.

Carissa

Carissa Cyran
Office of Air and Radiation
U.S. Environmental Protection Agency
Phone: (202) 564-5437

Message

From: David Schwietert [DSchwietert@autoalliance.org]
Sent: 10/27/2018 6:51:56 PM
To: Jackson, Ryan [jackson.ryan@epa.gov]; Wheeler, Andrew [wheeler.andrew@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Auto Alliance comments
Attachments: Auto Alliance Full Comment Set Oct 26 2018.pdf

Here's the Auto Alliance Comments – minus the 9 attachments that were also uploaded when we submitted the docs yesterday.

While this attachment amounts to 202 pages, the first 15 pages provide a useful summary.

This doesn't appear to have posted on-line yet via Regulations.gov but wanted to ensure you had our filing.

Happy to answer any questions in the coming days/weeks.

Thanks,

Dave

From: David Schwietert
Sent: Friday, October 26, 2018 4:57 PM
To: 'Jackson, Ryan' <jackson.ryan@epa.gov>; Andrew Wheeler (wheeler.andrew@epa.gov) <wheeler.andrew@epa.gov>; 'wehrum.william@epa.gov' <wehrum.william@epa.gov>; 'Gunasekara, Mandy' <Gunasekara.Mandy@epa.gov>
Subject: Auto Alliance comments

I wanted to ensure you had the following preview of the more expansive comments that will be submitted by the close of the comment period today.

I will also ensure you get the 15-page summary and the related comments once they are transmitted.

Dave

Automakers Call for CAFE/GHG Progress Reflecting Marketplace

The Auto Alliance will be submitting comments by the end of today (Friday, Oct. 26) to NHTSA and EPA on the Safer Affordable Fuel-efficient (SAFE) Vehicles Rule for MYs 2021-2026. Here is a preview of those comments, and the full executive summary will be available on Monday, Oct. 29:

"The Alliance has consistently and actively supported a single national program covering all 50 states that spurs continued improvements in fuel economy and greenhouse gas (GHG) emissions while recognizing marketplace realities such as consumer choice, fuel prices and technology costs.

"Automakers have invested substantially in technologies so consumers can visit dealerships and select from approximately 500 models that achieve 30 MPG or more (highway), including 45 hybrid-electric and over 50 plug-in electric and hydrogen fuel cell models.

"With respect to fuel economy and GHG emissions, automakers are committed to ongoing progress in a journey with no end date. That commitment has not wavered. At the same time, future government mileage and emission standards need to align with marketplace realities. The CAFE and GHG programs evaluate automakers based on a sales-weighted average of vehicles sold, not on models offered for sale.

"The Alliance appreciates NHTSA and EPA issuing a joint Proposed Rule that incorporates the latest data and will consider standards for MYs 2021 to 2026. Many of the projections and assumptions upon which MYs 2022-2025 standards were based have proven to be incorrect; the level of technology modeled by the agencies in 2012 is insufficient to meet the standards, and the actual level of technology that industry projects is needed to comply with the standards is misaligned with market realities. Data from the past few years have also disproven assumptions regarding the market share of cars and trucks, future gas price projections, and the adoption rate of alternative powertrain vehicles.

"The Alliance remains committed to supporting One National Program. This program was developed in cooperation by NHTSA, EPA, California and automakers, and was based on the shared recognition that harmonized standards that maintained the authorities of all agencies were the best path forward.

"The Alliance urges the federal government to set achievable future standards that continue to advance environmental and energy goals while recognizing marketplace realities, incentivizing innovative new technologies, harmonizing government programs, maintaining a strong auto manufacturing sector, and keeping new vehicles affordable so more Americans can replace older vehicles with newer models that are cleaner, safer, and more energy-efficient."

# # #

David Schwietert
Executive Vice President, Federal Government Relations & Public Policy
P: 202-326-5521 | dschwietert@autoalliance.org

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248-357-4717 | www.autoalliance.org

October 26, 2018

VIA Regulations.gov http://www.regulations.gov
Docket ID Nos. NHTSA-2018-0067; EPA-HQ-OAR-2018-0283

Christopher Lieske
Office of Transportation and Air Quality
Assessment and Standards Division
Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, MI 48105
Phone: (734) 214-4584
Fax: (734) 214-4816
Email: lieske.christopher@epa.gov

James Tamm
Office of Rulemaking
Fuel Economy Division
National Highway Traffic Safety
Administration
1200 New Jersey Avenue, SE
Washington, DC 20590
Phone: (202) 493-0515

Re: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks

Dear Mr. Lieske and Mr. Tamm:

Thank you for the opportunity to comment on the U.S. Environmental Protection Agency's ("EPA") and National Highway Traffic Safety Administration's ("NHTSA") (collectively, "the Agencies") August 24, 2018 notice of proposed rulemaking for the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks ("Proposed Rule").[1] I write on behalf of the Alliance of Automobile Manufacturers ("Alliance"), a trade association of automobile manufacturers representing approximately seventy percent of all new car and light truck sales in the United States.[2]

In accordance with 49 C.F.R. § 553.21, the Alliance is submitting this 15-page letter as an overview of our comments on the Proposed Rule; analysis and additional materials are being submitted in a series of appendices and attachments. The Alliance requests that the Agencies provide stakeholders with an opportunity to supplement any comments after October 26, 2018 in order to provide any newly available information or materials, and to respond to significant new data or analysis from other stakeholders.

In 2012, NHTSA and EPA, in collaboration with the California Air Resources Board ("CARB"), extended One National Program ("ONP") to regulate light-duty vehicle greenhouse gas ("GHG") emissions and light-duty vehicle Corporate Average Fuel Economy ("CAFE") through model year ("MY") 2025.[3] At that time, it was apparent that in setting standards with such a long lead time,

[1] 83 Fed. Reg. 42,986 (August 24, 2018).
[2] For more information, please visit https://autoalliance.org/.
[3] 77 Fed. Reg. 62,624 (October 15, 2012).

circumstances could change in the future and that standards in the later years of the program might need to be adjusted—upward or downward. As such, a critical component of the ONP extension was the obligation to implement a Mid-Term Evaluation ("MTE") in order to evaluate whether the 2012 assumptions remained valid.[4] Similarly, NHTSA was limited to setting final CAFE standards only for MYs 2017–2021, and accordingly provided augural standards for later years.[5] There is no question that circumstances have changed since 2012, and that many of the assumptions made at that time no longer remain valid. EPA and NHTSA declared that these changes warranted the development of new standards. The Alliance appreciates the Agencies' work to satisfy their regulatory obligations and their willingness to revisit previous assumptions with new, more relevant data.

Last year, Americans purchased over 17 million new light-duty vehicles in the United States. As providers of vehicles to the American driving public, the Alliance knows that customers want it all—autos that are safe, reliable, energy-efficient, clean, smart, and affordable. It is our job to try to meet their needs. Automakers have invested substantially in technologies; consumers in 2018 can choose from approximately 500 models that achieve 30 miles per gallon ("MPG") or more (highway), including 45 hybrid-electric and over 50 plug-in electric and hydrogen fuel cell models, according to www.fueleconomy.gov.

With respect to fuel economy and GHG emissions, automakers are committed to ongoing progress. That commitment has not wavered. At the same time, future government mileage and emission standards need to align with marketplace realities. The CAFE and GHG programs evaluate automakers based on a sales-weighted average of vehicles sold, not on models offered.

Today, there is a large and widening gap between the marketplace decisions made by our millions of customers and the current CAFE and GHG standards. The Alliance urges the federal government to set achievable future standards that continue to advance environmental and energy goals while recognizing marketplace realities, incentivizing innovative new technologies, harmonizing government programs, maintaining a strong auto manufacturing sector, and keeping new vehicles affordable so more Americans can replace older vehicles with newer models that are cleaner, safer, and more energy-efficient.

The Alliance has consistently and actively supported a single national program covering all fifty states that spurs continued improvements in fuel economy and GHG emissions while recognizing marketplace realities such as consumer choice, fuel prices, and technology costs.

I. Appropriate Fuel Economy and Greenhouse Gas Standards Are Needed

The Alliance appreciates NHTSA and EPA issuing a joint Proposed Rule that incorporates the latest data and considers standards for MYs 2021 to 2026. The chief executive officers and leaders of 18 auto companies sent an industry letter to President Trump in February 2017 requesting that

[4] *See* 40 C.F.R. § 86.1818-12(h).

[5] 77 Fed. Reg. 62,623, 62,627 (Oct. 15, 2012) ("The second phase of the CAFE program, from MYs 2022–2025, includes standards that are not final due to the statutory provision that NHTSA shall issue regulations prescribing average fuel economy standards for at least 1 but not more than 5 model years at a time").

a data-driven process be reinstated; this Proposed Rule is another step in maintaining a durable single national program.

As shown by the Alliance in its October 5, 2017 comments[6] on EPA's proposal to reconsider the EPA's Final Determination,[7] the GHG emission standards previously established for MYs 2022–2025 by EPA are not appropriate under Section 202(a) of the Clean Air Act and its implementing regulations.[8] Many of the projections and assumptions upon which those standards were based have proven to be incorrect; the level of technology modeled by the Agencies in 2012 is insufficient to meet the standards, and the actual level of technology that industry projects is needed to comply with the standards is misaligned with market realities. Data from the past few years have also disproven assumptions regarding the market share of cars and trucks, future gas price projections, and the adoption rate of alternative powertrain vehicles. For these reasons, the MY 2021–2025 GHG standards set by EPA and CAFE standards set by NHTSA merit reconsideration. The Agencies should ground this reconsideration on the knowledge gained from the last seven years of actual market and industry performance, and apply updated data that reflect the industry and market realities that we see today. The Alliance appreciates the Agencies' updated analysis as shown in this rulemaking, which uses more recent data and projections. Continuing to reference past targets and expired assumptions in this reconsideration would undermine the purpose of the MTE and risk compromising the achievability of a new path forward.

The Alliance thanks the Agencies for their consideration of the projected fleet performance leading up to MY 2021 as a part of determining the appropriate revision of the standards. For the first few years of ONP, many manufacturers were generally able to out-perform the fleet average fuel economy and GHG standards, enabling them to generate credits. Since MY 2016, however, the auto industry as a whole has not been able to meet the standards without using previously generated credits, despite the fact that the industry has deployed many of the fuel-efficient technologies envisioned by the Agencies. This reliance on credit usage, which is predicted to grow in the near future, is not sustainable over the long term. To be clear, fleet fuel economy and GHG performance continues to improve, but not at the aggressive rate forecasted by the Agencies in 2012. The MTE was agreed to by all stakeholders in order to assess this very issue: marketplace challenges that work against desired fuel economy and GHG emission goals. Market challenges that were not foreseen by the Agencies at the time of their rulemaking in 2012 have since made it difficult for automakers to achieve the required GHG and fuel consumption reductions. Real-time compliance information now available through MY 2016 from both EPA and NHTSA, and from a parallel annual study commissioned by the Alliance and the Association of Global Automakers through MY 2018, illustrates the trajectory of GHG and fuel economy improvement relative to the trajectory of the standards.[9] This data supports the prediction that manufacturers as a whole will be unable to meet the MY 2020 standards without using previously generated credits. Those shortfalls increase despite record use of flexibilities above and beyond the levels originally

[6] Alliance Comments on the Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards (Oct. 5, 2017), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2015-0827-9194.
[7] 82 Fed. Reg. 14,671 (Mar. 22, 2017).
[8] 42 U.S.C. § 7521(a); 40 C.F.R. § 86.1818-12(h).
[9] NOVATION ANALYTICS, MODEL YEARS 2012 TO 2018 BASELINE STUDIES 58, 61 (Oct. 8, 2018 vers. 1.1).

projected by the Agencies.[10] Additionally, according to IHS Markit, compliance challenges will persist into the near future and in MY 2020, the auto industry as a whole will under-perform against projected GHG and CAFE standards by 21 grams per mile ("g/mi") and 1.5 MPG, respectively.[11]

As Figure 1.1 indicates, while fleet CAFE and GHG performance continue to improve, the U.S. fleet was unable to meet CAFE and GHG targets in MYs 2016 to 2018 after over-complying from MYs 2012 to 2015. This shortfall is not restricted to a few manufacturers, either. Over 80% of automakers, with a combined market share of 86% of vehicles sold, were not able to meet the car and/or truck GHG targets in MY 2016 and had to use banked or purchased credits.[12] Ten manufacturers did not meet the CAFE standards for one or more of their compliance fleets for the majority of MYs 2012 to 2016.[13] The inability of the industry as a whole to meet CAFE and GHG targets in recent years has led to the consumption of previously earned credits at an alarming rate.

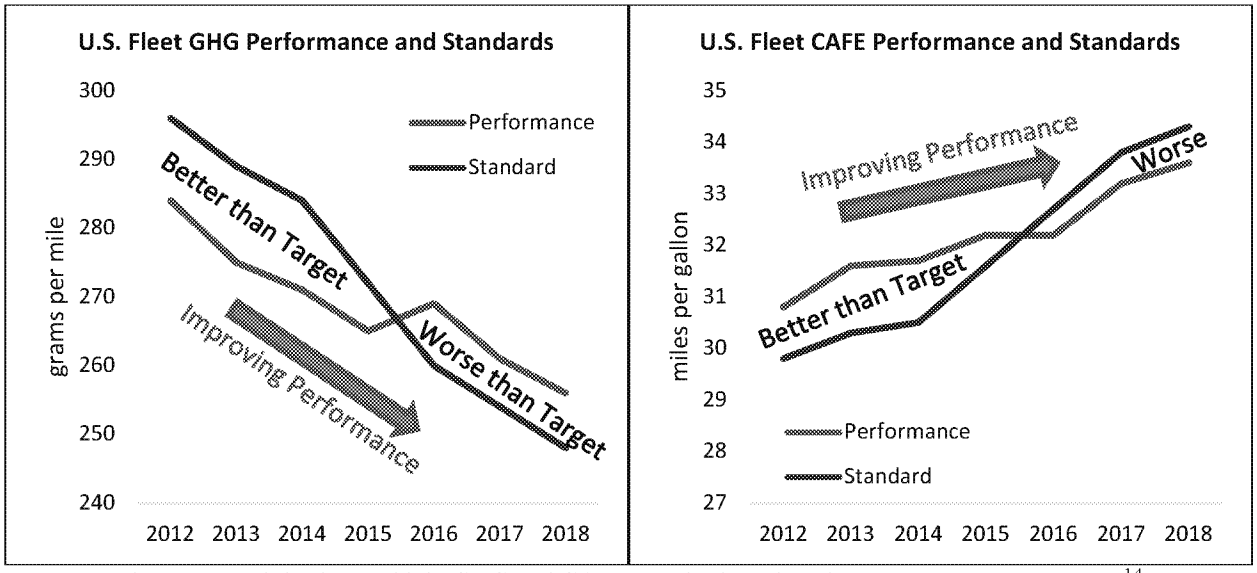

Figure 1.1: Light-duty vehicle GHG and CAFE standards and performance, MYs 2012–2018.[14]

The current and projected shortfalls not only suggest that the fleet is expected to be out of credits by MY 2021, but also indicate that industry will need to accelerate fuel economy improvements well beyond even recent improvement rates in order to meet the Alternatives in the Proposed Rule and to repay any debits from under-compliance. In sum, the fleet will be significantly below the

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[10] *Id.* at 68–69.

[11] IHS MARKIT, VEHICLE PERFORMANCE & COMPLIANCE MONITOR (VPAC) (Sept. 2018), https://ihsmarkit.com/products/automotive-vpac.html.

[12] U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA-420-R-18-002, GREENHOUSE GAS EMISSIONS STANDARDS FOR LIGHT-DUTY VEHICLES: MANUFACTURER PERFORMANCE REPORT FOR THE 2016 MODEL YEAR 68, 82 (Jan. 2018), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100TGIA.pdf.

[13] *CAFE Public Information Center*, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, https://one.nhtsa.gov/cafe_pic/cafe_pic_home.htm (Manufacturer Performance, Model Years 2012-2016).

[14] MANUFACTURER PERFORMANCE REPORT FOR THE 2016 MODEL YEAR, *supra* note 12 (GHG, Model Years 2012-2016); NOVATION ANALYTICS, *supra* note 9 (CAFE and GHG, Model Years 2017-2018); *CAFE Public Information Center*, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, https://one.nhtsa.gov/cafe_pic/cafe_pic_home.htm (CAFE, Model Years 2012-2016). Note: Change in GHG performance between MY 2015 and MY 2016 attributable to elimination of flexible fuel vehicle credits.

projected standards set in the 2012 CAFE and GHG rulemaking and will be required to make significant improvements regardless of the standards ultimately finalized in this rulemaking.

Though manufacturers have made substantial investments in research and development and are aggressively deploying a range of technologies, the average annual increase in CAFE performance has not kept pace with the increased stringency requirements. While technologies are on sale that could raise fuel economy improvement rates more rapidly, consumers are not buying them in large volumes. Therefore, continuing the recent rate of fuel economy increase seen from 2012 to 2018 presents a challenge. As shown in Figure 1.2, the recent rate of fuel economy improvements, when projected beyond MY 2018, shows a significant gap to most of the alternatives in the proposal. Even higher average annual rates of improvement than suggested by the standards themselves would be required to catch up, in order to avoid and/or repay debits associated with under-compliance after credits expire or run out. Furthermore, the Alliance finds that even greater rates of improvement are required for the GHG standards, as explained further in the attached detailed technical comments.

In addition to the possible complete industry depletion of early credits by MY 2021 in both the GHG and CAFE programs, future compliance with the proposed alternatives is challenged by several factors. These factors include, but are not limited to: consumer preference of attributes other than fuel economy; consumer willingness to pay for fuel-saving technology; rising interest rates; the effects of lower gas prices on consumer decisions; the loss of federal tax incentives for plug-in electric and fuel cell electric vehicles as manufacturers reach sales limits; the diminishing returns of fuel economy-improving technology (the less fuel that is used, the less there is left to save); the need to account for the significant decrease of the flex-fuel incentives; and the failure of the Agencies to recognize the increase of renewable fuel in gasoline. All of the above challenges are in addition to the issues addressed in these and prior Alliance comments.

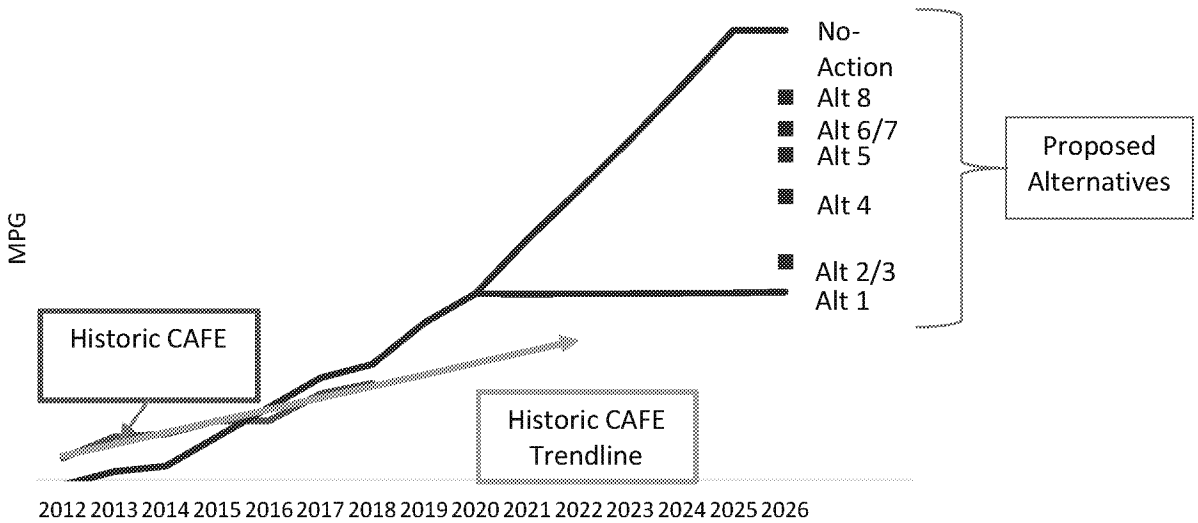

Figure 1.2: CAFE compliance performance improvements necessary to meet projected target values in MY 2026 (MY 2025 for the no-action alternative) starting from MY 2020.[15]

In summary, the Alliance finds that the most current data supports our view that the CAFE and GHG standards originally developed for MYs 2021 to 2025 need to be adjusted to reflect market realities. Further, we continue to support standards requiring appropriate annual fleet average improvements in GHG emissions and fuel economy through the 2026 timeframe covering all 50 states.

II. Maintain One National Program

The Alliance remains committed to supporting One National Program. Our members have consistently cited having One National Program as being the most efficient means of achieving federal and state environmental and energy goals, while simultaneously providing manufacturers with a durable program that will secure future investment and expand consumer choice in cleaner, more efficient vehicles.

ONP was developed in cooperation by NHTSA, EPA, California, and automakers, and was based on the shared recognition that harmonized standards that maintained the authorities of all agencies were the best path forward. The factors that made ONP the preferred solution in 2012 remain relevant today. There are many reasons to continue the ONP framework, including: 1) the efficiencies inherent in allowing manufacturers to comply with a harmonized set of nationwide CAFE and GHG standards; 2) avoidance of the prospect of bifurcated state and federal standards; and 3) avoidance of litigation over federal preemption of state standards. The dissolution of ONP, and the prospect of subsequent litigation between the federal government and California, would create a great deal of regulatory uncertainty for manufacturers regarding MYs 2021 to 2026.

[15] Does not account for additional stringency challenge associated with the removal of credit mechanisms in alternatives 3 and 7.

ONP enables automakers to make predictable investments in a nationwide fleet by providing better certainty and outcomes with respect to consumer choice, costs, and vehicle availability. Without a single national program, manufacturers may elect to change their vehicle availability in certain areas, or may even produce and track two different fleets: one for California and the Clean Air Act Section 177 States (roughly 35% of the U.S. market), and one for the markets under the federal standard. Managing two separate fleets, with one particularly focused on zero emission vehicles ("ZEVs"), would likely mean that manufacturers would have to change their investment and development plans to address sales in two different markets. Not only would this spread capital investment more thinly across two fleets and possibly delay development and deployment of new technologies, it would also decrease the sales volumes through which investments could be recouped.

In addition to allowing manufacturers to make predictable investments, a 50-state program could secure more GHG and fuel use reductions than would be achieved if there were to be a split between the federal and California standards. California and those states adopting California's GHG and ZEV programs may see greater national GHG reductions than under a bifurcated program by taking part in the current federal rulemaking process and pursuing common ground on nationwide fuel economy and GHG standards.[16]

The Alliance is focused on obtaining a feasible and practicable set of GHG and fuel economy standards in a final rule while maintaining One National Program. If ONP dissolves, the federal government may decide to follow through with regulatory actions to preempt GHG-related state standards, as proposed. While NHTSA and EPA have grounds for determining that state GHG standards and ZEV regulations are preempted by the Energy Policy and Conservation Act and the Clean Air Act, respectively, based on today's market realities, the Alliance strongly believes that it is in the interests of all stakeholders to develop workable standards and come together in support of a renewed ONP as part of a final rule.

The automotive industry is optimistic that continued dialogue and information-sharing can enable all stakeholders to find the common ground to continue a single national program with revised standards that reflect market realities and avoid costly uncertainty. The Alliance pledges to continue to work with all stakeholders to develop a set of ONP standards and regulations that can be supported by EPA, NHTSA, CARB, Section 177 States, and industry.

III. Important Criteria for a New Single National Program

When considering the incentives for EPA, NHTSA, and California to develop a single national standard, along with the changes in the marketplace, three years of fleet performance below the standards, the projected depletion and expiration of all early over-performance credits, and the expected widening gap between the standard and fleet performance through MY 2020, the Alliance believes all the following elements are critical for a new and superior alternative are in this Proposed Rule:

[16] The benefits of a higher-stringency California standard nested within a lower stringency federal standard are not the weighted average of the two standards. Instead they would likely approach the federal standard level. *See* Lawrence H. Goulder et al., *Unintended Consequences from Nested State and Federal Regulations: The Case of the Pavley Greenhouse-Gas-Per-Mile Limits*, 63 J. ENVT'L ECON. & MGMT. 187 (2012).

- Substantive adjustments to footprint-based standards for MYs 2021 to 2025 to support continued improvements from actual performance levels while eliminating the increasing compliance gap and its credit deficit implications;
- Revisions to the standards for passenger cars and light-duty trucks that do not create disparate impacts between the fleets—the truck increase rate should be no greater than the car rate of increase and should be the "equivalent task" per fleet;
- Extension and significant expansion of plug-in hybrid electric and battery electric vehicle multipliers in both the CAFE and GHG programs to encourage a transition to these technologies while cost, range, and infrastructure challenges are addressed;
- Support for One National Program; this could mean increasing the EPA GHG-to-NHTSA MPG footprint curve offset to account for all differences that cannot be harmonized between the two programs;
- Expanded flexibilities to counteract the uncertain uptake of the more advanced electrified technologies;
- Continued recognition of the benefits from reduced refrigerant leakage and low global warming potential refrigerant in the GHG program; and
- Permanent removal of the requirement for auto manufacturers to account for upstream electric utility emissions.

A final rule containing all the elements above will better meet all parties' needs than would a final rule supported by only the federal government, which could result in a bifurcated system and/or years of uncertainty from litigation. This new set of standards would preferably build upon historical performance gains and continue stringency increases at an achievable rate supported by updated market and industry data. We envision that a workable set of standards could incorporate continued increases in stringency, falling somewhere between the overall improvement rates of Alternative 8 and Alternative 1, along with the inclusion of appropriate flexibilities.

The final rule should ensure that auto manufacturers do not have to account for upstream emissions produced during electricity generation for electric vehicles. Upstream utility emissions come from power plants, not vehicle tailpipes. Manufacturers have no control over the feedstock used by those power plants and should not be held responsible for their upstream electricity emissions.

Another element that should be addressed in this rule is the revision of the domestic minimum backstop standard using new data. The EPA GHG program is not burdened by this CAFE program statutory constraint, so updating this standard with recent data would improve the harmonization between the two programs. Congress intended for this backstop standard to be set at 92% of the passenger car CAFE standard level, but shifting markets have invalidated previous assumptions.

The Agencies should also modify their approach to vehicle classification or otherwise address the shift in consumer demand to utility vehicles classified as passenger cars. This shift to vehicles with greater road loads, while maintaining the same footprint, creates compliance challenges that were not accounted for when the current footprint-based curves were developed.

Finally, in order to accommodate California's and the Section 177 States' concerns, and to capture all the GHG emissions related to vehicles, it may be necessary to have EPA and NHTSA programs

that are closely aligned but not identical. These differences could include accounting for air conditioning leakage, the treatment of advanced technology vehicles, the ability to compensate for excess CH_4 and N_2O emissions with CO_2, and credit trading inconsistencies. The tailpipe stringency, modeling, model inputs, and maximum feasibility of the GHG and CAFE programs would only differ in the above dimensions if necessary. This is to say that the GHG program elements such as air conditioning leakage, CH_4 and N_2O emissions, and credit trading provisions could be "layered" on top of the CAFE standards, modeled as scenarios in the CAFE modeling, or post-processed using the CAFE model outputs.

IV. Supporting Analyses for the Proposed Rule and Alternatives

A. Use of the Volpe and Autonomie Models

The Alliance applauds the Agencies' use of the Volpe model (also known as the CAFE model) and the Autonomie model to develop revised standards. The Alliance has long stressed the importance of close coordination between NHTSA and EPA and their regulatory programs. The use of a single set of models and inputs is a critical, common-sense step in the effort to reduce duplicative work, which is supported by both the Paperwork Reduction Act and Executive Order 13781. The Volpe and Autonomie models are more transparent and better account for real-world factors than do the available alternatives. Important features of the NHTSA modeling process include:

- The addition of consumer willingness to pay for fuel economy technologies;
- The addition of price effects on sales and fleet turnover;
- Year-by-year analysis and output of compliance pathways for the fleet and for individual manufacturers;
- The acknowledgement and application of real-world limitations on technology application including a limit on the number of engine displacements available to any one manufacturer, application of shared platforms, engines, and transmissions, and the reality that improvements and redesigns of components are not only extended across vehicles but sometimes constrained in implementation opportunity to common vehicle redesign cycles;
- Recognition of the need for manufacturers to follow "technology" pathways that retain capital and implementation expertise, such as specializing in one type of engine or transmission instead of following an unconstrained optimization that would cause manufacturers to leap to unrelated technologies and show overly optimistic costs and benefits;
- The application of specific instead of generic technology descriptions that allow for the above-mentioned real-world constraints;
- The need to accommodate for intellectual property rights in that not all technologies will be available to all manufacturers;
- The ability to run the Volpe and Autonomie models using the supplied documentation without direct agency help or the operation of extra undocumented processes;
- The ability to operate and modify the Volpe model in order to verify NHTSA results and test new ideas;
- The inherent robustness of Autonomie given its over-20-year history of commercial and government use and development;

- The ability of Autonomie to model hybrid vehicles; and
- Improved consideration for maintaining customer-oriented vehicle performance parameters such as acceleration and gradeability.

The Alliance provides further, more specific comments on the Volpe and Autonomie models in the appendices.

B. The Costs and Benefits of the Proposal and Alternatives

The Alliance requested that NERA Economic Consulting and Trinity Consultants perform a separate econometric study to analyze the effects of CAFE and GHG standards for MYs 2021 to 2026. The econometric study assessed the impacts of three of the CAFE standard alternatives from the Proposed Rule (1, 5, and 8) on new vehicle sales, vehicle scrappage, and vehicle miles traveled from 2017 to 2050. At the time the econometric study was designed, it was unclear whether the Agencies would account for price effects in their modeling; because the Agencies did account for price effects in vehicle sales, scrappage, and miles traveled, the econometric study now serves as an independent directional verification of net benefits described in the Proposed Rule.

The econometric study reinforces that all three of the alternatives examined offer positive net benefits when compared to the no-action alternative standards, even if safety benefits are excluded. This is true for all scenarios modeled, including 3% and 7% discount rates, and with national and global social costs of carbon.

The Alliance recommends that the Agencies review the NERA econometric study's methodologies for adoption or to refine their own models. The Alliance appreciates the Agencies' diligence in incorporating the critical factor of price effects into standard-setting. Price effects reflect a portion of the consumer acceptance factor, and reveal the impacts of fleet turnover effects; failing to account for price effects can result in less effective and more expensive standards.

C. Safety Impacts

The Alliance supports the consideration of factors impacting fleet turnover and new vehicle demand in establishing maximum feasible fuel economy and GHG standards. As a general rule, new vehicles are safer, more efficient, and cleaner than the older designs they replace. Maintaining consumer affordability is key to ensuring newer vehicles continue to replace older vehicles in a continuous cycle of fleet turnover so that the promised benefits of this rule are realized. The Alliance also believes, as elaborated in the Appendices, that the use of a 20% rebound rate from fuel economy improvements is appropriate.

The Alliance agrees that safety is one of several elements that NHTSA must consider in setting fuel economy standards. When setting "maximum feasible" fuel economy standards, the Secretary is required to "consider technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy."[17] NHTSA interprets these statutory factors to include environmental and safety

[17] 49 U.S.C. § 32902(a), (f).

concerns.[18] The Alliance also understands that if NHTSA were to reweigh these factors or refine the modeled price effects based on comments to this Proposed Rule, the projected safety benefits could affect NHTSA's determination of the maximum feasible standards in the final rule.

V. Flexibilities Are an Important Compliance Tool

Flexibilities are an important compliance tool for automakers, and the Alliance finds that the current level of EPA and NHTSA flexibilities should be maintained and, in fact, built upon. Flexibilities can help accomplish optimal outcomes, incentivize desired behavior, address issues not well-handled by the base standards, and enable manufacturers to cope with year-to-year variables and vehicle redesign schedules. Flexibility mechanisms are also a very important part of maintaining ONP because they incentivize the very solutions needed to meet longer-term California GHG reduction goals, such as advanced technology vehicles.

Flexibilities among the CAFE and GHG programs should be harmonized to the degree possible. Without comparable flexibilities in each, there will be a continued need to have an offset between the CAFE and GHG footprint curves. To this end, the Alliance's 2016 harmonization petition is attached for reference.

Importantly, when considering the potential benefits of new and existing flexibilities, the Agencies should not merely tally up the maximum benefit of all the flexibilities and assume manufacturers could obtain the maximum credit sum even if they so desired. Because added technologies are not free, have their own costs and benefits, and require implementation, manufacturers are likely to compare them to technology improvements that already have a recognized benefit on the CAFE/GHG tests. In addition to competing with "efficiency gains," some of the flexibilities cannot be implemented at the same time on the same vehicles and will require separate Agency approval. For all of these reasons, the Agencies should not allow unfounded concerns with the scope of all the potential flexibilities to restrict the availability of any single flexibility.

A. The Final Rule Should Maintain and Refine Flexibilities

The Alliance supports the extension and expansion of advanced technology multipliers in the GHG program and their extension to the CAFE program. The Alliance supports an electric vehicle multiplier of up to 4.5x; supporting technical comments are in the appendices.

New and improved flexibilities should include expanding the full-size hybrid pick-up incentive to all light-duty trucks, and creating a hybrid car credit in both the GHG and CAFE programs. The Alliance supports a 20 g/mi credit for light-duty trucks and 10 g/mi credit for passenger cars. Hybrid technologies remain an important lever for reducing GHG emissions and improving fuel economy for all vehicles, even though hybridization remains an expensive technology to implement on all types of vehicles, especially when applied to utility vehicles with their greater loads.

[18] *See, e.g.*, *Competitive Enterprise Inst. v. NHTSA*, 956 F.2d 321, 322 (D.C. Cir. 1992) (citing *Competitive Enterprise Inst. v. NHTSA*, 901 F.2d 107, 120 n.11 (D.C. Cir. 1990)); 73 Fed. Reg. 24,352, 24,364 (May 2, 2008).

The Alliance supports continuation of the full air conditioning refrigerant leakage credits under the GHG standards. We also support all the current air conditioning efficiency flexibilities and the proposal to shift all thermal control technologies under the air conditioning efficiency cap. The air conditioning efficiency cap should also be increased according to data provided by the Department of Energy's National Renewable Energy Laboratory, and to account for the addition of thermal control technologies.

The Alliance supports all off-cycle credits in both the NHTSA and EPA programs. The Proposed Rule asked for comment on the off-cycle menu credit cap options of no cap, a 10% cap based on fleet stringency, or a 15 g/mi cap. The Alliance strongly believes that the off-cycle credit menu cap should be removed since the menu values were already conservative estimations of real-world emissions reductions.

The Alliance also identifies a list of additional new technologies with benefits that are not captured in laboratory testing that can be added to the air conditioning efficiency and off-cycle credit menus for use by all vehicle manufacturers. These additional technologies are a testament to the success of the air conditioning and off-cycle credit programs in fostering innovation that further reduces fuel consumption and emissions. Expanding the credits will reward these investments and provide positive signals to the market.

Finally, the Agencies should provide a credit pathway for connected and autonomous vehicles, as well as for crash avoidance and other safety technologies. These technologies, though not conventionally thought of as relating to fuel economy and GHG, in fact help reduce fuel consumption and GHG emissions. Securing America's Future Energy estimates that connected and autonomous technologies such as crash avoidance, by reducing accidents and congestion, could reduce fuel consumption and emissions by up to 25% across the entire fleet while saving 9,000 lives annually.[19] The Agencies should incentivize the adoption of these technologies and provide for possibly additional credit once the benefits beyond the credit values have been confirmed. To enable many of these credit pathways, EPA must amend its regulations[20] to allow GHG credits for technologies that are adopted primarily for safety purposes to give any fuel-saving technology the credit it deserves. Clearly, the encouragement of autonomous, connected, and safety technologies is a win for both the environment and for safety.

B. Improvements to the Credit Application Process

The Alliance also sees a need for the Agencies to fix problems with the process in petitioning for and obtaining the existing flexibilities; an improved process would lead to faster review and better consistency in approval criteria. To ensure fairness and send the proper signals to suppliers and manufacturers, for credits earned through the off-cycle alternative methodology pathway, manufacturers should be allowed to use common data from applications that have already been approved. Such common data would include ambient conditions, general consumer behavior data, and general operating and performance data of similar or the same off-cycle technologies. The Alliance also asks that EPA quickly approve credits for technologies from the menu using simple

[19] Memorandum from Securing America's Future Energy, Fuel Economy Off Cycle Program, Flexibilities and Estimated Fuel Savings (May 14, 2018).
[20] 40 C.F.R. § 86.1866-12(b).

definitions used in the regulations and to not require additional qualification. Finally, the Alliance is appreciative of EPA's correction of the "5 minus 2" credit pathway and the current advanced technology multiplier equations.

VI. Programmatic Changes

A. Methane and Nitrous Oxide

The Alliance supports EPA's proposal to discontinue accounting for methane and nitrous oxide emissions as part of the carbon dioxide emissions standards because this would provide better harmony between the two compliance programs. Not only is emission of these two substances from vehicles a relatively minor contribution to GHG emissions, the Alliance has continuing concern regarding measurement and testing technologies for nitrous oxide.

If the EPA decides instead to continue to regulate methane and nitrous oxide, the Alliance recommends that EPA re-assess whether the levels of the standards remain appropriate and to retain the current compliance flexibilities. Furthermore, in this scenario, the Alliance also recommends that methane and nitrous oxide standards be assessed as a fleet average and as the average of FTP and HFET test cycles.

B. Credit Trading and Accounting

The Alliance recommends that NHTSA should not further restrict the ability to trade CAFE credits, as credits are a critical part of manufacturers' compliance strategies. The trading structure should be retained, but the Alliance strongly suggests that NHTSA should not adopt the proposed credit transaction information reporting requirements, particularly because it would potentially reveal confidential business information and confuse more than inform. These issues are further explained the following appendices. When one asks to improve the transparency of an issue, it is often so that transactions can be compared. CAFE credit trading is complicated, and trying to make comparisons—especially when the compensation is not financial in nature, as NHTSA notes—would be fraught with problems. When credits are traded between fleets, the magnitude of actual credit is dependent upon the performance and credit amount of the fleet from which it originated, and that amount is ultimately converted to a different credit amount that is dependent upon the performance and gap of the fleet into which it is traded. Further complicating this is the time aspect, where credits can be carried forward five years and back three years—a total time window of eight years. Documenting the financial aspect of these transactions, knowing the credit value translation issue and the time difference, would not usefully inform interested parties.

The Alliance does not discuss credit compensation, as credit transactions are private negotiations between manufacturers or any other party that choses to buy and sell credits. Our members have acknowledged that these transactions are privately negotiated and that manufacturers may choose to integrate transacted credits into highly confidential compliance plans. Additionally, compensation in transactions can potentially include technology information, which is considered confidential business information and cannot be publicly released. Just like any other business decision, protecting the sensitive information of each party is necessary to ensure the

competitiveness of manufacturers and fair treatment for all parties. The Alliance supports protecting the privacy of our members' competitive business practices.

Separately, EPA should allow unlimited carry-over of GHG credits without restriction as to how and when GHG credits are used. Automakers have earned these credits and should have the ability to use them in the way that best fits their compliance strategies.

VII. Relevance of International Fuel Economy and GHG Standards

The Alliance recognizes efforts by nations all over the world to establish regulations to control GHG and reduce fuel consumption in their fleets. These efforts are important to deliver on environmental and energy security goals established by those nations. Each of these regulations reflect conditions unique to those markets, such as available taxes and subsidies; technology incentives and mandates; availability, quality, affordability, and price of fuel choices; health of the economy; driving conditions and utilities needed; and consumer preferences, among many others. For example, because fuel prices in Europe are nearly triple those of the United States, examining consumer choices between these two markets may not be helpful. There are many regulatory differences as well, including the prioritization of fuel economy reductions and GHG emissions over criteria emissions; drive cycles and testing procedures; and even varied definitions of "light-duty vehicles." It may be helpful to examine these programs for lessons learned, but the Alliance finds that encouraging the U.S. standards to remain consistent with other countries' standards for the sake of competitiveness is irrational and fails to account for the particularities of the U.S. auto market and, most importantly, the consumer.

VIII. Conclusion

In conclusion, the Alliance believes that revisions to the MY 2021–2025 standards are necessary and warranted, and we support a final rule that enables the One National Program approach to continue. Maintaining, extending, and expanding flexibilities is likely to be an important component to meeting these goals. We offer the following appendices in support and in addition to the comments provided above.

- Appendix I - ADDITIONAL MODELING OF NET BENEFITS OF THE PROPOSED RULE AND OTHER ALTERNATIVES
- Appendix II - CONSIDERATIONS FOR SETTING LIGHT-DUTY VEHICLE CAFE AND GHG STANDARDS
- Appendix III - PREFERRED STRUCTURE OF STANDARDS
- Appendix IV - CONSUMER ACCEPTANCE
- Appendix V - FLEXIBILITIES AND TECHNOLOGY INCENTIVES
- Appendix VI - VEHICLE CLASSIFICATION
- Appendix VII - CAFE REPORTING ISSUES
- Appendix VIII - MODELING SYSTEM USED IN THE PROPOSED RULE
- Appendix IX - HIGH – OCTANE FUEL BLENDS
- Appendix X - REGARDING INTERNATIONAL STANDARDS
- Appendix XI - LEGAL ISSUES
- Appendix XII - MISCELLANEOUS REGULATORY DRAFTING ISSUES

Thank you for your time and consideration. The Alliance remains committed to working with all stakeholders, and would be happy to discuss these issues with you and answer any questions you may have. I may be contacted at 248-281-0070 or cnevers@autoalliance.org.

Yours truly,

Chris Nevers
Vice President, Energy & Environment

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LIST OF ACRONYMS

ALA	American Lung Association
BEV	Battery Electric Vehicle
CAFE	Corporate Average Fuel Economy
CH_4	Methane
CS	Crankcase Suction
CY	Calendar Year
DMS	Domestic Minimum Standard
EPA	Environmental Protection Agency
FCIV	Fuel Consumption Improvement Value
GHG	Greenhouse Gas
GVWR	Gross Vehicle Weight Rating
HEV	Hybrid Electric Vehicle
ICCT	International Council on Clean Transportation
MAC	Mobile Air Conditioning
MPG	Miles Per Gallon
MTE	Mid-Term Evaluation
MY	Model Year
N_2O	Nitrous Oxide
NHTSA	National Highway Traffic Safety Administration
NRDC	Natural Resources Defense Council
NVES	New Vehicle Experience Study (Strategic Vision)
NVMM	New Vehicle Market Model
PHEV	Plug-In Hybrid Electric Vehicle
SCC	Social Cost of Carbon
SUV	Sport Utility Vehicle
VMT	Vehicle Miles Traveled
ZEV	Zero Emission Vehicle

APPENDIX 1 ADDITIONAL MODELING OF NET BENEFITS OF THE PROPOSED RULE AND OTHER ALTERNATIVES

1.1. Evaluation of Alternative Passenger Car and Light-Duty Truck Corporate Average Fuel Economy (CAFE) Standards for Model Years 2021-2026

Prior to the Proposed Rule, the Agencies' did not explicitly model new vehicle sales and fleet scrappage effects associated with CAFE and GHG standards. Therefore, in advance of the release of the Proposed Rule, the Alliance requested that NERA Economic Consulting ("NERA") and Trinity Consultants ("Trinity") prepare such models and perform an analysis of the net benefits of various regulatory alternatives.[1] The resulting NERA-Trinity Assessment estimates the market impacts and resulting social costs and benefits of three of the CAFE standard alternatives presented in the Proposed Rule (Alternatives 1, 5, and 8).[2]

While the NERA-Trinity Assessment's models differ in structure from those presented by the Agencies in the Proposed Rule, they reach similar conclusions. For each of the alternatives studied in the NERA-Trinity Assessment, positive net benefits were calculated relative to the no-action (i.e. current GHG and augural CAFE) standards alternative. Thus, the NERA-Trinity Assessment serves as an independent verification of this aspect of the Agencies' assessment.

The Alliance commends the Agencies for incorporating an assessment of new vehicle sales and fleet turnover impacts of changing vehicle attributes in its modeling of the effects of potential CAFE and GHG standards. Such modeling reveals insights into the potential impacts of various regulatory alternatives, better informing the Agencies' decision-making process.

We encourage the Agencies' to review the results of the NERA-Trinity Assessment and its underlying models' structure and data sources.

1.1.1. *Modeling Approach*

The complete modeling framework structure is shown in Figure 1.1 below. Trinity used the Department of Transportation's CAFE Compliance and Effects Model (a.k.a. "Volpe Model" or "CAFE Model") to estimate changes in fuel economy and vehicle price. The outputs from this model inform NERA's New Vehicle Market Model ("NVMM") and scrappage models that in turn inform NERA's Fleet Population and VMT Models. These resulting fleet and fuel economy information is then applied to the MOVES and GREET models to derive emission impacts. NERA then calculates net benefits from the various inputs and outputs in the modeling.

[1] NERA ECONOMIC CONSULTING AND TRINITY CONSULTANTS, EVALUATION OF ALTERNATIVE PASSENGER CAR AND LIGHT-DUTY TRUCK CORPORATE AVERAGE FUEL ECONOMY (CAFE) STANDARDS FOR MODEL YEARS 2021-2026 (Oct. 2018) (hereinafter "NERA-TRINITY ASSESSMENT"). Available as Attachment 1 to these comments.

[2] The choice of scenarios for the NERA-Trinity Assessment should not be construed as support for any particular alternative or range of alternatives.

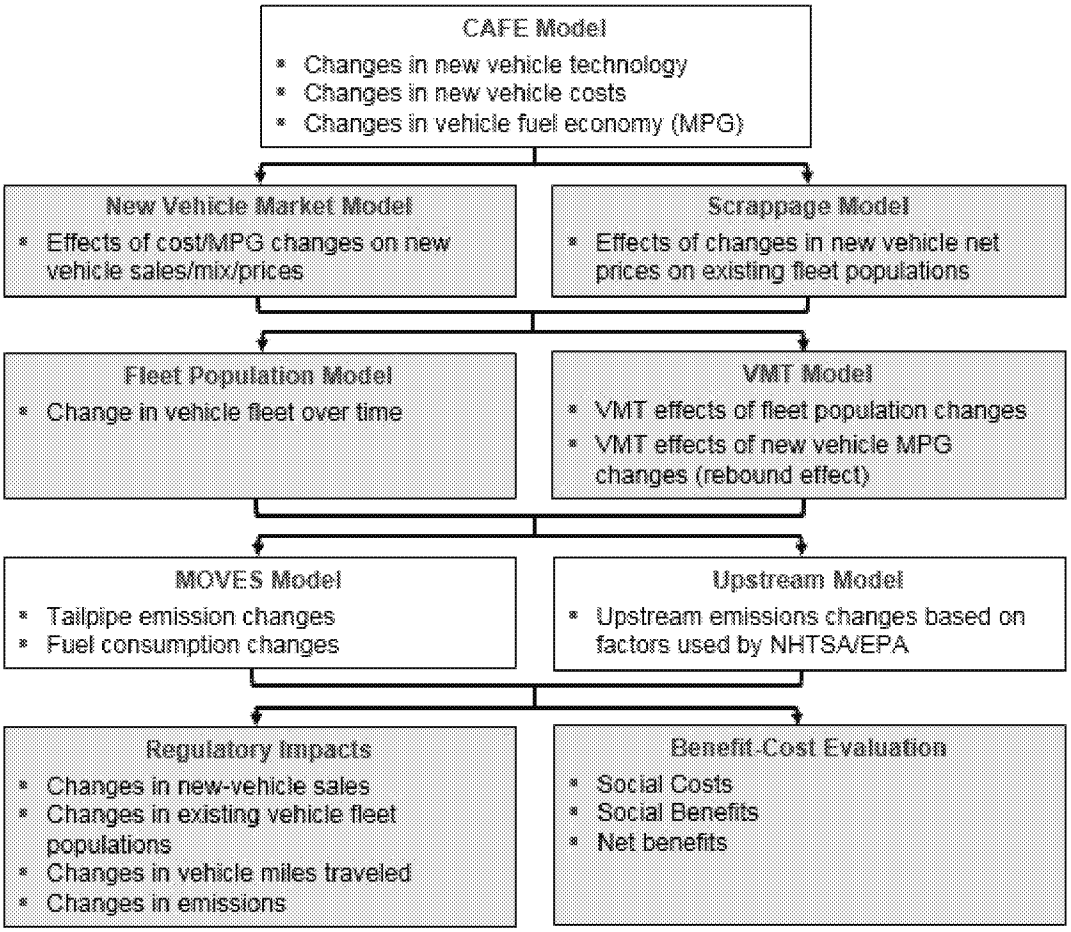

Figure 1.1: NERA-Trinity Assessment model structure.[3]

In the Proposed Rule, the Agencies specifically request comment on the appropriate breadth, depth, and complexity of a consumer choice model,[4] and on methodologies which could appropriately account for the relationships between price increases, fuel economy, and new vehicle sales, and how to appropriately integrate sales and scrappage models into their modeling.[5] NERA-Trinity Assessment's NVMM and scrappage models are responsive to this question. The NVMM estimates new vehicle sales impacts using a nested logit model, a model structure that is been used extensively by economists for motor vehicle markets.[6] NERA finds that their "New Vehicle Market Model" is "an improvement over estimates of the value of fuel economy and new vehicle choice based upon assumed payback periods and other ad hoc approaches."[7] The NERA-Trinity Assessment's scrappage model is based on a conceptual framework established by previous

[3] NERA-TRINITY ASSESSMENT at 10.
[4] 83 Fed. Reg. 42,986, 43,077 (Aug. 24, 2018).
[5] 83 Fed. Reg. at 43,075.
[6] NERA-TRINITY ASSESSMENT at 5.
[7] NERA-TRINITY ASSESSMENT at 5.

researchers and "updated statistical model[ing] relating used-vehicle scrappage rates to new vehicle prices."[8]

The Agencies also requested comments on various questions they have related to incorporating consumer acceptance (e.g. valuation of fuel savings, willingness to pay, trade-offs, etc.) into their modeling.[9] As mentioned above, consumer acceptance was determined using a nested logit structure that predicts future sales based on historic data. Nested logit structures are able to model complex factors such as consumer valuation of fuel savings, considerations of buyers in their purchase decisions (e.g. ownership costs, trade-offs), based on past consumer trends. We encourage the Agencies to refer to the methods and assumptions used by NERA.

1.1.2. *Summary of Results*

1.1.2.1. Market Impacts

The NERA-Trinity Assessment found that under all three alternatives studied, new vehicle sales increased relative to the augural standards, due to increased affordability even after reductions in value related to lower fuel economy (Figure 1.2).

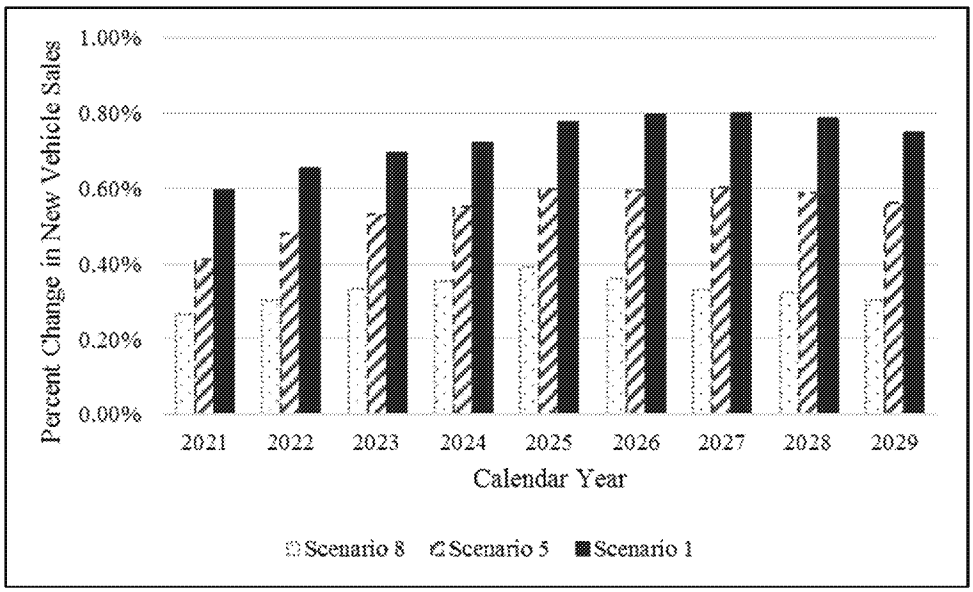

Figure 1.2: Differences in new vehicle sales compared to no-action alternative, MY 2021–2029.[10]

Additionally, the econometric study found that all three alternatives result in a reduction in older vehicles in the in-use fleet (Figure 1.3). For the 2030 CY, NERA found that the pre-2021 MY in-use fleet reduced in size relative to the augural standards, while the post-2021 MY fleet increased in size relative to the augural standards. This is due to affordability. Under the three alternatives studied, more customers are projected to choose to scrap their old vehicles and to replace them with newer vehicles.

[8] NERA-TRINITY ASSESSMENT at 6.
[9] 83 Fed. Reg. at 43,074.
[10] NERA-TRINITY ASSESSMENT at S-5.

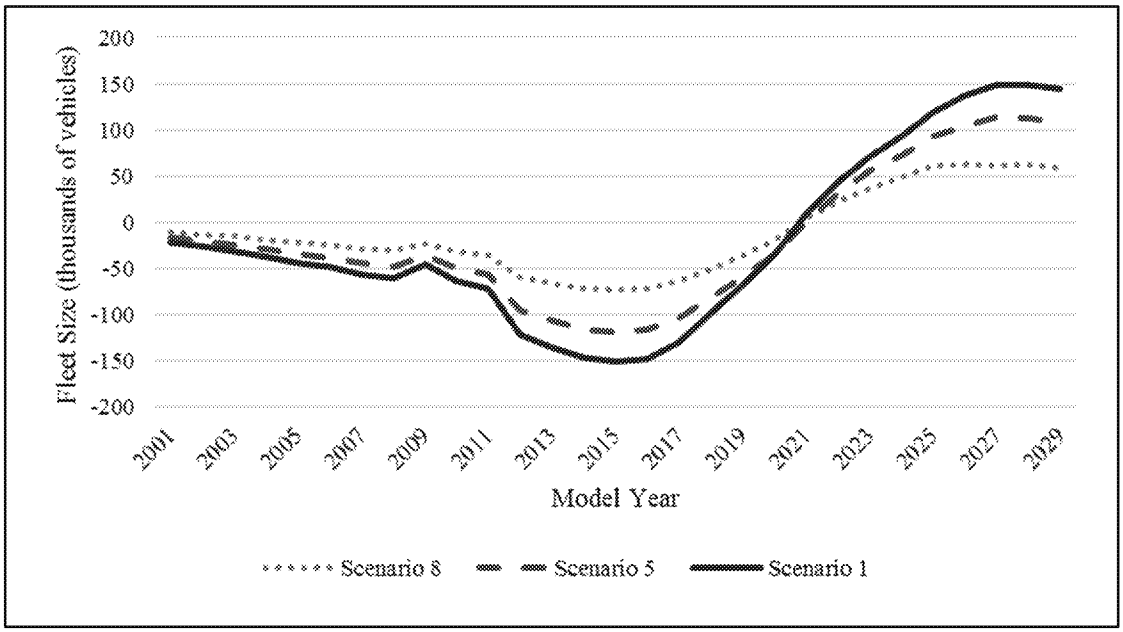

Figure 1.3: Differences in fleet effects compared to no-action alternative by model year, for calendar year 2030.[11]

Under all three scenarios, vehicle miles traveled ("VMT") decreases relative to the augural standards (Figure 1.4). This is due primarily to rebound effects. Because NERA was only examining vehicles through MY 2029, the difference in VMT between the alternatives and the augural standards decreases over time, due to the fact that fewer of the MY 2029 and earlier vehicles are on the road in those later years.

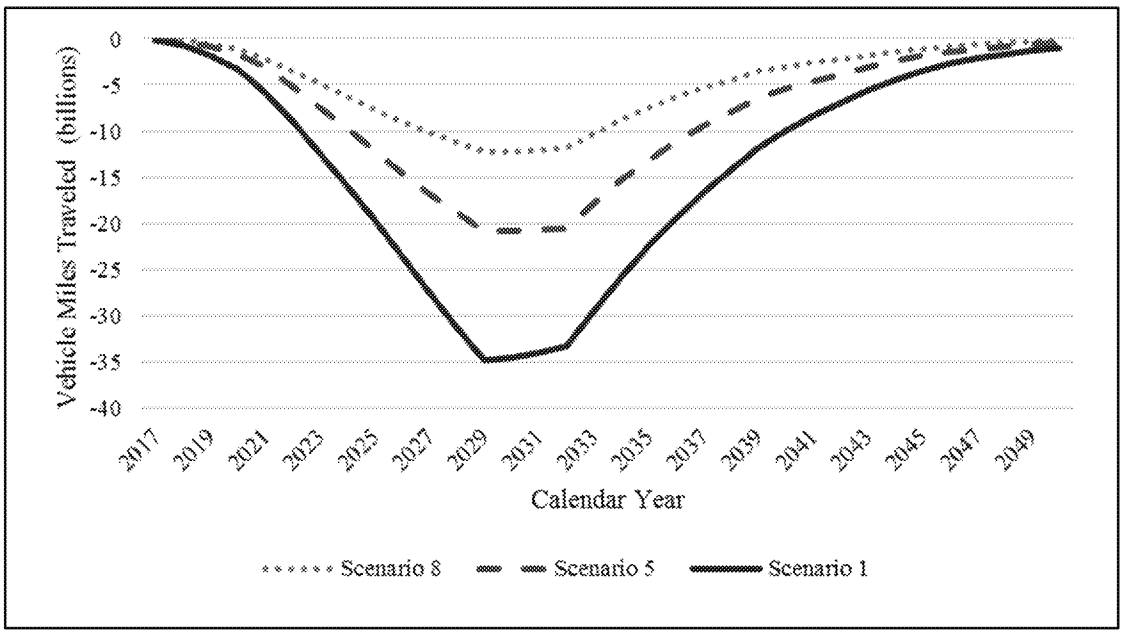

Figure 1.4: Differences in VMT Effects compared to no-action alternative by calendar year.[12]

[11] NERA-TRINITY ASSESSMENT at S-6.
[12] NERA-TRINITY ASSESSMENT at S-7.

1.1.2.2. Social Costs and Benefits

Using the modeling framework described above, NERA and Trinity ultimately developed estimates of the social costs and social benefits of the three alternatives studied. The Agencies generally requested comment on their social cost and benefit analysis. We encourage the Agencies to review the modeling and inputs used in the NERA-Trinity Assessment for potential refinements to their own analysis. While the NERA-Trinity Assessment's modeling approaches differed from the Agencies' in certain respects, the same conclusion can be drawn from both: there are positive net benefits expected under all of the scenarios studied relative to the no-action alternative, and Alternative 1 (the agency-proposed) provides the greatest net benefit. Figure 1.5 summarizes the net benefits results of the NERA-Trinity Assessment.

Table ES-1. Net Benefits Relative to Augural Baseline, Billions of 2016$, 3% Discount Rate

	Scenario 8	Scenario 5	Scenario 1
Social Costs			
Technology Costs	-68.8	-113.9	-170.7
Congestion Costs	-6.3	-10.6	-17.9
Noise Costs	-0.1	-0.2	-0.3
Fatal Crash Costs	-1.1	-1.3	-1.0
Non-Fatal Crash Costs	-1.5	-1.7	-1.3
Total Social Costs	**-77.7**	**-127.7**	**-191.2**
Social Benefits			
Valuation of Fuel Economy Benefits	-28.0	-49.0	-87.2
Fuel Tax Revenue Benefits	4.3	7.4	13.2
Petroleum Market Externality Benefits	-1.3	-2.2	-3.9
GHG Damage Reduction Benefits	-1.6	-2.9	-7.1
NO_X Damage Reduction Benefits	0.0	0.1	0.0
VOC Damage Reduction Benefits	0.0	-0.1	-0.1
PM Damage Reduction Benefits	-0.4	-0.8	-1.7
SO_2 Damage Reduction Benefits	-2.0	-3.4	-6.1
Total Social Benefits	**-29.0**	**-50.9**	**-93.0**
Net Total Benefits	**48.7**	**76.8**	**98.2**

Note: Present values calculated as of January 1, 2017 using a 3 percent discount rate for costs/benefits incurred over the 2017-2050 analysis period. All values are in billions of 2016 dollars, rounded to the nearest $0.1 billion. Damage reduction values for GHG include effects from CO_2 as well as other GHG pollutants, which have been converted to $CO_{2eq.}$

Source: NERA/Trinity calculations as explained in text.

Figure 1.5: Net benefits relative to the no-action alternative, billions of 2016 dollars, 3% discount rate.[13]

[13] NERA-TRINITY ASSESSMENT at S-12.

1.1.3. *Conclusions and Recommendations*

As stated above, we commend the Agencies for their consideration of consumer acceptance in their latest modeling. The NERA-Trinity Assessment confirms the Agencies' findings that Alternatives 1, 5, and 8 result in increased net benefits relative to the no-action alternative augural CAFE standards. We recommend that the Agencies review the NERA-Trinity Assessment to see if any elements of the econometric model could be used to refine the Agencies' modeling further. At a minimum, we encourage the Agencies to rely on the econometric study as a third-party verification of the net benefits of standard adjustments.

1.2. Analysis of the Sensitivity of the Agencies' Net Benefits Analysis to Alternative Fuel Price Projections

The Alliance requested that NERA review the Agencies' fuel price estimates and the sensitivity of the Agencies' net benefits analysis to various fuel price assumptions. The methodology and results for this analysis are documented in NERA's memo, "Retail Gasoline Prices and Implications for NHTSA/EPA's Evaluation of the Net Benefits of Alternative MY 2020-2026 Fuel Economy Standards for Light-Duty Vehicles,"[14] (hereinafter "NERA Fuel Price Memo").

The NERA Fuel Price Memo finds that the Agencies' net benefits analysis is robust to wide range of fuel price estimates (including those from sources other than the Energy Information Administration). In all cases studied the calculated net benefits remain positive for alternatives which consider a lower stringency than the baseline no-action alternative.

The full NERA Fuel Price Memo is available as Attachment 1 to these comments.

1.3. Analysis of the Sensitivity of the Agencies' Net Benefits Analysis to Alternative Social Cost of Carbon Projects

The Alliance requested that NERA review the Agencies' social costs of carbon ("SCC") estimates to determine the sensitivity of the Agencies' net benefits analysis to a broad range of alternative valuations ($1 to $174 per metric ton). NERA provides the results of their analysis in a memo, "Alternative Social Cost of Carbon (SCC) Values and Implications for NHTSA/EPA's Evaluation in the PRIA of the Net Benefits of Alternative MY 2020-2026 Fuel Economy Standards for Light-Duty Vehicles," (hereinafter "NERA SCC Memo").[15]

Most importantly, the NERA SCC Memo finds that, "Estimates of the net benefits of alternative CAFE standards provided in the PRIA would not change sign using this range of SCC values."[16] In other words, the analysis results in positive net benefits even throughout the entire range of SCC values considered by NERA.

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[14] Memorandum from NERA Economic Consulting to the Alliance of Automobile Manufacturers, Retail Gasoline Prices and Implications for NHTSA/EPA's Evaluation of the Net Benefits of Alternative MY 2020-2026 Fuel Economy Standards for Light-Duty Vehicles (Oct. 25, 2018). Available as Attachment 2 to these comments.

[15] Memorandum from NERA Economic Consulting to the Alliance of Automobile Manufacturers, Alternative Social Cost of Carbon (SCC) Values and Implications for NHTSA/EPA's Evaluation in the PRIA of the Net Benefits of Alternative MY 2020-2026 Fuel Economy Standards for Light-Duty Vehicles (Oct. 25, 2018). Available as Attachment 3 to these comments.

[16] *Id.* at 1.

The full NERA SCC Memo including a description of methodology and documentation of various SCC values is available as Attachment 3 to these comments.

APPENDIX 2: CONSIDERATIONS FOR SETTING LIGHT-DUTY VEHICLE CAFE AND GHG STANDARDS

In the past few model years, manufacturers on average have failed to meet annual compliance targets; most manufacturers have relied on previously banked or purchased credits to maintain compliance. Independent analysts project that these shortfalls will continue despite new model introductions, and a sensitivity analysis of various projections by the Alliance suggests the same. The industry average shortfalls have occurred despite increasing penetration of more advanced technologies. Individual models have shown significant improvement, but overall fleet performance has suffered due to fleet mix changes, largely due to lower than expected fuel prices and a strengthening economy that has shifted consumer choices (see Appendix 4). The Agencies could not have predicted these trends in 2011, when the regulations were adopted, which is why a strong Midterm Evaluation ("MTE")—which provided updated information on consumer trends and other external factors, was so vital to the development of this Proposed Rule.

These shortfalls result in a gap between manufacturer average compliance levels and the standards that must also be overcome in meeting future standards. Although others have suggested that existing credit banks are sufficient to cover these shortfalls, this ignores limitations to credit use, and projected credit use while manufacturers remain under-compliant to annual targets. Furthermore, to the extent manufacturers generate compliance debits that cannot be covered by existing credit banks, those debits will drive a need to accelerate improvements beyond those necessary to just meet the standards in order to pay back those debits.

With regard to the current GHG and augural CAFE standards (i.e. the "no-action alternative"), the only technologies that have demonstrated the improvements necessary to meet the MY 2025 standards are strong hybrids, plug-in electric vehicles, and fuel cell electric vehicles. The Agencies' analysis for this Proposed Rule predict the need for significant growth in sales of electrified vehicles, a finding consistent with third-party analyses. While manufacturers generally continue to expand offerings of such products, the market has not followed in turn.

This Appendix explores these trends in greater detail to provide additional context for the Alliance's recommended actions in regard to the standards as a function of vehicle footprint and vehicle classification.

2.1. Historical Trends and Near-Term Projections of Light-Duty Vehicle CAFE and GHG Standards and Compliance

An examination of trends in standards and performance is useful in assessing overall combined technical feasibility and practicability of the standards leading up to the time period under consideration in the rulemaking.

Final data for the entirety of the Phase 1 (MY 2012–2016) coordinated CAFE and GHG standards is now available. Manufacturers have also completed MY 2017 and although MY 2018 vehicle may still be produced through the end of the year, MY 2019 builds have generally started. Model year 2020, the last year before consideration of amended standards in the rulemaking, will begin in less than one year.

Improvements in fuel economy and reductions in GHG emissions in this time frame have been made under binding standards that were required to improve ratably each year. The Phase 1 coordinated CAFE and GHG standards saw the requirements increase on a year-by-year basis at rates not seen since the late 1970s in the early days of CAFE. The extent to which manufacturers were able to improve the U.S. fleet is likely informative of the underlying technical, economic, and market conditions that are difficult to assess in a holistic manner through modeling of technology improvements and fleet optimization models, but which nevertheless ultimately determine the feasibility and practicability of reducing GHG emissions and fuel consumption.

In stark contrast to projections made in the MY 2012–2016 rulemaking, manufacturers are reducing GHG emissions and fuel consumption at a slower rate than that required by the standards. This, in combination with the phase-out of flexible fuel vehicle credits, has resulted in manufacturers falling behind the annual compliance targets. This trend is projected to continue through at least MY 2020, raising concerns with the viability of the no-action alternative.

NHTSA has historically considered compliance "shortfalls" in its assessment of economic practicability when determining maximum feasible standards.[17] The Alliance believes that it is appropriate for EPA to do the same.[18] If the Agencies were to have correctly projected the shortfalls now exhibited and anticipated through 2021, a different decision on the past and future standards may have been made. In evaluating the feasibility of standards for MY 2021–2026, these recent trends are particularly important to consider in determining the maximum feasible standard. The Alliance recommends that the Agencies carefully examine the economic practicability and technological feasibility of improving GHG and CAFE performance at the rates required to first recover from current shortfalls and then to over-perform to offset any debits previously accumulated.

2.1.1. *The Ramp Rate of the Current GHG and No-Action Alternative CAFE Standards is More Than Double That of the Historically Achieved Improvement Rates*

The U.S. auto industry, on average, improved fuel economy and reduced GHG emissions at a rate of approximately 2% or less per year as shown in Table 2.1. Under the MY 2012–2016 greenhouse gas and CAFE standards, manufacturers improved laboratory (unadjusted test) performance by an average of 2.2% per year. Including credits (i.e. compliance performance), manufacturers improved at a rate of about 2.0% to 2.1% per year. This is a significant increase over the 1.4% per year improvement rate (laboratory) observed under the less aggressive MY 2000–2010 standards.

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[17] *See* 77 Fed. Reg. 62,623, 63,038 (Oct. 15, 2012) ("If it appears, in our modeling analysis, that a significant portion of the industry cannot meet the standards defined by a regulatory alternative in a model year, given that our modeling analysis accounts for manufacturers' expected ability to produce and sell vehicles (through redesign cadence, technology costs and benefits, etc.), then that suggests that the standards may not be economically practicable").

[18] *See* 42 U.S.C. § 7521(a)(2) ("[Standards] shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period") (Note the similarity to NHTSA's reasoning for including projected compliance shortfalls as a consideration of economic practicability as explained at 77 Fed. Reg. at 63,038). For further discussion on this point, please see Appendix 11 at section 11.2.

Model Year	Metric	Sales Weighted Fleet Average	Unweighted Fleet Average
2000–2010	Unadjusted Laboratory Fuel Economy[19]	1.6%	1.4%
	CAFE Compliance (with credits)[20]	1.7%	1.7%
2012-2016	Unadjusted Laboratory Fuel Economy[21]	1.4%	2.2%
	GHG Compliance (with credits)[22]	1.3%	2.1%
	CAFE Compliance (with credits)[23]	1.1%	2.0%

Table 2.1: Compound annual average rate of improvement in fuel economy and greenhouse gas performance for total U.S. fleet, model years 2012-2016.

In contrast, the rate of increase in standards was (and is projected to be under the no-action alternative) much higher (Table 2.2). The CAFE standard stringency increased by 3.1% per year on average (1.6 times the improvement in CAFE performance) and GHG standard stringency increased by 3.8% per year on average (1.8 times the improvement in GHG performance). The difference between the historically achieved rate of improvement and the rate of stringency increases for the no-action alternative standards is even greater—about 2.4 times higher. Achieving such high rates of improvement would likely require significantly higher annual investments in human resources and capital for technology and vehicle development than have previously been economically practicable. Alternatively or in combination with higher annual investments, such high rates of improvement would require significantly higher levels of technologies such as hybrid and plug-in electric vehicles (or a yet-to-be found silver bullet technology) than are currently purchased by consumers, again raising concerns of economic practicability.

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[19] Alliance calculations of data from U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA-420-R-18-001, LIGHT-DUTY AUTOMOTIVE TECHNOLOGY, CARBON DIOXIDE EMISSIONS, AND FUEL ECONOMY TRENDS: 1975 THROUGH 2017 at 122 (Jan. 2018), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100TGDW.pdf ("EPA Unadj. (MPG)") (hereinafter EPA 2018 TRENDS REPORT).

[20] Alliance calculations of data from *CAFE Public Information Center*, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, https://one.nhtsa.gov/cafe_pic/cafe_pic_home.htm (last visited Sept. 13, 2018) (fleet performance area).

[21] Alliance calculations of data from 2018 TRENDS REPORT, *supra* note 19, at 122.

[22] Alliance calculations of data from U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA-420-R-18-002, GREENHOUSE GAS EMISSION STANDARDS FOR LIGHT-DUTY VEHICLES: MANUFACTURER PERFORMANCE REPORT FOR THE 2016 MODEL YEAR at 81 (Jan. 2018), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100TGIA.pdf ("Compliance" under "Actual") (hereinafter 2016 MANUFACTURER PERFORMANCE REPORT).

[23] Alliance calculations of data from *CAFE Public Information Center*, *supra* note 20.

Model Years	Sales Weighted Fleet Average		Unweighted Fleet Average	
	GHG	CAFE	GHG	CAFE
2012–2016 [24] [25]	3.2%	2.4%	3.8%	3.1%
2016–2021 [26] [27]	4.0%	3.6%	4.0%	3.5%
2021–2025 [28] [29]	4.7%	4.7%	4.8%	4.7%

Table 2.2: Compound annual average rate of fuel economy and greenhouse gas standard stringency increases for the total U.S. fleet, model years 2012-2016, 2016-2021, and 2021-2025 under the no-action alternative.

2.1.2. *Manufacturers, On Average, Have Fallen Behind Annual Compliance Targets*

In MY 2016, for the first time ever in the 40-year history of the CAFE program, manufacturers (on average) failed to meet the combined passenger car and light truck CAFE standards.[30] Similarly, for the first time ever in the (albeit shorter) history of the light-duty vehicle GHG program, manufacturers failed to meet the combined passenger car and light truck GHG standards.[31]

NHTSA projects the same trend to continue for CAFE compliance in model years 2017 and 2018 in its own "Manufacturer Projected Fuel Economy Performance Report."[32] Overall U.S. fleet

[24] Alliance calculations for GHG data from 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at 81 ("Target" under "Actual").
[25] Alliance calculations for CAFE data from *CAFE Public Information Center*, *supra* note 20.
[26] Alliance calculations for GHG data from *Compliance and Effects Modeling System: Volpe Model*, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, https://www.nhtsa.gov/corporate-average-fuel-economy/compliance-and-effects-modeling-system (last visited Sept. 13, 2018) ("Central Analysis" under "2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks" under "Downloads", see Central Analysis folder, output_CO2 subfolder, CO2 subfolder, reports-csv subfolder, compliance_report.csv file, column A value "0", column D value "Total", column L).
[27] Alliance calculations for CAFE data from *Compliance and Effects Modeling System*, *supra* note 26 ("Central Analysis" under "2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks" under "Downloads", see Central Analysis folder, output_CAFE subfolder, CAFE subfolder, reports-csv subfolder, compliance_report.csv file, column A value "0", column D value "Total", column I).
[28] Alliance calculations for GHG data from *Compliance and Effects Modeling System*, *supra* note 26 ("Central Analysis" under "2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks" under "Downloads", see Central Analysis folder, output_CO2 subfolder, CO2 subfolder, reports-csv subfolder, compliance_report.csv file, column A value "0", column D value "Total", column L).
[29] Alliance calculations for CAFE data from *Compliance and Effects Modeling System*, *supra* note 26 ("Central Analysis" under "2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks" under "Downloads", see Central Analysis folder, output_CAFE subfolder, CAFE subfolder, reports-csv subfolder, compliance_report.csv file, column A value "0", column D value "Total", column I).
[30] *CAFE Public Information Center*, *supra* note 20 (comparison of "Total Fleet" "FE Performance" to "Fleet Standard"); NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, SUMMARY OF FUEL ECONOMY PERFORMANCE (Dec. 15, 2014), *available at* https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/performance-summary-report-12152014-v2.pdf (calculation from data located on pp. 3-5).
[31] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at 81 (Table A-4, comparison of "Compliance" to "Target" for "Actual" values).
[32] NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, MANUFACTURER PROJECTED FUEL ECONOMY PERFORMANCE REPORT at 3 (Apr. 30, 2018), *available at* https://one.nhtsa.gov/cafe_pic/MY_2017_and_2018_Projected_Fuel_Economy_Performance_Report.pdf (Table 2, comparison of Total CAFE to Total Standard).

annual CAFE performance is projected to fall 0.7 mpg short of standard in MY 2017 and 0.8 mpg short of standard in MY 2018.

Furthermore, a recent report from Novation Analytics, "Model Years 2012 to 2018 Baseline Studies," (hereinafter "2018 Baseline Study") supports the NHTSA projections using more recent data from automobile manufacturers.[33] The 2018 Baseline Study reports that manufacturers (on average) are likely to report a MY 2016 CAFE shortfall of 0.6 mpg for MY 2017 and a shortfall of 0.7 mpg for MY 2018. The study also projects shortfalls of 7 g/mi (MY 2017) and 8 g/mi (MY 2018) for GHG compliance.

The combined final compliance performance and standards for MYs 2012–2016, and the Novation Analytics assessment of performance and standards is shown in Figure 2.1. The U.S. fleet has made steady improvements, but has fallen behind the standards as the standards increase at a faster rate than manufacturers (on average) have improved their compliance performance.

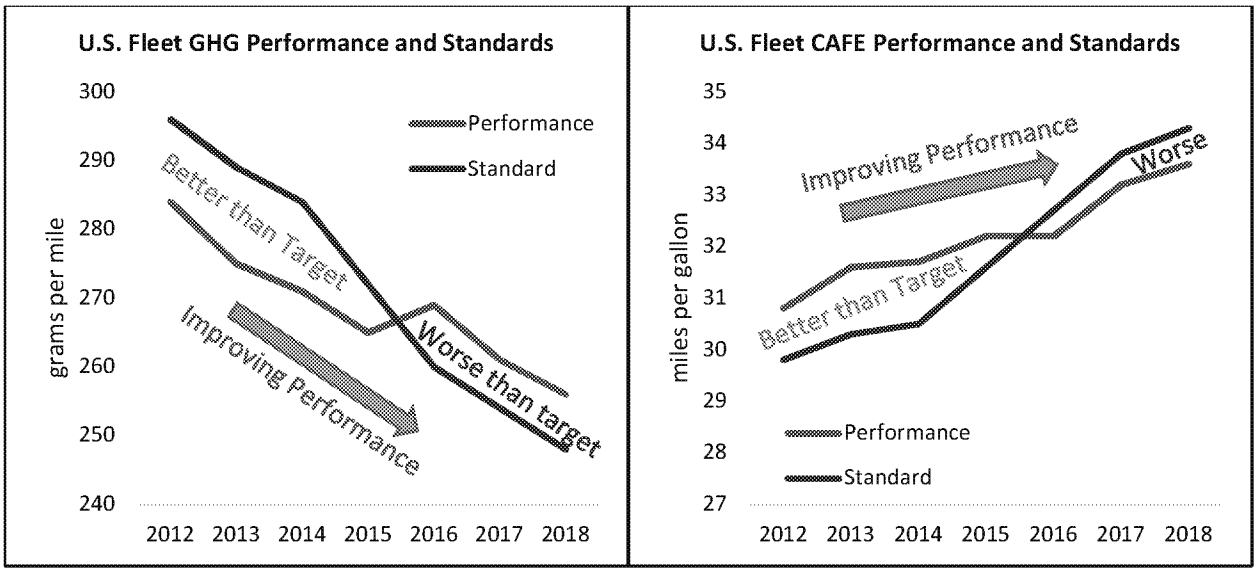

Figure 2.1: Light-duty vehicle GHG and CAFE standards and performance, MYs 2012-2018.[34]

Figure 2.2 shows the U.S. fleet average difference to annual target (i.e. "compliance margin") since the inception of joint GHG and CAFE standards in MY 2012. Positive values indicate compliance better than standard (i.e. credit-generating) and negative values indicate compliance worse than standard (i.e. credit-using / debit-generating). U.S. fleet manufacturers on average had a positive

[33] NOVATION ANALYTICS, MODEL YEARS 2012 TO 2018 BASELINE STUDIES (Oct. 2018). Available as Attachment 4 to these comments. The 2018 Baseline Study relies on final model year compliance data for MY 2017 projections and uses a combination of mid-model year compliance data and IHS Markit / Polk volume projections for MY 2018. The Alliance previously performed a retrospective analysis of the accuracy of the Novation Analytics baseline studies through MY 2015 (see Regulations.gov, docket ID EPA-HQ-OAR-2015-0827-9194, p. 15). The analysis determined that the Novation Analytics reported values were all 0.4% or less different than the final EPA-reported values for calculations of fleet targets, and 1.3% or less different for calculation of fleet compliance values.
[34] *Id.*; 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22; *CAFE Public Information Center, supra* note 20. Note: Change in GHG performance between MY 2015 and MY 2016 attributable to elimination of flexible fuel vehicle credits.

CAFE compliance margin of 1.0 mpg or better in 2012–2014.[35] In MY 2015 that margin dropped to 0.6 mpg on average, becoming negative in MY 2016 and becoming more negative thereafter. Similar trends are observed in GHG compliance margin with an ongoing negative trend for MY 2016–2018.

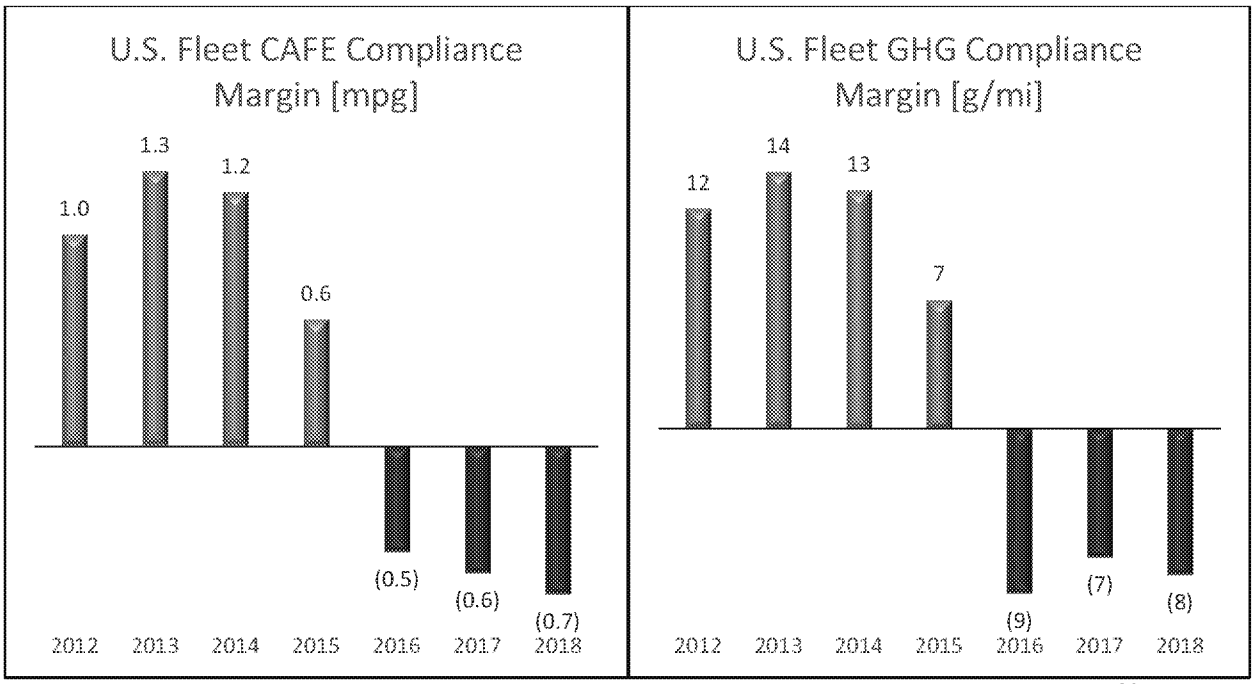

Figure 2.2: Light-duty vehicle CAFE and GHG compliance margin, model years 2012-2018.[36]

2.1.3. *Other Observed Compliance Trends*

The following observations are made regarding greenhouse gas compliance in MY 2016:

- Over 80% of manufacturers failed to meet annual GHG compliance targets for passenger car or light truck fleets in MY 2016.[37]
- The manufacturers which failed to meet annual GHG compliance targets represented over half of the passenger car fleet volume and over 80% of the light truck fleet production volume in the United States.[38]
- Two manufacturers have exhausted their previously banked and purchased GHG credits and carried a deficit forward. An additional manufacturer's positive GHG credit balance after MY 2016 appears entirely attributable to credits purchased from other manufacturers.[39]

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[35] Significantly less than the 2.3 mpg average compliance margin for MY 2004–2011. (Alliance calculation based on fleet compliance data in the *CAFE Public Information Center, supra* note 20.

[36] *CAFE Public Information Center, supra* note 20 (CAFE, Model Years 2012-2016); 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22 (GHG, Model Years 2012-2016); NOVATION ANALYTICS, *supra* note 33 (CAFE and GHG, Model Years 2017-2018).

[37] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at 68 (Table 3-35).

[38] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, combining data at 68 (Table 3-35) and at 82 (Table B-1).

[39] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at 73 (Table 5-1).

- Several manufacturers struggled to meet annual compliance targets for most, or in the case of two manufacturers, the entirety of the 2012-2016 light-duty vehicle greenhouse gas program.[40]

Similarly, regarding CAFE compliance:

- In MY 2016, 38% of manufacturers failed to meet domestic car targets, 65% failed to meet import car targets, and 63% failed to meet light truck targets.[41] Two manufacturers failed to meet domestic minimum passenger car standards.[42]
- Ten manufacturers have failed to meet light truck annual targets for the majority of the 2012-2016 model years.[43]
- Manufacturers are carrying forward negative credit balances (debits) in ten compliance fleets after MY 2016.[44]

2.1.4. *Manufacturers Are Projected to Remain Under-Compliant to Annual CAFE and GHG Targets in MY 2020 and MY 2021*

Despite anticipated manufacturer product redesigns in MYs 2019 and 2020, the shortfall to annual compliance targets is anticipated to remain and grow.

2.1.4.1. IHS Markit Vehicle Performance and Compliance Monitor Projection

Data provided by IHS Markit in its Vehicle Performance and Compliance ("VPaC") Monitor projects that manufacturers on average will under-comply with GHG standards by 21 g/mi and

[40] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at 73 (Table 5-1), referring to those manufacturers which earned negative credits (i.e. debits) related to under-compliance in model years 2012-2016.
[41] *CAFE Public Information Center, supra* note 20, at "Manufacturer Performance" tab (data as of April 30, 2018).
[42] *CAFE Public Information Center, supra* note 20, at "Manufacturer Performance" tab (data as of April 30, 2018).
[43] *CAFE Public Information Center, supra* note 20, at "Manufacturer Performance" tab (data as of April 30, 2018).
[44] *CAFE Public Information Center, supra* note 20, at "Credit Status" tab (data as of May 31, 2018).

will under-comply with CAFE standards by 2.5 mpg in 2020.[45] The shortfall is projected to grow to 28 g/mi (GHG) and 3.8 mpg (CAFE) in 2021.[46]

2.1.4.2. Alliance Projections and Sensitivity Analysis

The Alliance developed additional projections and a sensitivity analysis of the shortfall between U.S. fleet average greenhouse gas and CAFE compliance and standards to supplement the IHS Markit projections.[47] Five projections of fleet performance were examined, and three projections of GHG standards were examined.

Projections of fleet average GHG performance:

- IHS Markit VPaC projection
- 1.3% improvement per year from MY 2018 performance (the average rate of improvement in 2-cycle laboratory fuel economy performance over the 2000–2011 time period after removing car/truck mix effects)
- 2.0% improvement per year from MY 2018 performance (the average rate of improvement in 2-cycle laboratory fuel economy performance over the 2005–2017 time period after removing car/truck mix effects)
- A linear best fit (using the Microsoft Excel trendline feature) projection based on MY 2012-2018 industry average GHG and CAFE performance.[48]

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[45] Includes content supplied by IHS MARKIT, VEHICLE PERFORMANCE & COMPLIANCE MONITOR (VPAC) (Sept. 2018), https://ihsmarkit.com/products/automotive-vpac.html). The IHS Markit reports, data, and information referenced herein (the "IHS Markit Materials") are the copyrighted property of IHS Markit Ltd. and its subsidiaries ("IHS Markit") and represent data and research published by IHS Markit, and are not representations of fact. The IHS Markit Materials speak as of the original publication date thereof and not as of the date of this document. The information provided in the IHS Markit Materials is subject to change without notice and IHS Markit has no duty or responsibility to update the IHS Markit Materials. Moreover, while the IHS Markit Materials reproduced herein are from sources considered reliable, the accuracy and completeness thereof are not warranted, nor are the opinions and analyses which are based upon it. Opinions, statements, estimates, and projections in this message or other media are solely those of the individual author(s). They do not reflect the opinion of IHS Markit or any of its affiliates ("IHS Markit"). IHS Markit has no obligation to update, modify, or amend this message or other media, or to otherwise notify a recipient thereof, in the event that any matter stated herein, or any opinion, projection, forecast or estimate set forth herein, changes or subsequently becomes inaccurate. Any content, information, and materials provided in this message or other media is on an "as is" basis. IHS Markit makes no warranty, expressed or implied, as to its accuracy, completeness, or timeliness, or as to the results to be obtained by recipients, and shall not in any way be liable to any recipient for any inaccuracies, errors, or omissions herein. Without limiting the forgoing, IHS Markit shall have no liability whatsoever to a recipient of any message or media, whether in contract, in tort (including negligence), under a warranty, under statute or otherwise, in respect of any loss of damage suffered by such recipient as a result of or in connection with any actions, opinions, recommendations, forecasts, judgments, or any other conclusions, or any course of action determined, by it or any third party, whether or not based on the content, information or materials contained herein. IHS Markit and R.L. Polk & Co. are trademarks of IHS Markit. Other trademarks appearing in the IHS Markit Materials are the property of IHS Markit or their respective owners.
[46] IHS MARKIT, *supra* note 45.
[47] Calculation details available upon request.
[48] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22 (MY 2012–2016 data); NOVATION ANALYTICS, *supra* note 33 (MY 2017–2018 data) and *CAFE Public Information Center, supra* note 20 (NHTSA (CAFE)).

Projections of fleet average GHG standards:

- IHS Markit VPaC projection
- Proposed Rule Volpe Model outputs for GHG assessment
- Proposed Rule Volpe Model outputs for GHG assessment adjusted to AEO 2018 car/truck mix.

In all cases studied, a substantial shortfall is forecasted to remain in MY 2020 and 2021. The range of performance and standard projections indicate an estimated shortfall of 18 to 23 g/mi (GHG) and 1.5 to 3.0 mpg (CAFE) in MY 2020. In MY 2021, the shortfall is estimated to be in the range of 28 to 35 g/mi (GHG) and 2.8 to 4.5 mpg (CAFE) (Figure 2.3).

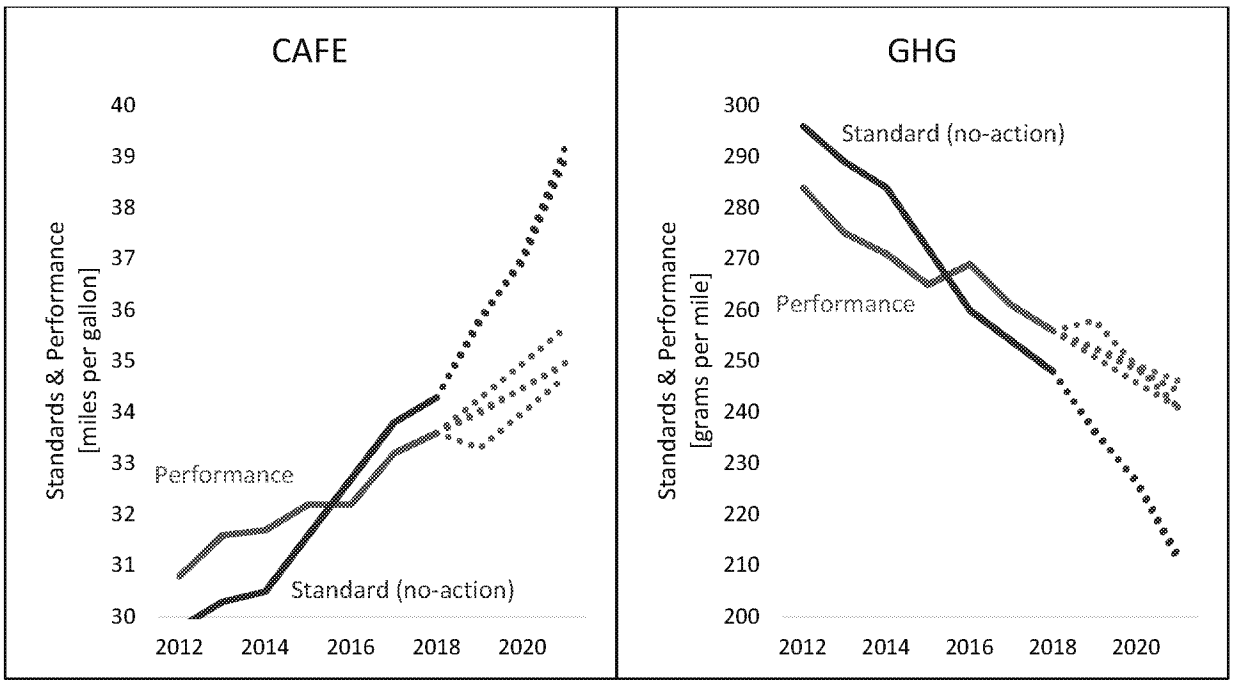

Figure 2.3: CAFE and GHG performance and standards, MY 2012-2018; sensitivity analysis for projected CAFE and GHG performance and standards MY 2019-2021. In all cases, a significant shortfall to standard is predicted in MYs 2020 and 2021 in both the CAFE and GHG programs.[49]

These analyses lead the Alliance to the inescapable conclusion that the U.S. fleet as a whole is likely to have a shortfall to annual GHG and CAFE compliance targets in MY 2020 that would have to be overcome.

2.2. Analysis of the Impacts of Existing Credit Banks

In the near-term, the U.S. fleet has banked GHG and CAFE credit from over-compliance in prior years. However, these credit banks are already depleted for some manufacturers. Moreover, even with an unrealistic assumption that banked credits are freely traded amongst manufacturers to

[49] *CAFE Public Information Center, supra* note 20 (MY 2012-2016 CAFE data) (Fleet Performance Page); 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22 (MY 2012-2016 GHG data); NOVATION ANALYTICS, *supra* note 33 (MY 2017 CAFE and GHG data). MY 2019-2021 standards and performance as described in text.

enable U.S. fleet average compliance as long as possible the total U.S. credit bank would be significantly depleted by MY 2020. Even if they were not depleted, current statutes and regulations prevent the use of existing credit banks past MY 2021. These trends and analyses are described in further detail below.

2.2.1. *Current Credit Banks Cannot Be Used Past MY 2021*

Final compliance data (including credit banks) is currently only available for model years through 2016.

In the CAFE program, credits can only be carried forward a maximum of five years (i.e. through MY 2021 for MY 2016 credits).[50] NHTSA is constrained by statute regarding the degree to which credits can be carried forward, making any near-term changes to credit banking provisions unlikely. Therefore, any discussion of CAFE credit banked through MY 2016 in the context of MY 2022 or later standards is inapposite.[51]

The GHG program also has credit carry-forward limitations; credits earned between MY 2012 and MY 2016 can only be carried forward through MY 2021.[52] Hence, discussion of GHG credits banked through MY 2016 is also inapplicable to consideration of standards in MY 2022 or later.

EPA may choose to extend its carry-forward provisions.[53] If such a provision is finalized, additional considerations as described below also apply, mitigating consideration of credit banks in the context of this rulemaking.

2.2.2. *Manufacturers (On Average) Are Not Generating Credits That Could Be Used Past MY 2021 and Credit Banks Are Projected to Be Depleted Over the Next Several Years*

As described above, manufacturers on average have been, and are projected to continue to perform at a level worse than the annual compliance targets. As a result, manufacturers on average are not generating any credits to bank past MY 2021.

Not only are credits not being generated to bank for future use, but the existing credit banks are also being depleted as manufacturers under-perform to annual targets. An analysis by the Alliance of Automobile Manufacturers estimates that by MY 2020, the U.S. fleet's GHG credit bank in aggregate would be reduced to less than half of the MY 2016 value by the end of MY 2020 (Figure 2.4).[54] This projection is optimistic because it assumes all manufacturers freely draw from one pool of credit even though credits are actually disproportionally distributed among manufacturers and some manufacturers have already depleted their reserves.

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[50] 49 U.S.C. § 32903(a).
[51] NHTSA is also prohibited by statute from considering such banked credits. *See* 49 U.S.C. § 32903(h)(3).
[52] 40 C.F.R. § 86.1865-12(k)(6).
[53] 83 Fed. Reg. at 43,464 ("EPA requests comments on extending credit carry-forward beyond the current five years, including unlimited credit life").
[54] Calculations available upon request.

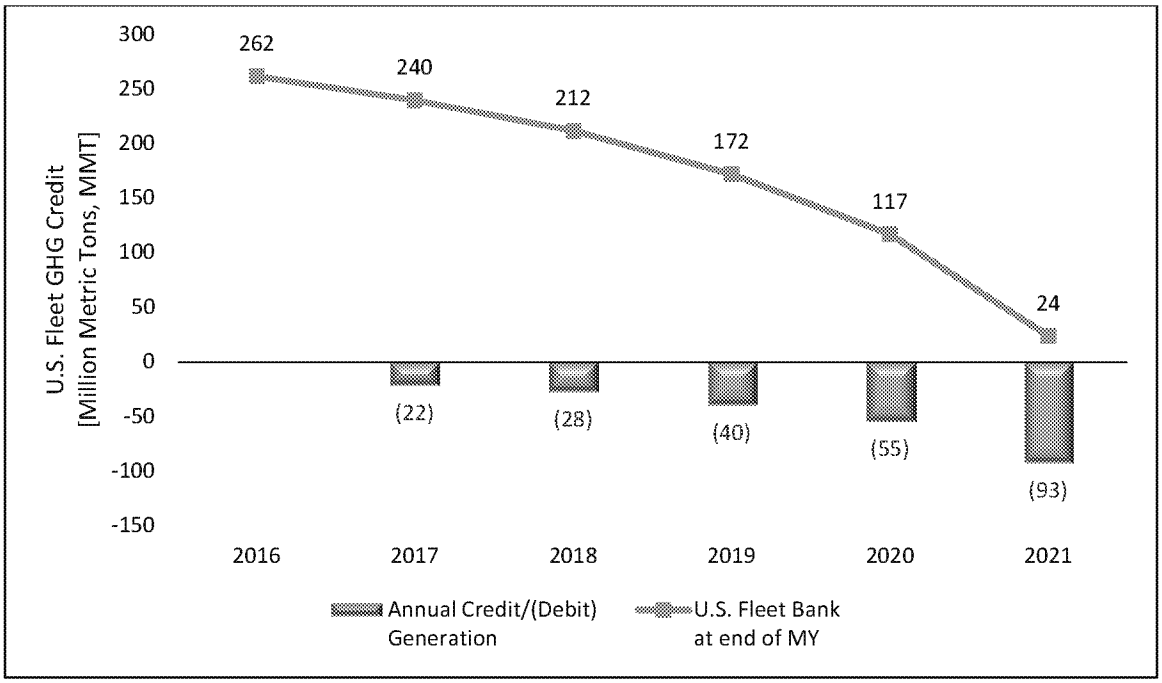

Figure 2.4: Projection of U.S. fleet GHG credit bank assuming perfect trading between manufacturers (highly optimistic), Proposed Rule-projected GHG standards and volumes (MY 2017-2021) under the no-action alternative, and 2% improvement rate per year over MY 2018 GHG performance.

2.3. Impact of Projected Manufacturer Compliance Trends and Credit Banks on Future Rates of Improvement Required

The Proposed Rule describes eight alternatives considered by the Agencies. Other than the no-action alternative, each of the alternatives is described in terms of percentage GHG and CAFE standard stringency increases relative to either MY 2020 (alternatives 1-4 and 6-7) or MY 2021 (alternatives 5 and 8). From the basis of MY 2020 standards to MY 2025, the no-action alternative would require annual improvements averaging 4.6% per year for passenger cars, 5.1% per year for light trucks, and 4.8% overall. [55]

2.3.1. *The Projected MY 2020 Compliance Shortfall Results in Greater Rates of Improvement Required Than Simple Analysis of the Standards Themselves Suggests*

In these comments the Alliance notes that through MY 2018 manufacturers' (on average) performance is worse than the annual compliance targets for both GHG and CAFE standards. Furthermore, the Alliance demonstrates that this situation is likely to continue to at least MY 2020. Therefore, in returning to a neutral compliance level (i.e. one in which compliance performance is equal to the standard) manufacturers must increase the rate of performance improvement beyond that suggested by the standards alone.

[55] MY 2020 was chosen for consistency with the majority of the alternatives analyzed by the agencies. Calculation based on U.S. fleet standards projected in the Proposed Rule Volpe Model Analysis, *Compliance and Effects Modeling System*, *supra* note 26 (Central_Analysis.7z\Central Analysis\output_CAFE\CAFE\reports-csv\compliance_report.csv) ("Downloads", "2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks," "Central Analysis").

If the U.S. fleet were to continue at the same pace of improvements as exhibited under the binding CAFE and GHG standards of MY 2012-2018, they would only barely return to a neutral compliance position by MY 2026 even assuming the least stringent alternative under consideration (Figures 2.5 and 2.6).

Although the Proposed Rule describes the various alternatives in terms of percentage annual improvements, the percentages provided are based on the standards themselves, effectively assuming that manufacturers will somehow have greatly increased the rate of compliance improvements than have previously been exhibited as technologically feasible and economically practicable. For manufacturers to return to a neutral compliance position by MY 2020 from anticipated MY 2018 levels, they would need to achieve an average annual improvement rate of 5.8% (GHG) and 3.7% (CAFE) for model years 2019 and 2020.[56] To achieve a neutral compliance position by MY 2021 they would need to achieve an average annual improvement rate of 6.1% (GHG) and 4.4% (CAFE).

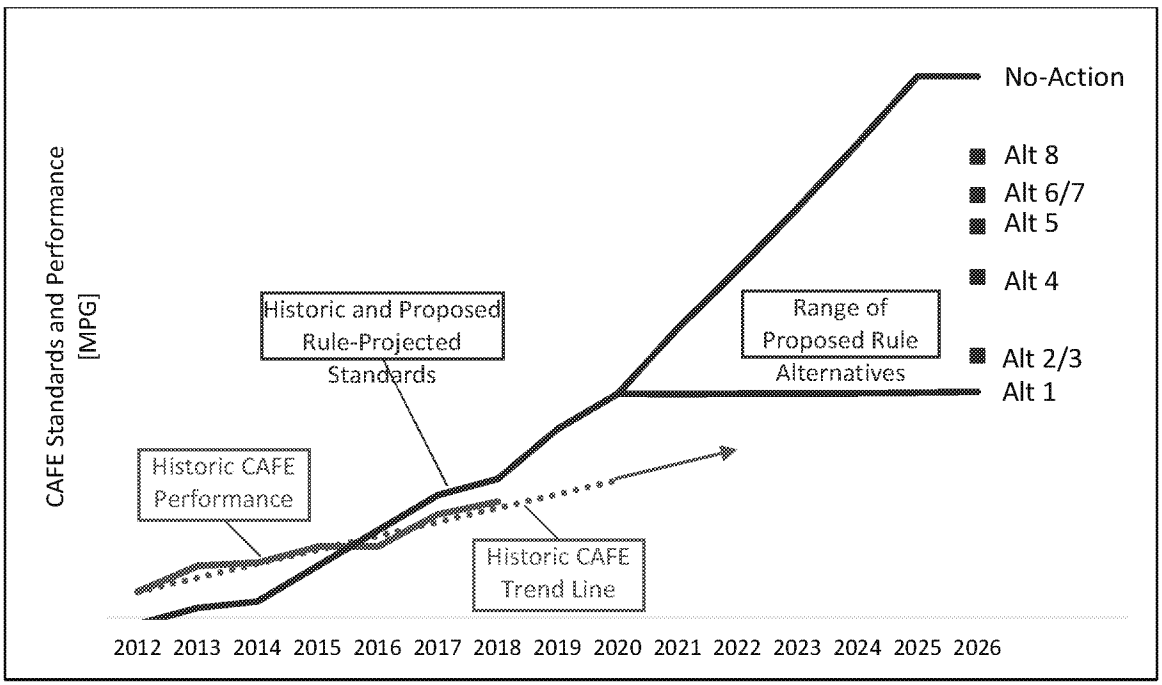

Figure 2.5: CAFE standards and performance with linear trend line based on MY 2012-2018 performance improvements, MY 2012-2026. Manufacturers on average must increase the rate of CAFE improvement beyond historic norms to return to a neutral compliance level.[57]

[56] Assessment based on information from NOVATION ANALYTICS, *supra* note 33, and the Volpe Model projected standards for the Proposed Rule's analysis.

[57] *CAFE Public Information Center, supra* note 20 (MY 2012-2016 standards and performance) (Fleet Performance page); NOVATION ANALYTICS, *supra* note 33, at 61 (MY 2017-2018 standards and performance); *Compliance and Effects Modeling System, supra* note 26 (MY 2019–2026 standards) (Central Analysis for 2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, Central_Analysis.7z\Central Analysis\output_CAFE\CAFE\reports-csv\compliance_report.csv; Linear performance projection: Linear best fit line of MY 2012-2018 performance data using Microsoft Excel).

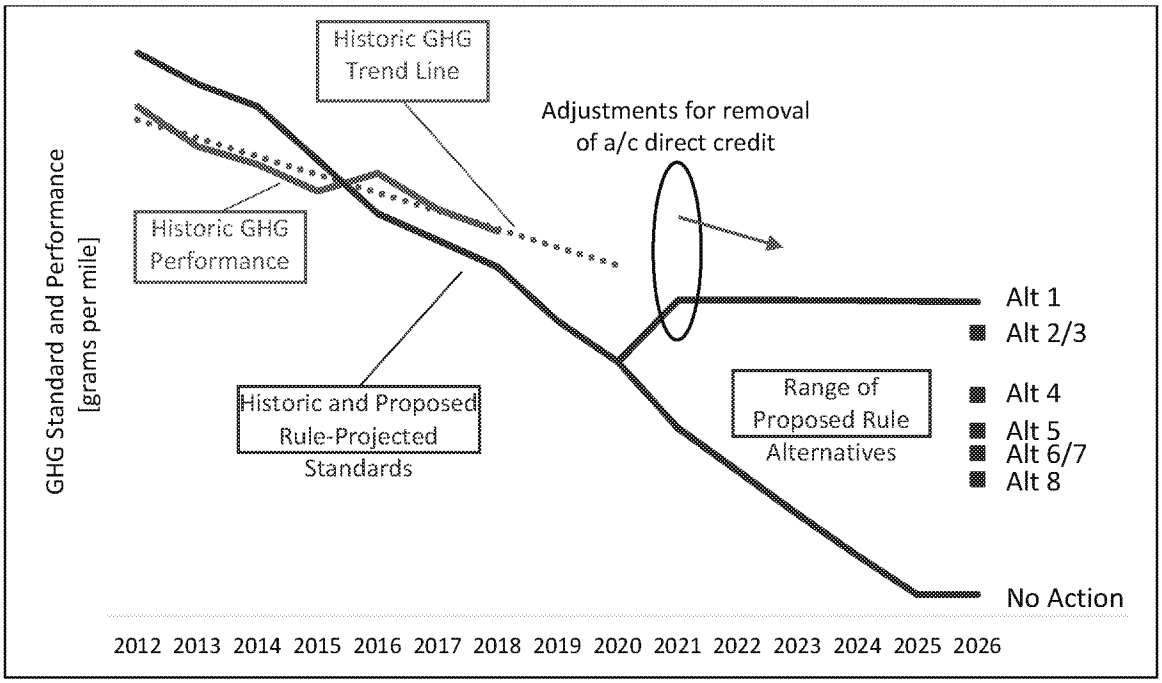

Figure 2.6: GHG standards and performance with linear trend line based on MY 2012-2018 performance improvements, MY 2012-2026. Manufacturers on average must increase the rate of GHG improvement beyond historic norms to return to a neutral compliance level.[58]

2.3.2. *The Rate of Performance Increase Required to Meet the Future Standards is Further Increased by the Need to Satisfy Any Debits Resulting from Under-Compliance in the Near- to Mid-Term*

The analysis described above assumes that manufacturers (on average) can start from estimated MY 2020 compliance levels below standard and improve in each year at a constant pace, eventually meeting returning to a neutral compliance position in the last year of annual increases in the standard envisioned by the alternatives presented in the Proposed Rule. However, this is unlikely to happen in practice. Manufacturers must satisfy any credit deficits (debits) within three years of their generation.[59] Thus, after running out of previously banked credits, manufacturers must first return to compliance neutrality and then exceed the standard to generate credits to satisfy any debits incurred in the ensuing years. This concept is demonstrated in Figure 2.7. This must all occur within the three-year time period allowed for over-compliance credits to be carried back for the purposes of satisfying prior shortfalls.

[58] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22 (MY 2012-2016 standards and performance); NOVATION ANALYTICS, *supra* note 33 (MY 2017-2018 standards and performance); *Compliance and Effects Modeling System*, *supra* note 26 (MY 2019-2026 standards) (Central Analysis for 2018 Proposed Rule for Model Years 2021-2026 Passenger Cars and Light Trucks, Central_Analysis.7z\Central Analysis\output_CO2\CO2\reports-csv\compliance_report.csv; Linear performance projection: Linear best fit line of MY 2012-2018 performance data using Microsoft Excel). The best-fit line was translated 15 g/mi higher in MY 2021 to account for the average direct air conditioning credit level in MY 2025/2026 as included in the modeling analysis.

[59] *See* 49 U.S.C. § 42903(b); 86 C.F.R. § 86.1865-12(k)(8).

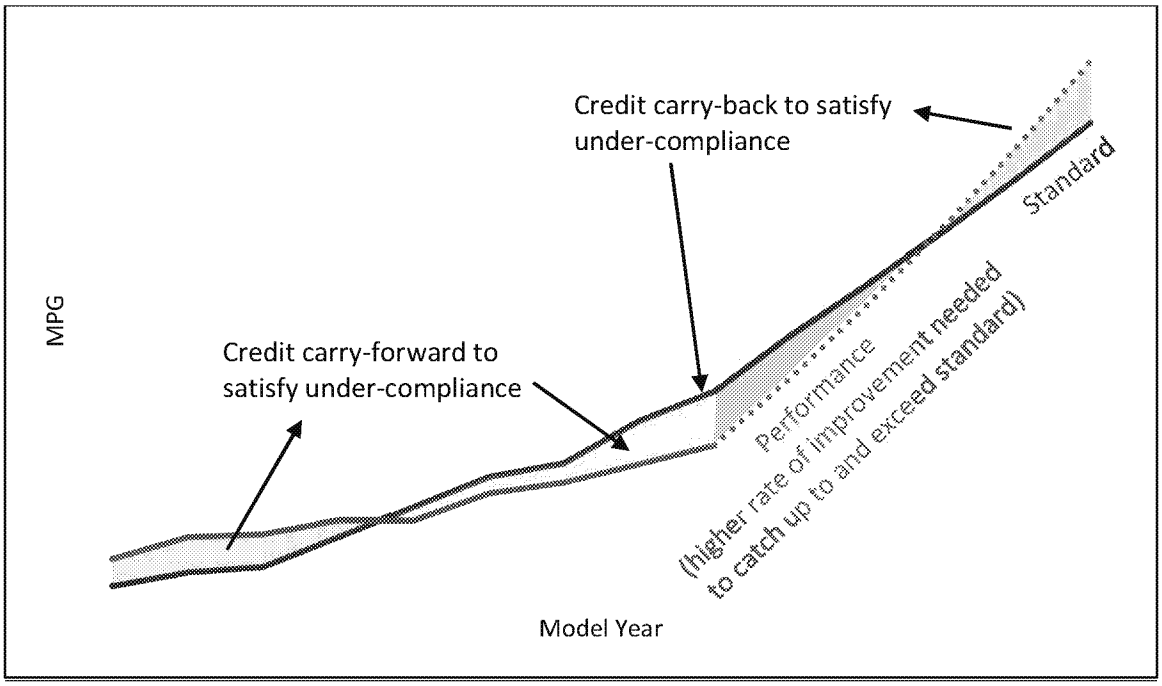

Figure 2.7: Conceptual demonstration of higher average annual rate of improvement required to meet future standards when starting from a negative compliance position and needing to satisfy debits from under-compliance.

2.3.3. *Other Regulatory Headwinds Will Increase the Challenge to Maintain and Increase the Annual Rate of Compliance Improvements*

Manufacturers are also facing additional challenges to improving CAFE and GHG compliance performance:

- Each incremental improvement requires the application of increasingly expensive technologies. High annual rates of improvement will likely require the application of technologies that provide compliance performance significantly better than the standards (e.g. strong electrification).
- A number of current compliance flexibilities expire in MY 2021 or earlier. Credit for flexible fuel vehicles are phased-out in the CAFE program, and were completely removed from the GHG program in MY 2016. Advanced technology vehicle incentives and incentives for more efficient pick-up trucks expire after MY 2021. Current regulations may require some manufacturers to add electric power generation emissions to their vehicles' tailpipe emissions. This Proposed Rule itself proposes to remove credits for lower global warming potential refrigerants, and in some alternatives under consideration, also remove credits for air conditioning system efficiency improvements and for off-cycle technologies. The Alliance acknowledges that the Proposed Rule also requests comment on extending and/or expanding some flexibilities, but unless and until such actions are adopted, decreasing flexibilities will create additional challenges.

- The Alliance anticipates that EPA will propose to add an adjustment to measured tailpipe CO2 for vehicles tested on E10 (Tier 3) certification fuel that will make all GHG test results higher (i.e. less compliant).[60]

These issues should be taken into consideration when adjusting the footprint standards and available flexibilities for meeting them.

2.4. How the Historical and Current Market for Electrification Compares to Projected Technologies Required for the No-Action Alternative

2.4.1. *Historical Market for Electrified Vehicles*

The market share for electrified vehicles remains very small. Accordingly, although these vehicles generally have much lower emissions and higher fuel economy, they have historically had little leverage for overall CAFE and GHG compliance in the U.S. fleet.

2.4.1.1. Hybrid-Electric Vehicles

After reaching a market share of 3.9% in the third quarter of 2013, the market share of hybrid electric vehicle ("HEVs") has retreated. In the second quarter of 2018, hybrid market share was at 2.5%, up a small amount from the preceding quarters (Figure 2.8).

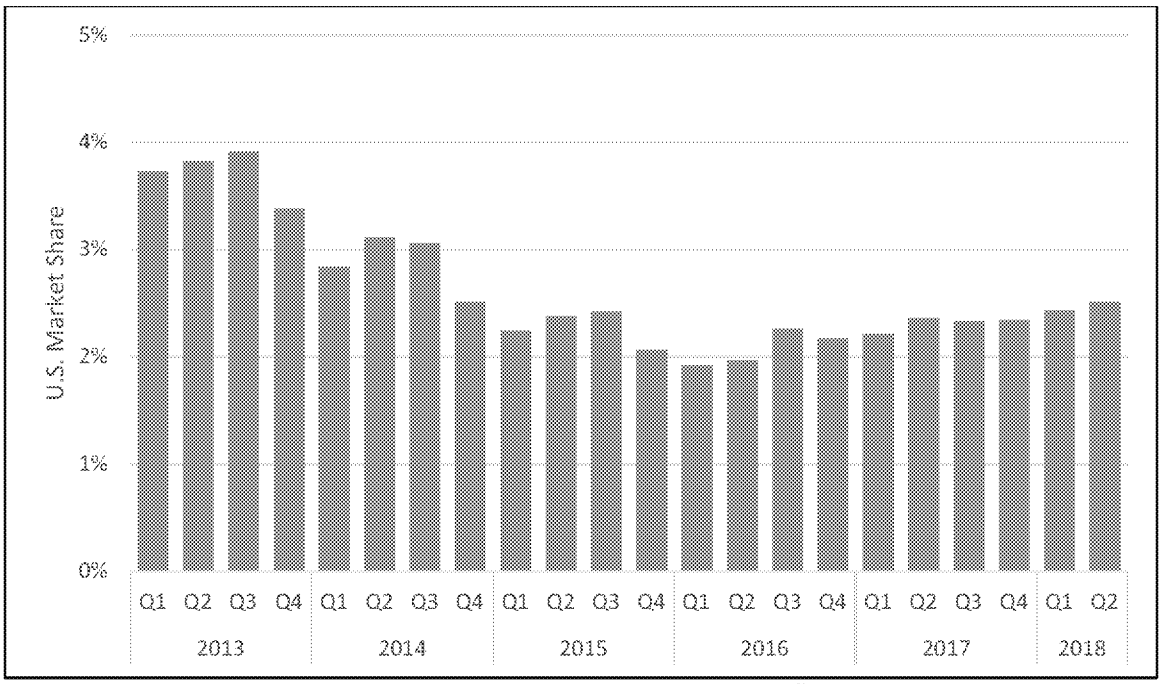

Figure 2.8: U.S. market share for HEVs.[61]

[60] *Fall 2018 Unified Agenda of Regulatory and Deregulatory Actions: RIN 2060-AT21*, OFFICE OF INFORMATION AND REGULATORY AFFAIRS, https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201810&RIN=2060-AT21 (last visited Oct. 25, 2018).

[61] *Advanced Technology Vehicle Sales Dashboard*, ALLIANCE OF AUTOMOBILE MANUFACTURERS, https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/ (last updated Aug. 23, 2018) (data compiled by the Alliance of Automobile Manufacturers using information provided by IHS Markit).

2.4.1.2. Plug-In and Fuel Cell Electric Vehicles

The market share for plug-in vehicles has grown slowly over the past several years, reaching a high of 1.66% of the U.S. market in the second quarter of 2018. Fuel cell electric vehicle market share remains extremely low (less than 0.01% market share in the second quarter of 2018) with very limited model offerings, geographic availability and refueling infrastructure (Figure 2.9).

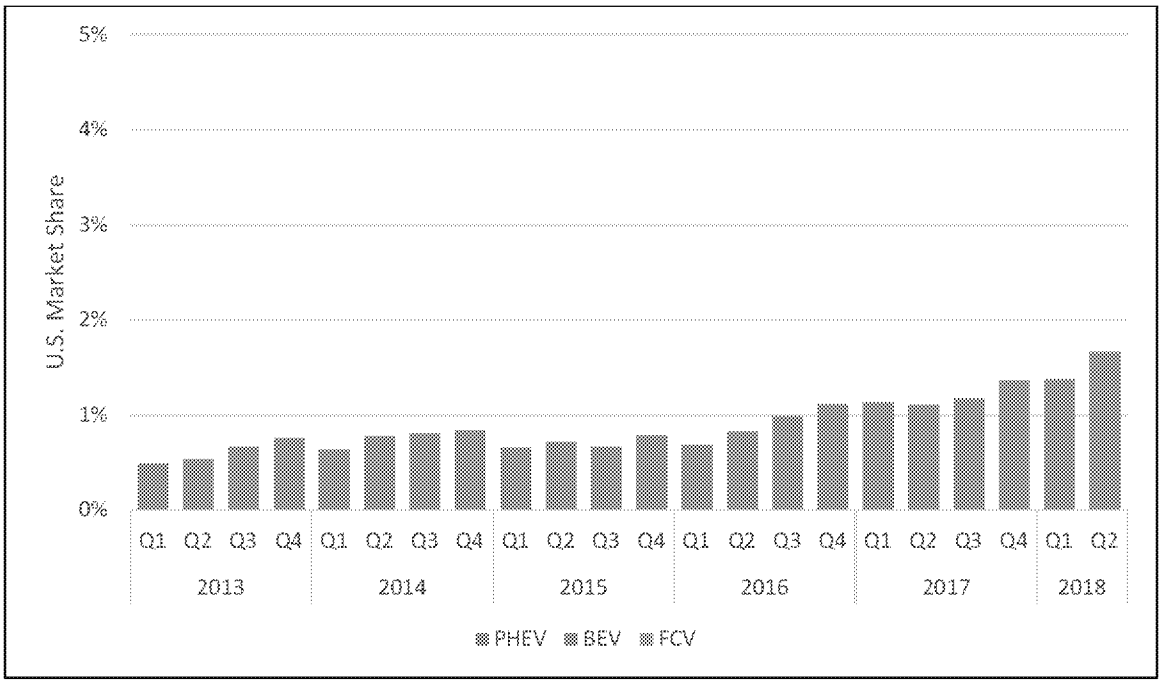

Figure 2.9: U.S. market share for plug-in and fuel cell electric vehicles.[62]

2.4.2. *Predictions for Electrification Under the No-Action Alternative*

In response to the 2016 Draft Technical Assessment Report ("DTAR"),[63] 2016 EPA Proposed Determination,[64] and 2017 MTE Reconsideration,[65] the Alliance of Automobile Manufacturers submitted comments describing that much higher electrification than is currently economically

[62] *Advanced Technology Vehicle Sales Dashboard, supra* note 61.

[63] Alliance of Automobile Manufacturers, Alliance of Automobile Manufacturers Comments on Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025 (EPA-420-D-16-900, July 2016) at ii (Sept. 26, 2016), *available at* Regulations.gov at Docket ID EPA-HQ-OAR-2015-0827-4089 and NHTSA-2016-0068-0072 (hereinafter "Alliance DTAR Comments") at ii.

[64] Alliance of Automobile Manufacturers, Alliance of Automobile Manufacturers Comments on Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation at 4 (Dec. 30, 2016), *available at* Regulations.gov at Docket ID EPA-HQ-OAR-2015-0827-6156 (hereinafter "Alliance 2016 EPA Proposed Determination Comments").

[65] Alliance Comments on the Request for Comment on Reconsideration of the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light Duty Vehicles; Request for Comment on Model Year 2021 Greenhouse Gas Emissions Standards at 17, 42, and 52 et seq. (Oct. 5, 2017), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2015-0827-9194 (hereinafter "Alliance MTE Reconsideration Comments").

supportable in the market will be needed to meet the current GHG and augural CAFE standards for model years 2022-2025 (i.e. the no-action alternative).

These views are supported by the analysis provided with the Proposed Rule, Figure 2.10. From a baseline of less than 3% electrification (including mild hybrids) in 2016, the Volpe Model projects that manufacturers will need to expand the market for electric vehicles to over 55% market share under the no-action alternative. Strong hybrids (<2% market share in the MY 2016 baseline) grow to over 16%.[66] Belt-integrated starter generator (BISG) systems increase to 19% of the market by MY 2020 as compared to a market with virtually no penetration today. Additional strong electrification required to meet the zero emission vehicle ("ZEV") mandate was not modeled and would likely temper the need for strong and mild hybrid vehicles in favor of plug-in electric vehicles if included in the modeling.

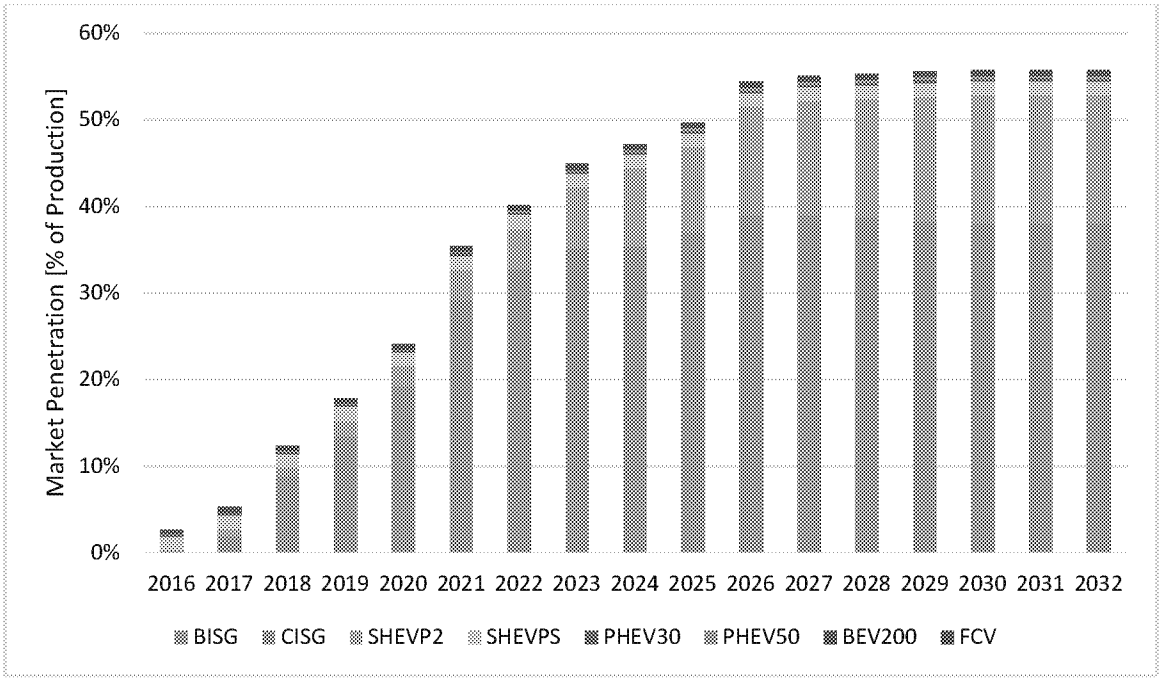

Figure 2.10: Projection of vehicle electrification under the no-action alternative CAFE standards.[67]

Other sources also support the Proposed Rule analysis that the no-action alternative will require significant increases in vehicle electrification. These include materials from Novation Analytics, HD-Systems, and Fiat Chrysler.

At the SAE International High-Efficiency IC Engine Symposium in April 2018, Greg Pannone (Novation Analytics) described the CAFE potential of an ICE-dominated future fleet. One of his slides shows the U.S. fleet achieving roughly the same CAFE level in MY 2025 as the CAFE standards require in MY 2021 (Figure 2.11). Also, in peer-reviewed research, Pannone et al. found

[66] We further note that strong hybrid penetration grows to 24% for the rulemaking (EPCA-constrained) CAFE analysis. 83 Fed. Reg. at 43,267 tbl.VII-6.
[67] Volpe Model output files, unconstrained CAFE central analysis technology utilization report.

that, "The U.S. future standards cannot be achieved without higher levels of electrification than has been previously estimated by NHTSA and EPA."[68]

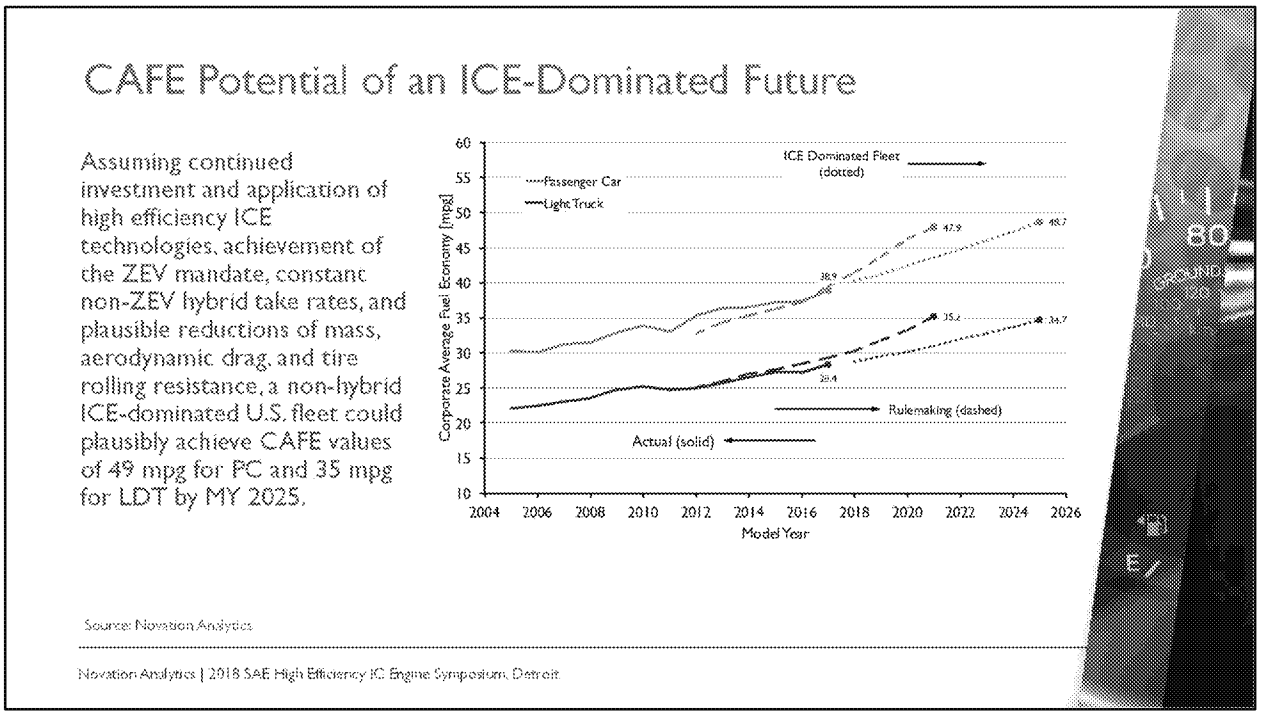

Figure 2.11: Excerpt from "What's the Role of the ICE Going Forward" showing that an ICE-dominant fleet in MY 2025 will achieve a CAFE performance level roughly equal to MY 2021 standards.[69]

K.G. Duleep (HD-Systems) also describes:[70]

- "…our recent analysis of manufacturers' product plans here at H-D Systems suggest that a large number of new hybrid and electric models must be introduced in the near future in order for firms to comply…
- "…if all conventional technology must be used to meet the 2025 requirements on the base vehicle, as EPA and NAS predict, then accounting for sales of many high line models means that conventional technology will fall short of the requirements.
- "…additional technologies will include more hybrid-electric vehicles and all-electric or other renewable fueled vehicles.
- "Luxury car manufacturers face the same issue on all their models.
- "We find that the ability to continue to sell high line, luxury, and sports cars, as well as increased volumes of smaller SUVs, will require hybrid sales to increase modestly to 2020 but

[68] Gregory Pannone et al., *Decomposing Fuel Economy and Greenhouse Gas Regulatory Standards in the Energy Conversion Efficiency and Tractive Energy Domain*, 10 SAE INT. J. FUELS LUBR. 202 (2017), *available at* https://doi.org/10.4271/2017-01-0897. The reference to previous estimations refers to certain EPA and NHTSA assessments made prior to the Proposed Rule.
[69] Gregory Pannone, What's the Role of the ICE Going Forward, Presentation at SAE International High Efficiency IC Engine Symposium at 17 (Apr. 8, 2018). Used with permission of Novation Analytics.
[70] K.G. Duleep, *Complying with the CAFE Standards: Will It Be More Difficult Than Predicted?*, RESOURCES FOR THE FUTURE (Feb. 11, 2016) http://www.rff.org/blog/2016/complying-cafe-standards-will-it-be-more-difficult-predicted.

sharply by 2025, when the market penetration of hybrid and electric vehicles will have to exceed 15 percent for many manufacturers.

- "…with the exception of Toyota, such vehicles make up less than 3 percent of sales for most manufacturers today."

2.5. The Only Vehicles That Currently Meet the MY 2025 Standards Under the No-Action Alternative Are Hybrids, Plug-In Electric Vehicles, and Fuel Cell Electric Vehicles

Continuing the trend from past years, the only MY 2018 vehicles that meet the MY 2025 no-action alternative standards are equipped with hybrid, plug-in electric, or fuel cell technology (Figure 2.12). Their collective market share in MY 2018 is approximately 3%. The 3% number even assumes that off-cycle credits are applied according to Agency projections.

In the past, others have expressed a belief that the presence of vehicles compliant with future model year standards is indicative of the appropriateness of the current GHG and augural standards (i.e. the Proposed Rule no-action alternative). However, such comments fail to recognize that in any given model year there is likely to be a wide range of fuel economy and greenhouse gas performance around any specific vehicle's individual target. Vehicles that are over-compliant to target for a given model year (i.e. those that are also compliant with future model year targets) are necessary to average against vehicles that are under-compliant to the current model year target for a given model year. Novation Analytics describes, "Assuming a normal distribution of unit sale versus CO2 and fuel economy performance, approximately 50% of the vehicles will need to achieve or exceed the footprint standards (with credits) in order for the fleet to achieve in-year compliance."[71] Therefore, the mere existence of vehicles which comply with future model year standards is not particularly informative as to whether a future standard is achievable or not.

[71] NOVATION ANALYTICS, *supra* note 33, at 71.

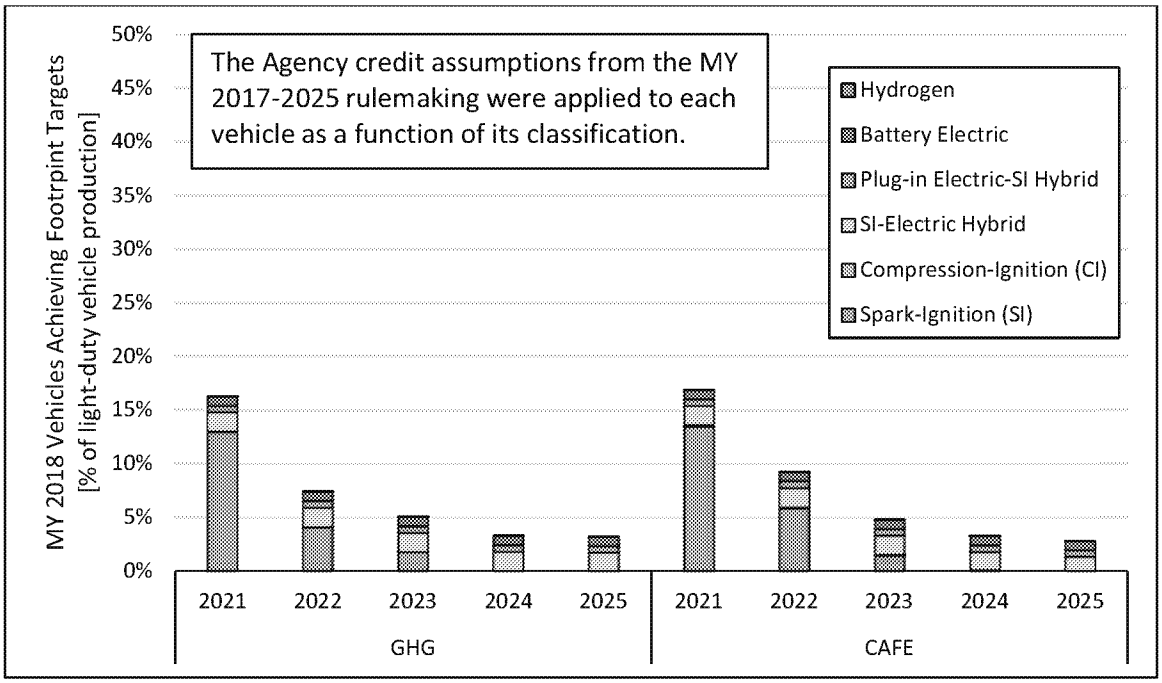

Figure 2.12: Percentage of MY 2018 vehicle production meeting the no-action alternative future model year standards by vehicle technology type.[72]

Of greater importance is the types of technologies that vehicles must utilize in the future to achieve a given level of performance and the consumer acceptance of those technologies. Also, potentially more indicative of the feasibility of the standards is the percentage of compliant vehicles produced a given number of years in the future, e.g. five years ahead. In MY 2015, the last year in which manufacturers were over-compliant to annual targets, almost 18% of vehicle production also met MY 2020 CAFE standards (five years ahead). Even at that rate and with a compliant fleet in MY 2015, manufacturers on average fell behind in MY 2016-2018 as described elsewhere in these comments. In comparison, in MY 2018 approximately 5% of vehicle production meets the MY 2023 standards (five years ahead).[73]

2.6. Critique of *Supplying Ingenuity II: U.S. Suppliers of Key Clean, Fuel-Efficient Technologies* (BlueGreen Alliance, Natural Resources Defense Council)

The BlueGreen Alliance and Natural Resources Defense Council ("NRDC") have previously described their study *Supplying Ingenuity II: U.S. Suppliers of Key Clean, Fuel Efficient Technologies* in support of the current GHG and augural CAFE standards.[74]

[72] Data from NOVATION ANALYTICS, *supra* note 33, at 75, 81, reformatted by the Alliance of Automobile Manufacturers.
[73] NOVATION ANALYTICS, *supra* note 33, at 81.
[74] NATURAL RESOURCES DEFENSE COUNCIL & BLUEGREEN ALLIANCE, SUPPLYING INGENUITY II: U.S. SUPPLIERS OF KEY CLEAN, FUEL EFFICIENT TECHNOLOGIES (May 2017), *available at* https://www.nrdc.org/sites/default/files/supplying-ingenuity-clean-vehicle-technologies-report.pdf (hereinafter SUPPLYING INGENUITY II).

At the request of the Alliance, NERA Economic Consulting ("NERA") and Trinity Consultants ("Trinity") reviewed this study to assess its claims and the underlying support for them.[75] These consultants also reviewed the related report from BlueGreen Alliance titled *Driving Investment: How Fuel Efficiency is Rebuilding American Manufacturing*.[76] In its review, NERA and Trinity find that *Supplying Ingenuity II* fails to support its central claim that "strong" federal GHG and CAFE standards have created and will create significant job growth in the automobile industry.[77] In addition, Trinity and NERA identified serious shortcomings with the empirical information provided in support of Supplying Ingenuity II. The complete Review of Supplying Ingenuity II is included as Attachment 5 to these comments.

For these reasons and those more thoroughly explained in the *Review of Supplying Ingenuity II*, the Agencies should not rely upon *Supplying Ingenuity II* and the related *Driving Investment* studies in assessing maximum feasible fuel economy and GHG standards for MY 2021–2026 vehicles.

[75] Trinity Consultants and NERA Economic Consulting, Review of *Supplying Ingenuity II*, Prepared by BlueGreen Alliance and Natural Resources Defense Council (Mar. 27, 2018) (hereinafter REVIEW OF SUPPLYING INGENUITY II). Available as Attachment 5 to these comments.

[76] BlueGreen Alliance, Driving Investment: How Fuel Efficiency is Rebuilding American Manufacturing (Jan. 2018), *available at* https://www.bluegreenalliance.org/wp-content/uploads/2018/01/Driving-Investment-report-v7.pdf (hereinafter DRIVING INVESTMENT).

[77] REVIEW OF SUPPLYING INGENUITY II, *supra* note 75, at E-1.

APPENDIX 3: PREFERRED STRUCTURE OF STANDARDS

3.1. One National Program

The Alliance would prefer final standards that are supportable by automakers, the Agencies, and California to enable the continuation of One National Program. There are many positive reasons for doing this as described in our transmission letter. Here the Alliance provides additional analysis regarding potential outcomes if the One National Program approach is not preserved.

3.1.1. *A Bifurcated California and Federal Program Would Likely Result in Minimal Improvements in Automotive GHG Emissions in California and Other States Following California Standards*

A 50-state program not only allows manufacturers to make predictable investments, it could secure more GHG and fuel reductions than under a possible split between Federal and California standards. Even using a mathematical average, or weighting, of two different standards does not provide a clear picture of what the resulting tons or gallons saved or cost of the programs would be.

When one takes into account the leakage between two GHG programs and one program is nested within the other, the encompassing program can have a greater effect on the final compliance values than the inset program.[78] Indeed, the inset program serves mainly to create a heterogeneous mix of vehicles across the two programs and could serve to increase cost while providing little benefit. One estimate put the leakage between a split California and Federal programs at roughly 65%. In layman's terms, one paper estimates leakage due mainly to sales in non-CA-LEV states will offset the gains in the CA-LEV states by 65% beyond the sales weighted average of the CA-LEV and non- CA-LEV states. This same paper also calculates that a split program will result in net welfare changes in the CA-LEV adopting regions to be negative while the non-adopting regions will see a welfare benefit. In addition, for the need to provide automakers with predictable investment decisions, One National Program will also lock-in GHG and Fuel Economy gains without the very real concerns of leakage, disparate welfare benefits across states, and possible decreases in vehicle choice by region.

3.2. Two-Wheel Drive Utility Vehicle Standard Adjustment

The last several years have witnessed an organic shift in consumer buying patterns away from higher-fuel economy small and mid-size passenger cars toward more capable crossovers and utility vehicles. Industry and regulators clearly did not anticipate this market shift when regulations were finalized in 2012. The forecasts referenced by the Agencies at that time showed cars increasing from 50% to 57% of annual vehicle sales by 2025. Instead, passenger cars have significantly dropped to 38% of the total fleet by 2017—the opposite of the expected trend. Over that same period, the utility vehicle market share has grown from 30% to over 40%.[79]

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[78] *See* Lawrence H. Goulder et al., *Unintended Consequences from Nested State and Federal Regulations: The Case of the Pavley Greenhouse-Gas-Per-Mile Limits*, 63 J. ENVT'L ECON. & MGMT. 187 (2012).
[79] NOVATION ANALYTICS, *supra* note 33, at 24.

This shift in consumer preference presents a compliance challenge, even in a system with footprint-based standards. A two-wheel drive ("2WD") utility or crossover vehicle with a gross vehicle weight rating ("GVWR") of less than 6,000 pounds ("lbs") is not allowed by regulation to be in the light-duty truck fleet, while a similar vehicle over 6,000 lbs GVWR would be permitted in the light-duty truck fleet. One of these smaller 2WD utility or crossover vehicles, with the same powertrain and technology as a sedan with a smaller footprint, gets 2–4 fewer miles per gallon ("mpg") without adjustment to its standard (see Figure 3.1).[80] With U.S. gas prices remaining low, consumers are showing that they are willing to make a fuel economy trade-off for the versatility of a crossover or sport utility vehicle ("SUV"). This is a significant contributing factor to the growing industry compliance gap, which needs to be addressed in this rulemaking.

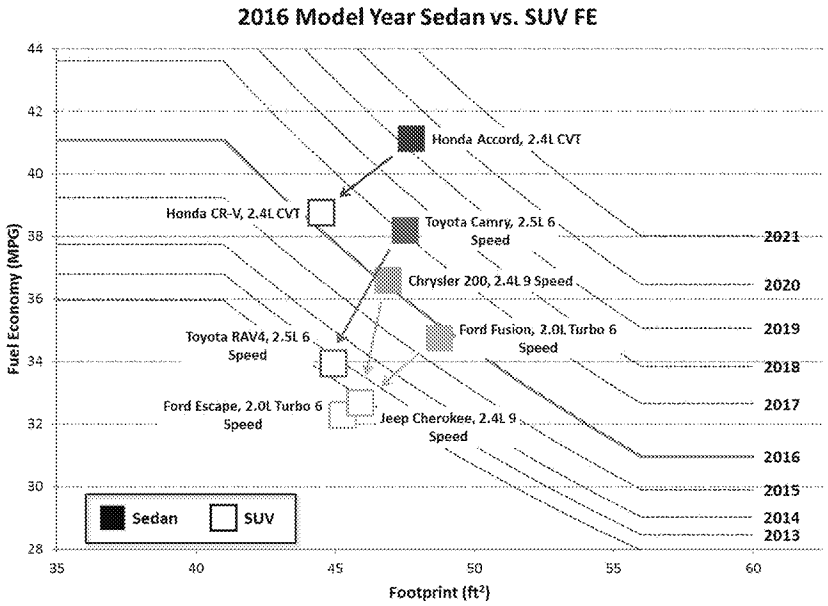

Figure 3.1: Passenger car & 2WD SUV comparison.

Given the magnitude of the compliance challenge for these vehicle types, manufacturers may choose to change the drivelines available in the vehicles they offer customers in order to comply with the more appropriate light-duty truck standard. This may be more affordable compared to the investment in fuel-saving technologies for crossover and SUV vehicles to achieve compliance with the passenger car standards. Alternatively, increasing the vehicle size and/or load capacity to achieve a GVWR of at least 6,000 lbs is another means of shifting the compliance requirement to the light-duty truck standard. Both options have the unintended consequences of burning more fuel and emitting more CO_2.

Additionally, the industry mix shift towards SUV and crossover vehicles increases the difficulty of meeting the Domestic Minimum Standard ("DMS") since the smaller 2WD utility and crossover

[80] Footprint data from *Compliance and Effects Modeling System*, *supra* note 26 (CAFE Model for 2018 Proposed Rule for Model years 2021-2026 Passenger Cars and Light Trucks Central Analysis, 2018_Proposed Rule_market_inputs_ref.xlsx); Fuel Economy data from *Download Fuel Economy Data,* U.S. DEPARTMENT OF ENERGY, https://www.fueleconomy.gov/ (2016 FE Guide for DOE-OK to release-no-sales-4-27-2017Mercedesforpublic.xlsx) (last visited Oct. 26, 2018)..

vehicles tend to reduce the overall compliance of the passenger car fleet. The DMS is currently established based on a forecast model mix, and does not adjust for a customer-driven shift in that mix.

Ultimately, these smaller 2WD SUVs and crossover vehicles have a combination of truck-like characteristics that customers prefer—elevated/off-road ground clearance and seating position coupled with expanded cargo carrying ability.

There are two possible solutions to address the conflict between consumer desires and the current regulation.

3.2.1.1. Preferred Solution: Revise the Light-Duty Truck Classification

One solution to the 2WD utility and crossover vehicle challenge is a shift of these vehicles to the light-duty truck fleet. In the Proposed Rule, NHTSA notes that:

> [Certain] vehicles that DOT "decides by regulation [are] manufactured primarily for transporting not more than 10 individuals" are, by statute, passenger automobiles . . . . NHTSA's regulation on vehicle classification, contains requirements for vehicles to be classified as light trucks either on the basis of off-highway capability or on the basis of having "truck-like characteristics." Over time, NHTSA has refined the light truck vehicle classification by revising its regulations and issuing legal interpretations. However, based on agency observations of current vehicle design trends, compliance testing and evaluation, and discussions with stakeholders, NHTSA has become aware of vehicle designs that complicate light truck classification determinations for the CAFE and CO_2 programs.[81]

We agree that NHTSA has the flexibility to consider regulatory changes to the truck-like characteristics of a vehicle, and that the exclusion of small SUVs and crossovers from the light truck classification is a complication. Including these vehicles in the light-duty truck fleet would simplify the situation by aligning standards with capability, similar to how their four-wheel drive variants and the larger 2WD versions are regulated. The elevated/off-road ground clearance and seating position, coupled with expanded cargo-carrying capacity of today's small SUVs and crossovers, reflect the truck-like characteristics that NHTSA can use in determining new regulations.

The Alliance proposes adding new criteria to 49 C.F.R. § 523.5(a) as follows:

> (6) Permit expanded use of the automobile for cargo-carrying and other non-passenger-carrying purposes through:
>
> (i) An extended roof-line and expanded cargo capacity with at least one row of seats that fold or stow to create a flat, leveled cargo surface extending from the forward most point of installation of those seats to the rear of the automobile's interior, and

[81] 83 Fed. Reg. at 43,438.

(ii) Less than 6000lb GVWR and meets 4 out of 5 off-road criteria as defined in paragraph (b)(2) of this section.

This change would address both the mismatch of the standards with this type of vehicle, and industry concerns with achieving the DMS requirement.

3.2.1.2. Alternative Solution: Provide Passenger Car Fleet Adjustment

While the Alliance sees no issue with a regulatory change that would determine small SUVs and crossovers to be non-passenger automobiles, we have an alternative proposal if reclassification is problematic.

To account for the unique capabilities of this customer-demanded segment, the Agencies could provide an adjustment to the CO_2 and fuel economy requirements, either directly by easing the standard by approximately 40 g/mi, or indirectly through an offset of the model type footprint by about 12 square feet, see Figure 3.2.

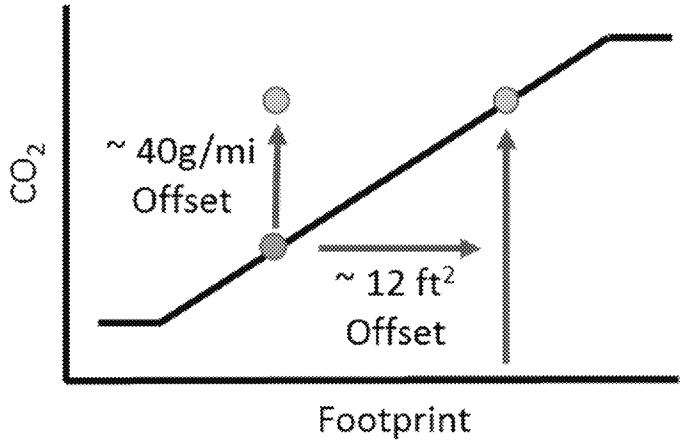

Figure 3.2: Proposed footprint standard adjustment for 2WD SUVs and crossovers in the passenger car fleet.

Although this proposed method applies an offset in CO_2 by 40 g/mi, it is independent of the actual difference in standards between the passenger car and light-duty truck compliance curves at a given footprint. A regulatory offset to the footprint has an additional complication in that the modified footprint may land in the upper flat standard portion of the curve and thus achieve less than the intended CO_2 relief.

For these reasons, this method is less preferred than the proposed shift of this segment to the light-duty truck fleet.

In conclusion, a CO_2 adjustment of footprint offset would help account for the higher fuel consumption and CO_2 emissions of this customer-demanded segment, and should be considered if NHTSA cannot revise the regulations that define the truck-like characteristics of vehicle classifications.

3.3. Structure of Standards and Flexibilities

The ultimate stringency of any standard is a combination of the footprint-based targets and flexibilities.[82] To the degree flexibilities and incentives are not completely aligned between the CAFE and GHG programs, there must be an offset in the associated footprint-based targets to account for those differences. Some areas of particular concerns are air conditioning refrigerant credits, and incentives for advanced technology vehicles. The Alliance urges the Agencies to seek harmonization of the standards and flexibilities to the greatest extent possible, while also seeking to identify pathways to a mutually agreeable One National Program.

3.4. The Standard Set Should Take into Account the Necessity of Any Stringency Changes Arising from the Tier 3 Change to E10 Test Fuels

The Alliance most recently addressed the issue of incomplete regulations for implementing the Tier 3 final rule change to test fuels (the "MY 2020 Cliff") in its October 5, 2017 comments to EPA on the reconsideration of the final determination.[83] In 2013, EPA finalized the Tier 3 light-duty vehicle emissions final rule regulations, which require the use of 10% ethanol ("E10") test fuel for fuel economy and CAFE testing by MY 2020; however, EPA still has not issued the regulatory changes necessary to enable such testing. This delay has eroded the needed lead time for this changeover, making the MY 2020 deadline infeasible. The lack of a defined phase-in also creates considerable uncertainty in manufacturers' product development and compliance planning processes.

Industry, in written comments to EPA, has proposed several ways to address the incomplete regulations, ranging from the issuance of a test procedure adjustment concurrent with the Tier 3 final rule to, more recently, the issuance of a stand-alone, limited-scope rulemaking to postpone the MY 2020 deadline for the test fuel changeover. In August 2018, industry requested that EPA release a letter that would have the effect of assuring no adverse action against industry in the absence of EPA updating the testing regulations. Industry urges EPA to address test procedure adjustments in this final rule because there are no provisions in existing regulations to test on zero percent ethanol ("E0") or E10 starting in MY 2020, industry requested that EPA issue an extension of the Tier 2 testing provisions (using E0) in 40 C.F.R. § 600.117 past their current expiration date at the end of MY 2019.

The provisions of 40 C.F.R. § 600.117 were put in the Tier 3 rule as a stopgap measure until EPA could incorporate the necessary changes to allow E10 testing for fuel economy and GHG emissions via new rulemaking. EPA did not intend for a lack of new updated regulations to create the current situation where the MY 2020 regulations do not permit testing for fuel economy and GHG reporting on either fuel (E0 or E10).

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[82] This is not to say that the Agencies should assume that any given manufacturer (or manufacturers as a whole) will be able to make full use of all flexibilities in combination or individually. Each manufacturer is more likely to make use of various flexibilities as they fit into their particular product, technology, and market plans. As such, to the extent possible, the Agencies should keep "flexibilities" as optional ways to comply and not unduly assume that each flexibility allows additional stringency of footprint-based standards.

[83] Alliance MTE Reconsideration Comments, *supra* note 65, at 79.

When EPA releases updated test procedure regulations, they should include an adequate phase-in period for the new requirements. There would be a great testing burden for manufacturers if the new regulations did not adequately provide for reasonable carry-over and sequencing of tests or for the unnecessarily added complexity to adjust only certain test results. While the Alliance is appreciative of EPA staff's acknowledgement of the need for a phase-in as it promulgates the new test procedures, the Alliance requests that EPA require that the new test procedures apply only to new vehicles (not carry-over vehicles) to reduce test burden and unnecessary retesting of previously certified vehicles.

In addition, the Alliance requested that the EPA provide manufacturers with an updated recommended method for calculating the Net Heating Value and Carbon Weight Fraction of federal Tier 3 emissions gasoline. EPA has recognized in previous guidance letters that corrections to the Net Heating Value and Carbon Weight Fraction methods published in the Code of Federal Regulations are required.[84,85] The Alliance asks that EPA apply updates to the methods from letter CD-95-09 and adopt the use of modified ASTM International ("ASTM") Test Methods D3338 and D3343 for fuels containing ethanol rather than MTBE in the forthcoming rulemaking. Again, the Alliance is appreciative of EPA staff's acknowledgement of the need to adopt the use of these modified methods.

Finally, as EPA and NHTSA evaluate and arrive at a final preferred regulatory alternative, the Agencies should determine if there is a need to explicitly take into account any stringency adjustment for the Tier 3 change to E10 test fuels for fuel economy GHG and CAFE testing. The Agencies should undertake this determination within this rulemaking because considerations that could affect stringency should not be considered as separate issues but should be handled together through a comprehensive evaluation. Performing this evaluation within the current rulemaking reduces the need for additional rulemakings in accordance with Presidential Executive Orders 13777 and 13781, and is the most logical and efficient approach to evaluating the necessity of stringency adjustments or otherwise adding CO_2 to vehicle test results.

3.5. Domestic Passenger Car Minimum Standards Should Be Adjusted

The Alliance supports NHTSA's proposal that the domestic minimum standard be determined as a range during rulemaking and resolved into a final value after the model year is completed. This will lead to more accurate DMS values, and will correct the currently high DMS value.

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[84] EPA recognized that the methods contained in 40 C.F.R. § 600.113 are not applicable to Phase II test fuel and other oxygenated fuels. Letter from Robert E. Maxwell, Director of the Certification Division, Office of Mobile Sources, U.S. Environmental Protection Agency, to Manufacturers, CD-94-16, Protocol for MPG Calculations for Vehicles Tested on Phase II Gasoline (Aug. 5, 1994), *available at* https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14096&flag=1.

[85] EPA provided in this guidance revised NHV and CWF calculations based on ASTM D3338 and D3343 for MTBE containing fuels. This provides a precedent for revising the fuel economy equations for Net Heating Value and Carbon Weight of Fuel. Letter from Robert E. Maxwell, Director of the Certification Division, Office of Mobile Sources, U.S. Environmental Protection Agency, to Manufacturers, CD-95-09, MPG Calculations for Certification Vehicles Tested on California Phase 2 Gasoline (June 1, 1995), *available at* https://iaspub.epa.gov/otaqpub/display_file.jsp?docid=14107&flag=1.

The Alliance notes that the error leading to a higher DMS was not an error in NHTSA's methods; it is simply a manifestation of the market shift that has occurred since the standards were promulgated in 2012. This drift in projections is the same phenomenon that NHTSA observed in the DTAR where the combined fleet target was predicted to fall from the 48.7 mpg determined in the 2012 final rule to 46.3 mpg under the same augural standard scenario. The change in target was simply due to a market shift toward larger-footprint vehicles.

Figure 3.3 below shows the error that has developed in the DMS due to it being developed from a projection in 2012 using MY 2008 and 2010 fleets. The error in MY 2018, based in pre-model year reports, is expected to be 1.1 mpg.

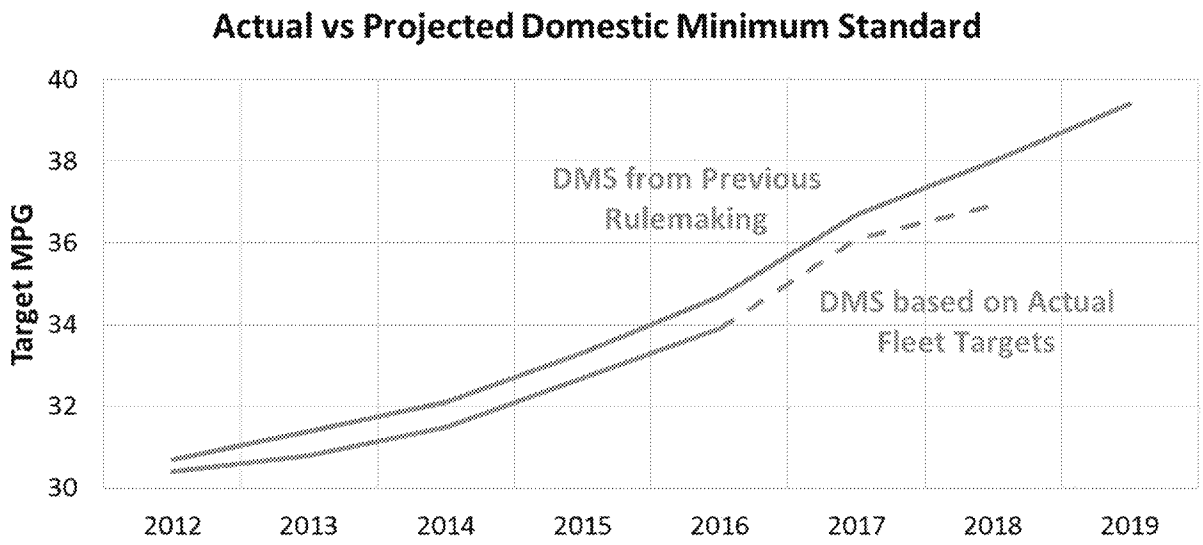

Figure 3.3: Actual versus project minimum standard.

A significant question here is whether the DMS is subject to the 18-month lead time requirement. The Alliance previously commented that the 18-month lead time requirement should apply to the DMS[86]; however, the Alliance now finds that interpretation to have been incorrect.

EPCA requires NHTSA to prescribe fuel economy standards at least eighteen months before the beginning of the model year.[87] The standards that are promulgated during rulemaking, however, are the footprint target curves—not the single numerical value against which any fleet's average fuel economy value is compared. That value cannot be determined until after the model year is completed.

There is no dispute that NHTSA is fulfilling its statutory obligations by publishing only the footprint target curves during rulemaking. The final standard for individual fleets, as such, is not subject to the 18-month lead time requirement. The same logic should apply to the DMS.

It is appropriate and required by statute that NHTSA project the DMS during rulemaking so that manufacturers can plan accordingly, but the Alliance does not find that the 18-month lead time

[86] 75 Fed. Reg. 25,323, 25,614 (May 7, 2010).
[87] 49 U.S.C. § 32902(a).

requirement should be more restrictive of the DMS than any other fleet target. Therefore, the Alliance requests that NHTSA not only establish a range for the DMS in future rulemakings, but that it also correct the DMS after the model year is completed, for all model years moving forward.

3.6. Methane and Nitrous Oxide Standards

EPA seeks comment on whether to proceed with its proposal to discontinue accounting for methane (CH_4) and nitrous oxide (N_2O) emissions as part of the CO_2 emissions standards, in order to provide for better harmony with the CAFE program, or to continue to consider these elements as factors toward compliance and retain them as a feature that differs between the programs. EPA is also asking for comment in consideration of a more-realistic proposed standard derived from updated data.

Specifically, in the Proposed Rule[88] EPA seeks comment on whether to change the existing CH_4 and N_2O standards that were finalized in the 2012 rule.[89] EPA seeks information on whether the existing CH_4 and N_2O emissions standards are appropriate, or whether they should be revised to be less stringent or more stringent based on any updated data. EPA further proposes, if it moves forward with its proposal to eliminate these factors, to consider whether it is appropriate to initiate a new rulemaking to regulate these programs independently, which could include an effective date that would result in no lapse in regulation of emissions of CH_4 and N_2O.

3.6.1. *Discontinuation of Accounting for CH_4 and N_2O Emissions*

The Alliance supports EPA's proposal to discontinue accounting for CH_4 and N_2O emissions as part of the CO_2 emissions standards. As explained by the Agencies, this would provide better harmony with the CAFE program.

This position is consistent with the Alliance's recommendation to the EPA, made in comments to the proposed rule issued in 2012, that, based on actual emission levels, CH_4 and N_2O should not be regulated as GHG emissions.[90] The Alliance notes that data from the 2016 EPA report on light-duty vehicle emissions supports the position that CH_4 and N_2O have minimal impact on total GHG emissions, reporting only 0.045% in exceedance of the standard.[91] This new information makes it apparent that CH_4 and N_2O contribute a *de minimis* amount to GHG emissions. Additionally, gasoline CH_4 and N_2O performance is within the current standards. Finally, the main producers of CH_4 and N_2O emissions are flex fuel (E85) and diesel vehicles, and these vehicles have been declining in sales as compared to gasoline-fueled vehicles.

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[88] 83 Fed. Reg. at 43,193; Technical Memorandum to Docket No. EPA-HQ-OAR-2018-0823, NHTSA-2018-0067, Air Conditioning Leakage Credits and Corresponding CO_2 Target Offsets (Aug. 2018), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2018-0283-0248.

[89] 75 Fed. Reg. at 25,422.

[90] *See* Letter from Julie C. Becker, Vice President of Environmental Affairs at the Auto Alliance, to the Air and Radiation Docket of the Environmental Protection Agency, and the Docket Management Facility of the U.S. Department of Transportation at 31–42 (Nov. 20, 2009), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2009-0472-6952.

[91] Calculated from data in 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at tbls.B-1, 3-23, 3-27, 3-28.

The Agencies should also note that CH_4 and N_2O have minimal opportunities to be catalytically treated, as N_2O is generated in the catalyst and CH_4 has a low conversion efficiency compared to other emissions. EPA did not intend that additional hardware should be required to comply with the CH_4 or N_2O standards on any vehicle, including flex fuel, plug-in hybrid electric, diesel, or compressed natural gas vehicles.

The Alliance comments from the 2012 rulemaking also noted that the technologies that could be used to measure N_2O were still evolving, and that some technologies represented a large increase in test burden as a result of the measurement process being an "offline" type of method that is not suited for use in a high-throughput testing environment like those found at auto manufacturer test labs.[92] The Alliance's previous comments on measurement burden concerns continue to be valid today, and the Alliance reiterated the need for relief in its comments to EPA on excessive regulatory burdens.[93]

Given the minimal impact of CH_4 and N_2O on overall GHG emissions, and to incentivize flex fuel, plug-in hybrid electric, diesel, and compressed natural gas vehicles for their GHG benefits, EPA should take this opportunity to discontinue the CH_4 and N_2O standards requirements and achieve harmony between programs.

3.6.2. *If EPA Does Not Discontinue Accounting for CH_4 and N_2O*

The Alliance recommends that EPA discontinue accounting for CH_4 and N_2O; however, if EPA decides not to do so, the Alliance recommends that the Agency take a number of actions.

3.6.2.1. EPA Should Reevaluate the Level of the CH_4 and N_2O Standards and Revisit the Underpinning Analyses

If EPA does not discontinue accounting for CH_4 and N_2O, then the Alliance requests that the level of the CH_4 and N_2O standards in grams per mile be reevaluated for appropriateness. EPA was guided by two principles in setting the CH_4 and N_2O standards.

In setting an N_2O standard in the 2012–2016 GHG Final Rule, EPA relied on an EPA test report of 17 tests on 12 flex fuel vehicles certified at EPA's lab in 2008 and 2009.[94] Based on those test results, EPA set the N_2O standard at two times the anticipated actual emissions level.[95] EPA noted several times that the N_2O standard was being set based on limited data on current vehicles,

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[92] *See* Letter from Julie C. Becker, Vice President of Environmental Affairs at the Auto Alliance, to the Air and Radiation Docket of the Environmental Protection Agency, and the Docket Management Facility of the U.S. Department of Transportation at 38–42 (Nov. 20, 2009), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2009-0472-6952.

[93] *See* Letter from Christopher Nevers, Vice President of Energy & Environment at the Auto Alliance, to Samantha K. Dravis, Regulatory Reform Officer and Associate Administrator of the Office of Policy at the Environmental Protection Agency 38–42 (May 15, 2017), *available at* Regulations.gov at Docket ID No. EPA-HQ-OA-2017-0190-37160.

[94] 75 Fed. Reg. at 25,422; Antonio Fernandez, Memorandum to Docket No. Docket EPA-HQ-OAR-2009-0472, N_2O Data from NVFEL Tests on Flex Fuel Vehicles Operating on E85 (Mar. 30, 2010), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2009-0472-11566.

[95] 75 Fed. Reg. at 25,422 ("The level of the N2O standard is approximately two times the average N2O level of current gasoline passenger cars and light-duty trucks that meet the Tier 2 NOX standards").

including limited recent EPA test data contained in the test report submitted to the docket.[96] Despite these data limitations, EPA went on to express confidence that "most if not all" vehicles would meet the set standard, because the standard would represent a level 100% higher than the average current N_2O level (as shown by the "limited" recent EPA test data).

EPA's March 30, 2010 test report provides evidence that some of the tested vehicles (namely, vehicles 2, 14, 15, and 17) shown in the graph would not be able to comfortably meet the proposed N_2O standard, including compliance margin. In retrospect, the 2010 EPA test report shows that the current standard did not achieve EPA's goals of setting a capping standard and not forcing reductions relative to today's low levels.

In fact, EPA acknowledged that advanced diesel or lean-burn gasoline vehicles of the future may face greater challenges meeting the CH_4 and N_2O standards than will the rest of the fleet.[97]

Furthermore, other concerns with the conclusions from EPA's test program used to set GHG standards for CH_4 and N_2O should be reevaluated:

- The INNOVA analyzers used in the program were not suited for measuring N_2O, as they exhibited excessive amounts of cross-interference from other constituents;
- The four non-zero data points in the "N2O from FFVs (E85) FTP City" chart were not included in setting a 0.010 g/mi cap standard, and as such do not conform to EPA's stated goal in setting the standard at such a level as to provide an adequate 50% margin of headroom for vehicle compliance; and
- The assumptions used for fuel usage for flex fuel vehicles, from 100% of ethanol-fueled operation, should be more accurately set at 1% ethanol-fueled operation.

3.6.2.2. Agencies Should Consider Implementing Alternative Forms of the Standard

If EPA continues accounting for CH_4 and N_2O, the Agencies should additionally, or as an alternative, consider supplemental changes to amend the methodology of compliance to minimize unnecessary compliance burdens. The Alliance recommends that the compliance methodology be changed to a fleet average program, with averaging, banking, and trading ("AB&T") of CH_4 and N_2O credits, allowing for accounting for under- and over-compliance with the standards, similar to other mechanisms already in place in the GHG standards. Such a structure would provide the flexibility to offset lower-performing applications. In addition, the value against which the standard should be evaluated should be an average of both FTP and HFET test cycles, in line with how CO_2 is established for the GHG standards.

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[96] 75 Fed. Reg. at 25,422. ("EPA has not previously regulated N2O emissions, and available data on current vehicles is limited. However, EPA derived the standard from a combination of emission factor values used in modeling light duty vehicle emissions and limited recent EPA test data.194 195 Because the standard represents a level 100 percent higher than the average current N2O level, we continue to believe that most if not all Tier 2 compliant gasoline and diesel vehicles will easily be able to meet the standards").

[97] *See* 75 Fed. Reg. at 25,422.

3.6.2.3. Agencies Should Keep Flexibilities Available

If despite the Alliance's recommendation EPA does not discontinue accounting for CH_4 and N_2O, and instead chooses to continue to regulate these substances either in the current manner or independently through a new rulemaking, then EPA should offer the flexibilities recommended by the Alliance as stated above. The availability of flexibilities to compensate for CH_4 and N_2O emissions with fleet averaging with AB&T, along with averaged FTP and HFET cycles, is a valuable strategy for achieving compliance with the standards. While not a preferred outcome, if EPA were to regulate CH_4 and N_2O through a separate new rulemaking, the proposed flexibilities would need to be included to allow a seamless transition of compliance for industry.

Considering the minimal contribution of CH_4 and N_2O emissions and the associated testing and reporting burdens, the Alliance suggests that the Agencies' goals can be achieved without regulation in this area. If this is not possible, the Alliance supports leaving CH_4 and N_2O in the current GHG regulations, with consideration of the above-mentioned adjustments to standards and supplemental flexibilities. The Alliance will work with the Agencies on any viable solution that addresses regulatory burden while providing a flexible solution.

APPENDIX 4: CONSUMER ACCEPTANCE

As the Alliance had said in our past comments to the DTAR, the Proposed Determination, and the Reconsideration of the Final Determination, consumer acceptance is a key consideration in determining the appropriate level of standards. The auto industry is committed to making continued technology improvements that reduce CO_2 emissions and increase fuel economy, but in order to deliver these technologies, the vehicles must still be affordable for consumers, and consumers must be willing to pay for the technologies. If consumer demand for new vehicles slows, vehicles with higher CO_2 emissions could remain in the in-use vehicle fleet longer.

4.1. The Alliance Supports a More Thorough Analysis of Consumer Acceptance

In the DTAR and Prior Final Determination, the Agencies neglected the potential impacts of consumer affordability and willingness to pay. The Alliance, as well as other stakeholders, submitted comments requesting a more thorough consideration of consumer acceptance, since the success of the standards relies on consumers purchasing vehicles with higher fuel economy and lower CO_2 emissions. The Alliance commends EPA and NHTSA for carefully considering the feedback they received from stakeholders, and updating their analyses to take a more rigorous look at this key factor.

In the Proposed Rule, the Agencies highlight how consumer affordability and willingness-to-pay impacted their overall decision on the standards. The Agencies' comments echo statements that other stakeholders, such as the Alliance, have said in previous comments. Technology costs for achieving the current standards are higher than were originally projected in the 2012 rulemaking, and fuel prices are lower than were previously projected. This results in consumers having to pay more up front, for less long-term benefit. Furthermore, as fleet-wide efficiency improves, the incremental benefit to consumers via gas savings decreases further. "Put simply, a one mpg increase for vehicles with low fuel economy will result in far greater savings than an identical 1 mpg increase for vehicles with higher fuel economy, and the cost for achieving a one-mpg increase for low fuel economy vehicles may be far less than for higher fuel economy vehicles."[98] The Agencies assert that consumers tend not to purchase vehicles that they do not want or need, which could ultimately result in lower sales volumes. This could negatively impact the overall program goals—resulting in consumers staying in older, less efficient vehicles longer. The Alliance agrees that these factors lacked adequate consideration in the DTAR and Prior Final Determination. We are appreciative that the Agencies put more consideration into consumer acceptance in the Proposed Rule.

The Agencies have also made significant strides toward improving their modeling of consumer behavior by adding new modules to estimate new vehicle sales and in-use vehicle scrappage in response to changes to new vehicle prices. The Alliance agrees that the Agencies should consider price effects on new vehicle sales and resultant vehicle scrappage impacts for the final rule and future rulemakings. The prior versions of the Agencies' models were very simplistic, focusing on payback period as the method for determining consumer willingness to pay; therefore, the Alliance has advocated for a more comprehensive analysis of consumer acceptance. We commend the

[98] 83 Fed. Reg. at 42,991.

Agencies for their efforts toward modeling such a complicated issue. As the Agencies continue to improve their modeling of consumer acceptance, the Alliance recommends that the Agencies review the methodologies used by NERA Economic Consulting and Trinity Consultants, as described in the report *Evaluation of Alternative Passenger Car and Light-Duty Truck Corporate Average Fuel Economy (CAFE) Standards for Model Years 2021-2026*, referenced in Appendix 1 in our comments. NERA Economic Consulting and Trinity Consultants used a state-of-the-art methodology and framework to estimate the market impacts and social impacts, resulting from three alternatives in the Proposed Rule relative to the no-action alternative. The Alliance encourages the Agencies to refer to this report as they continue developing modeling that best addresses this complex issue.

4.2. Affordability

The Alliance appreciates the Agencies' consideration of the potential impact of the standards on consumer affordability. Increases in vehicle prices, as well as other factors, are making new vehicles less and less affordable for some consumers, which can result in slower fleet turnover. The Agencies have specifically requested comment on the effect that increased prices, interest rates, and financing terms are expected to have on the new vehicle market.

As the Alliance has stated in our past comments, the average transaction price for new light-duty vehicles in the United States continues to climb. The estimated average transaction price for light vehicles in the U.S. in July 2018 was $35,359, up $985 since July 2017.[99] This increase is due in part to technology required to meet regulations. At the same time, interest rates have been rising, and are expected to increase even more into 2019,[100] which will increase monthly auto loan payments further. However, data shows that consumers are unwilling, or unable, to increase the share of their monthly budgets allocated to transportation costs. The portion of household budgets allocated to car payments has gone down, as shown in Figure 4.1 below, indicating that in general, consumers are not willing to increase the portion of their budget going toward a new car purchase. If, as a result of the need to add technology, vehicle prices increase further, consumers must either postpone vehicle purchases, buy used vehicles, or stretch out their loan period.

A number of journalists have also analyzed and described vehicle affordability concerns based on data from various independent sources. The Alliance directs the Agencies' attention to the example articles in the attached Bibliography of Articles Regarding Vehicle Affordability Concerns.

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[99] *Demand Quickly Backing Away from Cars, Pushing Average New-Car Transaction Prices UP for July 2018, According to Kelley Blue Book*, KELLEY BLUE BOOK (Aug. 1, 2018), https://mediaroom.kbb.com/2018-08-01-Demand-Quickly-Backing-Away-from-Cars-Pushing-Average-New-Car-Transaction-Prices-Up-for-July-2018-According-to-Kelley-Blue-Book.

[100] *0 Percent Interest Deals Face Sunset*, AUTOMOTIVE NEWS (Sept. 3, 2018 12:01 AM), http://www.autonews.com/article/20180903/FINANCE_AND_INSURANCE/180909954/auto-financing-interest-rates-climb.

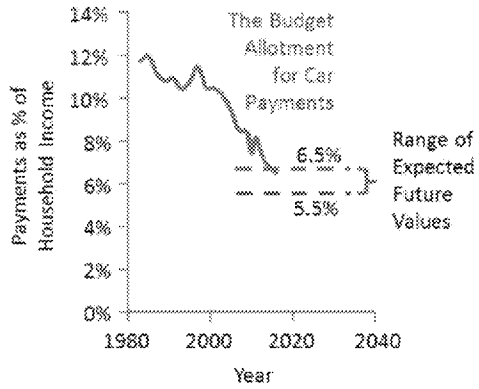

Figure 4.1: Budget allocation to car payments.[101]

Furthermore, some manufacturers, recognizing that consumers may not be willing or able to pay for this continued increase in fuel economy, have had to take measures to ensure they can be compliant with corporate average standards, such as offering incentives or reducing sticker prices. In the July 2018 article "How the $100,000 Pickup Came to Be,"[102] Bob Lutz asserts that this trend has negative implications, because when manufacturers cut prices of low fuel economy vehicles such as hybrids or electrified products, they must offset it somehow, and in some cases do so by increasing prices of larger vehicles, such as trucks and large SUVs.

> EVs and hybrids, despite breathless, unrelenting media hype, are not in great demand. . . . But sadly, these must be sold, and in sufficient quantity to satisfy the government. That means low prices, low lease rates, and, in almost all cases, losses for the manufacturer. . . . Full-size SUVs, large crossovers, anything high and with all-wheel drive is hot. Car companies need to remain solvent, so they adapt: "If we lose money on those, we'll compensate by pricing more on these." And the public, so far, accepts it.[103]

As the Agencies work toward a final rule, the goal must be to keep new vehicles affordable so that more Americans can replace older vehicles with newer models that are cleaner, safer, and more fuel-efficient.

4.3. Consumer Willingness-to-Pay

Beyond affordability, some consumers may not be willing to pay for fuel efficient technologies. In periods when gas prices are low as they are presently, consumers may not be willing to make an investment in a fuel efficient vehicle such as a hybrid, since it could take many years before they see a payback on their investment. Instead of investing in fuel economy, consumers tend to invest in other features, such as performance and vehicle safety.

As noted before, the 2015 National Academy of Sciences report on fuel economy technologies concluded that the best possible insight on future customer decision-making comes from customers

[101] Defour Group personal communication to the Alliance of Automobile Manufacturers.
[102] Bob Lutz, *How the $100,000 Pickup Came to Be,* ROAD & TRACK (July 25, 2018), https://www.msn.com/en-us/autos/autos-trucks/how-the-dollar100000-pickup-came-to-be/ar-BBL38YR?ocid=spartanntp.
[103] *Id.*

themselves.[104] The panel referred to the New Vehicle Experience Study ("NVES") conducted by Strategic Vision, a study involving more than 300,000 recent new car buyers annually, as "the most reliable information about consumer preferences."[105] The most recent NVES of 2017 car buyers shows that out of more than 140,000 NVES survey respondents, 41% ranked fuel economy as a top consideration in their purchase; this ranks well below other features, such as performance, which 57% of respondents considered a top purchase reason.

Rank	Purchase Reasons	*Percent*
1	Overall Safety of the Vehicle	62%
2	Safety Features	60%
3	Overall Driving Performance	57%
4	Overall Value for the Money	57%
5	Price/Deal Offered	56%
6	Braking	56%
7	Overall Impression of Durability/Reliability	52%
8	Riding Comfort	51%
9	Warranty Coverage	49%
10	Road Holding Ability	48%
11	Haul Cargo in Bed (pickup only)	48%
12	Overall Seat Comfort	47%
13	Overall Thoughtful Engineering	47%
14	Driver Seat Adjustability	46%
15	Fun To Drive	44%
16	Past Experience With Brand	43%
17	Overall Experience with the Selling Dealership	43%
18	Driving Distance on Full Tank/Charge	43%
19	Front Seat Roominess	42%
20	Overall Experience with the Service Department (if applicable)	42%
21	Overall Power and Pickup	42%
22	Reputation/Prestige of Manufacturer	42%
23	Overall Exterior Workmanship	41%
24	Gas or Electric Mileage (Fuel Economy)	41%

Source: NVES 2017 Survey

Table 4.1: Most important reason for purchasing a vehicle.[106]

In 2015, after reviewing the Strategic Vision survey results, the National Academy of Sciences panel concluded that, "…while consumers value fuel economy, they do so in the context of other attributes they also value… they look for the most fuel-efficient version of a vehicle they already

[104] NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES, COST, EFFECTIVENESS, AND DEPLOYMENT OF FUEL ECONOMY TECHNOLOGIES FOR LIGHT-DUTY VEHICLES 9-26 (2015), *available at* https://www.nap.edu/catalog/21744/cost-effectiveness-and-deployment-of-fuel-economy-technologies-for-light-duty-vehicles.

[105] *Id.*

[106] STRATEGIC VISION, NEW VEHICLE EXPERIENCE STUDY (2017), *available at* https://www.strategicvision.com/nves.

want to purchase… Consumers are buying fuel efficient versions of vehicles that suit their wants and needs."[107]

Some claim that one reason why sales of electric vehicles are not rapidly increasing is that automakers are not advertising electric vehicles or fuel economy attributes enough. One recently released white paper claims that consumers want fuel economy and that automaker advertising is not responding to consumer demand.[108] However, NVES survey results from hundreds of thousands of actual buyers call this claim into question. While vehicle advertising undoubtedly has many purposes, to insist that its main purpose should be to communicate an attribute that is specifically ranked below other desired attributes seems illogical. Advertising of messages that do not reinforce known attributes that the customers are interested in falls under the rubric of general advertising that is not specifically aimed at driving purchasing messaging, i.e., messages that resonate with customers wishing to purchase automobiles.

Auto manufacturers have been promoting electric vehicles and fuel economy in general in their advertisements and in non-traditional advertising channels, sometime with exceptional emphasis that does not always go noticed. For instance, General Motors notes that:

> In 2017, the Chevrolet Bolt EV led Chevy vehicles in total media spend per vehicle and was number three in overall advertising spend, even though the Bolt EV ranks only 10th in sales volume among Chevrolet vehicles. This spending supported a full multimedia campaign, exposure programs for dealers, a customer relationship management program, ride and drive opportunities for influencers and customers and the Chevy EV Life website, designed to answer questions about driving electric for all levels of EV customers. Partnerships with GM Fleet, as well as the popularity of Bolt EVs with Maven customers, are further increasing interest—since February 2017, Bolt EVs in ride-sharing services across seven cities have given over 1 million rides to consumers who otherwise may not have had any exposure to EVs.[109]

In addition, as catalogued in the recently released whitepaper[110], Figure E.1. Theme Frequency, shows that, as a category of ads, "Fuel Economy/Green" is advertised by automakers more prevalently than "Comfort and Convenience", "Luxury", "Passenger/Cargo Capacity" and even "Reliability and Durability." While the white paper may disagree that advertising other subjects such as "Other Emotion," "Performance" and "Sales and Price" more prevalently than the prevalence accorded "Fuel Economy/Green," other points of view would support favoring the advertising of themes that on their surface resonate more with would-be buyers, including electric vehicle buyers.

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[107] NATIONAL RESEARCH COUNCIL, *supra* note 104, at 9-28.
[108] Jeff Plungis, *Automakers Sell Performance, but Consumers Want Fuel Economy and Safety,* CONSUMER REPORTS (Oct. 19, 2018), https://www.consumerreports.org/cro/buying-a-car/automakers-sell-performance-consumers-want-fuel-economy-and-safe.
[109] *Drive EV Demand Through Marketing*, GENERAL MOTORS: 2017 SUSTAINABILITY REPORT, https://www.gmsustainability.com/act/products/marketing.html (last visited Oct. 26, 2018).
[110] Jeff Plungis, *supra* note 108.

4.4. Fuel Prices

As stated by the Alliance in previous comments,[111] consumer acceptance of greater fuel economy is closely tied to fuel prices. In a persistently high fuel price environment, such as market conditions ten or more years ago, data suggest that consumers place a greater value on fuel economy. Consequently, they are more willing to pay for vehicle efficiency improvements if their monetary investment in more expensive technology will pay back within a reasonable timeframe (e.g., two to three years).[112]

The decline in gasoline prices observed through the end of 2016 through mid-2017 resulted in a decline in the relative importance of fuel economy in the priorities of consumer options and choices. For example, as shown in Figure 4.2 below, the electrified vehicle share of new vehicle sales tends to be higher in higher gasoline price environments (for instance, July 2013), but their share declines as prices decline.

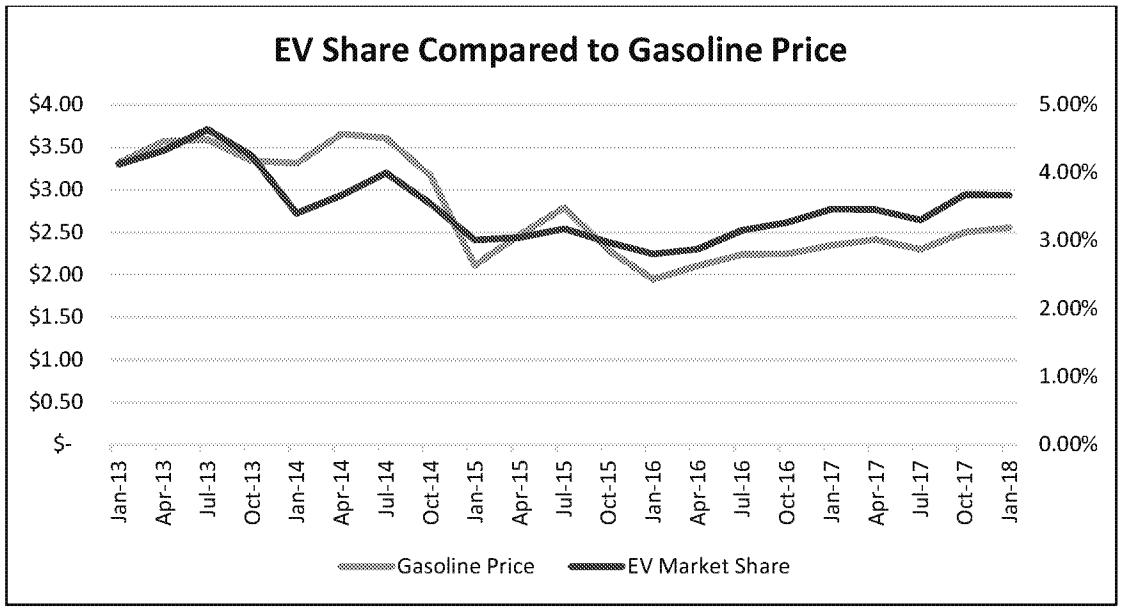

Figure 4.2: Electric vehicle market share of new vehicle sales compared to gasoline price.[113]

[111] Alliance DTAR Comments, *supra* note 63, at 140.

[112] *See* SANYA CARLEY ET AL., INDIANA UNIVERSITY SCHOOL OF PUBLIC AND ENVIRONMENTAL AFFAIRS, RETHINKING AUTO FUEL ECONOMY POLICY: TECHNICAL AND POLICY SUGGESTIONS FOR THE 2016-17 MIDTERM REVIEWS at 34 (Feb. 2016), *available at* https://spea.indiana.edu/doc/research/working-groups/fuel-economy-policy-022016.pdf. Short payback periods (e.g. 2 years) for trucks are typically used by business/fleet customers in investment calculations. CALSTART, SAVING FUEL, SAVING MONEY: AN ASSESSMENT OF FLEET COST SAVINGS FROM HIGH EFFICIENCY TRUCKS at 5 (May 2010), *available at* https://www.ucsusa.org/sites/default/files/legacy/assets/documents/clean_vehicles/Saving-Fuel-Saving-Money-Assessment-of-Fleet-Cost-Savings-from-High-Efficiency-Trucks.pdf.

[113] "EV Market Share" includes HEVs, PHEVs, and BEVs. Gasoline prices sourced from U.S. EIA. EV share from *Advanced Technology Vehicle Sales Dashboard*, *supra* note 61.

4.4.1. *Recent Fuel Price Trends*

Gasoline prices have risen from their recent lows, which could lead to the inference that consumers will now purchase vehicles with greater fuel economy. This is misleading for the following reasons.

First, consumer willingness-to-pay for greater fuel economy typically requires sustained changes in fuel costs over a sustained period of time. Although consumer behavior could shift in the near-term as a result of fuel price spikes, long term consumer acceptance relies on sustained fuel price increases, as noted in the economic paper "How Do Gasoline Prices Affect Fleet Fuel Economy[114]?":

> We find that gasoline prices have statistically significant effects . . . but that their combined effect results in only modest impacts on fleet fuel economy . . . . Recall that record-high gasoline prices in 1970s only led to short-lived increases in fleet fuel economy and failed to induce any long-term solution such as fuel-saving technology innovations in the industry.

Second, rising interest rates over this same period could impact the cost of vehicles through higher monthly financing payments, as noted by Charlie Chesbrough, Senior Economist at Cox Automotive, in a Bloomberg article in January of this year: "Consumers could face slightly higher costs for all of their borrowing: credit-card balances, student loans, financing a house or a car."[115] Consumers may not be able to spend more on a fuel-efficient vehicle when faced with other factors, such as interest rates, which are increasing consumers' monthly vehicle payments.

More time is needed to determine the likely trajectory of these near-term, economy-wide influences, and whether they will sustain themselves into the future. We therefore urge the Agencies to avoid making inferences about future consumer willingness-to-pay based on very recent fuel price trends. Gasoline prices need to increase significantly for an extended period of time for customers to receive meaningful payback on their investment.

4.4.2. *Use of Fuel Price Projections in Evaluating Consumer Acceptance*

Gasoline price and consumer acceptance are highly correlated. Therefore, we support the Agencies' evaluation of scenarios using alternative fuel price projections. The U.S. Energy Information Administration ("EIA") Annual Energy Outlook ("AEO") is the commonly accepted source of such projections. Although EIA projections have not always projected future fuel prices accurately, EIA updates their projections each year to account for new data and market trends. The Alliance requested that NERA Economic Consulting examine the sensitivity of the Agencies' net benefits analysis to alternative fuel price assumptions. As part of this work, NERA obtained

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[114] Shanjun Li et al., *How Do Gasoline Prices Affect Fleet Fuel Economy?*, 1:2 Am. Econ. J.: Econ. Pol'y 113, 15 (2009), *available at* http://li.dyson.cornell.edu/pdf/AEJ_2009.pdf.

[115] Jamie Butters, *Fed Rate Hikes Expected to Hurt Car Sales in 2018*, BLOOMBERG (Jan. 2, 2018 10:47 AM), https://www.bloomberg.com/news/articles/2018-01-02/fed-outlook-for-higher-rates-dims-u-s-auto-sales-view-for-2018.

alternative fuel price projections from IHS Markit. These projections fell within the range of the EIA AEO 2017 High and Low Oil Price cases.

The Alliance recognizes that projections of fuel prices are necessary in modeling for the MY 2021 to 2026 standards, but urges EPA and NHTSA to avoid drawing conclusions about future consumer willingness-to-pay solely from fuel price projections. Instead, the Alliance recommends using a more comprehensive modeling approach to predict future consumer behavior, such as the NERA-Trinity Assessment described in Appendix 1 of these comments. The NERA-Trinity Assessment is a nested logit model, which incorporates data on vehicle prices and characteristics over many model years to determine the "revealed" value that consumers place on fuel economy as well as other attributes. This type of modeling is more robust than simply assuming projected fuel price increases will result in increased consumer acceptance of efficiency-improving technologies.

4.5. Other Docketed Materials

4.5.1. *Studies*

Several entities have submitted studies to the Agencies' dockets on the subject of consumer acceptance and willingness-to-pay. For instance, EPA submitted a report to their docket titled *Consumer Willingness to Pay for Vehicle Characteristics: What Do We Know?*,[116] in which EPA concludes that there is wide variation in the willingness-to-pay studies, and therefore no strong conclusions about willingness-to-pay can be drawn. Rather than considering the issue too complicated to understand, the Alliance instead urges the Agencies to consider using a consumer choice model, such as the NERA and Trinity econometric study referenced earlier in these comments, to draw conclusions about consumer behavior. The econometric study estimates the social and market impacts of the different regulatory scenarios presented in the Proposed Rule. It uses up-to-date and accurate data, applies a methodology that is considered state-of-the-art amongst experts in the field of economics, and is objective and balanced in its use of data and assumptions driving the analysis. The Alliance therefore urges the Agencies to rely on this type of model in its decision regarding the standards.

4.5.2. *Surveys*

4.5.2.1. Use of Survey Data to Understand Consumer Acceptance

Several entities submitted comments to the RFD, EIS, and Proposed Determination dockets that referenced certain consumer surveys as supporting consumer acceptance of technologies that increase fuel economy. Surveys of consumers who have recently purchased a vehicle can be useful for gauging consumer acceptance of fuel efficient technologies and other preferences. Such surveys can capture the competing priorities consumers face when purchasing a new vehicle (e.g. cost, performance, safety, fuel economy). Surveys like the NVES can result in stronger conclusions about purchase decisions because they capture a consumer's exhibited behavior as opposed to intended behavior. EPA has acknowledged the potential benefits of surveying new

[116] David Greene et al., Consumer Willingness to Pay for Vehicle Characteristics: What Do We Know? (Mar. 2017), *available at* https://www.epa.gov/sites/production/files/2017-03/documents/sbca-mtg-will-to-pay-2017-03-16.pdf.

vehicle buyers. In the DTAR, EPA stated that they have "been pursuing access to one of these survey data sets. [Their] goal would be to look for associations between the existence of fuel-saving technologies and consumer responses to vehicle attributes."[117]

Some commenters, however, have submitted general population consumer surveys, which could be inherently misleading because they are asking a general audience, rather than tapping into what moves consumers towards one vehicle feature over another. Additionally, some of these surveys ask leading questions which point a consumer towards one response over another. The Alliance recommends that in evaluating the comments on the Proposed Rule, EPA and NHTSA are cautious about drawing conclusions about consumer acceptance from general population surveys. The following section provides more details on the specific methodological issues with three specific surveys:

- National Resources Defense Council 2016, *Attitudes Toward Air Pollution, Transportation, and Fuel Efficiency.*
- Consumers Union 2016, *National Vehicle Fuel Economy Poll.*
- American Lung Association survey 2018, *Voters Overwhelmingly Support Strong Fuel Efficiency Standards.*

4.5.2.1.1. Consumer Opinion versus Consumer Behavior

Most stakeholders in this regulatory process would agree that it is important to assess the impact that standards have on consumers, as well as the impact of consumers on the standards. This line of analysis, however, demands a distinction between two aspects of consumer studies: consumer opinion versus consumer behavior.

Consumer opinion comprises the set of beliefs held by consumers in general. It is informed by media and interaction with society, and expressed in private conversations and at the voting booth. It is associated with highly varied levels of expertise with relevant topics.

Consumer behavior is the set of choices made by consumers of specific products. It is informed partially by consumer opinion, partially by psychology and economics, and partially by the circumstances of the market. Consumer behavior is assessed by automakers and other product-providing firms, in order to tailor the specifics of their products to the demands of the buyers. Consumer behavior is a highly diverse topic, encompassing acceptance of technologies (consumer acceptance), time-discounting, externalities and signaling, et cetera. In the context of assessing the economic practicability of CAFE/GHG standards, consumer behavior is a highly relevant factor.

At the current point in the regulatory process, consumer behavior should be the leading concern. The current question before the agencies is not, "should we enact standards?" but, "what is the maximum feasible level of standards under the statutory criteria?" Consumer behavior actively informs answers to this question, while consumer opinion does not.

[117] U.S. ENVIRONMENTAL PROTECTION AGENCY, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, CALIFORNIA AIR RESOURCES BOARD, EPA-420-D-16-900, DRAFT TECHNICAL ASSESSMENT REPORT: MIDTERM EVALUATION OF LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS FOR MODEL YEARS 2022-2025 at 6-12 through 6-13 (July 2016) (hereinafter DTAR).

The NRDC Survey focuses entirely on consumer opinion, and does not at all analyze actual consumer behavior. Its questions only determine that consumers are supportive of standards in general, and does not inform what level of standards are appropriate or how buyers will react in response to the standards. The Consumers Union ("CU") and ALA studies face the same problems.

The Alliance recommends that the Agencies utilize studies that are based on exhibited consumer behavior, rather than studies that meter expressed consumer opinion.

NRDC Question 4

The U.S. government should continue to increase fuel efficiency standards and enforce them.

Total	(n=1,012)
Agree	79%
Disagree	20%
DON'T KNOW	2%

4.5.2.1.2. The Questions of Regulation Are Too Complicated to Be Represented in a Single Survey

In attempting to simplify the complex issues surrounding fuel economy regulations into questions that can be understood by respondents, some surveyors crossed over into leading the respondent to answer in a certain way. For instance, the American Lung Association ("ALA") provided the following clearly leading questions as being representative of the regulatory issue:

Figure 1: Details and Results of the ALA Survey

As you may know, the previous administration updated standards that require automakers to make steady improvements to the fuel efficiency of cars, trucks, and SUVs through the year 2025. Now, the current administration is considering weakening these stronger fuel efficiency standards. From what you know, do you support or oppose KEEPING these stronger fuel efficiency standards?

	Strongly/Somewhat support	Don't know/Ref.	Somewhat/Strongly oppose			Total
Initial	48	17	9	12	14	65 | 26

Some people say that its critical we leave cleaner air and a healthy environment for our children and grandchildren, and making cars more fuel efficient reduces harmful pollution. Keeping these ambitious but achievable standards will fight climate change and lead to fewer bad air days, and healthier children.

Other people say that forcing automakers to meet these unrealistic requirements will not only add thousands of dollars to the price of new cars and trucks, but will also force automakers to produce much lighter vehicles, which are less safe for drivers and their passengers, putting our families at greater risk of injury or death in the case of an accident

	Strongly/Somewhat support	Don't know/Ref.	Somewhat/Strongly oppose			Total
Initial	51	16	4	16	14	67 | 29

ALA has simplified the current regulatory situation so that the reader might believe things about the current administration that are not true. This description leaves out the following critical facts:

- That the previous Administration agreed with the need to reassess the standards with a MTE and that this rulemaking is an extension of that process;
- It is unclear and undecided at this point of the Federal rulemaking process what the final standards will be. That the CAFE and GHG standards are not intended to control smog-forming criteria pollutants;
- That the Agencies are already required by statute to set the standards at maximum feasible levels, considering technological feasibility and economic practicability.

This representation influences the answers given by the respondents of the survey, increasing the likelihood that they react strongly against a proposed "weakening of stronger standards." For this reason, its results should be taken with skepticism.

Consumers Union caused a similar misrepresentation by failing to incorporate cost into their questions. Only one survey question in their long survey implied that an increase in fuel economy would demand an increase in cost, and no question revealed the potential magnitude of the cost. A survey by NRDC saw the same problems, asking whether the government should continue to increase fuel efficiency standards without stating the alternatives.

CU Question 9.5

Increasing average fuel economy from 25 MPG today to 40 MPG by 2025 is a worthwhile goal.

Total	(n=1,035)
Agree	75%
Disagree	13%
DON'T KNOW	11%

Survey responses are highly susceptible to question structure effects. Insofar as the Agencies wish to implement public opinion polls into the rulemaking, they should determine whether the survey questions represent the issues neutrally.

4.5.2.1.3. Surveys That Lack Detail Show Only Low-Resolution Information

The surveys referenced here suffer from very low amounts of detail, resulting in blurry understandings of consumer opinion. Only the ALA study measures degree of agreement with a statement, while the others use only "Agree" / "Disagree" responses. All of the studies simplify the regulatory issues, leaving out key facts that could influence the respondents' opinions. The studies do break down their respondents and weight them by demographic characteristics, but do not include the highly relevant category of "new car buyer."

Furthermore, many of these survey questions ask for consumer opinions of matters of fact. An NRDC question asked how much they believe light duty vehicles contributes to air pollution. While the public's knowledge of that statistic might be interesting to environmental awareness groups, the agencies should account for it based on engineering data. A Consumers Union question asked consumers whether automakers would be able to attain an average of 40 MPG by 2025. Even the most informed experts have a difficult time determining whether that standard will be feasible.

NRDC Question 1

How much would you say cars and trucks contribute to the problem of air pollution?

Total	(n=1,012)
A great deal	38%
Somewhat	39%
A minor amount	17%
Or, not at all	5%
DON'T KNOW	1%

Such low-resolution views at consumer opinion have little value to those determining the details of stringency and compliance.

4.5.2.1.4. Recommended Methods for Evaluating Consumer Acceptance

Although certain consumer surveys aim to answer the complex question of the extent to which consumers value fuel economy, we have seen that broad population surveys can oversimplify this topic. The NRDC and CU surveys are prime examples of this oversimplification, and should not

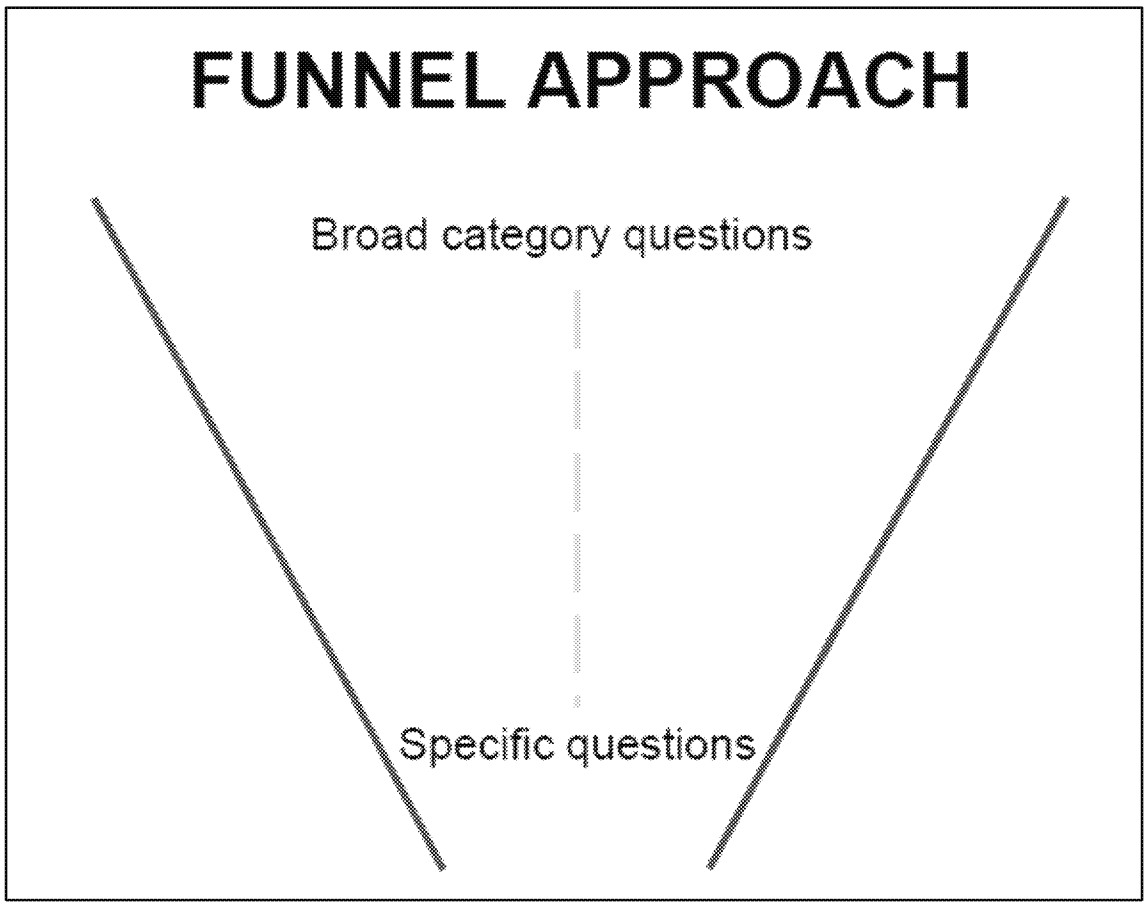
be given excessive regard when deciding the appropriate levels of the MY 2021 through MY 2026 standards. Instead, we recommend that when consumer opinions are used by the Agencies in the regulatory process, the Agencies should focus on consumer acceptance of both the costs and trade-offs faced when purchasing a vehicle.

To this purpose, the Alliance recommends utilizing post-purchase revealed preference data that will more accurately reflect the demands of the customers,[118] as well as state-of-the-art modeling that can capture these micro- and macroeconomic effects.

To the extent that the agencies do wish to evaluate public opinion in regulatory matters, they should consider surveys that are designed more rigorously than the surveys provided by NRDC and CU. The Alliance would like to suggest agencies utilizing following tips in determining a "rigorously" designed surveys.

Tip #1: Start Broad, Work Down to Narrow

When creating surveys, be sure to start with very broad questions and then work your way down to more narrow, specific questions towards the end of the survey. This helps ensure earlier questions don't influence respondents' responses to later questions.



[118] E.g., NEW VEHICLE EXPERIENCE STUDY, *supra* note 106.

Tip #2: Avoid Leading Questions or Set-up Language

When designing specific questions, be sure to avoid using leading questions or language that could prompt or bias a respondent. This not only includes the way questions are phrased, but also specific language that is used. Specifically, using emotional words like "threaten" or "good person" can be all considered leading. Additionally, be sure any set-up instructions or language does not lead or bias respondents.

WHAT NOT TO DO:

Do you agree we need better emissions standards for vehicles so your children can live in a clean environment in the future?

a. Agree
b. Disagree

WHAT TO DO:

What improvements, if any, would you like to see in your next vehicle?

a. Price
b. Fuel Economy
c. In-vehicle Technology
d. Ownership Costs
e. Reduced Emissions
f. Body Style of the vehicle
g. ETC.

Tip #3: Avoid Asking Questions that may be Beyond Consumer Ability

Questions about things or issues that may not be a "natural" way of thinking for consumers should be avoided. Consumers often don't know what the response options would equate to for their everyday life. Therefore, consumers usually pick the "best" or the "most" option because it sounds or look better.

WHAT NOT TO DO:

How many more miles per gallon do you want in your next vehicle compared to what you current vehicle offers?

a. 1-3
b. 4-6
c. 7-10

If the goal is to understand specific questions related to desired mileage or willingness to pay for powertrain, a different survey design (i.e. MaxDiff) or advanced statistical approach (i.e. Conjoint) is recommended over directly asking the respondent. These approaches, just two examples among many, go beyond stated importance and reveal true drivers impacting consumer choice.

Tip #4: Use Consumer Friendly Language

With surveys, be cautious of using language or abbreviations that might be familiar to you (particularly when using language that is common in a certain industry like "EPA" or "MPGe") as it may not be common vernacular to consumers. Same caution would also apply in any set-up or instructions within survey

Tip #5: Beware of "Double Barrel" Questions

Do not load more than one topic in a single question as it would overwhelm respondents and / or lead to biased responses.

WHAT NOT TO DO:

Do you want better fuel economy and reduced emissions in your next vehicle?

a. Yes
b. No

WHAT TO DO:

What improvements, if any, would you like to see in your next vehicle?

a. Price
b. Fuel Economy
c. In-vehicle Technology
d. Ownership Costs
e. Reduced Emissions
f. Body Style of the vehicle
g. ETC.

4.5.2.2. Consumers Union: *Auto Buyers' Valuation of Fuel Economy*

Dr. Christine Kormos and Dr. Reuven Sussman authored a study entitled *Auto Buyers' Valuation of Fuel Economy: A Randomized Stated Choice Experiment* published by Consumers Union ("the CU Study").[119] The CU Study is a stated-preference study which looks at respondent willingness-to-pay ("WTP") for vehicle attributes based on responses to hypothetical vehicle purchase decisions. The Alliance recommends that the findings of the CU Study should not be relied upon to determine a consumer's WTP for fuel economy because of the shortcomings described below.

The CU Study finds extreme WTP values of $10,730 for $1,000 in fuel savings per year. Such extreme values are not in line with concepts of decreasing marginal utility and represent a ratio of spending to savings that cannot be scaled indefinitely, nor aligned with other studies, nor aligned with accepted payback periods for the average consumer. For instance, the high end of reported WTP results of $8,587 (assuming $3 per gallon and 12,000 VMT per year) equates to a 26.5-year payback period. Even the lowest amount of $3,330 exceeds a 9-year payback interval. The validity of these WTP results is questioned by the CU Study authors themselves, who go so far as to recommend that the findings should not be relied upon:

[119] Christine Kormos & Reuven Sussman, *Auto Buyers' Valuation of Fuel Economy: A Randomized Stated Choice Experiment* (June 12, 2018), *available at* https://consumersunion.org/wp-content/uploads/2018/06/FINAL-Kormos-and-Sussman-2018—-Auto-buyers-valuation-of-fuel-economy.pdf.

> "Due to the possibility of hypothetical bias, WTP values from the choice experiment may exceed what a consumer would actually be willing-to-pay. Hypothetical bias is not always present in stated choice experiments, although it can result in WTP values that exceed the actual value by a factor of two to three (Loomis, 2011). Thus, it is necessary to use caution in interpreting these pooled valuation findings, as these findings may not translate directly into real-world WTP values."[120]

The CU Study by design incorrectly selected a base of respondents who are not representative of new car buyers who have gone, are going, or intend to go through the car-buying process. For instance, 25% of respondents used their vehicle to commute to school, which would imply that 25% of the sample are students and that the authors used a highly biased sampling methodology. Also, the questionnaire used by the study is not at all similar to the actual car-buying process, since the vehicle options lack many qualities of vehicles that buyers find important; the survey decision is not framed within a wider financial or personal situation; the purchase decision does not occur within the context of a typical sales situation; and the intent of the survey is transparent, causing potential bias toward certain answers.

The CU Study also contains significant mathematical errors and statistical process errors. This is due to different sets of questions being given to different respondents based on selected class of vehicle but then blending the results from multiple classes. Each class should be considered a sub-study, yet the CU Study incorrectly mathematically merges their results. Additionally, the CU Study incorrectly conflates two separate studies (testing of presentation method and testing of people's responses to fuel economy) together as one study by incorrectly assuming negligible interaction effects between the two tests and not maintaining the tests as linearly independent. Further, the CU Study's efficiency (D-efficiency) was only 60%, significantly lower than accepted good practice to not schedule anything below 100%. Also, it is not clear that the results of the sub-samples would even be statistically significant since the sub-sample population would (assuming an even distribution of the sample across the levels) be only 59 out of the total sample population of 1,883. For these reasons, the Agencies should not rely on the CU Study in evaluating the appropriateness of various standards for their final decision.

[120] *Id.* at 33.

APPENDIX 5: FLEXIBILITIES AND TECHNOLOGY INCENTIVES

The 2017–2025 EPA light-duty vehicle GHG standards and corresponding NHTSA CAFE standards were set at very challenging levels based on ambitious forward-looking assumptions about fuel economy technologies and consumer acceptance. Industry support for these regulations relied heavily on the inclusion of various flexibility mechanisms that would allow automobile manufacturers to comply with the regulations even if the technology assumptions in the Agencies' feasibility analyses could not be fully realized. Over the past five years, however, market realities have increasingly diverged from the forecasts that formed the basis for the EPA and NHTSA standards. Fuel prices have been lower than expected, U.S. consumers are moving away from small cars and into crossover vehicles, and traditional fuel economy technologies have not realized the assumed levels of effectiveness and consumer acceptance. Consequently, flexibility mechanisms have played an important part in compliance over the past several years, and may even need to have an increasing role moving forward.

Although these flexibility mechanisms require updating, they have made critical contributions toward the goals of the CAFE and GHG programs. Manufacturers have implemented the technologies on the pre-approved off-cycle and air conditioner credit lists faster than anticipated in Agency analyses, since the manufacturers were aware that compliance would become increasingly difficult over time. As market realities have confounded expected progress toward achieving traditional city and highway fuel economy improvements, flexibility mechanisms have become increasingly important to achieving GHG reductions and increased fuel economy. Further development of unconventional and non-traditional fuel economy technologies will play a key role in both compliance with these standards and in further improvements in GHG reductions and energy use. Flexibility mechanisms should incentivize those developments.

The Alliance welcomes the current reexamination of the standards in view of this fact, considering the current flexibility provisions are not sufficient to bridge the widening gap between the standards and actual fuel economy and GHG emissions—as demonstrated by the under-compliance of the industry for MYs 2016 and 2017. Therefore, the current flexibility mechanisms should be modified and improved so that they can continue to play an important role in aiding and supplementing future regulatory compliance and real-world emissions reductions. Additional pre-defined and pre-approved credits should be included in the regulations. Credit caps in the regulations also require revision—either removing the caps altogether, or increasing the caps to accommodate new credits to accommodate increased penetration of these technologies. Finally, administrative processes should be simplified to make flexibility credits more predictable and attainable.

Table 5.1 provides a summary of the recommendations the Alliance makes on various flexibilities; remaining sections of this appendix explain these recommendations in further detail. Attachment 7 provides supporting descriptions of certain technologies which provide additional off-cycle benefits.

Flexibility Mechanism	Recommendations to NHTSA	Recommendations to EPA
Credit averaging, banking, and trading provisions	• Maintain the credit trading program. • Separate credit banks for flexibility-based credits from fleet average-based credits. • Apply the fuel savings adjustment factor for credit carry-forward/back within the same fleet. • Harmonize lifetime mileage estimates used in the calculation of the adjustment factor with EPA's • Revise credit transfer provisions for greater consistency with EPA's	• Eliminate expiration of carry-forward credit. At minimum, expand credit carry-forward such that MY 2010-2020 credit can be used through MY 2026. • Separate credit banks for flexibility-based credits from fleet average-based credits.
Upstream electricity emissions		• Eliminate requirements to add upstream electricity utility emissions
Advanced technology vehicle incentives	• Apply a Fuel Consumption Improvement Value ("FCIV") equivalent to the EPA multiplier for CAFE.	• Extend and increase incentive multipliers for battery electric vehicles (to 4.5x) and PHEVs (to 4.8x).
High-efficiency pick-up truck incentives	• Extend high-efficiency full-size pick-up truck incentives through MY 2026. • Eliminate minimum penetration rate requirements. • Expand incentives to all light-duty trucks at the same levels as provided to full-size pick-up trucks. • Expand mild and strong hybrid electric vehicle incentives for passenger cars at half the level applied to light-duty trucks.	
A/C direct (refrigerant) credits		• Keep the credits in the light-duty vehicle greenhouse gas program. • Modify the calculation to remove the low-leak rate credit cap and high-leak rate disincentives.

A/C indirect (efficiency) credits	• Keep the A/C efficiency credits in the CAFE and GHG programs. • Remove the solar/thermal control technologies from the off-cycle credit menu and add them to the A/C efficiency credit menu. • Combine the caps on A/C efficiency and solar/thermal control technologies and raise the combined cap to 13.1 g/mi (for cars) and 18.9 g/mi (for trucks). • Add additional technologies to the credit table. • Create a new off-cycle credit provision allowing manufacturers to apply for credit for A/C and solar/thermal control technologies that would explicitly not require inclusion under the menu cap. • Eliminate A-to-B test requirements for use of the menu.
Off-cycle credits	• Eliminate the credit table cap or increase to 10% or greater of each manufacturer's fleet target. Increase to 15 g/mi at minimum. • Add additional technologies to the off-cycle credit table. • Specify solar/thermal control technology caps apply at the fleet level, not individual vehicle level. • Make technical corrections to the 5-cycle methodology including calculation changes and clarifications for interpretation. • Fix the alternative methodology application process • Develop and off-cycle credit analytical "toolbox." • Allow suppliers to apply for off-cycle credits • Clarify that off-cycle technologies should demonstrate off-cycle benefits without requirements to demonstrate benefit beyond current technologies. • Allow off-cycle credits for the CAFE program in MY 2010-2016. • Develop credits for autonomous, connected vehicle, and safety technologies; start with adaptive cruise control at 2.0 g/mi. • Add off-cycle credit provisions for heavy-duty vehicles and align them to actions taken for light-duty vehicles.

Table 5.1: Summary of Alliance recommendations regarding various flexibilities.

5.1. Credit Banking, Trading, and Transferring Provisions

5.1.1. *The Alliance Supports an Expansion of GHG Credit Carry-Forward Provisions*

EPA requests comment on extending credit carry-forward beyond the current five years limit.[121] Three potential approaches are described by EPA. First, credits earned from MY 2010 and later could have their credit life extended through MY 2025. Second, the lifetime for all credits could be extended to a longer fixed period greater than the current five-year lifetime. Third, GHG credits could have an indefinite lifetime.

[121] 83 Fed. Reg. at 43,464.

In Appendix 2, the Alliance provides an analysis of the depletion of industry-average credit banks over the next several years. However, that analysis assumes that the total bank of GHG credits belongs to all manufacturers collectively and that they can each draw from it as needed. In practice, the GHG credits are not equally distributed and belong to individual manufacturers as shown in Figure 5.1. Each of the manufacturers will add or subtract credit from their credit bank based on their individual compliance levels in each year. Therefore, some manufacturers are likely to run out of credit more rapidly, and conversely some manufacturers are likely to still have credit that would otherwise expire unused in MY 2021.

Credit Balances at Conclusion of the 2016 Model Year (Mg)[1]
(including credit transfers & trades)[2]

Manufacturer	Credits Carried to 2017	Manufacturer	Credits Carried to 2017
Toyota	78,078,963	Mercedes	2,991,505
Honda	36,024,476	Mitsubishi	1,755,470
Nissan	26,682,834	Suzuki*	428,242
Ford	22,084,139	Karma Automotive*	58,852
Hyundai	20,583,544	BYD Motors*	4,824
GM	19,666,700	Tesla	576
Subaru	14,498,843	Volvo	(9,218)
Mazda	9,424,551	Jaguar Land Rover	(1,387,781)
Kia	6,011,615	*FCA*[1]	*19,217,792*
BMW	3,202,342	*Volkswagen*[1]	*2,438,608*
All Manufacturers			**261,759,183**

[1]FCA and Volkswagen are listed separately in this table due to an ongoing investigation and/or corrective actions. These data are based on initial certification data, and are included in industry-wide or "All" values. Should the investigation and corrective actions yield different CO_2 data, any relevant changes will be used in future reports.

*Although these companies produced no vehicles for the U.S. market in the most recent model year, the credits generated in previous model years continue to be available.

[1] The Megagram (Mg) is a unit of mass equal to 1000 kilograms. It is also referred to as the metric ton or tonne.

[2] This table does not include unused credits from the 2009 model year, which expired at the end of the 2014 model year. See Section 2 for more information.

Figure 5.1: Manufacturer GHG credit balances at the conclusion of MY 2016.[122]

EPA states that "longer credit life would provide manufacturers with additional flexibility to further integrate banked credits into their product plans, potentially reducing costs."[123] The Alliance agrees with this reasoning. Each credit provides a manufacturer with compliance planning flexibility, which as evident from recent model year performance, can prove valuable for long-term planning.

Furthermore, we note that credits are earned when manufacturers achieve lower GHG fleet average emissions than otherwise required by regulation in any given model year. This typically results

[122] U.S. Environmental Protection Agency, "Greenhouse Gas (GHG) Emission Standards for Light-Duty Vehicles: Manufacturer Performance Report," https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles (accessed October 25, 2018).
[123] 83 Fed. Reg. at 43,464.

from actions taken by a manufacturer to deploy specific models or more efficient technology than required, often at a higher cost. Such technologies reduce the amount of GHG emissions released into the atmosphere over the life of the vehicle, which could be over several decades. The resulting credit earned by a manufacturer for having made the product or technology investment that resulted in the reduced emissions shouldn't be limited to five years.

Additionally, it is helpful to look at emissions crediting and banking provisions in other EPA programs to see the successes in non-prescriptive credit life provision. Specifically, in stationary source emission regulations credit banking is not restricted because of the long term environmental and economic benefits of the displaced and reduced emissions. [124] This shows the importance of credit banking provisions as a unique opportunity to provide both flexibility and stability in emission credit markets. This supports the rationale that banking should have limited (if any) bounds when it comes to a GHG emissions credit market and there should be an inherent flexibility in credit life when it comes to the credits as the emission impact has a long lifespan.

Below, the Alliance provides comment on each of the three approaches described by EPA and recommends that GHG credit life be extended at minimum such that all currently unexpired GHG credits can be carried forward through at least the last model year affected by this rulemaking. All of the potential approaches described in the Proposed Rule better recognize the long-term nature of improvements represented by the credits, would improve flexibility, and reduce compliance costs.

The Alliance supports the approach of unlimited credit life and believes that it should be applied to credit earned in MY 2010 or later. This approach most clearly acknowledges the long lifetime of GHG emissions and the desire to avoid GHG emissions as early as possible. This is also the cleanest approach to credit accounting. Removing the need to track individual model years associated with credits for the purposes for credit carry-forward would significantly simplify compliance planning and ease administrative burdens. This approach also has the added benefit of allowing the regulatory text to be simplified by removing special provisions for credit carry-forward and applying one provision to be consistently applied to future and current credits. One potential concern with this approach is that manufacturers with excess credit may be less likely to engage in credit trading and instead indefinitely preserve the credit for their own use.

Regarding an approach of extending the general lifetime of credits to something longer than five years, the Alliance would propose a minimum ten-year lifetime. Ten years may strike a reasonable compromise between extending credit life and ensuring credits are used within a reasonable time period after their generation. This is consistent with the basis upon which EPA is considering an extended credit carry-forward provision. However, if this approach is taken, we also would recommend that EPA adopt a special carry-forward provision allowing all currently unexpired GHG credits to be used through MY 2026.

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[124] Banking is allowed with no credit expiration in EPA stationary source programs including the Acid Rain Program for SO_2, CAIR for NO_X and CSAPR. Additionally, banking is allowed in State programs with no credit expiration provisions under the Regional Greenhouse Gas Initiative (RGGI) and California's AB-32.

The Alliance would also support the approach of providing a special carry-forward provision to extend MY 2010 and later credit life through MY 2026. However, we recommend that this approach be clarified as applying to MY 2010-2021 credits and that credits earned for MY 2021 and later would then revert to the existing five-year lifetime. EPA should not shorten the lifetime of MY 2022 and later credits. This nuance is not clear in the preamble discussion of the Proposed Rule. Further, the Alliance recommends that, under this approach, the existing special carry-forward provisions for MY 2010-2015 credits be replaced. This would ensure that regardless of the timing of a final rule (and any subsequent actions that might delay its implementation), the credits that would have otherwise expired in MY2021 would still be available through MY 2025. This clarity will help with any planning incorporating such earlier credits.

Finally, the Alliance recommends that any approach chosen be equally applicable for all credits regardless of whether they have been retained by the original generating manufacturer or subsequently traded between manufacturers. This equal treatment is consistent with existing rules for credit trading. The Alliance sees no programmatic benefits that unequal treatment would produce.

5.1.2. *CAFE Credit Trading Should Be Maintained as a Flexibility in the CAFE Program*

The Alliance recommends that credit trading be maintained as a flexibility in the CAFE program without modification.

Credit trading provides a compliance flexibility for manufacturers regulated under CAFE. For example, credits can be used as a mechanism to help offset compliance shortfalls in cases where sales of higher fuel efficiency vehicles may not have materialized as originally planned. Such events can occur in cases when fuel prices are low, or when consumers reject certain technologies due to higher costs or other concerns. Other cases could include delays in the introduction of models due to unforeseen development issues or manufacturing problems. Credit trading may also help manufacturers address compliance plans when it is not technically feasible or economically practicable to add additional technology to vehicles. Such events could occur when manufacturers have limited funds for additional investments in a given year, or when consumer valuation of the features offered is not sufficient to cover the cost of those features. Traded compliance credits also can provide manufacturers with additional flexibility in developing compliance plans if a manufacturer chooses to alter vehicle deployment timing or availability for market or other reasons. Credit trading can also help smooth year-by-year compliance irregularities.

Trading of credits is commonly allowed in many current emissions regulations in the US. We see no evidence of market failures or complications that have arisen following the introduction of credit trading for CAFE.

The Alliance supports continuing to include credit trading as a compliance flexibility in the CAFE program. To date, manufacturers have previously engaged in and presumably continue to explore, credit transactions with other manufacturers.

5.1.3. *Separate Flexibility-Based Credits from Fleet Averages*

In a 2016 petition for rulemaking, the Alliance and Global Automakers requested that EPA "refrain from imposing unnecessary restrictions on the use of credit.[125] For the Agencies' convenience, the Harmonization Petition is attached to these comments. On December 28, 2016, NHTSA granted the petition in part.[126] The described request remains pertinent in the context of this rulemaking.

In its Grant of Harmonization Petition, NHTSA stated that this issue "does not appear applicable or relevant to the CAFE program," and invited clarification if that understanding was not correct.[127] The Alliance believes that this issue is applicable to both the EPA GHG and NHTSA CAFE programs. As NHTSA incorporates separate credits for off-cycle technologies and air conditioning efficiency improvements beginning with model year 2017 (or earlier if other requests in the Harmonization Petition are granted),[128] similar considerations for how credit may be carried forward, back, transferred, or traded apply.

The Alliance hereby incorporates the explanation of this issue and associated recommendation contained in the Harmonization Petition by reference in these comments.

5.1.4. *Apply the Fuel Savings Adjustment Factor Across Model Years*

In the Harmonization Petition, the trade associations requested that NHTSA apply the fuel savings adjustment factors across model years.[129] The explanation and applicability of this issue remain as described in the Harmonization Petition. The Alliance hereby incorporates that description and associated recommendations by reference in these comments. As previously noted, NHTSA committed to addressing this and other issues in its proposal for setting future CAFE standards.[130]

5.1.5. *Harmonize Vehicle Lifetime Mileage Estimates Used in Calculation of Fuel Savings Adjustment Factors*

NHTSA has tentatively denied the Alliance and Association of Global Automakers' petition to adjust vehicle lifetime mileage estimates ("VLM") for MYs 2011-2016. We note that the purpose of One National Program was for NHTSA to consider fuel savings and for EPA to consider GHG emission for the same set of vehicles. These vehicles drive a certain number of miles over their lifetime and it does not make sense that NHTSA's program assumes different VLM for the purposes of calculating the gallons value of compliance credits. Further, we disagree that a MY

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[125] Letter from Mitch Bainwol, President and CEO, Alliance of Automobile Manufacturers and John Bozzella, President and CEO, Association of Global Automakers to Mark Rosekind, Administrator, National Highway Traffic Safety Administration and Gina McCarthy, Administrator, United States Environmental Protection Agency, Petition for Direct Final Rule with Regard to Various Aspects of the Corporate Average Fuel Economy Program and the Greenhouse Gas Program, at 15 (June 20, 2016), *available at* https://www.epa.gov/sites/production/files/2016-09/documents/petition_to_epa_from_auto_alliance_and_global_automakers.pdf (hereinafter Harmonization Petition).
[126] *See* 81 Fed. Reg. 95,553 (Dec. 28, 2016).
[127] *Id.*
[128] *See* 49 C.F.R. § 600.510-12(c)(1)(ii).
[129] Harmonization Petition, *supra* note 125, at 10.
[130] 81 Fed. Reg. 95,553.

2011 vehicle would drive 23% fewer miles in its lifetime than a MY 2017 vehicle. The practical solution for MYs 2012-2016 is the same as NHTSA assumed for MYs 2017-2025 – that is to equate the VLMs to EPA's values. The Alliance believes there would be minimal harm in this action because manufacturers were generally CAFE compliant during this time frame.

Furthermore, to the degree the Agencies consider modifications to the vehicle lifetime mileage estimates used to calculate megagrams of GHG credit (EPA) and fuel savings adjustment factors (NHTSA), the Alliance recommends that the Agencies each use the same factors. Doing so would improve harmonization between the separate regulatory programs.

5.1.6. *Revise NHTSA Credit Transfer Definition to Be More Consistent with EPA*

In the Harmonization Petition, the trade associations requested that NHTSA revise its definition of "transfer" at 49 C.F.R. § 536.3 to be more consistent with credit transfer provisions provided by EPA.[131] The explanation and applicability of this issue remains as described in the Harmonization Petition. The Alliance herby incorporates that description and associated recommendations by reference in these comments.

5.2. Advanced Technology Vehicles

5.2.1. *Need for Incentives*

With approximately 500 models that achieve 30 MPG or more (highway) available for sale in 2018, including 45 hybrid-electric and over 50 plug-in electric and hydrogen fuel cell vehicle models in all sizes and ranges,[132] consumers have more fuel-efficient vehicle options than ever. Eighty-five plug-in electric vehicle models are expected by MY 2021.[133] Regardless of increasing availability and infrastructure advances, sales of plug-in electric vehicles remain modest, with approximately 1.2% of all vehicles sold in 2017—less than 200,000 units—being electric vehicles; this increased to 1.5% for the first six months of 2018.[134] As elaborated on further in Appendix 4, fuel economy and gas prices are only one piece of the puzzle when consumers are considering vehicle purchases and they often prioritize safety, comfort, and performance over the cost of fuel.[135] Furthermore, when gas prices fall there is less desire from consumers to seek alternative powertrains.

Electric vehicle adoption remains a critical component for compliance with the MY 2021–2025 fuel economy and GHG standards. Automakers are projected to rely on a greater share of hybrid and plug-in electric vehicles to comply with the standards.[136] The current electric vehicle buying audience is limited and lacks natural demand in the current market. Plug-in hybrid electric ("PHEV") and battery electric vehicle ("BEV") sales are around 1.5% of industry sales, while

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[131] Harmonization Petition, *supra* note 125, at 13.
[132] *www.fueleconomy.gov*, U.S. DEPARTMENT OF ENERGY, https://www.fueleconomy.gov/.
[133] California Air Resources Board, Assessment of a Zero Emission Vehicle Requirement for Light and Heavy-Duty Vehicle Fleets at 13 (Aug. 30, 2018), *available at* https://www.arb.ca.gov/msprog/zev_fleet_workshop_presentation_083018.pdf.
[134] *Advanced Technology Vehicle Sales Dashboard*, *supra* note 61.
[135] NEW VEHICLE EXPERIENCE STUDY, *supra* note 106.
[136] See discussion at Appendix 2, sections 2.4 and 2.5.

HEV sales have stagnated around 2.5% of the market despite being a technology available for nearly two decades.[137] This may be due to perceived concerns related to adopting new technologies, such as availability of charging infrastructure and increased costs for vehicle purchase and battery replacement. Regardless of the specific reasons that consumer acceptance of electrified vehicles remains low, we observe that with the combined bundle of attributes offered by vehicles available today, gasoline vehicles continue to be the most attractive to customers and there is a significantly lower consumer willingness to purchase electrified vehicles.

The limited market for plug-in electric vehicles is not for lack of manufacturer research and development, investment, advertising, or customer incentives. Increased manufacturer incentives have yet to motivate non-premium plug-in electric vehicle ("PEV") customers. Automakers have been applying significant discounts before the manufacturer's suggested retail price ("MSRP"), in addition to tax-based incentives to spur PEV sales. In tandem, automakers are investing in outreach campaigns which promote PEV education programs, infrastructure deployment and consumer incentive programs for state adoption.[138]

For the majority of PHEV, HEV, BEV, and fuel cell electric vehicles ("FCEVs") offered, competitive pricing has not stimulated purchases. Low familiarity with new technology, concerns with battery ranges, and lifestyle compromises (size, payload, towing capabilities, etc.) appear to continue to limit consumer willingness to embrace these technologies. Customers are prioritizing vehicle attributes such as safety, driving performance, and functional utility over fuel economy.

In EPA's final rulemaking for MYs 2017–2025, the Agency created a schedule of multipliers to encourage commercialization of PEVs and FCEVs since these technologies were judged by the Agency to "have the potential to achieve game-changing emissions reductions in the future" [internal quotation marks omitted].[139] EPA provided these multipliers through MY 2021, after which they expire and are no longer available.[140] Consistent with EPA's intention to incentivize these technologies in order to enable the market to achieve longer-term GHG reduction benefits, EPA should extend the advanced technology vehicle multipliers through at least MY 2026.

5.2.1.1. Market

The Agencies have revised their predictions for electric vehicle adoption since the DTAR and proposed and final determinations. The shift in consumer preferences toward SUVs and light-duty trucks leads to higher overall fleet averages and CO_2 emissions. Despite increasing utility options and battery ranges available, most consumers still choose traditional powertrains when making vehicle choices. Most consumers have limited experience with electric vehicles, and market conditions favor gasoline vehicles, creating long-standing barriers to electric vehicle adoption. The Agencies have historically underestimated the large growth in electrified vehicle market acceptance needed to achieve the current GHG and augural CAFE standards in MY 2025. There

[137] *Advanced Technology Vehicle Sales Dashboard*, *supra* note 61.
[138] *E.g.*, *see* Patrick Sission, *New Campaign Promotes Electric Cars, With Help From States and Automakers*, CURBED (Mar. 29, 2018 5:20 PM), https://www.curbed.com/2018/3/29/17177812/ev-electric-car-charging-station-drive-electric-campaign.
[139] 77 Fed. Reg. at 62,811.
[140] *See* 40 C.F.R. § 86.1866-12.

still remains high consumer acceptance risk and additional costs associated with marketing and incentives to achieve the necessary volumes of these vehicles.

5.2.1.2. Infrastructure

As part of the MTE, the Agencies prepared an assessment of the state of alternative fuel infrastructure as an indicator of the viability of electric and fuel cell vehicles in the marketplace. The assessment relied on three key initial assumptions: 1) the requirements can be met with only a small percentage of electric vehicles; 2) infrastructure and vehicle requirements are evenly distributed; and 3) today's customers and vehicles will not change.[141] As part of the MTE, EPA was required to consider actual and projected availability of public and private infrastructure for electric vehicles. While the electric vehicle marketplace may see modest growth, infrastructure implementation and strategic placement remains a significant barrier to adoption. A JD Powers 2017 study recently showed that the number one concern of customers considering the purchase of an electric vehicle was the lack of available charging stations.[142]

Comprehensive strategies for charging infrastructure remain elusive for future electric vehicle marketplace growth. While over 70% of electric vehicles charge at home, technology advances that increase the battery capacity and range will likely require higher power home charger installations in order to meet the needs of these vehicles. This will require additional consumer cost for adoption of an electric vehicle, especially if any utility upgrades are necessary for the home installation. In addition, a comprehensive public charging network is necessary for electric vehicle adoption. Further analysis has shown that 60% of potential EV customers do not see a charging station on their daily route.[143] Therefore, public and workplace charging infrastructure becomes increasingly more important with increasing electric vehicle adoption, especially for consumers that live in multi-unit dwellings that do not have designated locations to park. Without coordinated and targeted infrastructure investment from the public and private sectors, consumer demand for electric vehicles will be hindered by inadequate charging solutions that may increase range anxiety and increase electric vehicle cost of ownership to charge.

We additionally refer the Agencies to our comments on PEV fueling infrastructure submitted in response to the 2016 DTAR and hereby incorporate them by reference.[144]

5.2.1.3. Cost

The Agencies conducted an analysis of manufacturer data regarding the costs, revenues, and profitability of electrified vehicle lines. The Agencies correctly concluded that manufacturers cannot sustain the practice of passing on indefinitely the incremental costs of hybrid, plug-in hybrid, and battery electric vehicles to buyers of those vehicles. The gap between a customer's willingness-to-pay for those technologies and the cost to produce them must be recovered from buyers of other vehicles in a manufacturer's portfolio, sacrificed from profits—at the corporate

[141] DTAR, *supra* note 117, at 9-1 *et seq.*
[142] Chris Malott, *Mobility Disruptors: What Happened to "Charging" Into the Future?*, J.D. POWER (June 1, 2017), http://www.jdpower.com/resource/mobility-disruptors-what-happened-to-charging-into-the-future.
[143] *Id.*
[144] Alliance DTAR Comments, *supra* note 63, at 186 et seq.

and dealership level, or supplemented through a combination of state and federal incentives.[145] Until the time when the gap between customers' willingness-to-pay and the cost to produce these vehicles closes, the Agencies should continue to incentivize market introduction of electric vehicle technologies.

In continued consideration of these market conditions, the Alliance advocates for extending and increasing advanced technology incentives. The Alliance requests that the Agencies extend the multipliers from MY 2021 through the end of the regulatory period to MY 2026. Lack of adoption of these advanced technologies in the middle of the program warrants expanding the program through MY 2026, rather than phasing out incentives in MY 2021 as planned. Please review the Alliance's proposal for multiplier incentives in the sections that follow and adopt the proposed formula, extension of multiplier availability and expansion to NHTSA's CAFE program.

5.2.2. *Upstream Emissions: Automakers Should Not Be Required to Account for Another Industry's Emissions*

There is no justification for regulating automakers for the upstream emissions involved with powering advanced technology vehicles ("ATVs"). Automakers have no control over the feedstock that power plants use to generate electricity, nor do automakers have control over the conversion or transportation processes, or where and when a vehicle owner recharges a vehicle. Rather, the entities with control over electricity generation emissions are the federal and state agencies that regulate power plant operation and performance, the power companies that buy and sell power from various energy sources, and the vehicle operators who decide when and where to recharge their vehicles. Assigning upstream emission factors to grid-powered vehicles would be inefficient. The entity that should be responsible for upstream electricity generation emissions is the utility having control over that generation—not the downstream user, and certainly not the companies developing the products that use the electricity.

The Proposed Rule does not suggest any revisions to the upstream emissions accounting requirements for ATVs found at 40 C.F.R. § 86.1866-12(a). The Agencies state in the Proposed Rule that "incentives" such as zero upstream accounting could "distort the market."[146] The Agencies did, however, request comment on whether incentives should be allowed to expire, and whether any of the flexibilities in their current regulations should be amended, revised, or deleted. The Alliance recommends that the Agencies do not allow 0 g/mi upstream emission accounting to expire. Upstream emissions from electricity generation outside the vehicle should be 0 g/mi, and this should be the case for all model years and all vehicle volumes. Although the Agencies are classifying 0 g/mi as an "incentive" for ATVs, this is the way that the regulation should have been structured initially. Automakers should not have been required to account for these emissions. Therefore, removing upstream accounting is not an incentive for ATVs; rather, it should be seen as a correction that will remove responsibility for these emissions from an entity that has no control over them.

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[145] *See* Bob Lutz, *supra* note 102.
[146] 83 Fed. Reg. at 42,998.

Other stakeholders have historically supported, and continue to support, zero upstream accounting for reasons that are similar to those of the Alliance. The National Coalition for Advanced Transportation ("NCAT") sent a letter to the Agencies earlier this year that requested zero upstream emission accounting as a part of regulatory reforms.[147] The Electric Drive Transportation Association asserted in their comments on the proposed rulemaking in 2012 on fuel economy standards that "the proposal to include upstream emissions exceeds EPA's authority under Title II of the Clean Air Act."[148] A 0 g/mi upstream emission accounting is supported by a wide variety of interests in this rulemaking.

Furthermore, EPA noted that "upstream emissions associated with production and distribution of the [conventional] fuel are addressed by comprehensive regulatory programs focused on the upstream sources of those emissions."[149] If EPA decides that the upstream emissions from ATVs must be regulated, as is done for conventional fuels, EPA should turn to regulatory programs focused on those upstream sources.

In fact, arguably the Clean Air Act does not grant EPA the authority to regulate these upstream emissions. Section 202(a) directs EPA to set "standards applicable to the emission of any air pollutant <u>from</u> any class or classes of new motor vehicles or new motor vehicle engines."[150] Upstream emissions are not emitted from the tailpipes of vehicles or from engines; they are emitted by power plants and other facilities involved in generating electricity that is used for a number of purposes, including to power ATVs. Therefore, EPA's GHG standards should not factor in upstream emissions.

Another important consideration is that requiring upstream accounting could impede the development of BEVs or PHEVs. Including the upstream emissions for these vehicles in their CO_2 accounting degrades the CO_2 performance of BEVs down to the performance level currently associated with PHEVs, and that of PHEVs down to the level of a conventional HEV. As a result, ATVs and similar technologies are disincentivized.

Figure 5.2 below depicts how upstream emission accounting can disincentivize PHEVs in the compact car category, for instance. This chart uses MY 2018 data from fueleconomy.gov to estimate what upstream emissions would be for MY 2021 under the current GHG standards (not those proposed in the Proposed Rule). This chart demonstrates that accounting for PHEV upstream emissions degrades PHEVs to a compliance performance level similar to a HEV. Similar trends are seen with BEVs, in which BEVs are degraded to emissions of a PHEV without upstream

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[147] Letter from Robert A. Wyman and Devin O'Connor, Counsel to the National Coalition for Advanced Transportation, to Elaine L. Chao, Secretary of the U.S. Department of Transportation, Heidi King, Deputy Administrator of the National Highway Traffic Safety Administration, and Scott Pruitt and William Wehrum, Administrator and Assistant Administrator, Air and Radiation, of the U.S. Environmental Protection Agency (May 2, 2018), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2015-0827-11412.

[148] Letter from Genevieve Cullen, Vice President of the Electric Drive Transportation Association, to the Air and Radiation Docket of the Environmental Protection Agency, and the Docket Management Facility of the U.S. Department of Transportation (Feb. 13, 2012), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2010-0799-9449.

[149] 76 Fed. Reg. 74,854, 75,010 (Dec. 1, 2011).

[150] 42 U.S.C. § 7521(a).

emissions. PHEVs and BEVs require significant investment over their hybrid counterparts. By requiring upstream accounting, the Agencies would be further disincentivizing these technologies.

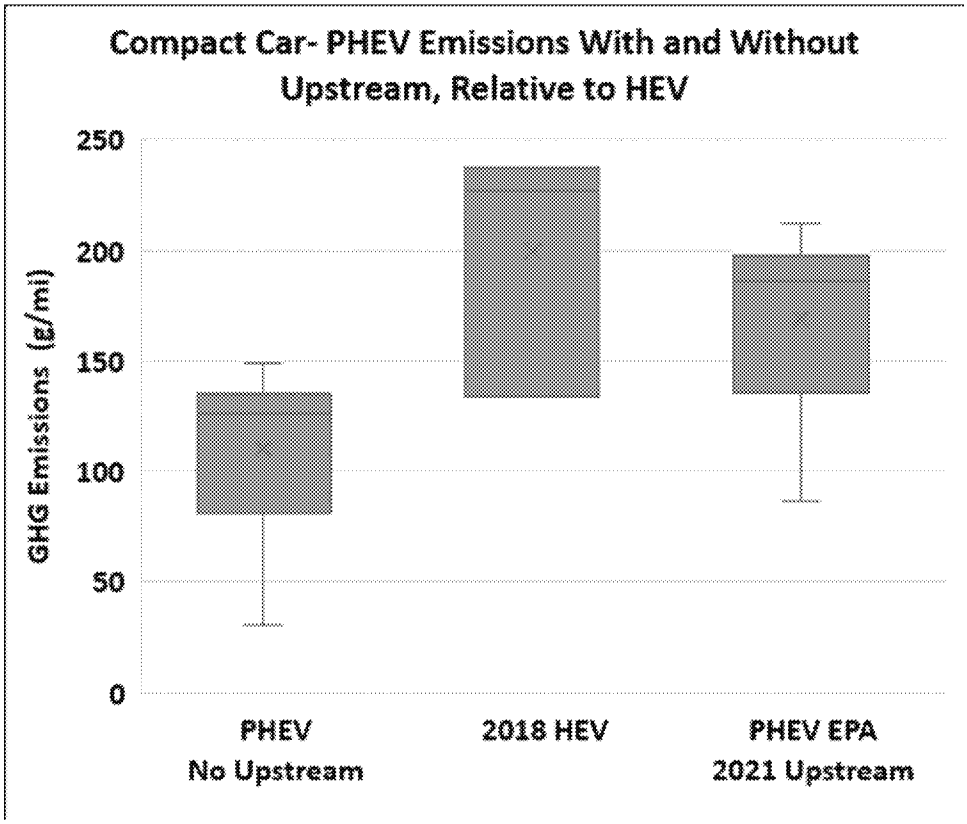

Figure 5.2: Federal upstream GHG accounting impact on compact car PHEVs in MY 2021.[151]

The Alliance therefore requests that EPA revise its standards so that manufacturers are not required to account for upstream emissions from ATVs. This should be the case for all model years and all vehicle volumes. Removal of upstream emissions from the regulations should be accomplished by removing the section related to upstream emissions from 40 C.F.R. § 86.1866-12(a) and by removing upstream CREE from the calculation in 40 C.F.R. § 600.113-12(n).

5.2.3. *Advanced Technology Vehicle Multipliers Should Be Extended and Increased*

In the Proposed Rule, the Agencies asked for comments on extending and expanding the use of ATV multipliers.[152]

The Alliance supports extending the use of ATV multipliers past MY 2021 and increasing them to 4.5 as soon as possible.

[151] Calculation of emissions based on unadjusted combined kWh/100 mi. 40 C.F.R. § 600.113-12(n); *www.fueleconomy.gov*, U.S DEPARTMENT OF ENERGY, https://www.fueleconomy.gov/ (MY 2018 PHEVs data as of May 8, 2018).
[152] 83 Fed. Reg. at 43,461.

The Alliance finds a calculation supplied by CARB to be instructive on the matter of multiplier values. CARB commented during the rulemaking for EPA's Phase 2 heavy-duty vehicle rule that "multipliers were not widely used [in Phase 1] because they were insufficient to address the costs and risks inherent in developing new technology."[153] CARB also demonstrated a method of calculating an appropriate technology multiplier based on the cost/benefit of advanced technology versus the cost/benefit of conventional technology. CARB's equation is shown here:

$$Incentive\ Multiplier = Adjustment\ Factor\ x\ \frac{\left(Adv.Tech.Cost/_{Adv.Tech.Benefit}\right)}{\left(Conv.Tech.Cost/_{Conv.Tech.Benefit}\right)}$$

For example, one of the cases considered in CARB's comments was for class 2B/3 trucks. In their analysis, the incremental cost for a class 2B/3 BEV was $25,000, which would eliminate 545 g/mi of emissions. The conventional technology would cost $1,340 and reduce emissions by 87 g/mi. The cost-benefit ratios are then:

$$3.0 = \frac{\left(\$25{,}000/_{545\ \mathrm{g/mi}}\right)}{\left(\$\,1{,}340/_{87\ \mathrm{g/mi}}\right)}$$

The final, recommended incentive multiplier for BEVs was 4.5, which implies an adjustment factor of 1.5. CARB proposed incentive multipliers higher than the calculated cost ratios, noting that "[a] multiplier that exactly balanced the additional cost would be less likely to incentivize technology development."

Applying CARB's method to light-duty vehicles, the Alliance proposes the following analysis using numbers from the GHG analysis from the Volpe model. The average vehicle emits 258.8 g/mi in MY 2016.[154] This would be reduced to zero with a battery electric powertrain at a cost of $20,791 in MY 2021.[155] Conventional technology could be used to reduce CO_2 emissions by 61.3 g/mi at a cost of $1,659.[156] As seen in the equation below, using the same adjustment factor that CARB used for class 2B/3 trucks yields an ATV multiplier of 4.5.

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[153] Letter from Michael Carter, Assistant Division Chief of the Mobile Source Control Division, California Air Resources Board, to Gina McCarthy, Administrator of the U.S. Environmental Protection Agency, and Mark R. Rosekind, Administrator of the U.S. Department of Transportation (June 16, 2016), *available at* Regulations.gov at Docket ID No. EPA-HQ-OAR-2014-0827-1968.

[154] Baseline CO2, Conventional Technology Costs, and Conventional Technology Benefits from compliance_report.csv from CO2 central analysis, augural standard scenario, all vehicle classes, all manufacturers.

[155] NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION AND U.S. ENVIRONMENTAL PROTECTION AGENCY, PRELIMINARY REGULATORY IMPACT ANALYSIS (Oct. 16, 2018), *available at* https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/ld_cafe_co2_nhtsa_2127-al76_epa_pria_181016.pdf (hereinafter PRIA) (Battery Costs from Table 6-29, Learning Curve Schedules from Table 9-94, Electrification Technology Costs from Tables 6-32 and 6-33).

[156] Difference between all vehicle, all manufacturer CO2 and technology cost in MYs 2021 and 2016. Augural standard scenario from CO2 central analysis.

$$Light\ Duty\ BEV\ Incentive\ Multiplier = 1.5\ x\ \frac{\left(\$20{,}791/258.8\ \text{g/mi}\right)}{\left(\$1{,}659/61.3\ \text{g/mi}\right)} = \mathbf{4.5}$$

The same analysis can be performed with PHEV systems. In spite of their reduced battery costs, having two powertrains makes PHEVs nearly as expensive as BEVs with a powertrain cost of $15,554[157] resulting in a CO_2 reduction of 181.1 g/mi[158] for an average vehicle; however, the reduced benefit means that the process yields an even higher ATV multiplier of 4.8 for PHEVs than for BEVs. While pure electric vehicles may be the preferred long-term solution, incentivizing PHEVs makes sense until such time that range anxiety can be resolved with a significantly increased number of plug-in vehicle charging stations.

$$Light\ Duty\ PHEV\ Incentive\ Multiplier = 1.5\ x\ \frac{\left(\$15{,}554/181.1\ \text{g/mi}\right)}{\left(\$1{,}659/61.3\ \text{g/mi}\right)} = \mathbf{4.8}$$

The Alliance also recommends that NHTSA apply ATV multipliers in its CAFE program.[159] Notwithstanding previous comments from NHTSA that EPCA/EISA precludes the agency from

[157] PRIA, *supra* note 155 (Battery Costs from Table 6-29, Learning Curve Schedules from Table 9-94, Electrification Technology Costs from Tables 6-32 and 6-33).

[158] Assumed benefit of 181.1 g/mi is 70% of the baseline 258.8 g/mi for a PHEV50.

[159] In issuing the 2012 Final Rule, NHTSA refused to include an incentive multiplier for electric vehicles as part of its CAFE standards, on the ground that it "currently interprets EPCA and EISA as precluding it from offering additional incentives for the alternative fuel operation of EVs." 77 Fed. Reg. at 62,651. The Alliance respectfully submits that this interpretation of EPCA and EISA was mistaken and should be reconsidered. Nothing in the text of EPCA or EISA says anything whatsoever about prohibiting NHTSA from including an incentive multiplier for electric vehicles as part of the CAFE program, and no court has ever interpreted the statute in that way. Instead, the only reason given in the 2012 Final Rule for interpreting EPCA and EISA to preclude such multipliers was that other statutory provisions already provide other incentives for electric vehicles, and so (NHTSA concluded) an additional multiplier for electric vehicles "would not be consistent with Congress' intent." *Id.* at 62,651 n.87. But the fact that Congress provided certain incentives for electric vehicles hardly indicates that Congress intended to constrain NHTSA's ability to incorporate other appropriate incentives. On the contrary, the "force of any negative implication" from the incentives that Congress did provide "depends on context." *NLRB v. Sw. Gen., Inc.*, 137 S. Ct. 929, 940 (2017). And the force of that implication is especially weak here, because "in an administrative setting … Congress is presumed to have left to reasonable agency discretion questions that it has not directly resolved." *Adirondack Med. Ctr. v. Sebelius*, 740 F.3d 692, 697 (D.C. Cir. 2014); *cf. AARP v. EEOC*, 267 F. Supp. 3d 14, 27 (D.D.C. 2017) (agency is free to adopt appropriate incentives where no statute "directly prohibits the use of incentives" or "speaks to the level of permissible incentives at all"). Here, the fact that Congress provided *some* incentives for electric vehicles shows that Congress *did* intend to increase the development and use of electric vehicle technology. If anything, that reinforces the conclusion that Congress also left NHTSA the discretion to adopt additional incentive multipliers for electric vehicles as part of the CAFE program, as an appropriate additional mechanism to promote the same ultimate goal. Moreover, given the recognized need to achieve uniformity between the CAFE program and the GHG standards issued by EPA, there is every reason to believe Congress would have intended NHTSA to have the authority to adopt incentive multipliers for electric vehicles that will align the CAFE program with EPA's coordinated GHG standards.

using incentive multipliers,[160] we believe that the statute provides the appropriate flexibility for EPA to include the incentive multipliers when calculating average fuel economy for a fleet.[161] Using the same incentive multipliers as EPA is important to maintain a harmonized national program. The Alliance also notes that advanced technology vehicles use of locally produced fuel, such as electricity, hydrogen, or compressed natural gas, that increases the nation's energy security—which meets the original intent of the statute.

The incentive multipliers could be treated in CAFE with a fuel consumption improvement value (FCIV) similar to how off-cycle and air conditioning ("A/C") efficiency credits are handled[162]. EPA's recent Proposed Rule describing technical corrections to the Advanced Technology Multiplier[163] proposes regulations that would require manufacturers to calculate the mega-grams of CO2 credits with and without the ATV multipliers for each fleet. The difference between these values would be mega-grams of CO2 attributable to the Advance Technology Multipliers.

Once the ATV mega-grams are known, the FCIV can be calculated as:

$$FCIV_{ATV}\left({}^{gal}/_{mi}\right) = \frac{(Mg\ of\ ATV\ Credits\ x\ 1{,}000{,}000)}{(VLM\ x\ Production\ x\ 8887)}$$

The $FCIV_{ATV}$ can then be included in the average fuel economy calculation along with the other FCIVs:

$$Average\ MPG = \frac{1}{\left(\frac{1}{MPG} - (FCIV_{AC} + FCIV_{OC} + FCIV_{PU} + FCIV_{ATV})\right)}$$

5.2.4. *Incentives for Hybrid-Electric Vehicles and Other Highly Efficient Vehicles*

Hybrid technology will be a necessity across the entire fleet in order to attain compliance with any of the Proposed Rule's Alternatives, from flat standards through the no-action scenario, with a key difference being technology penetration rates between the various proposals. The full-size pick-up truck segment has substantially lagged passenger car segments in market penetration of hybrid offerings. General Motors offered a micro hybrid system on full-sized pick-up trucks from MYs 2004 to 2007, and then a strong hybrid full-sized pick-up truck from MYs 2009 to 2013. Neither of these offerings were accepted on a large enough scale in the market to justify continued production, and each offering was subsequently discontinued. The incentives in the current rule have resulted in two different manufacturers now offering mild hybrid systems on three different full-size pick-up truck powertrains available today, with likely more hybrid options in the development pipeline.

Full-size pick-up truck buyers tend to be more resistant to change, especially with powertrain technologies, than buyers of any other class of vehicle, and thus it will take substantial time for these technologies to gain significant penetration rates and become accepted by the majority of

[160] 77 Fed. Reg. at 62,628.
[161] *See* 49 U.S.C. § 32904(a)(1)(A).
[162] 40 C.F.R. § 600.510-2.
[163] 83 Fed. Reg. 49,349 (Oct. 1, 2018).

buyers. All of the full-size pick-up credits—strong hybrid, mild hybrid, 20% better performance, and 15% better performance—should be extended in full throughout the duration of this rulemaking window through MY 2026. Minimum penetration rate requirements for individual years should also be eliminated. It would be more appropriate to consider a maximum threshold above which a technology's stability in the market would be considered to no longer warrant an incentive. This program needs to bridge the gap between what the full-size pick-up market will currently accept, and eventually getting these technologies accepted by a majority of buyers. Mechanisms that eliminate these credits before these technologies are able to gain widespread acceptance, through either premature termination or required penetration rates, could cause these product offerings to be discontinued. This could leave a stigma on these technologies as not fit for full-size pick-up applications, further inhibiting future attempts to bring these technologies back into this segment.

To provide meaningful incentives to help further advance these technologies, increase fleet penetration rates, and build meaningful economies of scale, these incentives should also be applied to all light-duty trucks. This segment has historically lagged the passenger car fleet with adoption of hybrid technologies because the cost premiums for hybrid technology increase exponentially with increased vehicle weight and utility requirements. Figure 5.3 shows this through hybrid vehicle sales by segment.

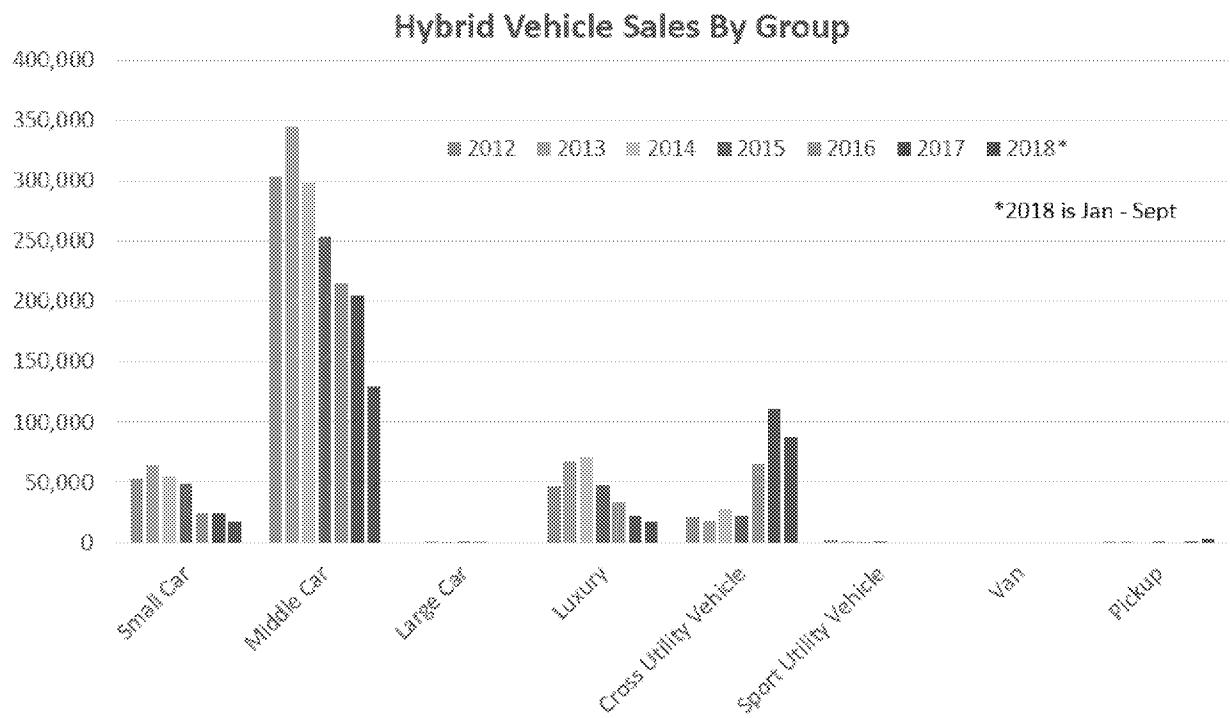

Figure 5.3: Hybrid sales by vehicle segment.[164]

[164] Ward's Intelligence, U.S. Light Vehicle Sales, December 2012, 2014, 2016, 2017, and U.S. Light Vehicle Sales, September 2018.

Promoting hybrid technology in the entire light-duty truck segment is needed. The Agencies contend that smaller footprint light-duty trucks fall on the lower part of the truck curve, which has a higher rate of improvement (in stringency) than larger trucks, thus making those trucks more comparable to passenger cars in terms of technology access and effectiveness. However, cost remains a hurdle for acceptance of hybrids in the smaller, lighter truck segments. All of this warrants some level of incentive for hybrids beyond the large pick-up truck segment as a way to encourage the growth and proliferation of hybrid technology that has been largely confined to the passenger car segment.

The Agencies also asked for comments on whether these flexibilities should be expanded to passenger cars as well. Although hybrid powertrains have proliferated into passenger cars at a much higher rate when compared to light-duty trucks, the overall penetration rates are still very low. The Alliance supports flexibilities applied to mild and strong hybrid passenger cars at half the level of light-duty trucks to encourage their widespread acceptance.

5.3. Refrigerant Program: Air Conditioning Leakage and Refrigerant Global Warming Potential Credit

Mobile Air Conditioner ("MAC") direct credits are related to leakage of vehicle air conditioner refrigerants and the associated global warming impact of those compounds. MAC direct credits have been successful at accelerating real-world GHG emissions reductions through the introduction of low global warming potential ("GWP") refrigerants, especially R-1234yf, and of improvements in the air conditioner systems' hardware components to reduce leakage. R-1234yf was introduced in new vehicles in the United States beginning in the 2013 MY, and many of the new light-duty vehicles sold in the United States now use it.

R-1234yf has a GWP defined in the regulation as 4, though more recent estimates place the figure closer to 1. Since there is a range of only one to three pounds of refrigerant in the typical vehicle air conditioner system, and that refrigerant load supports operation over many years, the use of a refrigerant with a GWP as low as that of R-1234yf essentially removes vehicle air conditioner refrigerants from the list of meaningful GHG emission concerns.

The transition to low-GWP vehicle air conditioner refrigerants in new light-duty vehicles can be considered a major success that resulted from the credits incorporated into the EPA GHG regulation. The credit has accelerated the U.S. hydrofluorocarbon (HFC) reduction program into a leading position worldwide by driving the phase-down of high-GWP automotive refrigerants. The simplicity and reliability of the refrigerant credit provisions shows the successes possible for flexibilities when properly structured.

The Alliance supports retention of the credits for refrigerant leak reductions, including credits for low-GWP refrigerants, in MY 2021 and beyond. Retaining these credits will ensure that the transition to low-GWP refrigerants continues without disruption, and will provide a reliable and stable regulatory framework to support the large investments that have been made in this transition. Retaining the refrigerant credit program in this regulation will also provide an effective nationwide regulatory framework for these gases, obviating any need for divergent regulation of them by individual states. Maintaining the MAC direct credits in the federal light-duty vehicle GHG

program helps avoid a potential patchwork of state regulations and/or the need for additional federal regulation. The Alliance therefore recommends that EPA retain the credits for low-GWP refrigerants at the same maximum levels that have been previously allowed: 13.8 g CO_2/mi for passenger cars and 17.2 g CO_2/mi for light-duty trucks. Retaining the refrigerant credits will continue to recognize the environmental benefits of low-GWP refrigerants and encourage further implementation.

5.3.1. *Low-Leak Credit Cap Removal*

If the MAC direct credit program is retained in the regulation, there are opportunities to make improvements that would assist in providing continued future success. One example is the credit cap on the low-leak credits for R-134a systems; this cap eliminates the incentive to use leak reduction technologies to the maximum extent possible. The leakage scores are calculated according to SAE standard J2727, which estimates leakage based on factors such as the lengths of air conditioner hose in the system, hose materials, number of joints, types of seals used for each joint, and the type of compressor shaft seal. The current credit formula effectively caps the credits by specifying minimum-allowed leak scores that can be used in the formula of 8.3g/year for cars 10.4g/year for trucks, (4.1g/year and 5.2g/year respectively with an electric compressor).

An examination of the J2727 scoring system shows that it is possible to use the best technologies in each of the above categories and achieve leak rates that are below the minimum-allowed leak score level that currently defines the maximum EPA MAC low-leak emission credit.

Therefore, the minimum-allowed leak score should be eliminated, which would effectively remove the cap on these credits and thereby provide appropriate recognition of manufacturer efforts to attain the maximum achievable emission reduction in this area.

5.3.2. *High-Leak Disincentive Removal*

The high-leak disincentive penalty should also be eliminated.

The high-leak disincentive penalty of up to 1.8 grams CO_2 per mile (g CO_2/mi) for passenger cars and 2.1 g CO_2/mi for light-duty trucks was put into the regulation for systems that use R-1234yf (or other low-GWP refrigerants), and is assessed when vehicles exceed certain refrigerant leakage levels (e.g., a penalty is incurred for a vehicle with a leak score above 11.0 grams per year if the vehicle has a refrigerant charge size under 733 grams).

This penalty is excessive when considering the *de minimis* GWP impact of the refrigerant that could possibly leak. For example, the maximum high leak disincentive penalty would be incurred for rates above 14.3 grams of refrigerant per year for systems with a charge size of under 733 grams of refrigerant. But with the GWP of R-1234yf rated at 4 or less, the global warming impact of a 15 gram-per-year leak rate over a vehicle's lifetime would only be equal to approximately one kilogram of CO_2 emissions—or even less. The impact of a 15 gram-per-year leak rate compared to the baseline leak rate of 11.0 grams (where no penalty would be assessed) is only 4 grams per year, equating to less than a third of a kilogram of marginal CO_2-equivalent increase over the

vehicle's lifetime. In comparison, the regulatory high leak disincentive penalty would be equal to 351 kilograms of CO_2 emissions for a passenger car and 474 kilograms for a light-duty truck. Clearly, the penalty size is vastly out of proportion to the possible emissions impact of a low-GWP refrigerant such as R-1234yf.

EPA created the disincentive to ensure that high air conditioning leakage rates of low-GWP refrigerants would not result in a do-it-yourself mechanic refilling the system with a higher-GWP refrigerant that would subsequently leak out again.[165] However, the fundamental problem with the high leak disincentive provisions is that the penalty system, created to maintain high levels of MAC system integrity, is simply not needed considering the high cost of R-1234yf refrigerant[166] coupled with the current state of air conditioner hardware technology. Due to the high cost of R-1234yf, the industry has adopted demanding specifications for R-1234yf system integrity in order to reduce warranty and other costs. Thus, the high leak disincentive penalty system as currently structured is largely a reporting burden that does not create sufficient real-world benefits to justify the administrative costs.

For these reasons, the Alliance recommends removal of the high leak disincentive term from the equations used to calculate air conditioning refrigerant credits for systems with low-GWP refrigerants.

5.4. Air Conditioning Efficiency

EPA created a list of air conditioning efficiency technologies that earn a pre-defined and pre-approved credit in grams per mile CO2 in the 2012-2016 light-duty GHG and CAFE regulation.[167] The efficiency technologies were termed "indirect" MAC credits where the vehicle emissions improvements were an indirect consequence of reduced fuel consumption as a result of the more efficient MAC system. The baseline for these credits was EPA's estimate of the total fuel usage from light-duty mobile air conditioner usage in the United States, which EPA estimated to be 14.3 grams CO2 per mile, or 3.9% of total national light-duty vehicle fuel usage.[168]

The technologies identified for pre-approved credits and the percentage efficiency improvement estimates for these technologies came primarily from the Improved Mobile Air Conditioner (IMAC) industry-government Cooperative Research Program conducted through SAE International. IMAC was a partnership between EPA, DOE and 28 corporate sponsors, which published its final report in 2007. The IMAC program demonstrated an improvement of 36.4% in MAC efficiency using best-of-the best designs for these technologies on a test vehicle, compared

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[165] U.S. ENVIRONMENTAL PROTECTION AGENCY & NATIONAL HIGHWAY TRANSPORTATION SAFETY ADMINISTRATION, JOINT TECHNICAL SUPPORT DOCUMENT: FINAL RULEMAKING FOR 2017-2025 LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS at 5-9 (Aug. 2012).

[166] For example, as of October 15, 2018, 36 oz. of R-134a can be obtained for $19.95. R-1234yf costs $163.00 for 32 oz. *Compare* AMAZON, https://tinyurl.com/HFC134a, with https://tinyurl.com/Honeywell-R1234yf (last visited Oct. 15, 2018).

[167] *See* 75 Fed. Reg. 25,427 et seq.

[168] U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA-420-R-10-009, FINAL RULEMAKING TO ESTABLISH LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS REGULATORY IMPACT ANALYSIS at 2-30 (Apr. 2010).

to a baseline MAC system using a defined list of typical technologies in production at that time, such as a fixed displacement compressor.[169]

EPA estimated from the IMAC work that a 40% reduction in emissions was possible when employing the indirect A/C menu technologies in the study. That reduction equates to a 5.7 g/mi CO2 reduction (0.40 X 14.3 g/mi CO2) which then became the capped credit value for employing the technologies on the indirect A/C menu from the "Final Rule for Model Year 2012 - 2016 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards."[170] The cap was modified for the 2017 final rule to better align the efficiency improvement credit values based on the physics of cars and trucks. The 2017 menu cap for passenger cars was modified to 5.0 g/mi CO2 and 7.2 g/mi CO2 for trucks.

The pre-defined and pre-approved MAC indirect credit menu has proven to be highly successful. Air conditioning efficiency technologies were not heavily deployed in U. S. market vehicles when the indirect MAC credits first came into effect. The industry claimed an average of 1 g/mi CO2 in indirect A/C credits in 2009 or roughly 20% of the available menu cap at that time. Since then the MAC efficiency technologies have been widely deployed in the U. S. vehicle fleet, averaging nearly 4 g/mi CO2 of indirect A/C credits in 2016 or about 70% of the maximum menu credit cap.

The current rulemaking is an opportunity to build on the success of the MAC credit program. The MAC efficiency community has steadily advanced the reduction of MAC emissions since the time of the first rule. New work performed by the National Renewable Energy Laboratory ("NREL") shows that the U.S. average CO_2 emissions associated with MAC operation are much higher than those assumed by EPA when the credit values of the indirect MAC technology menu were derived.[171] Therefore, the benefits of those technologies are undervalued at their current values and should be updated.

The Proposed Rule requests feedback on the government's proposal to merge the Solar Thermal Menu technologies with the Indirect A/C Menu technologies. The Alliance supports removing the Solar Thermal Menu technologies from the Off-Cycle Menu and adding them to the Indirect A/C Menu. The Alliance also supports raising the cap by the sum of the two menu values.

Rapid technology deployment following the introduction of the indirect MAC credit menu and the Denso SAS compressor have spawned new innovations in the MAC efficiency field. Other compressor manufacturers have developed competing technologies to the Denso SAS compressor that can be quickly deployed.

Other leaders in this field have innovated based on the idea that further reductions in fuel use due to MAC system operation are possible. System innovations such as the Ejector Evaporator Cycle

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[169] *Id.* at 2-30.

[170] *Id.* at 2-40.

[171] *See* Kreutzer et al., National Renewable Energy Laboratory, U.S. Light-Duty Vehicle Air Conditioning Fuel Use and the Impact of Four Solar/Thermal Control Technologies, presentation at SAE 2017 Thermal Management Systems Symposium (Oct. 2017). Comparing NREL 2016 assessment of 23.5 g CO_2/mile (p. 40) to EPA derivation based on 14.3 g CO_2/mile. FINAL RULEMAKING TO ESTABLISH LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSION STANDARDS AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS REGULATORY IMPACT ANALYSIS at 2-30 (Apr. 2010).

and Zone Control further reduce MAC emissions in addition to the technologies included in the indirect MAC credit menu.

The Life Cycle Climate Performance ("LCCP") model originally pioneered by EPA and industry continues to improve with updated climate data for many more cities in the world. SAE specifications have been developed to test the validity of MAC emissions reduction technologies. The Agencies and the automotive industry remain committed in partnership to developing, implementing and improving the tools needed to continue the beneficial impact in MAC system efficiency improvements for the future when the next generation of technologies will deliver passenger comfort in innovative ways.

MAC indirect credits continue to play a critical role in industry compliance with the light-duty vehicle greenhouse gas and CAFE regulations and achieving emissions and fuel consumption reductions that would not otherwise have been.

The current rulemaking should be used as an opportunity to build on the success touted above and achieve additional real-world emissions reductions. This can be done by adding new technologies as discussed below to the combined menu with pre-approved credit values and revising the credit caps based on the recent NREL work. In the following passages, we propose a reorganization and rationalization of the indirect MAC and off-cycle credits to reflect new information that has been gathered since the creation of these regulatory provisions. The recommended reforms would:

- Raise the air conditioner efficiency and thermal control technology caps by 64% (commensurate with NREL assessments of on-road air conditioning system emission impacts), and combine them into a single cap covering both types of technologies;
- Raise some existing air conditioner efficiency and thermal control technology credits by up to 64%;
- Create new regulatory provisions to handle further new air conditioner and thermal technology developments;
- Transfer certain air conditioner credits for electrical technologies into the off-cycle credit list, instead of the air conditioner list; and
- Remove AC17 testing requirements for claiming MAC system efficiency credits.

5.4.1. *MAC System Efficiency Program Retention*

As the Agencies' analysis shows, the automotive industry is able to achieve its environmental and energy goals more cost effectively if it can use flexibility mechanisms such as air conditioner efficiency credits to assist compliance. Therefore, although we recommend many improvements to these regulatory provisions, we request in general that these credit mechanisms be retained in the MY 2021–2026 regulations.

5.4.2. *MAC System Efficiency and Solar-Thermal Credit Menu Combination*

Automobile manufacturers are already well on the way to reaching the existing MAC indirect credit caps using the technologies on the existing pre-approved credit list, with the MY 2018

industry average already at approximately 80% of the cap.[172] Future technology improvements would therefore have a small impact on emissions reduction plans if the caps are not also revised to accommodate the newly available technologies. Fortunately, it appears that this is both possible and technically correct, and that the caps can and should be revised, thereby enabling additional incentives for implementation and acceleration of improved technologies.

EPA based its MAC efficiency credits on estimates of each technology's percentage impact on the total fuel usage by vehicle air conditioner systems in the U.S. However, EPA's 14.3 grams CO_2 per mile estimate of baseline air conditioner energy usage (3.9% of total light-duty fuel consumption) was well below the estimates of others, such as researchers from the National Renewable Energy Laboratory (over 6%) and Oak Ridge National Laboratory, as well as longstanding benchmarks used by industry.

This baseline used by EPA, which was as low as half the baseline MAC energy usage estimated by the other major sources, resulted in MAC efficiency credits and an associated credit cap which are far below the actual real-world fuel savings and CO_2 reductions that are resulting from these technologies.

More recent estimates of baseline U.S. energy usage for light-duty vehicle air conditioners, using updated and refined models, have continued to significantly exceed the EPA baseline. In a series of studies released in 2017 by scientists from the National Renewable Energy Laboratory, the baseline MAC energy usage was calculated to be 30.0 gallons of gasoline per vehicle per year, equivalent to 23.5 grams of CO2 per mile.[173]

The updated estimate from NREL of 23.5 grams CO2 per mile is 64% greater than the EPA baseline of 14.3 grams CO2 per mile.

5.4.3. *Combined MAC System and Solar-Thermal Menu Credit Adjustments*

The underestimated EPA baseline for MAC energy usage also impacts the credit caps and credit amounts created in the off-cycle credit provisions for the various solar/thermal control technologies, such as solar reflective paint, solar reflective glass, ventilated seats, and active or passive cabin ventilation. These thermal control technologies should ideally have been analyzed and administered in combination with the MAC efficiency technologies from the earliest stages of the light-duty greenhouse gas regulation since they both address energy usage to power the air conditioning system.

The Alliance therefore proposes that the MAC indirect credit caps and the thermal control technology off-cycle caps be combined, and that the two lists of technologies be administered under a single set of caps. The Alliance further proposes that the combined set of caps should be revised to reflect a 64% higher baseline energy usage for air conditioner energy, as shown below.

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[172] NOVATION ANALYTICS, *supra* note 33, at 50.

[173] C. Kreutzer et al., U.S. Light-Duty Vehicle Air Conditioning Fuel Use and the Impact of Four Solar/Thermal Control Technologies, SAE Thermal Management Systems Symposium at 23 (Oct. 10-12, 2017); C. Kreutzer et al., Impact of Active Climate Control Seats on Energy Use, Fuel Use and CO2 Emissions: Test and Analysis", SAE Thermal Management Systems Symposium at 26–27 (Oct. 10-12, 2017).

The new NREL data reinforces the already ample justification for raising the EPA credit caps for air conditioner efficiency and thermal control technologies. Based on an adjustment of approximately 64% to reflect the higher NREL estimate of baseline MAC energy usage, beginning with MY 2021 the caps would become:

MAC Indirect and Thermal Control Caps Adjusted for NREL Baseline (g CO_2/mi)						
	Current			Revised		
	MAC Indirect	Thermal Control	Total	MAC Indirect	Thermal Control	Total
Car	5.0	3.0	8.0	8.2	4.9	13.1
Truck	7.2	4.3	11.5	11.8	7.1	18.9

Table 5.2: Current and recommended MAC indirect and thermal control credit caps.

5.4.4. *Combined MAC System and Solar-Thermal Menu Existing Technology Credit Additions and Adjustments*

In Attachment 7, the Alliance describes a number of technologies that should be added to the MAC indirect credit list.

Taking into account the new baseline of 23.5 g CO_2/mi for air conditioner energy usage, and incorporating the new technologies described further in Attachment 7, the rescaled preapproved list of MAC indirect credits would be as shown in Table 5.3 beginning with MY 2021 or sooner. Because the NREL analysis cited above showed lower effectiveness for the active and passive cabin ventilation technologies, the credits for these two technologies are not increased in the following proposed new preapproved credit table. The credit for internal heat exchangers has also not been increased, based on the most recent evaluations of this technology.

Updated Air Conditioner Indirect and Thermal Control Preapproved Credit List (g CO_2/mi per vehicle)				
	Current		Revised	
	Car	Truck	Car	Truck
Reduced Reheat (EVDC)	1.5	2.2	2.5	3.6
Reduced Reheat (fixed)	1.0	1.4	1.6	2.3
Scroll Compressor	NA	NA	2.5	3.6
Default to Recirc (closed loop)	1.5	2.2	2.5	3.6
Default to Recirc (open loop)	1.0	1.4	1.6	2.3
Internal Heat Exchanger	1.0	1.4	1.0	1.4
Improved Evaporators / Condensers	1.0	1.4	1.6	2.3
Oil Separator	0.5	0.7	0.8	1.1
High-Efficiency Blower Control	0.8	1.1	Moved	Moved
Compressor with Variable Crankcase Suction Valve	None	None	1.1	1.1
Glass	Up to 2.9	Up to 3.9	Up to 4.8	Up to 6.4
Paint	0.4	0.5	0.7	0.8
Active Seat Ventilation	1.0	1.3	1.6	2.1
Active Climate Control Seat	None	None	3.5	4.5
Passive Cabin Ventilation	1.7	2.3	1.7	2.3
Active Cabin Ventilation	2.1	2.8	2.1	2.8

Table 5.3: Updated air conditioning indirect and solar-thermal control pre-approved credit list.

Note also that the updated MAC indirect credit list includes the new credit for scroll compressors and compressors with variable crankcase suction ("CS") valves (both under the cap), but removes the credit for high-efficiency blower controls from the indirect MAC/thermal cap, and moves this credit to the off-cycle credit list. These two changes roughly offset each other with respect to the coverage of the combined MAC indirect/thermal control technology cap.

The recommended new credit values in the above table reflect the 64% higher baseline for air conditioner fuel consumption, as estimated by NREL, and the original EPA modeling of the technologies. In contrast, the NREL study revised both the fuel consumption baseline as well as the analytical techniques used to model each technology. Based on the NREL modeling (and without including the higher NREL air conditioning baseline), some technologies did even better than in the EPA modeling (e.g., active engine warm-up, active transmission warm-up, and ventilated seats). Some technologies did the same (e.g., reflective paint), and some did worse than the EPA modeling (e.g., active and passive cabin ventilation and solar reflective glass). The NREL modeling for active and passive cabin ventilation was so much lower than the original EPA modeling that the Alliance recommendations for these technologies do not ask for any increases above the current credit levels, even though we shift to the higher air conditioning baseline for the other technologies.

5.4.5. *Technology Implementation Barriers*

5.4.5.1. Indirect MAC Technology Off-Cycle Applications and EPA Guidance

EPA has introduced guidance and interpretations concerning the MAC indirect and thermal control technology caps that have created severe obstacles to further progress. For example, EPA first asserted in the 2016 Technical Assessment Report for the Midterm Review that any new air conditioner efficiency technologies approved for off-cycle credit would fall under the same credit cap that had been established initially in the 2012 regulation based on the known air conditioner efficiency technologies at that time, which were all included on the predefined and preapproved credit list for air conditioner efficiency technologies beginning in 2012. Putting emerging new technologies under the 2012-based credit cap essentially excludes further improvements in vehicle air conditioners and related passenger comfort systems, despite the existence of known emerging technologies written into the 2012 list. This interpretation regarding the application of that cap is impacting investment plans, slowing implementation of new technologies, and thereby frustrating the goals of the regulation. These caps contradict and undermine EPA's statements that MAC technology developments will continue to expand and play an increasing role in overall vehicle GHG reductions.

The analyses submitted by General Motors and subsequently by other automobile manufacturers for the off-cycle credit for the Denso SAS compressor with variable crankcase suction ("CS") valve technology clearly showed that the energy savings were incremental to a baseline compressor (the SBU compressor) that had all of the compressor efficiency technologies on the MAC indirect credit preapproved menu. In addition, there have been many new efficiency improvement technologies presented in various technical forums, such as at the SAE World Congress and the SAE Thermal Management System Symposium, which would increase

efficiency significantly beyond the MAC indirect credit menu (such as zonal MAC systems). Evaluations of some of these new technologies have been presented by national laboratories such as NREL and Oak Ridge, in addition to presentations by OEMs and MAC suppliers. These additional MAC efficiency technologies offer substantial additional GHG reductions, and the Agencies' policies should try to encourage and incentivize rapid implementation of these improvements.

In general, credit caps are counterproductive since they impede greater technology implementation. Certainly, in the case of new MAC (or other off-cycle) technologies that have been specifically demonstrated to be incremental to the technologies on the preapproved list, the caps created based on the preapproved list should not be strictly applied. On the proposed new credit list above, the credit for a compressor with variable CS valve technology has been put under the cap, but with room for it provided by the transfer of the credit for high-efficiency blower controls to the off-cycle list of credits, where this credit related to the electrical system more appropriately belongs.

While these proposed changes accommodate the improvements from the variable CS valve technology added to a conventional air conditioner system, the regulations need a more general provision that can accommodate more radical changes and improvements in thermal and cabin comfort as architectures. This new regulatory section would potentially accommodate such emerging technologies as microclimate seats and/or smart zonal air conditioner systems, which only expend energy to cool small areas around occupied locations within the cabin. In an extreme example, an autonomous vehicle in the future might have no glass windows. These emerging technologies have the potential to completely eliminate, or at least dramatically downsize, the conventional components of a vehicle air conditioner. Since these conventional components are the basis for the existing preapproved credit list, there needs to be some regulatory provision to account for the new technologies that replace the conventional components or dramatically change their energy consumption.

In view of these considerations, a new section should be created in the off-cycle credit portion of the regulation. This new section would allow automobile manufacturers to petition for off-cycle credit for new advanced thermal system or passenger comfort architectures. Under this new regulatory section, the caps on credits from the preapproved lists for air conditioner efficiency and/or thermal control technologies would explicitly not apply. Instead, an automobile manufacturer (or potentially a supplier) could use a methodology to establish the energy consumption of the new advanced system, and achieve credit for its improvements without the restriction of these caps.

5.4.5.2. Credit Validation

To maintain the momentum of the industry in making improvements to the efficiency of thermal comfort systems, the Alliance proposes the elimination of the A-to-B AC 17 test requirements to claim efficiency menu credits that are set to begin with MY 2020. Automotive manufacturers have been strongly against this testing requirement for two reasons. First, it is difficult to consistently measure small improvements during vehicle testing, due to test-to-test variation. This variation

can be seen in the round robin testing of a single vehicle tested at four facilities. As shown in the figure below, the test results varied by up to 10 g/mi, which is greater than the value of all the technologies on the air conditioning menu. Second, there is typically no good baseline vehicle designed or built (i.e., no identical vehicle is built without the efficiency technologies that get the credits). The AC17 test requirement therefore creates uncertainty over the future value of these credits and potentially undermines the success that the pre-approved list of credits has achieved in stimulating implementation of improved technologies.

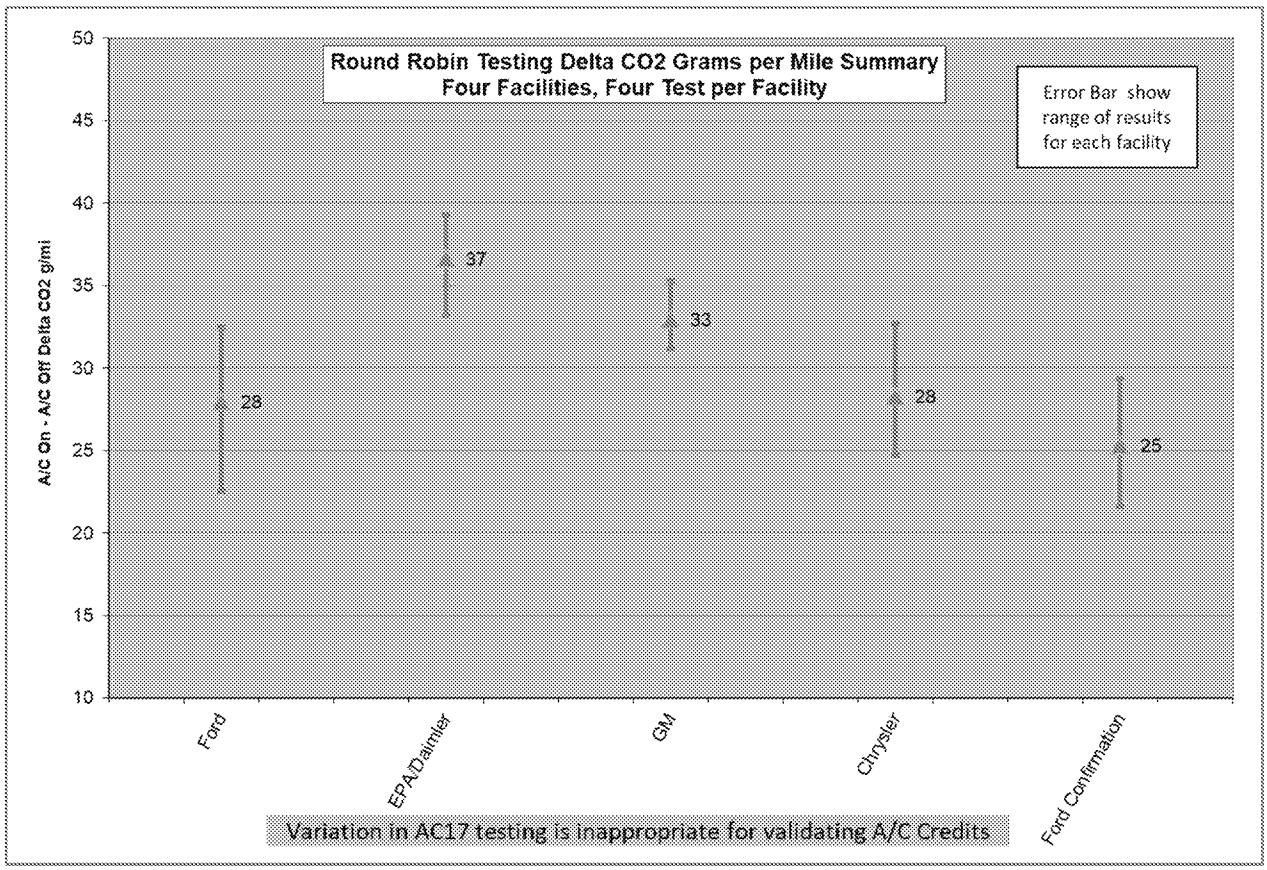

Figure 5.4: Variation of AC17 round robin testing.[174]

5.4.5.3. AC17 Testing

Instead of attempting A-to-B AC17 testing on every vehicle platform every year, the Alliance proposes a cooperative industry-government program (like the previous IMAC cooperative research program) to reanalyze the benefits of the technologies on the preapproved credit list, including some vehicle testing. Reexamination of the air conditioner efficiency credits could revalidate the real-world benefits of these technologies, and reconfirm the credit list, thereby providing a reliable basis for eliminating the existing AC17 A-to-B test requirement in the regulation.

The proposed cooperative research program would be superior to the existing AC17 A-to-B test requirement for several reasons. The AC17 MAC efficiency test has not proven that it is

[174] Courtesy of Ford Motor Co.

sufficiently accurate to play the role that EPA envisioned for it in its GHG regulation beginning in MY 2020, when the A-to-B AC17 tests would need to show a differential sufficiently large for a manufacturer to apply the indirect MAC credit from the list of preapproved technologies. There are too many testing difficulties for the AC17 test procedure to function on a standalone basis in the way that traditional emissions certification tests measure compliance compared to a standard. Instead, the experience gained over the past few years with the AC17 procedure shows that it can, at best, be used as a supplement to evaluations of the efficiency of an air conditioner technology, rather than as the sole basis for measuring efficiency.

Therefore, it can be expected that in almost every compliance submission beginning in MY 2020, manufacturers will need to submit an engineering analysis (rather than straightforward AC17 test results) in order to meet the A-to-B comparison requirements to justify their MAC indirect credits. This engineering analysis may or may not be supplemented with AC17 A-to-B testing of some or all of the technologies in the credit requests for each vehicle.[175]

To support this effort, activities have been conducted through SAE to define other methodologies to support these A-to-B engineering analyses, such as SAE standards for bench testing the efficiency of an internal heat exchanger, an oil separator, an improved evaporator or condenser, or a blower controller. Automobile manufacturers continue to support this and similar future activities.

In conclusion, the preapproved credit lists for MAC efficiency technologies and thermal control technologies have worked very well over the past several years to accelerate implementation of more efficient technologies that reduce GHG emissions. Due to its low baseline for MAC energy usage, the EPA methodology for creating these preapproved credits was very conservative, and real-world emissions reductions have likely greatly exceeded the credited amounts. Viewed from this perspective, the upcoming A-to-B testing requirements pose more of a threat to these emissions reductions than they create an opportunity for improving the program. The MY 2020 AC17 A-to-B test requirement could create uncertainty over full achievement of MAC indirect credits that could hinder investment in MAC efficiency technologies. The future success of the MAC credit program in generating emissions reductions will depend to a large extent on the manner in which it is administered by EPA, especially with respect to making the AC17 A-to-B provisions function smoothly, without becoming a prohibitive obstacle to fully achieving the MAC indirect credits.

5.4.6. *Inclusion of A/C Efficiency Credit for CAFE Compliance in MYs 2012–2016*

NHTSA has tentatively denied the Alliance and Association of Global Automaker's petition to include indirect MAC credits for MYs 2010-2016. When A/C efficiency credits (or FCIVs) were

[175] The same logic applies to other uses of the AC17 test, such as for evaluating new MAC efficiency technologies as potential off-cycle credits, as was done by General Motors using the Denso SAS compressor with variable CS valve technology. The AC17 test can supplement these evaluations, but should not be used as an essential requirement for every credit submission. For example, the AC17 test only covers a limited set of the conditions that can occur in the real world, whereas future technologies may be developed that only provide their benefits in these other conditions not experienced in the AC17 test. Engineering analysis using bench test data or other approaches may be sufficient, or even superior, for these evaluations.

added to the CAFE program for MYs 2017-2025, NHTSA declined to retroactively add these credits to the MY 2012-2016 program stating that they did not take them into account when adopting the CAFE standards for those model years.[176] NHTSA implies that if it had included them, they could have made the standards more stringent.

It is for this reason that the petition only sought credits in the CAFE program for exceeding the assumed credits used to determine the GHG stringency. In other words, had NHTSA considered A/C efficiency credits when determining maximum feasible, and had they used the same level of credits that EPA assumed, they would have promulgated standards that were higher than those used in MYs 2012-2016. But under the mechanisms described in the petition, manufacturers would only earn credits for exceeding that higher level of stringency that NHTSA would have considered if A/C efficiency credits were included in NHTSA's MY 2012–2016 standards.

We note that A/C efficiency credits are for technologies that provide real fuel savings, can be included in average fuel economy with the fuel consumption improvement values as is done for MYs 2017-2025, and would further harmonize the programs.

5.5. Off-Cycle Technology Credit Program

Phases 1 and 2 of the EPA GHG regulation and Phase 2 of the NHTSA fuel economy regulation enable flexibilities in the form of off-cycle technologies[177] which are an important part of manufacturers' pathways to compliance as they allow credit for technologies that improve customer's on-road fuel economy, even though the fuel economy improvements from these technologies may not be observed in the laboratory. The off-cycle credit program, while in need of improvement, has been supported by the Agencies and automotive industry stakeholders. There are three unique pathways for claiming off-cycle credit that encourage technology implementation; the predefined technology table, the 5-cycle methodology, and the alternative methodology.

The first of the three paths for claiming off-cycle credits, the predefined technology table has proven to be the most useful. The predefined table of technologies allows manufacturers that add technology meeting the defined requirements to claim a predetermined credit values from the table. The bulk of the off-cycle credits earned to date are from the predefined table, as manufacturers are assured of receiving credit when they deploy the technologies from the table. Below, the Alliance identifies several ways that this very useful tool can be further improved.

The second path to claiming off-cycle credits, the 5-cycle pathway, allows OEMs to quantify the benefit of technologies that are not realized or only partially realized on laboratory 2-cycle testing. The Alliance applauds the EPA for undertaking a separate technical rulemaking that, when complete, will make this pathway useable. Up until this point, the agency has not recognized technologies through this method.

The third path is based on manufacturer-defined and EPA-approved alternative methodologies. Manufacturers identify a technology, demonstrate the value of the technology with testing and

[176] 77 Fed. Reg. at 62,840; 83 Fed. Reg. at 43,456.
[177] 40 C.F.R. § 86.1869-12.

data, and submit an application to the EPA to acquire credit for the technology. The process incorporates public scrutiny and comment before the process is approved by EPA. Currently, this pathway works poorly. Below, the Alliance recommends several steps the agencies should take to improve this process that would enable automobile manufacturers and suppliers to take advantage of this method and deploy more fuel saving technologies.

5.5.1. *Recommendations for the Pre-Approved List of Off-Cycle Credit Technologies*

5.5.1.1. Expand the Off-Cycle Table Credit Cap

From 2012-16MY, industry's application of off-cycle technologies to the U.S. fleet tripled[178] (2X on car fleet and 4X on truck fleet) to 3 g/mi. Manufacturers have rapidly deployed technology in response to this all new regulatory mechanism – a recognition of the cost-effectiveness of these technologies, that have on-road FE/GHG benefits which are not completely captured during laboratory conditions. Given this early success, the Alliance expects industry adoption of off-cycle technologies will at a minimum continue at the current rate or more likely accelerate. In the MY2021-2026 timeframe of the proposed rule, it is likely that manufacturers will hit the existing 10 g/mi cap.

Knowing that this regulatory mechanism incentivizes industry innovation, manufacturers need regulatory certainty to fund the needed investment in technology. The draft rule seeks comment on past industry requests to remove the 10 g/mi off-cycle table cap completely, and the Alliance supports this proposal which will unleash industry innovation. Left in place, the cap is stifling the deployment of fuel saving technologies.

While the Alliance members do not prefer a cap, the Agencies proposed a cap in a range of 5-10% of an individual OEM's fleet standard. The Alliance only supports a cap set to 10% or greater, in order to fully encourage deployment of these technologies. We acknowledge that this path works much like attribute-based standards, where a given technology could have a greater gram/mile savings if the base vehicle had higher fuel consumption (i.e., a large versus small vehicle). This arrangement would also gradually taper the magnitude of the credit as vehicles continue to improve their CAFE/GHG performance.

The Agencies also seek comment on increasing the cap to 15 g/mi. While the Alliance supports any expansion of the off-cycle table cap, this is the least preferred of the alternatives in the proposed rule.

5.5.1.2. Revise the Off-Cycle Technologies in the Existing Table

The Alliance proposes additions to the predefined off-cycle technology table. The additions are proposed in two forms: transfer of approved alternative methodology applications, and addition of new proposed technologies. Other technologies would be removed the tables as the Alliance supports the proposal to move thermal control technologies to the A/C efficiency table.

[178] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at tbl.3.17.

5.5.1.2.1. Transfer Approved Alternative Methodology Applications to the Table

Many OEMs have generated alternative methodology off-cycle technology applications for the same technology (e.g., high efficiency alternators and lighting), and have had them approved. These applications represent a duplication of effort as the methodologies are generally the same and yield the same credit value. The Alliance proposes that many of these technologies can be standardized and added to the predefined off-cycle table technology list.

Doing so will eliminate the time spent by the Agencies evaluating essentially the same application submitted by a different OEM that lead to the same result. An excellent example would be to add a standardized formula for high efficiency alternators based on VDA efficiency as already approved for Ford, GM and FCA. The Agencies should standardize the calculations and add the formula to the menu. Doing this will improve the process for OEMs to claim the credit as the table is the most certain and efficient way of taking credit.

The Alliance supports a process that takes new and approved off-cycle applications and adds them to the off-cycle table. This process will free up scarce resources at both the Agencies and OEMs for evaluating these technologies and will speed their deployment. Implementing a process like this would take a technology proposal and, if approved, the credit would be available for use by all within a year. Given that OEMs need certainty for investment and that product decisions can take years to implement, this process is needed to incentivize the quick and widespread deployment of GHG emissions and fuel saving technologies. Turning these new technologies into table items, still with appropriate agency and public review, is a winning process for all stakeholders. The OEMs get the needed certainty to make the investment, and the public benefits with more on-road fuel savings.

5.5.1.2.2. Move Thermal Control Technologies to the Air Conditioning Efficiency Table

The Alliance agrees with the Agencies' proposal to restructure off-cycle credits by removing the solar-thermal technologies such as glass, paint, cabin ventilation, and ventilated seats and combining them with the air conditioning efficiency technologies. The off-cycle credits discussed here pertain to efficiency improvements unrelated to the air conditioning and solar-thermal technologies. The menu should reflect this.

5.5.1.2.3. Add New Off-Cycle Technologies to the Table

The Alliance proposes the addition of the following technologies to the predefined table. The supporting technical details for each the above technologies are discussed separately in Attachment 7.

- Transmission Thermal Bypass Valve – Active Warm-Up
- Rear Axle Active Warm-Up
- Exhaust Heat Recirculation System (EHRS) Active Warm-Up
- Cooled Exhaust Gas Recirculation (CEGR) Active Warm-Up
- EHRS/CEGR Combined

- Engine Encapsulation/Powertrain Bay Heat Retention
- Electrical Load Reduction
- High Efficiency Alternator (Alt Methodology Transfer to Table)
- PWM/DC Blower Controllers
- Brushless Motors
- Engine Stop-Start Idle with Cold Storage

5.5.1.2.4. Overview of a New Off-Cycle Table

The Alliance proposes the following revised off-cycle table based on:

- Transferring approved alternative methodology applications to the table;
- Moving thermal control technologies to the A/C efficiency (indirect) table; and
- Implementing newly proposed technologies.

Technology	Passenger Car Credit CO_2 (g/mi)	Light-Duty Truck Credit CO_2 (g/mi)
High-efficiency exterior lights	Up to 1.0 based on system	
Waste heat recovery per 100W (scalable)	0.7	
Efficient electrical device credit (real-world)	0.32 per W	
Solar roof panels for battery charging with or without active cabin	2.5 (with active cabin) 3.3 (without active cabin)	
Active aero per 1% Cd improvement (scalable)	0.1936	0.3316
Engine idle stop/start without or with heater circulation system	1.5 (without) 2.5 (with)	2.9 (without) 4.4 (with)
Active transmission warm-up	1.5	3.2
Active engine warm-up	1.5	3.2
Thermal bypass valve warm-up	0.5	1.0
Rear axle active warm-up	1.5	3.2
Exhaust heat recirculation system	20% multiplier*	
Cooled exhaust gas recirculation	10% multiplier*	
Powertrain bay heat retention and engine encapsulation	1.5 (powertrain bay heat retention) 3.0 (engine encapsulation)	
High-efficiency alternator	(VDA-67) * 0.16	
PWM-controlled blower	1.3	1.8
Brushless blower motors	Scalable based on motor efficiency	
Brushless engine fan motor	0.5	1.0
Engine stop-start idle with cold storage	1.0	1.5
Adaptive cruise control	2.0	

Table 5.4: Updated off-cycle table.

* multiplier based on any combinations of active engine, transmission, or axle heating warm-up

5.5.2. *Thermal Control Technology Credit Accounting*

The regulation at 40 C.F.R. § 86.1869 as released in the Federal Register notice[179] did not specify that the thermal control technology credit caps were applicable on a per vehicle basis. That interpretation was not disclosed until EPA released the guidance letter CD-15-25 on November 4, 2015 three years after the regulation was released and after manufacturers had already submitted credits, forcing manufacturers to restate previously claimed credits.

This interpretation has proven to be particularly troublesome to implement since the database and accounting systems for compliance reporting have not typically been constructed to check whether credit caps have been reached on each individual vehicle. Instead, these systems are typically constructed to compile fleet totals and fleet averages for each type of technology feature, and these totals can be compared relatively easily to a fleet average cap. In contrast, checking the cap on each vehicle requires going back to each vehicle VIN to check the individual equipment level for each vehicle, which is a laborious task that can be expected to become increasingly difficult as rising technology implementation brings more vehicles to the cap. The EPA interpretation of how to implement thermal control technology credit caps should be revised to partially alleviate the counterproductive constraints from the caps by implementing the cap on a fleet average basis, instead of implementing the cap on each vehicle.

This guidance letter EPA released was an overly broad and aggressive interpretation of EPA's language and directly contradicts EPA's own language in other sections of the preamble. The regulation and preamble do describe that credits are to be earned on a per vehicle basis, but never directly discuss the subject that the maximum credit caps should also be applied on a per vehicle basis. The discussion related to earning credit on a per vehicle basis is related to quantifying the benefits of the additional technologies and the arguments that minimum penetrations levels are counterproductive. On the contrary when discussing credit availability on electrified products the preamble clearly states that these credits will be accounted for at the fleet level: "EV/PHEV/FCVs can earn air conditioner efficiency, air conditioner refrigerant, and off-cycle credits. EPA will be accounting for these credits at the manufacturer fleet level, not at the individual vehicle model level . . . ."[180]

Furthermore, historic reporting has traditionally been handled on a model type basis with caps being implemented at the fleet level. These issues become extremely burdensome when managing off cycle technologies. Unlike major powertrain level differences that are specified in the regulatory definition of a model type, off cycle technologies are not always implemented based on differences in powertrain criteria. Certain off cycle technologies like those in the thermal control technology category, high efficiency lighting, and other technologies can be implemented on vehicles based on the trim level, which can cross multiple model types. Due to these challenges the Alliance requests that these technologies be capped at the fleet level similar to the application of similar regulatory limits.

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[179] 77 Fed. Reg. at 62,833.
[180] 77 Fed. Reg. at 62,833.

5.5.2.1. Changes to 5-Cycle Method

EPA has proposed, in a separate rule, a technical correction regarding how to calculate off-cycle credits that are determined via 5-cycle methodology. The regulations were inadvertently not changed to require that the 2-cycle benefit be subtracted from the 5-cycle benefit when demonstrating benefits using the 5-cycle technology demonstration methodology. This arithmetic correction would help ensure that credits derived from the 5-cycle methodology are calculated properly.

Additionally, the Alliance believes that EPA needs to further address two areas in the technical correction. First EPA should clarify that it will award all technologies that have a difference between 5-cycle and 2-cycle testing methodology as long as the OCC credit value is equal to or greater than .05 g/mile, regardless of the observed benefit using the 2-cycle method. The Alliance believes that some technologies have been overlooked in the past because of this incorrect implementation of the intent of the rule. Second the EPA should clearly define the term "baseline technology (item and efficiency)". Clarifying this term will help manufacturers determine what a baseline technology is and the associated baseline OCC value.

Therefore, the Alliance agrees with the intent of the correction and will submit additional comments on the technical correction proposal. The Alliance believes incorporating these changes will allow the program to be implemented as originally intended, is a simple correction to the regulatory language, and supports the intent of the technical correction proposal.

5.5.3. *Off-Cycle Alternative Methodology Enhancements*

The Alliance supports several enhancements to the off-cycle application process as given in 40 C.F.R. 86.1869-12(d). These enhancements will shorten the time it takes to process applications.

5.5.3.1. Fix the Approval Process

The Alliance supports all actions that would work to shorten the time it takes the agencies to evaluate and decision alternative methodology off-cycle applications. Off-cycle application submissions can take a year or longer to be published in the Federal Register despite the current process noted in 40 C.F.R. § 86.1869-12(d). The agencies need to identify and implement internal process improvements needed to evaluate and decision applications in a timelier fashion.

The Alliance proposes that the regulations also be revised to force action if the agencies cannot maintain the timeline identified in the regulations. We propose that all off-cycle alternative methodology applications be automatically approved after 90 days if the agency has not reviewed the application for completeness or published a complete application in the federal register.

Without consistent, agency response, obtaining the needed funding to explore additional fuel saving technologies is challenging. When companies have certainty in timely agency response to off-cycle applications, more technologies can make it to market faster and on a broader scale.

5.5.3.2. Develop an Off-Cycle Analytical Toolbox

For manufacturer planning purposes, clarity and certainty can also be improved through the development by the Agencies of an endorsed "toolbox" of analytical methodologies that can be applied to the analysis of off-cycle credit opportunities. It can often require substantial resources just to launch the projects to investigate new technologies which might offer potential off-cycle energy savings and emission reductions. These projects typically involve work by advanced engineering and/or R&D, including vehicle and component testing. Turning this technical work into an actual credit application requires additional resources, including the efforts from planning, legal, and regulatory affairs to actually write the credit application and bring it through the approval process. In order to achieve the commitment of these resources, it would be helpful to bolster confidence in the credit approval process by establishing a firmer base of pre-approved analytical methodologies on which the industry could rely. It would also help to speed the credit approval process if relatively standardized analytical approaches are used. Finally, it would provide assistance in international markets to have this analytical toolbox endorsed by the U.S. regulatory agencies, since overseas regulators are addressing the same issues.

Some items for the "toolbox" can be identified in successful recent off-cycle approvals. For example, the Lifecycle Climate Change Performance models (the GREEN-MAC LCCP model, and the updated IMAC-GHG LCCP model) and the associated SAE J2765 standard for compressor efficiency bench testing have played a role in many analyses of the energy savings from air conditioner technologies. The AC17 test has also been used to evaluate some of these air conditioner technologies. Additional air conditioner component efficiency ratings techniques have been created through SAE, such as the SAE J3109 standard for the efficiency assessment of PWM HVAC Blower Controllers and BLDC Motor Controllers, the SAE J3094 standard for the efficiency measurement of Internal Heat Exchangers, and the SAE J3112 effectiveness test for A/C Compressor Oil Separators. These can be used as inputs for the SAE J3174 recommended practice standard for an engineering analysis for A/C efficiency credits. The VDA bench test procedure for alternator/generator efficiency has become the norm for credit assessment for that component. Credit assessments for ventilated seats and climate controlled seats have used the family of analytical models developed at NREL, including Coolcalc, Coolsim and FASTSim. EPA analyses have often used the ALPHA vehicle simulations model developed at EPA, but the Autonomie model developed at Argonne National Lab could be a comparable alternative.

It would be helpful for the Agencies to provide some endorsement of these analytical tools as a part of the current rulemaking. In addition, further support can be established going forward through guidance letters and the decision documents that are issued for each method 3 (alternative methodologies) off-cycle credit approval. These techniques would not be considered to be an exhaustive or exclusive list of required analytical methodologies that could be used in requests for credits. Rather, they would provide a set of procedures that manufacturers could use with a heightened level of confidence.

5.5.3.3. Allow a Supplier-Led Application Process

The Alliance supports the proposal to allow a supplier to lead the application process for new off-cycle or air conditioning efficiency technology credits as long as it is in conjunction with at least

one vehicle manufacturer partner. These applications should be assessed in the same way that applications submitted by vehicle manufacturers are assessed.

The Alliance does not support the Agencies provisional credit concept proposal. That is where a supplier demonstrated credit value (with a vehicle manufacturer partner) would be available provisionally, for a limited period of time in order to collect more data that would support the continued use of the credits. This type of program could get technologies designed into new vehicles, tooled up, and put into production only to find that the technology does not actually achieve the benefits originally claimed by the supplier. Vehicle manufacturers need certainty that the off-cycle and air conditioning efficiency benefits will be granted when justifying the costs to develop technologies and put them into production.

Given the problems noted with a provisional credit option, the Alliance proposes an additional option similar to the eco-innovation program in Europe, for a supplier-led application process that would not require a vehicle manufacturer partner. Under this proposal, if a supplier is able to demonstrate benefit at a minimum threshold of 1 g/mi for passenger cars or 1.4 g/mi for light-duty trucks through the existing EPA approved alternative methodology option, then a vehicle manufacturer partner would not be required. The approved credit would then be available to any manufacturer that chooses to put the approved technology into production.

Once a technology is in production, a manufacturer would have the option to demonstrate to the Agencies that their implementation of the technology actually achieves a higher benefit, and then claim a higher credit. The Alliance finds that this structure could achieve the same intended goal of the proposed provisional option, but in a way that requires a more thorough vetting of the technology prior to claiming the benefit. The minimum threshold values would act to focus this application option on technologies that have a substantial benefit, thus reducing the risk of wasting agency time analyzing nuisance applications for technologies with marginal benefit. A cap for these particular credits, separate from any other credit caps, could be placed at 5 g/mi for passenger cars and 7 g/mi for light-duty trucks for technologies claimed through supplier-only applications. If a vehicle manufacturer subsequently submits and receives approval of their own application demonstrating a higher benefit, it would no longer fall under the cap. The combination of a minimum threshold and a cap should encourage suppliers to claim the minimum threshold value for technologies that easily over-perform the minimums. The cap proposal would limit usage to a maximum of five technologies per vehicle approved in this manner before the cap would saturate and allow no further benefit. Setting the benefit for any given technology at the lower end of its potential creates a path for individual manufacturers to demonstrate higher values, thus removing them from the supplier technology cap and creating space under that cap to be filled with new technologies. Technologies that are being used by vehicle manufacturers while they are still under the supplier technology cap would fill the same role as the provisional credit proposal, but would be a much more robust program that will aid in getting many more technologies that have real-world fuel economy benefits into production.

5.5.3.4. Credit Granted Under Alternative Method Required to Demonstrate Benefits, Not Improvements Beyond Current Technology

The off-cycle program is intended to provide credit for technologies that provide more fuel economy and GHG emissions reduction benefit in the real world than is realized in FTP and HFET on-cycle testing. At times EPA has suggested that manufacturers needed to demonstrate how a new technology provided more benefit than a previous technology; however, such a demonstration is not needed. The only necessary demonstration is the incremental off-cycle benefit. Therefore the Alliance recommends that 40 C.F.R. § 86.1869-12(d) be modified as follows (modifications shown as red text).

> (d) *Technology demonstration using alternative EPA-approved methodology.* (1) This option may be used only with EPA approval, and the manufacturer must be able to justify to the Administrator why the 5-cycle option described in paragraph (c) of this section insufficiently characterizes the effectiveness of the off-cycle technology. In cases where the EPA 5-cycle methodology described in paragraph (c) of this section cannot adequately measure the emission reduction attributable to an off-cycle technology, the manufacturer may develop an alternative approach. Prior to a model year in which a manufacturer intends to seek these credits, the manufacturer must submit a detailed analytical plan to EPA. The manufacturer may seek EPA input on the proposed methodology prior to conducting testing or analytical work, and EPA will provide input on the manufacturer's analytical plan. The alternative demonstration program; does not require comparison to other/prior technology, must be approved in advance by the Administrator, and should:
>
> (i) Use modeling, on-road testing, on-road data collection, or other approved analytical or engineering methods only to demonstrate the benefit of technology on-road versus the on-cycle tests;
>
> (ii) Be robust, verifiable, and capable of demonstrating the real-world emissions benefit with strong statistical significance;
>
> (iii) Result in a demonstration of technology benefits ~~baseline and controlled emissions~~ over a wide range of driving conditions and number of vehicles such that issues of data uncertainty are minimized;
>
> (iv) Result in data on a model type basis unless the manufacturer demonstrates that another basis is appropriate and adequate.

In the preamble of the MY 2017–2025 2012 final rule, EPA recognized that the value of the program was in accounting for the off-cycle benefit of technology, not for the technology benefit beyond current levels:

> EPA believes it is appropriate to provide credit opportunities for off-cycle technologies that achieve significant real world reductions beyond those measured

> under the two-cycle test without further making (somewhat subjective) judgments regarding the newness and innovativeness of the technology. Therefore, as proposed, EPA is implementing this program change for new MY 2012–2016 credits as well as for MY 2017–2025.[181]

The above regulatory change clarifies the data requirements to be consistent with the intent of the rule.

5.5.4. *Inclusion of Off-Cycle Credits in CAFE Program MY 2010–2016*

NHTSA has tentatively denied the Alliance/Global's petition to include off-cycle credits for MYs 2010-16. When off-cycle credits (or FCIVs) were added to the CAFE program for MYs 2017-25, NHTSA declined to retroactively add these credits to the MYs 2012-16 program stating that they did not take them into account when adopting the CAFE standards for those model years.[182] The suggestion is that if NHTSA had included them, they could have made the standards more stringent.

We note, however, that EPA *did* consider off-cycle credits for MYs 2012-16 and concluded that there wasn't sufficient information to include them in their stringency. There is no practical difference between NHTSA not considering off-cycle credits for stringency and EPA considering them but assigning them a value of zero. Therefore, the Alliance believes that NHTSA would not be retroactively violating its requirement to promulgate maximum feasible standards.

We note that off-cycle credits are for technologies that provide real fuel savings, can be included in average fuel economy with the fuel consumption improvement values as is done for MYs 2017-25, and would further harmonize the programs.

Similar arguments are applicable to A/C efficiency credits. This subject is a somewhat more complicated than off-cycle credits because EPA did add A/C efficiency credits to their stringency. It is for this reason that the Alliance/Global petition only sought credits in the CAFE program for exceeding the assumed credits used to determine the GHG stringency. In other words, had NHTSA considered A/C efficiency credits when determining maximum feasible, and had they used the same level of credits that EPA assumed, they would have promulgated standards that were higher than used in MYs 2012-16. But under the mechanisms described in the petition, manufacturers would only earn credits for exceeding that higher level of stringency.

NHTSA has also tentatively denied the Alliance/Global petition request to adjust VMTs for MYs 2011-16. We note that the purpose of One National Program was for NHTSA to consider fuel savings and for EPA to considers GHG emission for the same set of vehicles. These vehicles drive a certain number of miles over their lifetime and it doesn't make sense that NHTSA's program consider the fuel savings over fewer miles. Further, we disagree that a MY2011 vehicle would drive 23% fewer miles in its lifetime than a MY2017 vehicle. The practical solution for MYs 2012-16 is the same as NHTSA assumed for MYs 2017-25. That is to equate the VMTs to EPA's values.

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[181] 77 Fed. Reg. at 62,835.
[182] 77 Fed. Reg. at 62,840; 83 Fed. Reg. at 43,456.

The Alliance believes there would be minimal harm in this action because manufacturers were generally CAFE compliant during this time frame.

5.5.5. *Rebuttal of ICCT Paper* How Will Off-Cycle Credits Impact U.S. 2025 Efficiency Standards[183]

In March 2018, the International Council on Clean Transportation (ICCT) published a white paper critiquing many aspects of the Agencies' light-duty GHG off-cycle program titled, "How Will Off-Cycle Credits Impact U.S. 2025 Efficiency Standards?"[184] The paper presents a series of inaccurate claims, incorrect citations, and fundamentally flawed logical steps to reach four faulty conclusions:

1. Off-cycle credit use could increase by 3 to 8 times, amounting to a 10-to-25 g CO_2/mi reduction by 2025;
2. The off-cycle credit program is based on technologies that are still largely without validated real-world benefits;
3. Up to 34% of the projected increase in passenger car fuel economy, and 42% of the projected increase in light-duty truck fuel economy, could be lost to off-cycle credit technologies; and
4. A growing off-cycle program that encourages off-cycle technology adoption discourages and delays a shift to electric vehicles.

The Alliance provides here a rebuttal to these claims.

5.5.5.1. Conclusion 1: Off-Cycle Credit

The first major conclusion in the white paper is that off-cycle credit use in 2025 will be dramatically greater than in 2016.[185] While the Alliance agrees that off-cycle credit use will likely increase as time passes, ICCT exaggerates this claim using projections based on incorrectly cited EPA data. In 2016, the combined fleet-wide average off-cycle credit use was 3.0 g CO_2/mi, and the authors outline low, mid-range, and high scenarios for their 2025 projections: 10.0, 17.5, and 25.0 g CO_2/mi, respectively. The authors justify this low scenario by aligning it with the preapproved off-cycle credit cap, and they justify the high scenario by aligning it with the sum of

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[183] Sources for this section: 77 Fed. Reg. 62,623; 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22; U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA-420-R-16-014, GREENHOUSE GAS EMISSION STANDARDS FOR LIGHT-DUTY VEHICLES: MANUFACTURER PERFORMANCE REPORT FOR THE 2015 MODEL YEAR (Nov. 2016), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi/P100PKP1.PDF?Dockey=P100PKP1.PDF; U.S. ENVIRONMENTAL PROTECTION AGENCY, EPA-420-R-16-021, PROPOSED DETERMINATION ON THE APPROPRIATENESS OF THE MODEL YEAR 2022-2025 LIGHT-DUTY VEHICLE GREENHOUSE GAS EMISSIONS STANDARDS UNDER THE MIDTERM EVALUATION: TECHNICAL SUPPORT DOCUMENT (Nov. 2016), *available at* https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100Q3L4.pdf; 2018 TRENDS REPORT, *supra* note 19; NIC LUTSEY & AARON ISENSTADT, INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION, HOW WILL OFF-CYCLE CREDITS IMPACT U.S. 2025 EFFICIENCY STANDARDS? (Mar. 2018), *available at* https://www.theicct.org/sites/default/files/publications/Off-Cycle-Credits_ICCT-White-Paper_vF_20180327.pdf.

[184] LUTSEY & ISENSTADT, *supra* note 183.

[185] *Id.* at 34.

the CO_2 credit for today's leading auto manufacturer in each technology area (see Figure 5.5). The valuation for the mid-range scenario is the average of the low and high scenarios.[186] ICCT data supporting the high scenario are reproduced below.

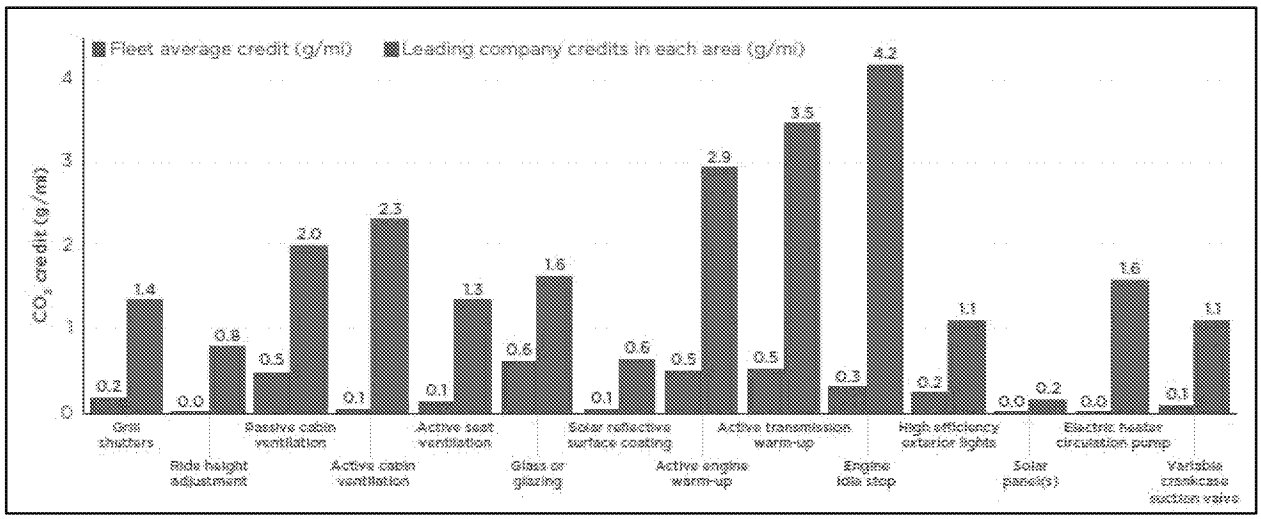

Figure 5.5: Data produced by ICCT representing the fleet-wide average and leading company credits for 14 technology areas used to justify the high scenario.[187] Of the 14 values for leading company credits, 12 are incorrectly cited.

The rationale behind the figure for the high scenario is that by 2025, the average automaker will have a combined fleet-wide average off-cycle credit value equivalent to the sum of the leaders of each individual technology area in 2016.[188] This assumption is counterfactual because of the 14 technology areas shown in Figure 5.5, the credit quantity of 12 of the leading automakers were incorrectly cited. ICCT uses the 2015 and 2016 EPA Manufacturer Performance Reports as the source of their data[189]; however, 10 of these values differ from those found in table 3-21 in both Manufacturer Performance Reports. Two other values, for the electric heater circulation pump and variable CS valve, are not listed in table 3-21.

The electric heater circulation pump is a technology that facilitates efficient cabin heating in cold temperatures while the engine is temporarily off during stop events. Without an electric heater circulation pump, engine idle stop is worth 1.5 g/mi on cars and 2.9 g/mi on light-duty trucks; with the addition of an electric heater circulation pump, the credit calculation increases to 2.5 g/mi on cars and 4.4 g/mi on light-duty trucks (EPA, 2012, p. 62737). It is clear that ICCT is double-counting electric heater circulation pump credits in Figure 5.5 because if the technologies are counted separately, the maximum possible fleetwide average credits would 2.9 g/mi for engine idle stop and 1.5 g/mi for electric heater circulation pump if the fleet mix was 100% trucks with 100% deployment. In Figure 5.5, engine idle stop must represent the combination of engine idle stop with an electric heater circulation pump, like how the data is presented in the Manufacturer Performance Reports. The ensuing discussion of Conclusion I will also consider engine idle stop

[186] *Id.* at 25–26.
[187] *Id.* at 12 fig.3.
[188] *Id.* at 26.
[189] *Id.* at 11.

to be the combination of engine idle stop with an electric heater circulation pump, and eliminate electric heater circulation pump as an individual category.

The variable CS valve is a technology that improves A/C efficiency by optimizing refrigerant flow. It was awarded a 1.1 g/mi credit to General Motors (GM) above and beyond the traditional A/C efficiency credits because it enables additional benefits that the EPA did not project when the GHG program was created. ICCT cited 1.1 g/mi as the fleetwide value, which can only be true with 100% deployment. GM appears to be a credit leader in 2015 (348,102 Mg) and 2016 (309,604 Mg) for the variable CS valve (EPA, 2016a, p. 48; EPA, 2018a, p. 52). With roughly a 50% penetration rate, the impact of these credits is approximately 0.6 g/mi on the GM fleet in 2016.

While the electric heater circulation pump and variable CS valve have unique circumstances, the remaining technologies in Figure 5.5 have more straight-forward applications, and the Alliance is unsure how ICCT gathered their data. The remaining 10 technologies with incorrect citations, in addition to the two correctly-cited technologies, are listed below in Table 5.5, which compares ICCT claims in Figure 5.5 against the data found in the Manufacturer Performance Reports.

Technology Area	ICCT Value (g/mi)	EPA Value (g/mi)
Grill shutters	1.4	1.0
Ride height adjustment	0.8	0.0
Passive cabin ventilation	2.0	2.0
Active cabin ventilation	2.3	2.1
Active seat ventilation	1.3	0.6
Glass or glazing	1.6	1.6
Solar reflective surface coating	0.6	0.1
Active engine warm-up	2.9	1.5
Active transmission warm-up	3.5	1.6
Engine idle stop	4.2	3.6
High efficiency exterior lights	1.1	0.9
Solar panel(s)	0.2	0.0
~~Electric heater circulation pump~~	~~1.6~~	~~N/A~~
Variable CS valve	1.1	0.6
Sum	**24.6**	**15.6**

Table 5.5: Comparison of ICCT claimed values used in Figure 5.5 against the cited EPA source.[190]

ICCT uses incorrect values which sum to 24.6 g/mi, but the correct values sum to 15.6 g/mi. Furthermore, a vehicle cannot physically be equipped with both passive cabin ventilation and active cabin ventilation. If passive cabin ventilation, the lesser of the two credits, is subtracted from the sum of correct values, the result becomes 13.6 g/mi. Thus, if the scenarios are rewritten combining EPA data, physical limitations, and the authors' original logic, the corrected valuations would be 10.0 g/mi, 12.0 g/mi, and 14.0 g/mi for the low, midrange, and high scenarios, respectively. During discussions of Conclusion III, these two new calculations will be referred to as the revised midrange (12.0 g/mi) and the revised high (14.0 g/mi) scenarios. The low scenario remains the same.

[190] 2016 MANUFACTURER PERFORMANCE REPORT, *supra* note 22, at 50 tbl.3-21.

Furthermore, ICCT justifies the high scenario by assuming: a more streamlined off-cycle credit application process, approval to receive off-cycle credits for connected and autonomous technology, and the removal of credit caps for preapproved and thermal technology (p.26). This is demonstrated in the above tabulation where the five thermal technologies have an EPA value sum of 6.4 g/mi, surpassing the thermal credit caps of 3.0 g/mi for cars and 4.3 g/mi for light-duty trucks. While the broad observation that off-cycle credit use will grow by 2025 is likely true, the scale of their projections cannot at all be justified based on past industry performance. The values for the three scenarios are used as inputs in later ICCT analyses.

5.5.5.2. Conclusion 2: The Off-Cycle Credit Program is Based on Technologies That Are Still Largely Without Validated Real-World Benefits

The second major conclusion by ICCT is that the off-cycle technologies have not been properly validated by the EPA for real-world fuel economy and CO_2 benefits (pp. 34-35). This argument serves as the basis for the supporting analysis of Conclusion III wherein off-cycle technologies are treated as having no real-world fuel economy benefit. ICCT dedicates one paragraph to defend this position where they state:

> The assumption to exclude off-cycle credits from the fleet average consumer fuel economy label might seem somewhat controversial. This is appropriate for a variety of reasons. The intent is certainly there for off-cycle credits to translate to increased consumer fuel economy; however, based on the preceding assessment, it does not appear appropriate to count off-cycle credits as equivalent to consumer fuel economy improvement. In terms of the practical accounting for the credits, the efficiency and CO2 benefits for the off-cycle technology are calculated separately as credits, rather than in complete fuel economy consumer label reporting as shown in EPA data (2018c). In addition, the credits are based on estimated and simulated impacts from entirely different vehicle models, and from a much smaller pool of vehicles than those that are getting the credits. Furthermore, to date, there has not been transparency on which variants of vehicle models have the off-cycle credit technologies and are receiving the credits with the purported benefits. Finally, the off-cycle technologies, as shown above, have fuel economy benefits that have not been validated for real-world benefit under comprehensive statistically representative conditions. As previously shown, some of their credits appear to be substantially under- and overcounted. (p. 30)

From the excerpt above, aspects of ICCT's justification to exclude off-cycle credits from the calculated consumer label fuel economy can be segmented into the practical accounting of credits, the basis for the calculations, the perceived lack of transparency regarding technology deployment, and recent credit calculations by EPA-affiliated laboratories.

First, ICCT is critical of the rules wherein the CO_2 benefits of off-cycle technologies are calculated separately as credits as opposed to as part of a complete vehicle fuel economy label. It is unclear how ICCT could use this broad observation as a justification for discounting the real-world fuel economy benefit of off-cycle technology, but it should be noted that the EPA chose to orchestrate

the off-cycle program in this manner so that it could operate alongside the traditional 2-cycle testing that is fundamental to the entire CAFE/GHG program.

Regarding the basis for the calculations, ICCT is wary of the CO_2 values because they are based on engineering estimates and simulations on a portion of the fleet as opposed to extensive testing on every vehicle model and trim package. In a perfect world, their suggestion would make a more robust off-cycle program. In reality, such a requirement would place an undue burden on the automakers and effectively shut down the off-cycle program. Using engineering analysis to arrive at a conservative estimate is the most appropriate way to balance scientific accuracy with program feasibility. The Alliance welcomes input from ICCT regarding improved calculation methods that maintain program feasibility.

Third, ICCT is critical of the perceived lack of transparency regarding off-cycle technology use because model-level and trim-level deployment details are not published; however, the EPA Manufacturer Performance Reports (EPA, 2016a, pp. 33-46; EPA, 2018a, pp. 39-50) epitomize transparency by publishing key data such as:

1. A/C leakage credits by manufacturer, model year, and fleet
2. A/C efficiency credits by manufacturer, model year, and fleet
3. Off-cycle credits by manufacturer, model year, and fleet
4. Off-cycle credits by technology and fleet
5. Technology penetration by manufacturer
6. Off-cycle credits by manufacturer and technology

It is unclear how this level of transparency can be used to justify the assumption that off-cycle technologies bear no real-world CO_2 benefit.

Finally, ICCT attempts to cast doubt on the EPA calculations and the validity of off-cycle credits overall by discussing a series of recent studies by the National Renewable Energy Laboratory (NREL), a Department of Energy entity, which assert updated benefit calculations for several off-cycle technologies. Table 5.6 below describes the data basis for each original calculation in addition to conclusions from the latest NREL studies (ICCT, 2018, p. 20). The following discussion and analysis of Conclusion II will focus exclusively on the light-duty truck fleet to remain aligned with the values in Table 5.6.

Technology[a] (adopted regulatory credit)	New data[b]	Data basis for original credit decision[c]
Active aerodynamics–grill shutters (1.2 g/mi)	–	
Active aerodynamics–ride height adjustment (0.5 g/mi)	–	
Thermal control–passive cabin ventilation (2.3 g/mi)	• Improved real-world national vehicle use data: Credit overestimated by **10 times** based on NREL (Kreutzer, Kekelia et al., 2017)	
Thermal control–active cabin ventilation (2.8 g/mi)	• Improved real-world national vehicle use data: Credit overestimated by **20 times** based on NREL (Kreutzer, Kekelia et al., 2017)	
Thermal control–active seat ventilation (1.3 g/mi)	• Improved real-world national vehicle use data: If seats are actively cooled rather than ventilated, credit could be **greater by 70%** based on NREL (Kreutzer, Rugh et al., 2017)	• Effectiveness: EPA vehicle simulation; 5-cycle and 2-cycle tests • Vehicle use: EPA MOVES • Vehicle solar and thermal load data: NREL
Thermal control–glass or glazing (3.9 g/mi)	• Improved real-world national vehicle use data: Credit overestimated by **50%–100%** based on NREL (Kreutzer, Kekelia et al., 2017)	
Thermal control–solar reflective surface coating (0.5 g/mi)	• Improved real-world national vehicle use data: Credit underestimated by 40%–50% based on NREL (Kreutzer, Kekelia et al., 2017)	
Active engine warm-up (3.2 g/mi) Active transmission warm-up (3.2 g/mi)	• Improved real-world national vehicle use data: Credit is **similar or could be greater** (up to 5.3 g/mi real world if with heat retention) (Gonder, 2016)	
Engine idle stop (4.4 g/mi)	• Mercedes requested 3–4 times more credit (up to 7–9 g/mi for cars and 17–19 g/mi for trucks) due to higher idle time (23% vs 13.8%) and higher technology effectiveness.	
High efficiency lights (1 g/mi)	–	
Waste heat recovery (1 g/mi)	–	
Solar panel(s) (3.3 g/mi)	–	
Electric heat circulation pump	• GM received credit for approximately **2.6 g/mi** for cars with this technology (petition/data not reported on EPA site)	• No off-cycle credit originally
Variable crankcase suction valve for air-conditioning compressor	• GM request for **1.1 g/mi** of new credits based on greater improvement than from air-conditioning credit • Hyundai request for **1.4 g/mi** of new credits based on greater improvement than offered in air-conditioning credit system	• No off-cycle credit originally (included in air-conditioning credits)
High efficiency alternator	• Ford requests up to **1.9 g/mi** in new credits for greater efficiency (from base 67% to 80%) based on handling greater electric loads • Improved real-world national vehicle use data: Credit overestimated **by 100%** (less benefit in real world than on test cycle from accessory load reduction) based on NREL (Gonder, 2016)	• No off-cycle credit originally (data deemed insufficient for predefined list)

Notes: g/mi = gram CO_2 per mile; W = watt; MOVES = Motor Vehicle Emission Simulator; NREL = National Renewable Energy Laboratory; EPA = U.S. Environmental Protection Agency.
[a]Numbers shown for g/mi are the general upper bound and depend on technical specifications.
*[b]Green suggests credits underestimate, and **red** suggests credits overestimate, real-world benefits. **Blue** indicates new or different from the menu technology credit.*
[c]See EPA and NHTSA, 2012a; CARB, 2012.

Table 5.6: Data basis summary by ICCT for the original credit calculations and the latest NREL studies.

Of the 13 off-cycle technologies with original credit calculations, 7 have new NREL data to support increasing or decreasing credit values. Table 5.7 below summarizes these calculations.

Technology	Original calculation (g/mi)	Latest NREL calculation (g/mi)
Thermal control- passive cabin ventilation	2.3	0.2
Thermal control- active cabin ventilation	2.8	0.1
Thermal control- active seat ventilation	1.3	2.0
Thermal control- glass or glazing	3.9	2.0
Thermal control- solar reflective surface coating	0.5	0.8
Active engine warm-up	3.2	5.3
Active transmission warm-up	3.2	5.3

Table 5.7: A summary of the original and new NREL off-cycle credit calculations for light-duty trucks.

While the authors' intention was to use the discrepancies between the original calculations and the latest NREL data to create a false narrative that off-cycle technologies have no real-world benefit, the evidence solidifies a counter-narrative; if the values from the latest NREL studies are applied to how automakers deployed off-cycle technologies according to the 2015 Manufacturer Performance Report, then the total number of credits approximately remains the same (EPA, 2016a, p. 43). This is demonstrated below in Table 5.8.

Technology	Fleetwide credits, original calculations (Mg)	Fleetwide credits, latest NREL calculations (Mg)
Active aerodynamics- grill shutters	237,232	237,232
Active aerodynamics- ride height adjustment	7,718	7,718
Thermal control- passive cabin ventilation	1,155,743	100,499
Thermal control- active cabin ventilation	55,107	1,968
Thermal control- active seat ventilation	341,314	525,098
Thermal control- glass or glazing	1,665,290	853,995
Thermal control- solar reflective surface coating	96,799	154,878
Active engine warm-up	1,202,927	1,992,348
Active transmission warm-up	1,036,414	1,716,561
Engine idle stop	251,370	251,370
High efficiency lights	276,634	276,634
Solar panel(s)	0	0
Sum	**6,326,548**	**6,118,302**

Table 5.8: Comparison of fleetwide light-duty truck credits from the 2015 Manufacturer Performance Report using current credit calculations versus credit calculations based on the latest published NREL studies.

Table 5.8 shows that in model year 2015, automakers earned approximately 6.3 million megagrams of off-cycle credits for light-duty trucks. If the tabulations are altered such that the value of each technology reflects the latest NREL calculations, as cited by ICCT, then the new total would be approximately 6.1 million megagrams, equivalent to a decrease of 3%. This result starkly contrasts the narrative from the ICCT report in which these new credit calculations would render the off-cycle technologies without any real-world benefit.

None of these claims, individually or summed as part of a larger argument, truthfully justify the position to fully discount the real-world fuel economy benefits of off-cycle credits. ICCT fails to reference that the off-cycle program was created to credit automakers that deploy technology that improves real-world fuel economy which is not represented on the 2-cycle test. The EPA and its industry partners use state-of-the-art modeling technology and conservative engineering estimates to publish a value that is fair to the automakers, the environment, and the American consumer. With greater time and resources, surely there are improvements which can be made to the off-cycle program; however, it is unfair and unjustified to highlight these imperfections as a means of completely disqualifying the off-cycle technologies from having a real-world fuel economy benefit.

5.5.5.3. Conclusion 3: Up to 34% of the Projected Increase in Car Fuel Economy, and 42% of the Projected Increase in Light-Duty Truck Fuel Economy, Could Be Lost to Off-Cycle Credit Technologies

A consequence of the first two conclusions is that over a third of the projected increases in fuel economy from 2016 – 2025 will vanish as a byproduct of off-cycle technology (ICCT, 2018, p. 35). This discussion of Conclusion III deconstructs the mathematical methods used by ICCT to arrive at these values, and shows how the results precipitously change once the assumptions are modified appropriately. Figure 5.6 below, reproduced from the ICCT report, illustrates consumer label fuel economy values for 2016 and projected values for 2025 (p. 29). This serves as the basis for the third conclusion and will be referenced throughout this discussion.

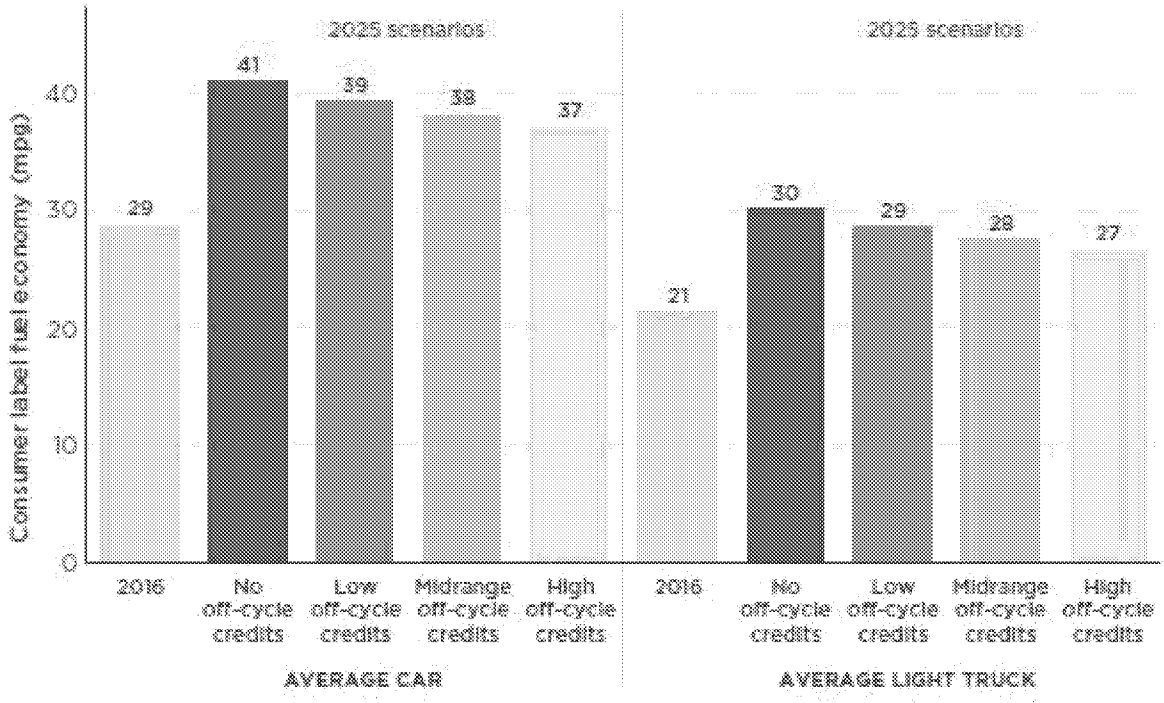

Figure 5.6: Data from ICCT representing the 2016 and 2025 projected fuel economy values by fleet (p.29, figure 5). These figures were calculated without accounting for the real-world fuel economy benefit of off-cycle technology.

To calculate the values shown in Figure 5.6 above, ICCT makes five key assumptions, four of which are not disputed by the Alliance. First, regarding A/C credits, 10 g/mi is assumed for 2016 whereas 18.8 g/mi and 24.4 g/mi are assumed for 2025 cars and light-duty trucks, respectively. Second, each gallon of gasoline contains 8,887 grams of CO_2. Third, when discussing the low, midrange, and high scenarios, it is assumed that cars will be allocated 25% fewer credits than the projection, and that light-duty trucks will be allocated 25% more credits than the projection; this is done to approximate the difference between credit calculations for cars and light-duty trucks for the same off-cycle technology. Fourth, ICCT utilizes EPA data for average footprint and fleet mix: 55% cars in 2016 and 53% cars in 2025 (p. 28).

The final assumption, which the Alliance contests, regards the translation from a 2-cycle tested fuel economy to a "real-world consumer label" fuel economy. ICCT calculates "real-world consumer label" fuel economy by reducing the 2-cycle test result by 23%, which is problematic because it fails to account for off-cycle credits. The EPA defines three data types for CO_2 and fuel economy, none of which are called "real-world consumer label" fuel economy. The first, unadjusted laboratory fuel economy, is the basis for automaker compliance with the standards and is based on the standard 2-cycle test. The second, label fuel economy, is for consumers when comparing vehicles and is usually calculated using the 5-cycle test; the weighting for label fuel economy is 55% city and 45% highway. The third, adjusted fuel economy, is a best estimate of real-world performance, and is calculated using the 5-cycle test; the weighting for adjusted fuel economy is 43% city and 57% highway (EPA, 2018b, pp. 127-133). When ICCT discusses "real-world consumer label" fuel economy, it is not clear if they intend to analyze label or adjusted fuel economy; however, the Alliance maintains that any calculation of a "real-world consumer label" fuel economy that begins with the 2-cycle test result must account for off-cycle credits in some form.

A simple example helps illustrate this position. Two vehicles, Car A and Car B, are produced in the same year with the same footprint and have a GHG standard of 300 g/mi. Car A has no off-cycle technology and achieves a 2-cycle test result of 300 g/mi. Car B has 10 g/mi of off-cycle technology and achieves a 2-cycle test result of 310 g/mi. Both vehicles are equally in compliance. Via the 23% reduction, ICCT would calculate the "real-world consumer label" fuel economy of Car A to be 22.8 mpg and of Car B to be 22.1 mpg. This is shown below in Equations 1 (Car A) and 2 (Car B):

$$\frac{8887\,\frac{g}{gal}}{300\,\frac{g}{mi}} \times (1 - 23\%) = 22.8\,mpg \tag{1}$$

$$\frac{8887\,\frac{g}{gal}}{310\,\frac{g}{mi}} \times (1 - 23\%) = 22.1\,mpg \tag{2}$$

The reason that the ICCT-calculated "real-world consumer label" fuel economy of Car B is 0.7 mpg lower than Car A is because the off-cycle credits that were used to achieve compliance are not represented on the 2-cycle test result, and thus are not accounted for in the 23% reduction. The

Alliance believes that one fair method of analysis would be to account for off-cycle credits following the 23% reduction. This method is demonstrated below for Car B in Equations 3 and 4, and results in a "real-world consumer label" fuel economy of 22.6 mpg:

$$\frac{8887\ \frac{g}{gal}}{22.1\ mpg} - 10\frac{g}{mi} = 392.6\frac{g}{mi} \tag{3}$$

$$\frac{8887\ \frac{g}{gal}}{392.6\frac{g}{mi}} = 22.6\ mpg \tag{4}$$

In the following analysis, the only off-cycle credits that cannot be counted as positively affecting real-world fuel economy are the A/C credits for refrigerant leakage (maximum 13.8 g/mi for cars and 17.2 g/mi for trucks in 2025) because they do not count towards CAFE compliance; however, A/C efficiency credits (5 g/mi for cars and 7.2 g/mi for trucks in 2025) do count for both CAFE and GHG, and should be accounted for in these fuel economy calculations. A recalculation of the 2025 projections shown in Figure 5.6, in addition to the revised midrange and high scenarios as discussed in Conclusion I, are shown below as Figure 5.7 using the fair calculation method outlined above. For clarity, the scenario for no off-cycle credits in 2025 includes full A/C credits, but no additional off-cycle credits. The 2016 scenarios were also recalculated using 5.0 g/mi and 8.0 g/mi of A/C leakage credits for cars and trucks, respectively, and 4.0 g/mi of A/C efficiency credits for both cars and trucks based on EPA data (EPA, 2018a, pp. 37-40).

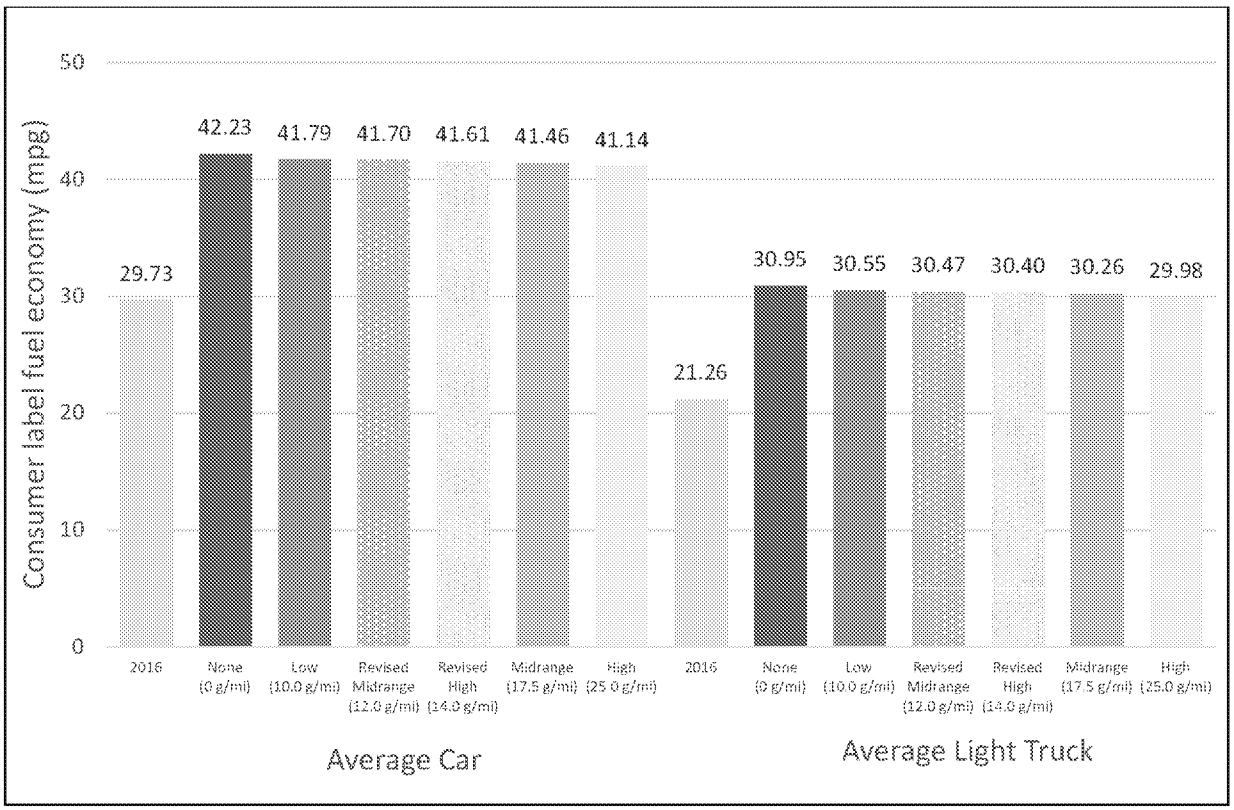

Figure 5.7: A recalculation of Figure 5.6, which displays consumer label fuel economy values that include the real-world fuel economy benefits of off-cycle technology using the first fair method of analysis.

When the results are presented in this manner, it becomes clear that the conclusion by ICCT that "up to 34% of the projected increase in car fuel economy, and 42% of the projected increase in light truck fuel economy, could be lost to off-cycle credit technologies" is no longer valid (p. 35). To reach the values from the excerpt above, it appears that that ICCT used Equation 5 below:

$$\frac{No\ credits\ (mpg) - High\ credits(mpg)}{No\ credits\ (mpg) - 2016\ (mpg)} = Lost\ Fuel\ Economy\ Gains\ (\%) \qquad (5)$$

To support this theory, the integer number values from Figure 5.6 are recalculated using the original ICCT method to produce real number values. This makes it possible to understand if Equation 5 was used by ICCT, which cannot be done properly using the integer number values. Table 5.9 below displays the real number values alongside their corresponding integer number values from Figure 5.6.

2025 Projection	Integer Number Value	Real Number Value
Average Car: 2016	29	29.00*
Average Car: No credits	41	41.25
Average Car: Low credits	39	39.47
Average Car: Midrange credits	38	38.23
Average Car: High credits	37	37.06
Average Truck: 2016	21	21.38*
Average Truck: No credits	30	30.19
Average Truck: Low credits	29	28.61
Average Truck: Midrange credits	28	27.54
Average Truck: High Credits	27	26.53

Table 5.9: Real number values calculated for Figure 2 using ICCT methodology.[191]

Using real number values from Figure 2 in Equation 5 results in lost fuel economy gains of 34.2% for cars and 41.5% for trucks, and demonstrates that Equation 5 was most likely used as the method by ICCT to make this erroneous claim. If the values from Figure 3 are used instead, which include the real-world fuel economy benefits of off-cycle technology, the lost fuel economy gains diminish: 8.7% for cars and 10.0% for trucks under the high (25.0 g/mi) scenario. The lost fuel economy gains for other scenarios are calculated using Equation 5 and shown below in Table 5.10.

[191] The 2016 car and truck integer number values were not recalculated like the 2025 projections because the Alliance could not determine what standard ICCT was using for 2016. The 2016 car integer number value of 29 mpg did not need to be recalculated as a real number value to test Equation 5. When 29.00 mpg is used alongside the real number values for 2025 car projections, Equation 5 yields the proper result. On the other hand, the 2016 truck integer number value of 23 mpg does not yield the proper result when used alongside the real number values for 2025 truck projections, thus it was assigned a real number value that rounds to the integer number value and produces the proper result from Equation 5. The 2025 standards, used by the Alliance and validated against ICCT data, are 60.4 mpg for cars and 43.9 mpg for light-duty trucks. These standards are based on EPA projected average footprints (EPA, 2016b, p. I-21).

2025 Projection: Car	Lost Fuel Economy Gains (%)	2025 Projection: Light-Duty Truck	Lost Fuel Economy Gains (%)
Low	3.5	Low	4.1
Revised mid-range	4.2	Revised mid-range	5.0
Revised high	5.0	Revised high	5.7
Mid-range	6.2	Mid-range	7.1
High	8.7	High	10.0

Table 5.10: The lost fuel economy gains resulting from off-cycle credits when accounting for the real-world fuel economy benefit of off-cycle technology.

Several related assertions made by ICCT can also be refuted. First, "The increased use of off-cycle credits to 10–25 g/mi would displace 11%–26% of the CO2 reduction otherwise needed from test-cycle improvements in the 2016–2025 regulations" is a problematic statement because it insinuates that off-cycle technologies are not a scientifically justifiable means of reducing CO_2 emissions (p. 35). Test-cycle improvements and off-cycle credits are equally valid means of achieving compliance. Nonetheless, the "11%–26%" figure in the ICCT excerpt above can be explained via Equations 6 and 7 which utilize 268 g/mi and 173 g/mi as the 2016 and 2025 combined fleetwide CO_2 values. The fact that off-cycle credits will be used as one of several strategies to achieve compliance is not problematic when it is acknowledged that these technologies produce real-world benefits.

$$\frac{10\frac{g}{mi}}{268\frac{g}{mi} - 173\frac{g}{mi}} = 11\% \tag{6}$$

$$\frac{25\frac{g}{mi}}{268\frac{g}{mi} - 173\frac{g}{mi}} = 26\% \tag{7}$$

A similar statement, "Considering just the later regulation years 2022–2025 that are being investigated in the MTE, this increased use of off-cycle credits would amount to up to 26%–65% of the expected CO2 reduction" is equally problematic (p.35). The "26%–65%" figure can be explained via Equations 8 and 9:

$$\frac{10\frac{g}{mi}}{211\frac{g}{mi} - 173\frac{g}{mi}} = 26\% \tag{8}$$

$$\frac{25\frac{g}{mi}}{211\frac{g}{mi} - 173\frac{g}{mi}} = 65\% \tag{9}$$

Finally, the claim that, "Increased use of off-cycle credits could effectively reduce the average fuel economy improvement from 4% to 2.8% per year from 2016 through 2025" is incorrect because it uses values from Figure 2 which do not include the real-world fuel economy benefit of off-cycle technology (p. 35). ICCT most likely reached 4.0% as its value for the annual fuel economy improvement without off-cycle credits and 2.8% as its value for the annual fuel economy improvement in the high scenario for the nine years from 2016 – 2025 using Equation 10, a simple growth rate formula:

$$\% = \left(\frac{2025\ mpg}{2016\ mpg}\right)^{1/9} - 1 \tag{10}$$

The combined result is a weighted average of 55% for cars and 45% for trucks. Using values from Figure 3, which include the real-world fuel economy benefit of off-cycle technology, the fuel economy improvement without off-cycle credits barely changes from 4.0% to 4.1%, while the fuel economy improvement in the high scenario changes from 2.8% to 3.8%. Furthermore, the fuel economy improvement in the revised midrange scenario is 3.9%. Once again, ICCT's result is proven to be an exaggeration because it does not consider the real-world fuel economy benefits of off-cycle technology.

In addition to the first method of calculating "real-world consumer label" fuel economy as described above, a second fair method exists. This second method would account for off-cycle credits in the 2-cycle test result such that Car A and Car B, as described in an earlier example, would both be treated as having an equivalent 300 g/mi 2-cycle test result. If the above analysis were redone using this method, no amount of off-cycle credits apart from A/C leakage credits, which are capped, could positively or negatively affect the calculated "real-world consumer label" fuel economy. In other words, the calculated "real-world consumer label" fuel economy for vehicles with and without off-cycle credits would be nearly identical. Utilization of this second calculation method would further undermine the quantitative arguments put forth by ICCT.

5.5.5.4. Conclusion 4: A Growing Off-Cycle Program That Encourages Off-Cycle Technology Adoption Discourages and Delays a Shift to Electric Vehicles

This final conclusion by ICCT that off-cycle technologies are displacing on-cycle technologies is not incorrect, but it is overstated (p. 35). Similar to earlier statements by ICCT regarding the deployment of off-cycle technologies and their detrimental effect on on-cycle CO_2 reductions, Conclusion IV can only be interpreted as a negative statement when it is assumed that off-cycle technology yields no real-world CO_2 benefit. Without that mistaken assumption, Conclusion 4 presents no threat to the technological advancement of the automotive industry and the continued journey of fleetwide CO_2 reductions.

The CAFE/GHG program was written to avoid picking technological winners and losers, thereby providing automakers the innovative freedom to achieve compliance in whatever manner they choose. This idea is fundamental to a well-regulated free-market economy which all stakeholders strive to maintain. In comments submitted by ICCT for the 2017 – 2025 Proposed Rule, they state, "While the ICCT strongly supports the development of electrical and fuel cell vehicles, one of our core principles is that efficiency and greenhouse gas emissions standards should be technology neutral" (EPA, 2012, p. 62812). This excerpt was published in the 2017-2025 Final Rulemaking in a section devoted to the appropriateness of regulatory incentives, such as off-cycle credits. Thus, according to their 2012 statement, ICCT agrees that technological winners and losers should not be chosen. This contrasts with their 2018 paper, which appears to favor electric vehicles over conventional technologies that provide equivalent emissions reductions.

5.5.5.5. Summary

The ICCT white paper, "How Will Off-Cycle Credits Impact U.S. 2025 Efficiency Standards?" uses flawed assumptions to create a misleading narrative that the off-cycle program is detrimental to the fidelity of the CAFE and GHG programs. To do this, ICCT first incorrectly cites EPA data to propose three scenarios for 2025 off-cycle credit use. Next, ICCT attempts to justify the false claim that off-cycle credits have no real-world fuel economy benefit via several related arguments, none of which sum to a meaningful justification. Third, ICCT uses the results from the first two conclusions to generate misleading notions that off-cycle credits significantly negatively impact expected annual fuel economy gains. Finally, ICCT reverses its own principle of technological neutrality by criticizing off-cycle technology for delaying the deployment of on-cycle and electrification technology.

In summary, the off-cycle program is a meaningful component of the CAFE and GHG programs because it gives automakers the opportunity to accelerate deployment of cost-effective efficiency technologies. The 2-cycle and 5-cycle tests do not fully illustrate real-world conditions, and they cannot and should not be the only ways of assessing regulatory compliance. The real-world benefits of off-cycle technology cannot be discounted, and a robust off-cycle program results in a more perfect regulatory environment. This ICCT white paper does not provide an accurate perspective on the off-cycle program or a reliable basis for regulatory decisions by EPA and NHTSA.

5.5.6. *Positions on Credit for Connected and Autonomous Vehicles*

As the industry implements new technologies like autonomous and connected vehicles and new business models for the "sharing economy," there are great opportunities to leverage these non-traditional technologies to achieve emission reductions. This rulemaking should be used as an opportunity to provide more compliance flexibility in the regulations, so that the rules better account for the realities of the marketplace today. This rulemaking should also be used as an opportunity to incentivize these beneficial new autonomous technologies and the related new business models, in order to accelerate their implementation.

A growing body of modeling results, as well as real-world driving statistics, show that current autonomous driving technologies improve real-world fuel efficiency and reduce GHG emissions. On average, the computers simply drive more efficiently than do human operators. This can be attributed to factors such as more moderate rates of acceleration (which helps the most in city driving) and reduced aerodynamic drag through platooning closely behind a leading vehicle (which helps the most in highway driving). However, the current technologies in the marketplace have not yet been fully optimized for fuel economy, and are only a first step towards the future vision of highly capable, fully autonomous vehicles. For example, adaptive cruise control (ACC) on current vehicles is considered only a Level 1 autonomous technology, since ACC provides the braking and acceleration capabilities needed for many circumstances, but does not provide other driving capabilities. Given the limits of its Level 1 capabilities, ACC utilization rates are relatively low, since it is not commonly used at low speeds or in city or congested driving conditions. Utilization rates can be expected to increase as autonomous systems gain the capabilities to operate

under a wider range of conditions, such that Level 2 systems will have higher utilization rates than Level 1 systems, and fully autonomous Level 5 systems will operate the vehicle as much as 100% of the time (possibly without even having driver controls such as steering wheels to allow any manual operation).

Clearly, rising utilization rates will increase the fuel economy value of autonomous technologies in the future. In addition, the fuel savings benefits of each level of autonomous technology can be improved over time as the systems are optimized, especially if automobile manufacturers can expect that their fuel efficiency improvements will result in favorable credits to assist regulatory compliance. In view of these considerations, we propose that a conservative pre-approved default off-cycle credit for Level 1 ACC be provided through the current rulemaking, based on the benefits that can already be demonstrated for current ACC systems. This would accelerate implementation of these beneficial Level 1 ACC systems, as well as more capable autonomous driving systems, while also beginning a process whereby automobile manufacturers prioritize fuel economy in the designs of their autonomous driving systems, based on an expectation that the off-cycle credits from these technologies can be expanded as the systems demonstrate enhanced fuel economy capabilities. Through the off-cycle credit program, EPA and NHTSA can influence the development and implementation of these autonomous driving technologies to reduce real-world GHG emissions and improve fuel economy.

The current proposal for credits for autonomous driving technologies is fundamentally different than previous consideration by EPA of off-cycle credits for autonomous driving technologies during the 2017–2025 light duty GHG rulemaking process. In that rulemaking, it was suggested that the safety benefits of various technologies could reduce collisions, thereby reducing the CO_2 emissions associated with the traffic congestion caused by collisions. As explained in more detail below, EPA declined at that time to create off-cycle credits for the "indirect" effects of a technology on traffic generally, stating that off-cycle credits would be only for "direct" improvements on a vehicle that could be "reliably verified." The current analysis supporting credits for these technologies is not related to any potential safety benefits of the technologies, and is instead related to the "direct" fuel consumption effects of the technology on the performance of the vehicle in which it is installed. In the current analysis, autonomous driving technologies such as ACC are evaluated solely as fuel economy technologies, without regard to any potential safety benefit. The anticipated safety benefits as well as environmental benefits from reduced congestion would be "indirect" co-benefits that would result from these off-cycle credits, but the proposed credits themselves would be based on a conservative, "reliably verified" assessment of the "direct" benefits of the technology. For the Agencies' review, the Alliance submits the attached memo from Securing America's Future Energy that discusses various technologies and flexibility mechanisms that could provide safety and fuel benefits simultaneously.[192]

[192] Memorandum from Securing America's Future Energy, Fuel Economy Off Cycle Program, Flexibilities and Estimated Fuel Savings (May 14, 2018).

5.5.6.1. Additional Resources Regarding the Potential Environmental and Energy Conservation Benefits of Connected and Autonomous Vehicles

There are a number of researchers engaged in assessing the potential benefits of connected and autonomous vehicles. The Alliance directs the Agencies' attention to the following potential sources of additional information.

Center for Automotive Research, *The Potential Environmental Benefits of Connected and Automated Vehicles*:[193]

- "The automotive industry is only in the early stages of the development and deployment of connected and automated vehicle (CAV) technology, but already an extensive body of research investigates the potential environmental impacts of these technologies.
- "On the plus side, we can point to several paths by which CAVs can help mitigate the environmental impacts of the transportation system. These include smart routing, self-parking, and eco-driving (making optimum driving decisions and smoothing the acceleration cycle), all of which have the potential to reduce tailpipe emissions (NOx, SOx, and CO2) and lower overall fuel consumption.
- "Some vehicle automation features, such as platooning, eco-driving, enhanced vehicle performance, and improved crash avoidance, either enable or complement CAV technology, and the combination of these features could considerably decrease overall vehicle energy consumption. CAVs might also prove to be more fuel efficient with lower emissions through efforts to reduce the overall mass of the vehicle or by shedding unnecessary weight with the omission of entire components for human control such as the steering wheel or brake pedal."

Securing America's Future Energy, *Using Fuel Efficiency Regulations to Conserve Fuel and Save Lives by Accelerating Industry Investment in Autonomous and Connected Vehicles*:[194]

- "…the industry is entering a phase that – if ushered in successfully – can both increase fuel economy and enhance safety benefits in a manner through which these goals reinforce each other.
- "While [autonomous vehicle technologies] are under development and the extent of their benefits is still emerging, test results offer the promise of substantially increased efficiency and improved safety through vehicle- and system-level improvements.
- "…parties should agree to allow automakers to earn compliance credits (for 3-5 years) as part of a research program to deploy autonomous and connected vehicle technology, collect data about the technology's performance, and share the data with regulators so that the can together evaluate the effectiveness of this emerging technology. To the extent that the

[193] *The Potential Environmental Benefits of Connected and Automated Vehicles*, CENTER FOR AUTOMOTIVE RESEARCH (Apr. 4, 2018), https://www.cargroup.org/the-potential-environmental-benefits-of-connected-and-automated-vehicles/.

[194] SECURING AMERICA'S FUTURE ENERGY, USING FUEL EFFICIENCY REGULATIONS TO CONSERVE FUEL AND SAVE LIVES BY ACCELERATING INDUSTRY INVESTMENT IN AUTONOMOUS AND CONNECTED VEHICLES (April 2018), *available at* http://secureenergy.org/wp-content/uploads/2018/04/LDV-FE-Fuel-Economy-and-Autonomous-Vehicles-Issue-Brief-FINAL2018-04-09.pdf (last visited Oct. 26, 2018).

testing demonstrates improvement in efficiency, lower emissions and increased safety, regulators can use the data to support permanently accounting for such efficiencies in future compliance periods.

- "There are several different pathways for new AV technology to improve vehicle efficiency and reduce fuel consumption.
- "Some examples of technologies with vehicle level benefits are: Advanced Driver Assistance System… prominent examples include Automatic Emergency Braking and Lane Keeping Assist. An initial review of data collected from a fleet testing ADAS systems demonstrated more than a two percent improvement in fuel efficiency, and preliminary evidence suggests the considerably higher gains are possible. [citing Dish Network Data from Pilot Program; and SAFE interviews with industry; "Case Study: Dish saves fuel with Mobileye technology", FleetOwner (May 6, 2016).
- "The wide-scale adoption of collision reduction technology and vehicle connectivity can be major sources of energy savings: Cooperative Adaptive Cruise Control… Collision Avoidance Technology… Vehicle to Vehicle and Infrastructure Communication.
- "To examine the impact of these emerging autonomous and connected vehicle technologies, SAFE contracted Air Improvement Resource to model the potential fuel economy savings if these technologies were widely deployed in the fleet… Most of the savings are additive and, together, identify the potential to reduce fuel consumption by 18 to 25 percent if deployed throughout the fleet."

University of Michigan, *How even one automated, connected vehicle can improve safety and save energy in traffic*:[195]

- "Connected cruise control uses vehicle-to-vehicle communication to let automated vehicles respond to multiple cars at a time in an effort to save energy and improve safety.
- "An automated vehicle utilizing connected cruise control was able to brake with 60 percent less of the G-force required by a car with a human driver.
- "And that smoother transition from braking to accelerating improved energy efficiency by as much as 19 percent for the automated vehicle equipped with V2V. It also surpassed the performance of other automated vehicles operating without V2V.
- "Automated cars utilizing V2V data will not only perform better, but they can also foster a friendlier environment where few safety hazards sneak into traffic and higher efficiency is possible for all cars on the road," said Gabor Orosz, a U-M associate professor of mechanical engineering who led the research.
- "even human-driven cars following the automated vehicle can save up to 7 percent energy, thanks to the smoother speed profile."

[195] *How Even One Automated, Connected Vehicle Can Improve Safety and Save Energy in Traffic*, UNIVERSITY OF MICHIGAN (May 9, 2018), https://news.umich.edu/how-even-one-automated-connected-vehicle-can-improve-safety-and-save-energy-in-traffic/.

5.5.7. *Credits Should Be Added for Heavy-Duty Vehicles*

The off-cycle credit program should be extended to heavy-duty vehicles. The technologies included in the light-duty off-cycle credit program could be applied to heavy duty vehicles. These fuel saving technologies which are now being deployed in the light-duty segment need regulatory recognition to enable deployment in the heavy-duty segment, as the off-cycle technologies recognized in the light-duty program have associated costs. If such a program were enacted, manufacturers and suppliers could realize economies of scale which would help further expand deployment of these technologies in both light- and heavy-duty vehicles.

We believe that the conservative credit values established for light-duty vehicles would be even more conservative for heavy-duty vehicles, serving as a bridge until more accurate values could be established. Similarly, the alternative methodology off-cycle credit application process could also be applied, allowing manufacturers to demonstrate greater benefits than those on the off-cycle credit table.

APPENDIX 6: VEHICLE CLASSIFICATION

NHTSA raises a number of questions in the Proposed Rule regarding vehicle classifications, particularly with respect to truck-like characteristics and off-road capability. The Alliance provides the following information in response.

6.1. Truck-Like Characteristics

One methodology for determining whether a vehicle is a non-passenger automobile is to identify vehicles that have expanded use for cargo-carrying purposes.[196] To confirm the expanded use, the forward-most point of installation of the second row of seats must be established. This is normally the forward-most point of attachment of the seat structure to the vehicle floor. NHTSA seeks comment on how to identify the "forward most point of installation" for second-row seats that are sliding. The Alliance argues that some flexibility is needed in making this determination in order to ensure that vehicles with sliding second-row seats are still appropriately classified as non-passenger automobiles.

The Alliance proposes two rationales. First, the forward-most attachment point of the seat structure to the floor is still a viable method, even when there is a sliding track between the floor attachment point and the seat. Second, the seat attachment point to the sliding track in any manufacturer-designated position should also be an acceptable method. This is consistent with NHTSA's observation that "the market demand for increased rear seat leg room and the installation of rear seat air bag systems has resulted in the introduction of adjustable second row seats," and that the "seats provide adjustable leg room by sliding forward or backward on sliding tracks and aim to provide expanded cargo carrying room by moving forward against the back of the front seats."[197] The Alliance posits that the above proposed expanded determination of the installation point for sliding seats allows for customer-demanded comfort and safety while still meeting the spirit of the expanded cargo carrying requirement.

NHTSA also asks whether it should establish a minimum amount of cargo surface area for seats that remain in the vehicle or a minimum amount of usable cargo-carrying volume when the seats fold flat. The Alliance argues that area or volume requirements are not needed, as those attributes speak to overall vehicle size and shape—which should remain a consumer choice. The requirements for expanded cargo or other non-passenger-carrying purposes are fully met in the existing regulation, which requires a flat, leveled cargo surface with two rows of seats that are folded or stowed.

Finally, NHTSA asks a few questions regarding the cargo surface and the "flat and level" requirement. These include:

- Does the cargo surface need to be flat and level in exactly the same plane, or does it fulfill the intent of the criterion and provide appropriate cargo-carrying functionality for the cargo surface to be other than flat and level in the same plane?

[196] 49 C.F.R. § 523.5(a)(5).
[197] 83 Fed. Reg. at 43,438.

- Does the cargo surface need to be flat and level across the entire surface, or are (potentially large) gaps on that surface consistent with the intent of the criterion and providing appropriate cargo-carrying functionality? Should panels to fill gaps be required?

Additional requirements for flatness, gaps, and other cargo surface design detail does not allow manufacturers to individualize their designs. Manufacturers should be allowed to determine the methodology for providing appropriate cargo-carrying functionality without NHTSA stipulating additional requirements for flat and level surfaces, or gaps and gap-filling panels. These potential requirements would likely be interpreted and executed differently across manufacturers, and could narrow the choice of engineering solutions and negatively affect other important vehicle attributes.

6.2. Off-Road Capability

NHTSA asks whether the regulations should be modified to allow design data instead of physical measurements for manufacturer determination of the five characteristics (approach angle, breakover angle, departure angle, running clearance, and axle clearance) indicative of off-road operation. Design data should be allowed because vehicle design is now conducted in a virtual world, and physical prototypes are often not produced until relatively close to vehicle production. The existing rules, allowing only for physical measurements, are carried over from the time before digital designs were commonplace. Accordingly, at that time there was less control over vehicle tolerances, and there were many more prototype vehicle phases to confirm many aspects of a design, including off-road capability. Now that a significant portion of vehicle attributes are validated in the virtual world, it only makes sense that NHTSA allow manufacturers to provide design data as confirmation of off-road capability.

The Proposed Rule also questions whether there is a need to change from the current method of using static loaded radius arc for determination of approach, breakover, and departure angles. The proposed alternatives are either 1) a line tangent to the outside perimeter of the tire, or 2) measurement from the geometric center of the tire contact patch. While the proposed alternatives may be easier for a field measurement, only a measurement from the static loaded arc radius reasonably reflects the tire condition during off-road events that approach, breakover, and departure angles are quantifying. For example, when approaching an off-road obstacle such as a rock, the most challenging condition will be the moment when the tire contacts the obstacle and starts to conform to it. The static loaded arc radius best reflects the actual condition that exists, versus outside tire diameter (which under-represents the challenge) or center of contact patch (which over-represents the challenge). As noted by NHTSA in the Proposed Rule, "[t]he static loaded radius arc is easy to measure,"[198] and the Alliance agrees. The Alliance suggests that the off-road criteria remain tied to the static loaded arc radius.

NHTSA also identifies potential concerns regarding running clearance with fixed and flexible components. The Alliance agrees with NHTSA that no change is needed for the 20-centimeter (cm) running clearance requirement for fixed features of the vehicle—all fixed components must have 20cm of running clearance. The Alliance further agrees with NHTSA's interpretation that flexible components that bend without breaking and return to their original position do not count

[198] 83 Fed. Reg. at 43,439.

against the 20cm running clearance requirement. NHTSA notes, however, that these requirements should be for all "vehicles with standard and optional equipment installed, at time of first retail sale."[199] The Alliance disagrees with the first retail sale requirement, and proposes that the requirement should instead be 'as shipped to the dealer.' Dealers are independent businesses and may negotiate with the final customer to install additional equipment on the vehicle for which manufacturers cannot be held responsible. The Alliance further notes that NHTSA should make a specific allowance for vehicles that have adjustable ride height, such as air suspension, and permit the running clearance and other off-road clearance measurements to be made in the lifted or off-road mode.

In the Proposed Rule, NHTSA highlights a concern with axle clearance measurements due to the shift from solid axles to independent suspension. NHTSA seeks comment on whether to revise the axle clearance definition. Axle clearance is currently defined as "the vertical distance from the level surface on which an automobile is standing to the lowest point on the axle differential of the automobile."[200] The Alliance finds that no change is needed to this definition, regardless of whether the differential is sprung or unsprung, as the bottom of the differential is the vulnerable component. Other unsprung components of the suspension or axle will move with wheel travel and are therefore unlikely to be a factor in off-road operation. NHTSA also asks whether the definition should be modified to account for axles without differentials. The Alliance finds that there is no need to further modify the definition. Two-wheel drive vehicles that have only one differential should have only one axle clearance measurement.

Additionally, NHTSA seeks comment on whether axle subframes that are mounted to the vehicle unibody should be considered in the allowable running clearance. The Alliance does not think a single criterion is needed and prefers to keep the existing regulation. If NHTSA does not agree, the Alliance would be willing and interested to discuss the merits of various proposals before NHTSA takes action.

6.3. Attribute-Based Standards Work Because They Adjust to Consumer Demand

The Alliance supports the existing footprint-based structure of the standards as they allow the market to determine which size of vehicles to purchase, but encourage each vehicle to be fuel efficient for its size. In the MY 2012–2016 final rule, the Agencies noted:

> [T]he shapes of the curves, including the "flattening" at the largest footprint values, tend to avoid or minimize regulatory incentives for manufacturers to upsize their fleet to change their compliance burden. Given the way the curves are fit to the data points (which represent vehicle models' fuel economy mapped against their footprint), the agencies believe that there is little real benefit to be gained by a manufacturer upsizing their vehicles.[201]

The Alliance agrees with the Agencies' conclusion that the footprint-based approach to standards that has been in use since MY 2011 (and optional for MY 2008–2010 light-duty trucks) do not

[199] 83 Fed. Reg. at 43,440.
[200] 49 C.F.R. § 523.2.
[201] 75 Fed. Reg. at 25,369.

provide an incentive to upsize vehicles. However, some argue that backstop standards are needed for the import car and light-duty truck fleet to avoid larger vehicles. In the MY 2017–2025 rule, NHTSA further noted that:

> If we determined that backstops for imported passenger cars and light trucks were necessary, it would be because consumers are choosing different (likely larger) vehicles in the future than the agencies assumed in this rulemaking analysis. Imposing additional backstop standards for those fleets would require manufacturers to build vehicles which the majority of consumers (under this scenario) would presumably not want. Vehicles that cannot be sold are the essence of economic impracticability, and vehicles that do not sell cannot save fuel or reduce emissions, because they are not on the roads, and thus do not meet the need of the nation to conserve fuel.[202]

NHTSA's argument that a backstop standard could force manufacturers to build vehicles that consumers do not want is sound, and for this reason the Alliance is also opposed to backstop fuel economy and GHG standards. Fortunately, since MY 2012 there has been ample time to assess whether manufacturers have intentionally designed larger footprint vehicles—the primary concern driving requests to implement backstop standards. Novation Analytics recently published "Model Years 2012 to 2018 Baseline Studies," which includes a comparison of footprint data by fleet and model year, revealing essentially no change in footprint as seen in Figure 6.1 below.

[202] 77 Fed. Reg. at 63,022.

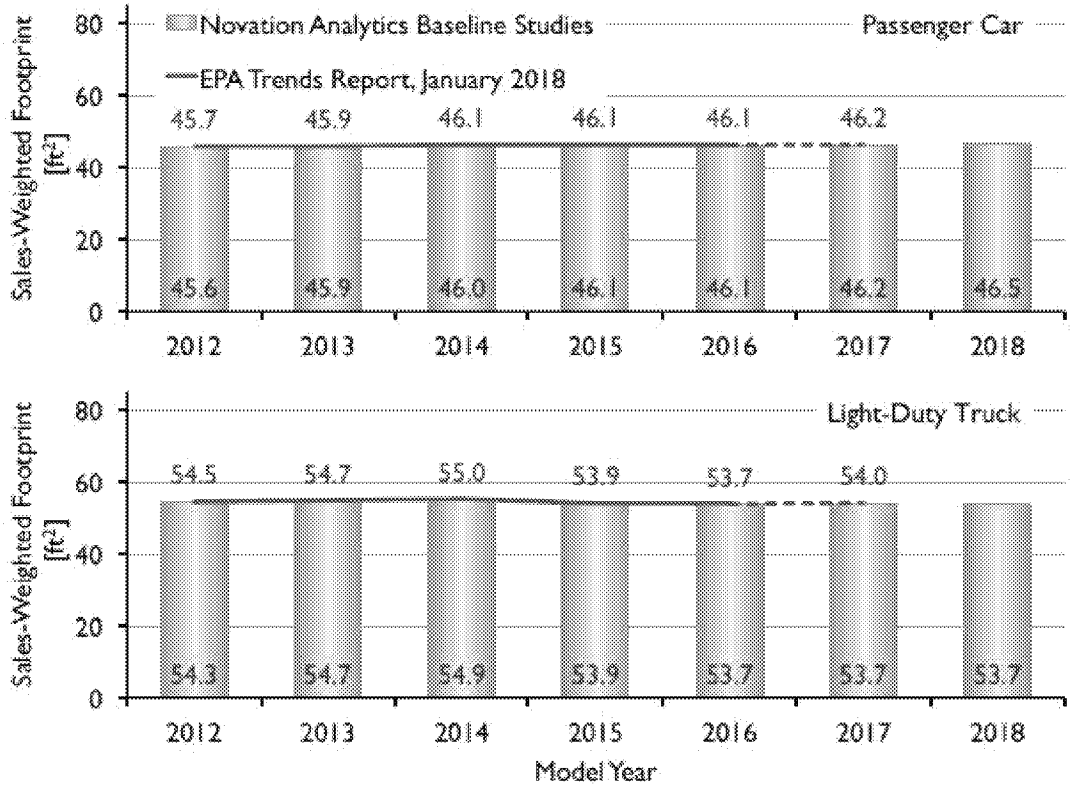

Figure 6.1: Novation Analytics footprint analysis.[203]

CARB also analyzed footprint trends in their midterm review and they observed that:

> The largest influence appears to be a higher share of truck sales that generally have a larger footprint than cars rather than a significant increase in the average footprint within the car or truck segment itself.[204]

CARB's conclusion is consistent with the Novation Analytics analysis, which also shows that the small shift in footprint is due to changing market mix towards trucks, versus earlier concerns voiced by others that manufacturers would simply build larger vehicles. The consistency of footprint within each segment and the mix shift, primarily from passenger cars to truck SUVs, can be seen in Figure 6.2 below.

[203] NOVATION ANALYTICS, *supra* note 33, at 23.
[204] CALIFORNIA AIR RESOURCES BOARD, CALIFORNIA'S ADVANCED CLEAN CARS MIDTERM REVIEW at ES-24 (Jan. 18, 2017).

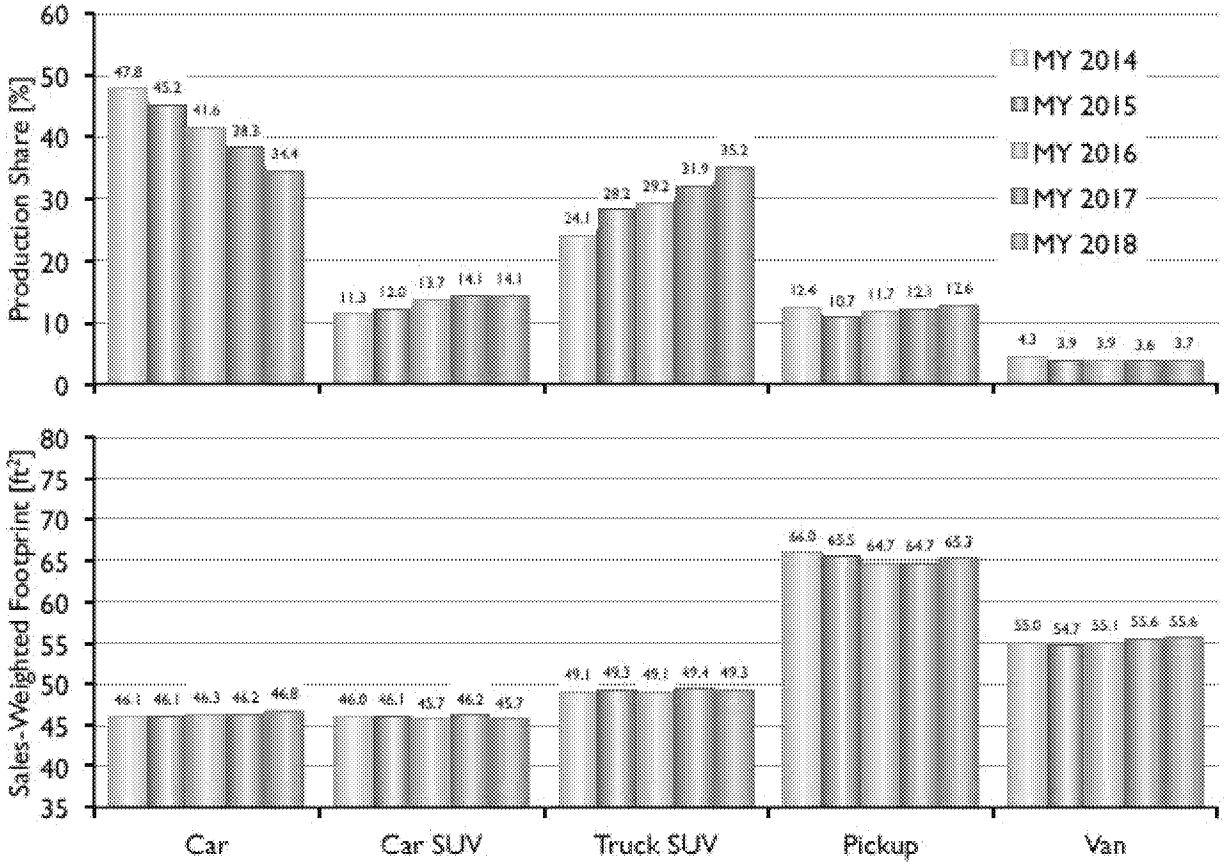

Figure 6.2: Production share and footprint by segment.[205]

6.3.1. *There Is No "Gaming" With Current Footprint-Based Standards*

While consumer preference has changed regarding the types of vehicles demanded, the footprint in each of the segments has remained relatively constant. The data above shows there are no systemic footprint increases (or any type of target manipulation) occurring. This simply confirms that the Agencies' footprint-based standards are an effective attribute for establishing GHG and fuel economy requirements in the Light-Duty Vehicle segment. Given the consistency of footprints over time, there is no reason to pursue consumer choice limiting backstop standards that would undermine the purpose of footprint-based standards.

As reported in the Novation Analytics Baseline Study, the production share of Cars has been dropping while the share of Car SUVs and Truck SUVs has been expanding (Figure 6.3). The "Car" category remains the largest portion of the passenger car fleet (73% in MY 2017). The Truck SUV category has also been increasing, and remains the majority share of the light-duty truck fleet (67% in MY 2017).

[205] NOVATION ANALYTICS, *supra* note 33, at 24.

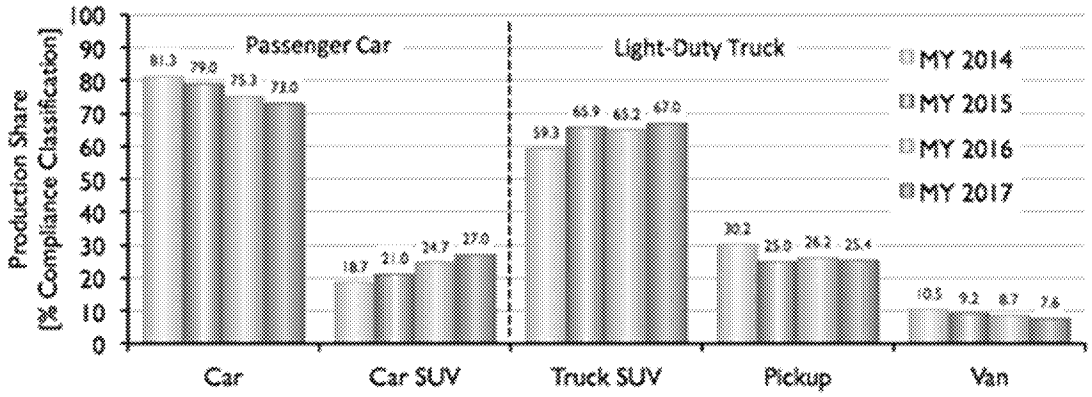

Figure 1:

Figure 6.3: Passenger car and light-duty truck production share.[206]

6.3.2. *Removing the "Mix Shift Effects" From Footprint Analysis*

To further demonstrate this point, industry compliance was analyzed for MY 2014–2017 with segment mix and size held constant at the MY 2014 level. As shown in Figure 6.4 below, the passenger car fleet would have performed 3 g CO_2/mi better in MY 2017, relative to its standard, if the fleet mix had remained constant from MY 2014. Since car and car SUVs have similar footprints (Figure 6.2), the footprint standards would not have changed. However, with a lower share of car SUVs, the tailpipe CO_2 would have been 3 g CO_2/mi lower. This essentially means that the car standards are approximately 3 g CO_2/mi more difficult than originally expected.

Conversely, the same type of analysis on the Light-Duty Truck fleet shows the impact is nearly zero. In this case, the shifts in share yielded a more stringent footprint standard (due to the smaller footprint of the Truck SUV). However, the Truck SUVs have lower tailpipe CO_2 compared to Pick-ups and Vans. Consequently, the increased stringency due to the increased share of smaller trucks was offset by lower tailpipe CO_2 of the smaller trucks; effectively what the footprint standards were meant to accommodate. For MY 2017, the footprint standard would have been 3 g/mile less stringent (298 g/mile vs. 295 g/mile) had the vehicle category shares remained constant, but the tailpipe CO_2 would have been 3 g/mile higher, which yields a near zero change in compliance.

[206] Novation Analytics personal communication to the Alliance of Automobile Manufacturers.

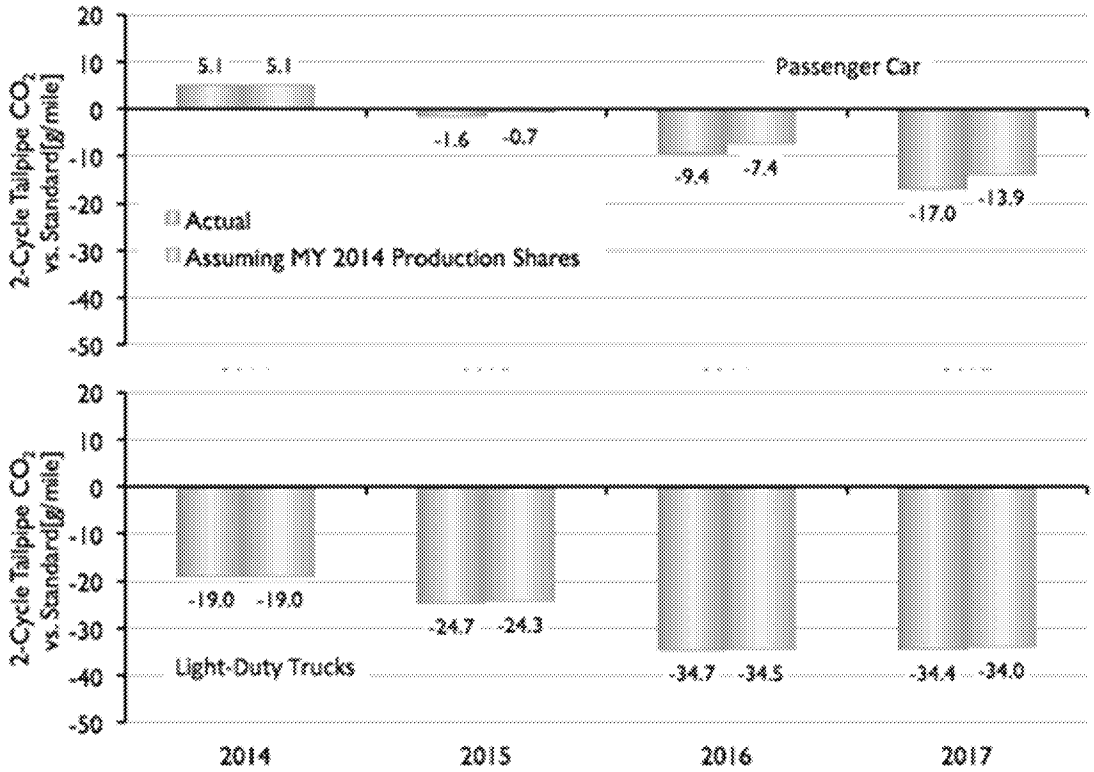

Figure 6.4: CO_2 compliance with MY 2014 production share.[207]

6.4. Compliance Burden by Segment: Classification is Working Except for Two-Wheel Drive Utility Vehicles

The current vehicle classifications, except for the inclusion of small 2WD SUVs in the passenger car fleet, are appropriate. All vehicles currently in the Light-Duty Truck fleet, plus the 2WD SUV's currently in the passenger car fleet, have truck-like characteristics. As required by EPCA/EISA, passenger cars and light trucks are subject to different standards consistent with their different capabilities. Some have expressed concern that vehicles in the truck fleet are not sufficiently challenged by the standards and should be in the car fleet. This is completely incorrect. Since 2012, the small 2WD SUVs, and the light-duty truck fleet have been the most challenged segments to comply with the rule, even while comparable fuel-saving technologies continue to be implemented across the fleet.

6.4.1. *Vehicles with Truck Features are "Over-Tasked"*

CO_2 performance-to-standard by category is shown in Figure 6.5**Figure 6.5:** CO2 performance-to-standard. Car SUVs, Truck SUVs, Pick-ups, and Vans have all been worse than standard from MY 2014–2017. For the passenger car fleet, an increasing share of Car SUVs has negatively impacted the compliance situation, which demonstrates that increasing consumer demand for this segment has a disparate compliance impact for manufacturers of these vehicles. On the other hand, for the

[207] Novation Analytics personal communication to Alliance.

light-duty truck fleet, an increasing share of Truck SUVs vs pick-up trucks will not necessarily impact the compliance situation because all of these segments are challenged to comply.

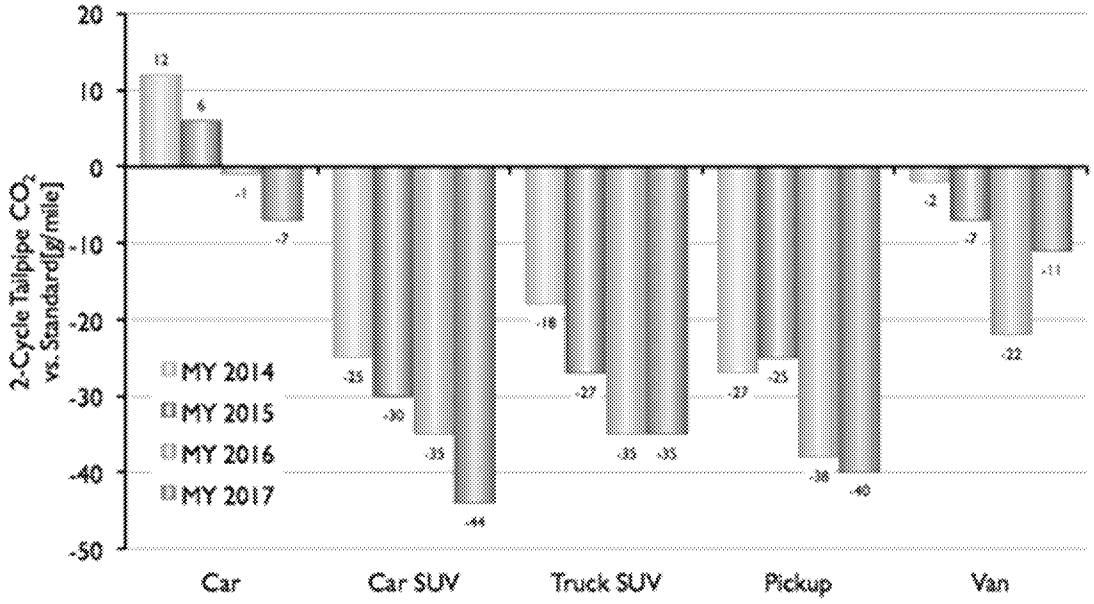

Figure 6.5: CO2 performance-to-standard.[208]

This next chart, Figure 6.6, shows the CO_2 performance-to-standard weighted by production. That is, the overall compliance contribution to industry's combined fleet performance.

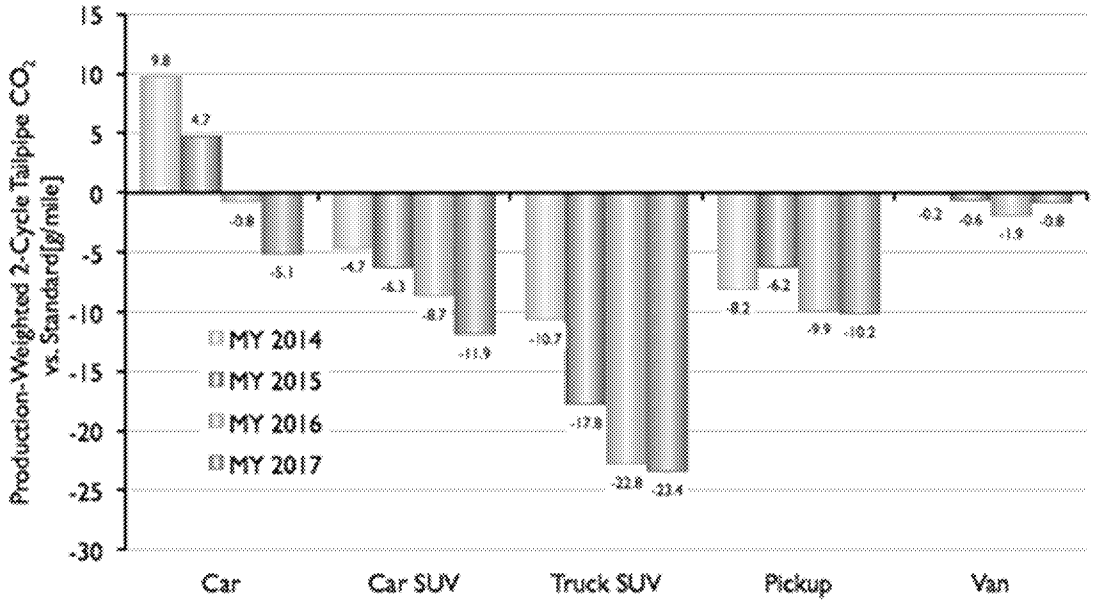

Figure 6.6: Production weighted CO_2 performance-to-standard.[209]

All evidence demonstrates that the current vehicle classification system challenges all of the vehicle segments. As can be seen, the Car and Truck SUVs are the largest deficit generators to

[208] Novation Analytics personal communication to Alliance.
[209] Novation Analytics personal communication to Alliance.

industry compliance, but their growing popularity clearly shows that these are the types of vehicles that consumers are demanding.

6.4.2. *Technology Is Being Added to Utility Vehicles at a Rate Exceeding Passenger Cars*

Some might question whether this compliance challenge is a sign that industry failed to apply technology to the small 2WD SUVs and light-duty truck truck fleet, but this is not the case. As seen in EPA's 2017 Fuel Economy Trends data shown in Table 6.1 below, Car and Truck SUVs improved by 43 g/mi (12.7%) and 45 g/mi (11.3%) respectively. In this same timeframe passenger cars improved by only 19 g/mi (6.3%).

	Car (non-SUV)		Car SUV		Pickup		Truck SUV		Minivan/Van	
Model Year	Adj Fuel Economy (MPG)	Adj CO_2 (g/mi)	Adj Fuel Economy (MPG)	Adj CO_2 (g/mi)	Adj Fuel Economy (MPG)	Adj CO_2 (g/mi)	Adj Fuel Economy (MPG)	Adj CO_2 (g/mi)	Adj Fuel Economy (MPG)	Adj CO_2 (g/mi)
2012	27.6	322	23.3	381	17.2	516	20.0	445	21.3	418
2013	28.4	313	24.3	365	17.5	509	20.8	427	21.1	422
2014	28.4	313	24.4	364	18.0	493	21.6	412	21.3	418
2015	29.0	306	25.1	353	18.8	474	21.9	406	21.8	408
2016	29.2	303	26.2	338	18.9	471	22.2	400	21.7	410

Table 6.1: EPA fuel economy trends: fuel economy and CO2 by segment.[210]

6.4.3. *Vehicle Energy Efficiency is Consistent Across Segments*

Another way of looking at the appropriateness of the vehicle classifications is to evaluate whether the vehicles in the various vehicle segments are relatively equally efficient given the differences between the segments. The vehicle efficiency can be assessed with a metric called tractive efficiency. Tractive efficiency compares the fuel efficiency (in fuel energy consumed divided by drive cycle distance) emitted vs. vehicle tractive energy (energy required to move the vehicle through the drive cycle divided by drive cycle distance). Figure 6.7 below reveals that all vehicle segments all have similar levels of efficiency, though small 2WD SUVs are the most efficient.

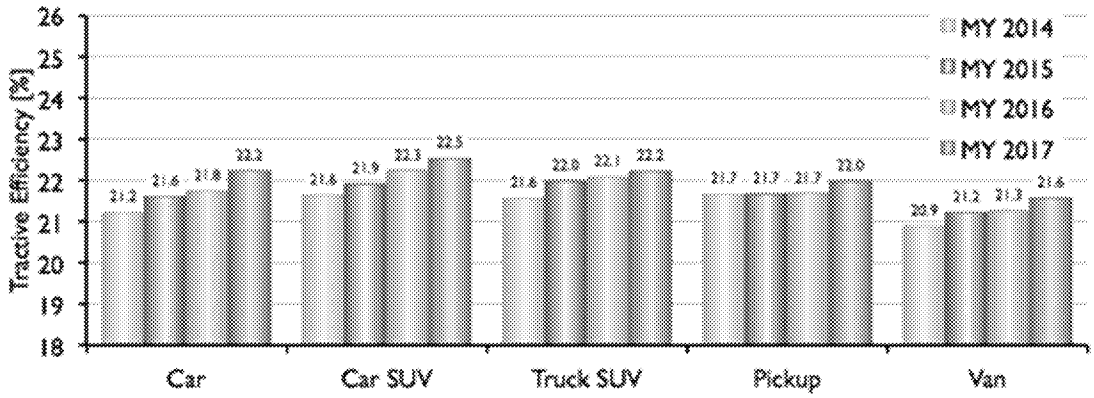

Figure 6.7: Tractive Efficiency by Segment.[211]

[210] 2018 TRENDS REPORT, *supra* note 19, at 22.
[211] Novation Analytics personal communication to Alliance.

Unfortunately, the compliance burden by segment shown in Figure 6.5 is misaligned with the underlying physics shown in Figure 6.7 above. The Agencies are imposing more stringent standards on the truck fleet. The small 2WD UVs that fall in the car fleet are also penalized. The Agencies need to correct this disparity in current rulemaking when resetting footprint curve standards. Moving the small 2WD UVs back to the truck fleet, by updating NHTSA's vehicle classification to recognize the truck-like characteristics of these vehicles, is a logical solution. This and other potential solutions are discussed in Appendix 3.

APPENDIX 7: CAFE REPORTING ISSUES

7.1. CAFE Projections Reporting Template

Manufacturers have enjoyed an extended period during which NHTSA and EPA have worked cooperatively in the CAFE reporting space. Working together, the Agencies have historically allowed companies to generate one final CAFE report and know with confidence that it meets the expectations of both. The Alliance's primary desire is to see this relationship continue, to help minimize the compliance and reporting burdens of regulations that involve both Agencies. The Alliance prefers that NHTSA and EPA continue to accept a single, common reporting format to satisfy CAFE reporting for both Agencies. The Alliance believes that whatever the benefits of dissimilar CAFE reporting formats may be to each agency, they would not justify the additional cost and burden imposed upon manufacturers to collect additional information and to modify data processing systems and databases in order to generate two separate CAFE reports.

NHTSA's proposed format differs in many ways from the current final CAFE report shared with EPA. The NHTSA proposal requests a significant amount of additional information—approximately one-quarter more—than is currently required for the final CAFE report submitted into EPA's VERIFY system. Requested data includes the length and width of the open cargo bed, battery configuration, distributor calibration, choke, and emission control device; however, these terms lack any sort of formal definition or common reporting standard for EPA submission. Most significantly, there is an inconsistency in how off-cycle and air conditioning credits are currently reported to EPA VERIFY, which if reported as proposed by NHTSA would increase by a factor of ten or more the number of reporting entries to comprehend combinations of these technologies generating credits at the model level. While it is possible to make these changes given appropriate lead time, one member of the Alliance conservatively estimates that the necessary information technology changes would cost more than $1 million to implement and could not be completed prior to MY 2021.

For these reasons, the Alliance recommends that NHTSA retain the current final CAFE reporting format commonly submitted to EPA's VERIFY system.

7.2. NHTSA Should Not Add Requirements for Disclosure of CAFE Credit Trade Transaction Information

As further discussed in Appendix 5, the Alliance supports continuing to include credit trading as a compliance flexibility in the CAFE program. Manufacturers have previously engaged in, and are expected to continue to explore, credit transactions with other manufacturers.

Credit trades are business-to-business transactions and can contain both financial and non-financial compensation between the buyer and seller. The Alliance views these transactions as being similar in nature to other competitive purchase agreements, and they are likely to include features such as non-disclosure terms and strict confidentiality with regards to costs and compensation. When engaging in such activity, manufacturers compete with one another for access to CAFE credits, just as they compete with other manufacturers for access to fuel-saving technologies. To that end, manufacturers maintain confidentiality during negotiations and in the transaction terms in order to

protect the sensitive business practices of both the buyer and the seller. Revealing confidential purchase terms could result in a competitive disadvantage for both parties. Just as manufacturers do not and cannot disclose contract pricing for technologies from their suppliers, manufacturers also do not disclose purchase prices for CAFE credits—even after the transaction has occurred.

Based on the text of the Proposed Rule, it appears that NHTSA has been approached by "entities wishing to trade credits"[212] and that these entities have cited a lack of transparency in the compensation terms of transactions as inhibiting them from determining the valuation of credits. Having access to this financial information would apparently help inform a decision by these entities to possibly buy or sell credits. In response, NHTSA is seeking comment on whether entities that have engaged in credit transactions should be required to provide unfettered access to confidential financial, or non-financial, compensation terms embedded within confidential credit transaction contracts. Put more simply, the question is whether businesses should be required to disclose otherwise confidential prices for goods bought and sold in order to enable new entrants into a marketplace.

The Alliance does not support disclosure of confidential compensation terms for credit transactions and believes this is inconsistent with standard purchasing and selling practices. Such disclosure could result in potentially uncompetitive outcomes in the credit market.

Compliance plans, which may or may not include the use of purchased or earned credits, are not publicly disclosed. CAFE credit transaction contracts may contain similar information for the purposes of valuing credits that are subject to an adjustment factor that changes credit values depending on terms such as the model year in which the credit was generated and the model year to which a manufacturer applies the credit.[213] NHTSA and other agencies clearly understand that compliance plans are protected confidential business information. Just as NHTSA does not require manufacturers to post transaction prices for turbochargers, 8-speed transmissions, or battery packs, the Alliance sees no reason to reveal transaction terms for credits. A manufacturer who integrates compliance flexibilities, such as credits, within an overall compliance plan should not be required to reveal the financial or other data used to inform that internal planning. Disclosure of credit trade financial information may also provide other manufacturers with insights into the trading manufacturers' compliance plans or even affect manufacturer valuation. For example, financial terms that appear more favorable to a seller may indicate a greater degree of need on the part of a purchaser or vice-versa based on simple supply-and-demand economics.

The Proposed Rule is not clear on whether these other entities seeking access to the financial data are vehicle manufacturers who are also be regulated under the CAFE standards. If so, then revealing financial terms would appear to create a conflict of interest as these manufacturers could then use the financial information as part of their planning or to influence negotiations that they may later enter into with the manufacturers that were forced to divulge transaction data. Manufacturers compete in the marketplace, and access to costs paid by other competitors, either for credits or turbochargers, would provide an unfair competitive advantage.

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[212] *See* 83 Fed. Reg. at 43,449.
[213] *See* 49 C.F.R. § 536.4(c).

NHTSA already publishes credit movements for each model year. This information already provides some data to entities who may wish to engage in buying and selling credits in the market. NHTSA has never required, or expressed any interest in requiring, manufacturers to disclose the sensitive and confidential financial terms behind these transactions. Other agencies in the United States involved in mobile source regulation with programs that include credit trading do not require credit pricing to be revealed.

APPENDIX 8: MODELING SYSTEM USED IN THE PROPOSED RULE

8.1. Modeling Tools

Modeling to support the development of fuel economy and GHG regulations takes two forms: 1) vehicle modeling to determine how effective various technologies are at reducing fuel consumption; and 2) fleet modeling to predict how manufacturers would employ these technologies to meet their compliance targets.

NHTSA has long used the Volpe model (a.k.a. the CAFE model) for fleet modeling and, beginning with the DTAR, used the Autonomie model (operated by Argonne National Laboratory) for full vehicle simulations. Full vehicle simulations are the best method of vehicle modeling.

Meanwhile, EPA has been developing the ALPHA vehicle model and the OMEGA model for fleet analysis. Like Autonomie, the ALPHA model also runs full vehicle simulations, but since the ALPHA model is still in development, EPA also has to rely on its Lumped Parameter Model ("LPM") (a less-refined model) as an intermediate tool to fill in the blanks between ALPHA results.

These modeling systems (NHTSA's Volpe and Autonomie models, and EPA's ALPHA, OMEGA, and LPM models) answer essentially the same questions. Using both systems leads to inconsistencies and conflicts, and is inefficient and counterproductive. Using both also ignores the intent of Executive Order 13781 to improve government efficiency, effectiveness, and accountability. It only makes sense that the Agencies should settle on one set of tools.

Figure 8.1 shows the confusion generated by the Agencies' use of different modeling tools with different assumptions. In this case from the DTAR, the estimated costs of compliance are significantly different for essentially equivalent standards. Not only do the average fleet costs differ by hundreds of dollars, some manufacturers' costs differ by over $1,000 per vehicle. Interpreting the results and commenting on them is twice as difficult as they should be, and the conclusions are less clear.

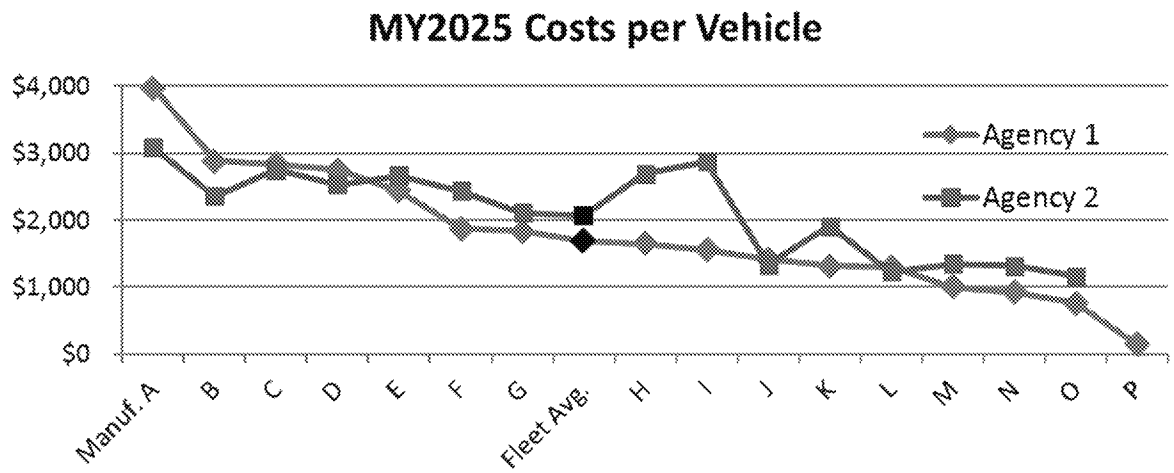

Figure 8.1: MY 2025 costs per vehicle as estimated by both NHTSA and EPA.[214]

The Alliance finds that, at least at this time, NHTSA's modeling systems are superior to EPA's. As such, we support the Agencies' decision to use NHTSA's modeling tools for this rulemaking and recommend that both Agencies continue on this path. We encourage Agencies to work together to provide input to the single common set of tools.

The following sections provide comments on changes to NHTSA's modeling since the DTAR, and a more detailed comparison to EPA's tools.

8.2. Improvements in the Autonomie and Volpe Models

The Alliance will continue to offer comments and criticisms on modeling in this and future rulemakings, but we would also like to recognize the significant improvements made in the Autonomie and Volpe models since the DTAR.

- Volpe Model
  - The passenger car fleet has been appropriately separated into domestic and import passenger car fleets.
  - Dynamic estimates of vehicle sales and scrappage in response to price changes replace unrealistic static sales and scrappage numbers.
  - The model has new capability to perform GHG analysis with GHG program flexibilities.
  - The baseline fleet has been appropriately updated based on both public and manufacturer data to reflect the technologies already applied, particularly tire rolling resistance.
  - Some technologies have been appropriately restricted. For example, low rolling resistance tires are no longer allowed on performance vehicles, and aero improvements are limited to maximum levels of 15% for trucks and 10% for minivans.

[214] DTAR, *supra* note 117, at tbls.12.97, 13.21.

- Autonomie
  - The benefits of virtually all technologies and their synergistic effects are now determined with full vehicle simulations.
  - Vehicle categories have been increased to 10 to better recognize the range of 0–60 performance characteristics within each of the 5 previous categories, in recognition of the fact that many vehicles in the baseline fleet significantly exceeded the previously assumed 0–60 performance metrics. This provides better resolution of the baseline fleet and more accurate estimates of the benefits of technology.
  - New technologies (like advanced cylinder deactivation) are included, while unproven combinations (like Atkinson engines with 14:1 compression, cooled EGR, and cylinder deactivation in combination) have been removed.
  - Consistent with the recommendation of the National Academy of Sciences and manufacturers, gradeability has been included as a performance metric used in engine sizing. This helps prevent the inclusion of small displacement engines that are not commercially viable and that would artificially inflate fuel savings.

8.3. Comparing the Autonomie and ALPHA Models

The Alliance believes NHTSA's tools (Autonomie/Volpe) are superior to EPA's (APLHA/LPM/OMEGA). This is not surprising since NHTSA's tools have had a significant head start in development.

The Autonomie model was developed at Argonne National Lab with funding from the Department of Energy going back to the PNGV (Partnership for Next Generation Vehicles) program in the 1990s. Autonomie was developed from the start to address the complex task of combining 2 power sources in a hybrid powertrain. It is a physics-based, forward looking, vehicle simulator, fully documented with available training.

EPA's ALPHA model is also a physics-based, forward looking, vehicle simulator. However, it has not been validated or used to simulate hybrid powertrains. The model has not been documented with any instructions making it difficult for users outside of EPA to run and interpret the model.

8.4. Comparing the CAFE and OMEGA Models

NHTSA's Volpe model also predates EPA's OMEGA model. More importantly, the new Volpe model considers several factors that make its results more realistic.

- The Volpe model includes estimates of the redesign and refresh schedules of vehicles based on historical trends, whereas the OMEGA model uses a fixed, and too short, time interval during which all vehicles are assumed to be fully redesigned.
- The Volpe model allows users to phase-in technology based on year of availability, platform technology sharing, phase-in caps, and to follow logical technology paths per vehicle.

- The Volpe model produces a year-by year analysis from the baseline model year through many years in the future, whereas the OMEGA model only analyzes a fixed time interval.
- The Volpe model recognizes that vehicles share platforms, engines, and transmissions, and that improvements to any one of them will likely extend to other vehicles that use them. The OMEGA model treats each vehicle as an independent entity.
- The Volpe model now includes sales and scrappage effects.
- The Volpe model is now capable of analyzing for CAFE and GHG compliance, each with unique program restrictions and flexibilities.
- The Alliance also identified a number of other concerns with the OMEGA model in its comments on the MTE reconsideration.[215] We hereby incorporate those comments here.

For all of the above reasons and to avoid duplicate efforts, the Alliance recommends that the Agencies continue to use DOT's Volpe and Autonomie modeling system, rather than continuing to develop two separate systems. EPA has demonstrated through supporting Volpe model code revisions and by supplying engine maps for use in the Autonomie model that their expertise can be properly represented in the rulemaking process without having to develop separate or new tools.

8.5. General Comments on Modeling

8.5.1. *Baseline Fleet Assessment*

As discussed above, the baseline fleet has been updated with appropriate ratings of rolling resistance and aerodynamic improvements. In the DTAR, vehicles were generally considered to have unimproved tires and little aerodynamic improvement. That being the case, the Volpe model would add these improvements in spite of the fact that manufacturers had already made significant improvements in these areas and that there was little remaining opportunity for more. This ultimately led to the Volpe model under-predicting how much powertrain technology was required for compliance.

It is possible to estimate the rolling resistance and aerodynamic features of a vehicle using road load coefficients, but this process requires various assumptions and is not very accurate. Instead the Volpe Center, in developing the new Volpe model, used confidential business information from manufacturers to understand how much progress had been made in these areas so that the vehicles could be correctly baselined. The Alliance believes this is an accurate and practical solution and supports this improvement.

8.5.2. *Emissions Test Weight Bins*

When considering mass reduction, the Alliance previously requested that the Agencies also consider that vehicles are tested according to test weight bins, and mass reduction only affects on-cycle performance if the mass reduction is substantial enough to drop the vehicle one or more test weight bins (with the exception of a small road-load effect). The PRIA included a glider mass reduction study on a 2014 Chevrolet Silverado full-sized pick-up truck.[216] In it, the vehicle curb

[215] Alliance MTE Reconsideration Comments, *supra* note 65, at 48 *et seq.*
[216] PRIA, *supra* note 155, at 396.

weight was 5,362 lbs., and the base glider was 3,945 lbs. This results in a powertrain weight of 1,417 lbs. Table 8.1 shows the impact of mass reduction levels MR1 (5%) through MR5 (20%) applied to the glider on both this base vehicle as well as two other variants of the same vehicle but with a different cab, bed, or optional equipment variations. The same powertrain weight is used for all variants to not confound the results.

	Base Vehicle	Variant 1	Variant 2
Curb Weight	5,362	5,300	5,200
Equivalent Test Weight	5,250	5,250	5,250
Glider Weight	3,945	3,883	3,783
Glider Weight MR1	3,748	3,689	3,594
Glider Weight MR2	3,649	3,592	3,500
Glider Weight MR3	3,551	3,495	3,405
Glider Weight MR4	3,354	3,301	3,216
Glider Weight MR5	3,156	3,107	3,027
Equivalent Test Weight MR1	5,250	5,000	5,000
Equivalent Test Weight MR2	5,000	5,000	5,000
Equivalent Test Weight MR3	5,000	5,000	4,750
Equivalent Test Weight MR4	4,750	4,750	4,500
Equivalent Test Weight MR5	4,500	4,500	4,500

Table 8.1: Equivalent test weight results for mass reduction levels.[217]

All three vehicles before any mass reduction has taken place will all be tested in the 5,250 lb. weight bin, even though they do not have the same mass. Applying the MR1 reduction of 5% to the gliders, both variant 1 and variant 2 drop one test bin, but the base vehicle will not. Applying the MR2 reduction of 7.5% to the gliders, the base vehicle has finally dropped down one weight bin, but the other two variants show no improvement over MR1. This stair-step approach continues through MR3 (10%), MR4 (15%), and MR5 (20%), with some variants dropping a further weight bin with each level, while others do not.

Between these three variants, assume a volume split of 50% for the base vehicle, 30% for variant 1, and 20% for variant 2. To implement the MR1 package to this platform will result in a cost applied to all vehicles, but an on-cycle benefit only seen on 50% of the volume, thus halving the compliance benefit but maintaining the full cost. By applying the MR2 package, a benefit can be realized on 100% of the volume, but half of that volume is getting the same benefit as the MR1 package, but at a higher cost. The incremental benefit of moving from the MR2 package to the MR3 package would only impact 20% of the vehicles in this platform, and thus have a very high cost-to-benefit ratio. Moving from MR3 to MR4 shows an additional weight bin drop for all vehicles, where the move from MR4 to MR5 only affects 80% of the vehicles.

A single vehicle platform can support a variety of passenger car, utility vehicle, and/or light-duty truck variants with curb weight spanning several test weight bins. Applying mass reduction to the platform results in this uneven effect, in which the whole platform must bear the cost while only a

[217] Based vehicle curb weight and glider weight from PRIA, *supra* note 155, at 401, tbl.6-41 (kilograms converted to pounds for consistency with equivalent test weight system). Variants 1 and 2 are hypothetical examples. Equivalent test weights assigned based on curb weight. Glider weights at mass reduction levels calculated by Alliance of Automobile Manufacturers.

fraction of the variants realizes a compliance benefit in dropping down one or more test weight bins, thus making the cost of these improvements more expensive when compared to other technologies that can help all variants of a platform. As mass reduction is one of the primary technology paths considered by the Volpe model, it is important that the Agencies not over-predict its benefits. The Alliance continues to find that it is necessary and appropriate for the Agencies to consider how mass reduction affects a vehicle's test weight bins when determining the benefits of mass reduction. Without proper consideration, the benefits will be inflated. If the Agencies had considered this effect, it would likely have increased the estimated costs of compliance.

8.6. Consideration of Tier 3 and LEV III Emissions Rules

8.6.1. *Tier 3 Emissions*

The Tier 3 and LEV III emissions requirements were promulgated after the MY 2017–2025 fuel economy and GHG standards were finalized, so they were not considered in the standard-setting process during the 2012 rulemaking. The Alliance has previously commented on the failure to include the impact of the Tier 3 and LEV III rulemakings in the prior final determination, because the aggressive cold-start emission strategies that must be employed to meet Super Ultra-Low Emission Vehicle (SULEV30/Bin 30) fleet average emissions that began in MY 2017 will be detrimental to both CO_2 emissions and fuel economy. Additionally, the "zero" evaporative emissions standards associated with these rules will also negatively impact fuel economy and GHG compliance, particularly for engine stop-start and HEV applications, where the engine-off time is constrained by the need to purge the canister. For these reasons, the Alliance supports the decision to include Tier 3 and LEV III emissions considerations in the Proposed Rule analysis.

8.6.2. *Tier 3 Regular-Grade Octane E10 Test Fuel*

The Tier 3 and LEV III emissions regulations also introduced a new E10 test fuel. This fuel has a lower octane rating (91 research octane number ("RON")) than the previous Tier 2 test fuel (96+ RON "premium"). Although the new E10 test fuel is currently used only for emissions certification testing, it will be used for fuel economy and GHG testing in the MY 2020–2025 timeframe.[218] Despite this fact, previous EPA modeling incorrectly used "premium" octane fuel to predict the benefits of future engine technology. Since the fuel efficiency benefits of higher-octane fuel are well-known (and are described in the Alliance comments on the DTAR), this error undoubtedly overstated the fuel efficiency gains that will be achievable when using regular-grade octane Tier 3 fuel. Fortunately, this oversight has been corrected in the Proposed Rule modeling, and the Alliance commends the decision to update the core engine maps used to the correct Tier 3 test fuel.

8.7. Split of Different Vehicle Categories

The Alliance supports the inclusion of performance classes to the original five vehicle classes used in the DTAR. This change allows better technology selection and more accurate estimates of technology benefits without degrading the original performance of the vehicle.

[218] *See* 40 C.F.R. § 600.117.

8.8. Gradeability and Performance Concerns

The Alliance supports adding top-gear gradeability to the performance metrics. Performance metrics related to vehicle operation in top gear are just as critical to customer acceptance as are performance metrics such as 0-60 mph times that focus on performance in low-gear ranges. As engine downsizing levels increase, top-gear gradeability becomes more and more important.

8.9. Atkinson Cycle Engines

The Alliance provided significant comments to the DTAR and proposed determination detailing concerns of feasibility and effectiveness of the non-hybrid Atkinson engine technology packages, including cooled exhaust gas recirculation ("CEGR") and cylinder deactivation.[219] These comments noted that the modeling projected an implausibly rapid fleet penetration of this complex engine technology and overestimated its effectiveness, due largely to modeling with high-octane fuel and the theoretical addition of CEGR plus cylinder deactivation. The Proposed Rule has recognized many of the Alliance's concerns with the modeling of high compression ratio ("HCR") HCR1 and HCR2 technology. The Alliance agrees with the more restrained application of HCR1 in the Proposed Rule—including restrictions on 8- and some 6-cylinder engines—and agrees with the rationale provided by the Agencies, including:

- Packaging and emission constraints associated with intricate exhaust manifolds needed to mitigate high load/low revolutions per minute knock;
- Inherent performance limitations of Atkinson cycle engines; and
- Extensive capital and resources required for manufacturers to shift to HCR from other established technology pathways (e.g. downsized turbocharging).

Additionally, the Alliance supports the decision to exclude the speculative HCR2 technology from the analysis. As previously documented in Alliance comments, the inexplicably high benefits ascribed to this theoretical combination of technologies has not been validated by physical testing.

8.10. Gasoline Turbocharged Direct Injected and Cooled Exhaust Gas Recirculation Technologies

Previous Alliance comments noted that the fuel efficiency improvements modeled for downsized, turbocharged engine technologies were highly optimistic. Use of high-octane fuel, engine fuel maps that grossly underestimated engine fuel flow at light loads, and impractical engine downsizing all contributed to these optimistic projections.

This Proposed Rule improves on Turbo1/2 and CEGR1/2 modeling in several respects. The most notable change is updated engine maps that use the correct, regular-octane test fuel. This fuel will be required by regulation in the timeframe under consideration for this review, so it was not appropriate in previous modeling to use fuel with a higher octane rating when projecting the future benefits of turbo technology.

[219] Alliance DTAR Comments, *supra* note 63, at 45 et seq.

Additionally, the platform and engine sharing methodology in the model better replicates reality by making available to each manufacturer only a finite number of engine displacements, helping to prevent unrealistically "over-optimized" engine sizing by vehicle model.

Finally, the modeling recognizes that higher-brake mean effective pressure ("BMEP") turbocharged engines coupled with CEGR2 provides little or no benefit when practical performance and drivability factors are considered, and this technology package is appropriately excluded from the analysis.

8.11. Cylinder Deactivation and Advanced Cylinder Deactivation

In the previous analysis, the projected effectiveness and penetration of cylinder deactivation technologies was too high, particularly when combined with turbo and ATK2 technologies. The Proposed Rule assessment better matches industry experience and expectations regarding this technology. In particular, the Alliance supports the decision to model advanced cylinder deactivation separately from other advanced powertrain pathways (turbo, HCR, ADSL).

8.12. Electrified Powertrain Technologies

The Alliance supports the implementation of electrification technologies in the latest modeling efforts. The Volpe model includes separate costs and benefits for crank integrated starter generators ("CISG") and belt integrated starter generators ("BISG") mild hybrid technologies, P2 hybrids/power split strong hybrid technologies, and for 30-mile/50-mile PHEV technologies. These distinctions are important to capture the architectural differences between two different technologies, which can have separate packaging requirements, efficiency potentials, and vehicle applications. Additionally, the Alliance supports the inclusion of accounting for consumers' willingness to pay for electrification technologies, and recognition within the Proposed Rule that manufacturers cannot pass on the entire incremental costs of hybrid, plug-in hybrid, and battery electric vehicles to the buyers of those vehicles. The separation of electrification hardware costs and battery costs is a positive change to the modeling, allowing for separate learning rates and costs differentiation between the two distinct pieces of any electrification technology implementation. While the costs of installing chargers and charger convenience were not taken into account within the Volpe model, as noted in Appendix 4, these factors will continue to have an impact on the overall penetration of electrification technologies that the market will be willing to accept.

8.12.1. *Volpe model Electrification Cost Error: Incorrect Model Results*

The 2018 Proposed Rule version of the Volpe model contains a component cost error in the electrification path that, when corrected, increases the auto manufacturers' estimated cost of compliance by nearly $13 billion if the no-action alternative was to be put into place.

8.12.1.1. Technology Paths

There are a total of 19 technology paths available in the Volpe model to demonstrate possible fuel efficiency improvements available to industry. The Volpe model, within many constraints,

attempts to identify the lowest cost path to compliance for industry. One technology pathway is electrification, and is highlighted below in Figure 8.2.

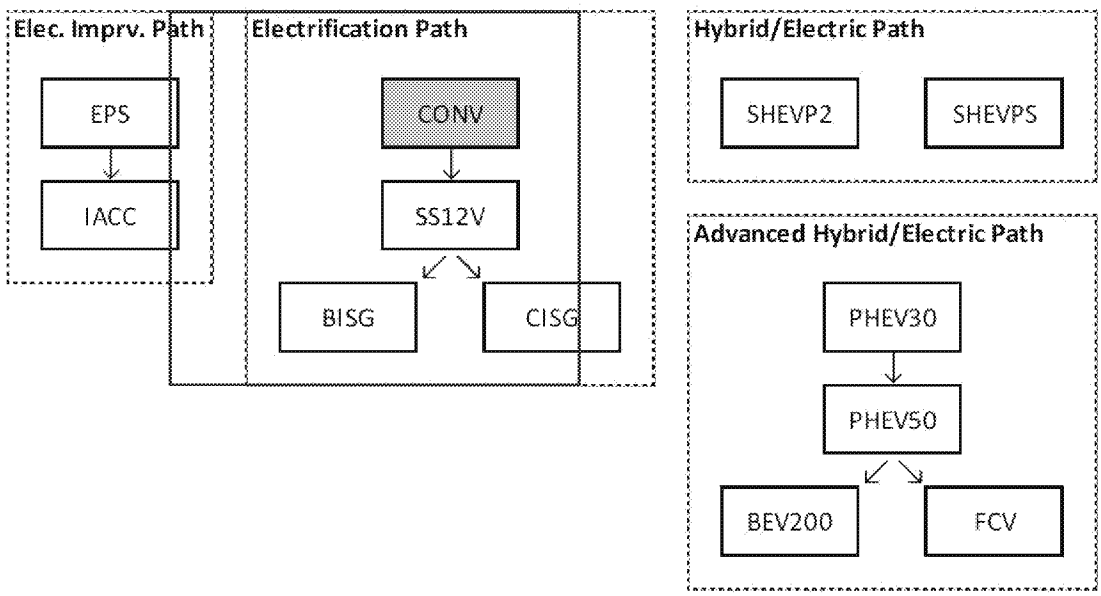

Figure 8.2: Vehicle level electrification paths.[220]

8.12.1.2. Implausible Electrification Path Costs

The electrification path incremental costs, not including the battery, are shown below in Table 8.2. As can be seen, there is a very distinctive and implausible change in costs for BISG and CISG for all variants of medium SUV and pick-up trucks, as compared to the cost of the same technology for small cars/SUVs and medium cars. In particular, the $225 drop in non-battery costs to go from 12V stop-start to BISG is misaligned with industry understanding.

Electrification	Small Car (inc Perf) Med Car (inc Perf) Small SUV (inc Perf) C-2015 Incremental Component Cost ($)		Med SUV (inc Perf) Pickup Pickup HT C-2015 Incremental Component Cost ($)
CONV	0.00		0.00
SS12V	727.91	≈	813.54
BISG	546.82	≠	-225.20
CISG	232.89	≠	1108.04

Table 8.2: Electrification costs.[221]

An analysis of battery costs and cost learning revealed no other cost offset to this apparent error.

[220] NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DRAFT 2021-2027 CAFE MODEL DOCUMENTATION May 2015).
[221] CAFE Model Input File, 2018_Proposed Rule_technologies_ref.xlsx

8.12.1.3. Volpe modeling of Adjusted Electrification Costs

To explore what impact the component cost error had on the compliance cost, the Volpe model was rerun with technology input file costs modified. The medium SUV and pick-up truck electrification costs were changed to be identical to the small car/SUV and medium car costs for SS12V, BISG, and CISG.

The results were analyzed for the no-action standards and for Alternative 1 in order to explore the full range of program cost changes, and are summarized in Table 8.3.

	Cumulative Tech Cost ($)	Cost/Vehicle ($)
2016-2026 Augural Standard	$12,976.0M	$67.84
2016-2026 Alternative 1	$12.1M	$0.06

Table 8.3: Estimated incremental electrification technology costs.

The cumulative incremental technology cost for the no-action alternative from MY 2016–2026 are nearly $13 billion, or $68 per vehicle. For Alternative 1 from 2016–2026, the cumulative cost is miniscule at approximately $12 million, or $0.06 per vehicle.

The Volpe model must be updated to correct this so that the cost of compliance is properly reflected in the results.

8.13. Transmissions

The Alliance strongly objected to the transmission modeling methodology used in EPA's proposed determination. This approach lumped fundamentally different transmission technologies—planetary gear, continuously variable transmissions ("CVTs"), and dual clutch transmissions ("DCTs")—into bundles with identical costs and efficiencies, making it impossible to fully comprehend the rationale for the high effectiveness projections.

The Alliance supports the abandonment of this approach in the Proposed Rule, which instead explicitly and transparently models the cost and effectives for different transmission technologies. The analysis also appropriately restricts the application of CVT technology on larger vehicles.

8.14. Variable Compression Ratio Engines

The Alliance supports the exclusion of variable compression ratio engines from the analysis. This technology is still in early development, and too speculative to be included at this time. It is also unlikely to attain significant penetration in the MY 2026 timeframe due to intellectual property protection associated with early implementations and its likely application primarily to high-performance vehicles. At least one source also indicates a steep price to this technology— "at least $3,000 more to produce than a standard 16-valve double-overhead-camshaft four-cylinder."[222]

[222] Richard Truett, *The Octane Game: Auto Industry Lobbies for 95 as New Regular*, AUTOMOTIVE NEWS (Apr. 17, 2018), http://www.autonews.com/article/20180417/BLOG06/180419780/auto-industry-lobbies-for-95-octane-as-new-regular.

8.15. Cost Assessments

The Alliance supports the use of retail price equivalents in the compliance cost modeling to estimate the indirect costs associated with the additional added technology required to meet a given future standard.

The alternative indirect cost multiplier ("ICM") approach is not sufficiently developed for use in rulemaking. As noted by the National Research Council, the indirect cost multipliers previously developed by EPA have not been validated with empirical data.[223] Furthermore, in reference to the memorandum documenting the development of ICMs previously used by EPA, Exponent Failure Analysis Associates found that,

> Large variations were observed between questionnaire responses found in an August 2009 memorandum (average coefficient of variations across all cost contributors was greater than 1, indicating potential disagreement between the experts on the relative impact of the different cost contributors), and review of the respondents' comments indicates confusion and lack of expertise in some areas. The discrepancies between questionnaire responses from the EPA experts, and these experts' potential lack of understanding of the different cost contributors, are not consistent with a rigorous and scientifically sound analysis.[224]

8.16. The Alliance Supports NHTSA's Use of 20% for the Rebound Effect

Rebound effect, in the context of the Proposed Rule, is the additional vehicle miles traveled ("VMT") that arises from improved fuel economy, which reduces the cost of driving each additional mile. Improvements in fuel economy, as reflected in higher MPG, decrease the cost of driving and thus lead to greater driving. The rebound effect is defined as the elasticity of VMT with respect to fuel efficiency improvements, i.e., the percentage change in VMT associated with a one-percent change in fuel efficiency. Elasticity of VMT with respect to changes in fuel price is a related topic but is separate from the rebound due to increased vehicle fuel efficiency.

The NERA-Trinity Assessment includes an evaluation of rebound effect estimates at its Appendix E. Based on this assessment, NERA concludes that a VMT rebound effect of 20 percent most accurately represents the range of relevant estimates.[225]

Specifically, NERA finds that for the studies identified, the median rebound value is 22 percent and the mean value is 26 percent.[226] Contrary to the Agencies' assessment in the DTAR that recent

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[223] NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES, COST, EFFECTIVENESS, AND DEPLOYMENT OF FUEL ECONOMY TECHNOLOGIES FOR LIGHT-DUTY VEHICLES 9-26 (2015), *available at* https://www.nap.edu/catalog/21744/cost-effectiveness-and-deployment-of-fuel-economy-technologies-for-light-duty-vehicles ("... the empirical basis for such multipliers is still lacking, and, since their application depends on expert judgment, it is not possible for to determine whether the Agencies' ICMs are accurate or not").

[224] EXPONENT FAILURE ANALYSIS ASSOCIATES, INC., ASSESSMENT OF GREENHOUSE GAS (GHG) AND CORPORATE AVERAGE FUEL ECONOMY (CAFE) TECHNOLOGY COST ASSUMPTIONS: TECHNICAL MEMORANDUM (Sept. 26, 2017) (hereinafter EXPONENT MEMORANDUM). Available at Regulations.gov, Docket ID EPA-HQ-OAR-2015-0827-9194, attachment "Attachment 4 - GHG CAFE Technology Cost Estimates." ([Internal citations omitted.])

[225] NERA-Trinity Assessment at E-4.

[226] *Id.* at E-3.

studies suggest a decrease in the rebound effect,[227] the studies identified by NERA to be relevant do not indicate a clear temporal trend. For studies published between 1990 and 1999, the average rebound effect is 24 percent. This number increases to 31 percent for studies published between 2000 and 2009 before declining to 25 percent for years 2010 through 2017.

The lack of the temporal effect cited by EPA is also supported by Figure 8.3 below, which is from the Strata comments to NHTSA's DEIS NOI,[228] and which graphs the results of the studies EPA found to be relevant for the TAR.[229] Clearly, an estimate of 10% (as was used in the DTAR) falls outside of the range of most of the data points.

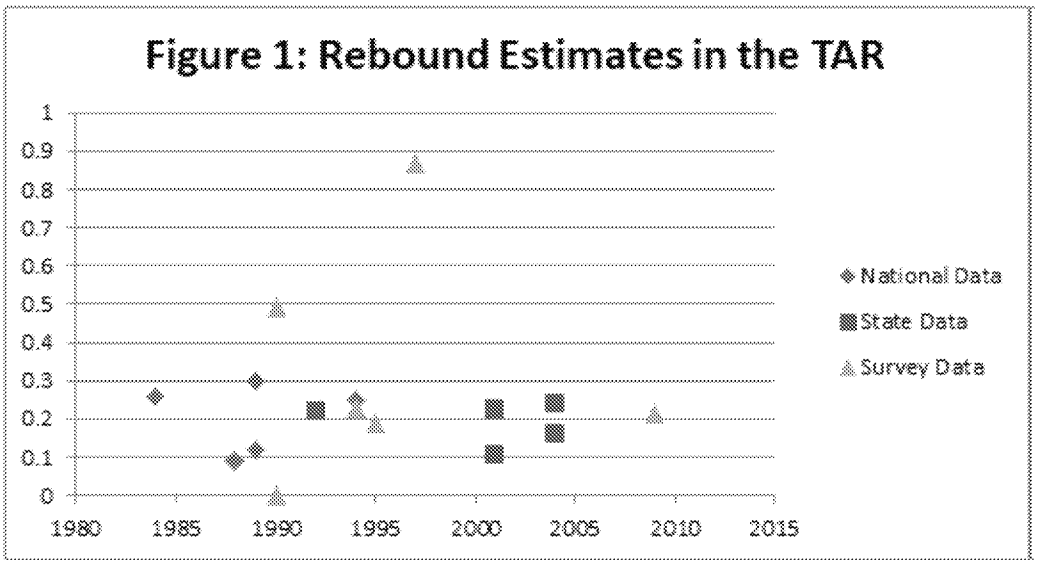

Figure 8.3: Rebound effect estimates in the DTAR.

Some recent comments posted in response to the Proposed Rule urge the Agencies to reduce their reliance on several studies of the cited studies as relevant to their determination that 20% is the correct value to use for rebound effect in its rulemaking.[230] For instance, Professor Small comments that "A better characterization of the most recent study [the Hymel and Small 2015 update] would be that it finds a long-run rebound effect of 18% under a simpler model but 4.0 percent or 4.2 percent under two more realistic models that are supported by the data." Professor Cirillo comments that "Our model [Liu et al., 2014] is constructed in order to study the latter." referring to "…(2) the rebound effect from energy policy aiming at reducing VMT by for example increasing fuel cost." and not "(1) the introduction in the market place of more efficient vehicles and their use…"

[227] DTAR, *supra* note 117, at 10–20.
[228] ARTHUR R. WARDLE & JULIAN MORRIS, STRATA, PUBLIC INTEREST COMMENT FROM REASON FOUNDATION AND STRATA POLICY ON THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT FOR MODEL YEAR 2022-2025 CORPORATE AVERAGE FUEL ECONOMY STANDARDS, *available at* Regulations.gov, Docket ID No. NHTSA-2017-0069-0147.
[229] *Id.*
[230] Letter from Professor Cinzia Cirillo (Oct. 18, 2018); Letter from Professor Kenneth Small (Sept. 14, 2018).

We support NHTSA's assessment of which studies, and which specific findings within those studies, that it chose as valid to make its determination to use 20% as the correct rebound effect due to fuel economy improvement. For instance, NHTSA in the Proposed Rule showed necessary sophistication in assessing the Hymel and Small 2015 by identifying a need to reduce its reliance on the Hymel and Small 2015 study for wholly separate reasons.[231] For instance, the Agencies showed necessary sophistication in assessing the Hymel and Small 2015 by identifying a need to reduce its reliance on the Hymel and Small 2015 study for wholly separate reasons.[232] The Agencies also demonstrated a full understanding of the various analyses undertaken by and within the various papers it studied by separating fuel price from fuel economy analyses.[233] All these are evidence to us that the Agencies did in fact undertake a fulsome, detailed, nuanced, sophisticated, and knowledgeable review of fuel economy rebound studies and that did in fact arrive at a reasonable and defensible rebound value of 20% to use in the Proposed Rule.

[231] 83 Fed. Reg. at 43,105 ("Further, the issues with state-level measures of vehicle use, fuel consumption, and fuel economy identified previously raise some doubt about the reliability of these studies' estimates of the rebound effect").

[232] 83 Fed. Reg. at 43, 105 ("These authors' results indicate that the decline in the fuel economy rebound effect with income reported in Small & Van Dender (2007) and subsequent research results entirely from a reduction in drivers' sensitivity to fuel prices as their incomes rise rather than from any effect of rising income on the sensitivity of vehicle use to fuel economy itself").

[233] 83 Fed. Reg. at 43,105 ("…the continued increases in income that were anticipated to produce a continued decline in the rebound effect have not materialized").

APPENDIX 9: High-Octane Fuel Blends

The Alliance has long supported two goals regarding the octane (anti-knock) properties of gasoline: 1) the availability of cost effective higher-octane fuels, greater than 95 Research Octane Number (RON) and 2) the immediate elimination of subgrade fuel less than 87 anti-knock index (AKI). Historically, when the first vehicle emissions standards and exhaust catalysts were introduced in the 1970s, unleaded fuels became essential and were made available. With a further reduction of vehicle emissions standards in the 1980s and the introduction of Tier 1 standards in the 1990s, simple and complex models for reformulated gasoline were introduced. In the 2000s, with Tier 2 vehicle standards, lower sulfur standards for fuels were introduced to enable greater and necessary vehicle catalyst system efficiency and durability. Current light-duty fuel economy and GHG standards require very aggressive increases in volumetric fuel economy and decreases in GHG emissions. In light of these very challenging standards, it is essential that vehicles and their fuels be treated as a system. Fuels should continue to evolve to enable greater vehicle efficiency, lower emissions, and ultimately better consumer and societal value. The last time industry considered octane rating in market fuel was half a century ago, and it has been steady since then. The time has come to address market fuel octane rating.

The United States, as a major developed country, should have a mandatory minimum gasoline octane rating in order to support higher engine efficiencies. Currently the United States is one of only a few major countries that lack a minimum market fuel octane rating requirement. The U.S.-based Alliance of Automobile Manufacturers, working with automakers worldwide, is a contributor to the Worldwide Fuel Charter. In 2013, the Fifth Edition of the Worldwide Fuel Charter outlined use of a minimum 95 RON for markets with advanced requirements for emission control and fuel efficiency. Many developed markets, including Europe, already have a mandatory 95 RON minimum.

Since the advent of the Cooperative Fuels Research engine in 1929, fuel knock resistance has been quantified in terms of RON and Motor Octane Number (MON). In the United States, fuel is marketed based on the AKI, defined as AKI = (RON + MON) / 2. In most other countries, fuel is marketed based on RON. Numerous studies indicate that RON is more relevant than MON or AKI for representing the octane requirement of modern engines.[234] For these reasons, the Alliance comments focus on RON and not AKI.

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[234] *See* Arjun Prakash et al., *Understanding the Octane Appetite of Modern Vehicles*, 9 SAE INT. J. FUELS LUBR. 345 (2016), *available at* http://papers.sae.org/2016-01-0834/; Bradley et al., *Relevance of Research and Motor Octane Numbers to the Prediction of Engine Autoignition* (Soc'y Auto. Eng'rs, Technical Paper No. 2004-01-1970), *available at* http://papers.sae.org/2004-01-1970; Kalghatgi, *Auto-Ignition Quality of Practical Fuels and Implications for Fuel Requirements of Future SI and HCCI Engines* (Soc'y Auto. Eng'rs, Technical Paper No. 2005-01-0239), *available at* http://papers.sae.org/2005-01-0239; Kalghatgi, *Fuel Anti-Knock Quality – Part II, Vehicle Studies: How Relevant is Motor Octane Number (MON) in Modern Engines?* (Soc'y Auto. Eng'rs, Technical Paper No. 2001-01-3585), *available at* http://papers.sae.org/2001-01-3585; Kalghatgi et al., *Octane Appetite Studies in Direct Injection Spark Ignition (DISI) Engines* (Soc'y Auto. Eng'rs, Technical Paper No. 2005-01-0244), *available at* http://papers.sae.org/2005-01-0244; Mittal & Heywood, *The Relevance of Fuel RON and MON to Knock Onset in Modern SI Engines* (Soc'y Auto. Eng'rs, Technical Paper No. 2008-01-2414), *available at* http://papers.sae.org/2008-01-2414; Mittal & Heywood, *The Shift in Relevance of Fuel RON and MON to Knock Onset in Modern SI Engines Over the Last 70 Years* (Soc'y Auto. Eng'rs, Technical Paper No. 2009-01-2622),

9.1. Support Higher Minimum Octane

The Alliance has long advocated for the availability of cost-effective, higher octane fuel. The Alliance also believes the Agencies should require a transition to a higher minimum-octane gasoline (minimum 95–98 RON). There are several ways to produce higher octane-grade gasoline, such as expanding the ethanol availability, but the Alliance does not promote any sole or particular pathway. The higher-octane fuel that is available today is sold as a premium grade. To support future engine technologies, the approach taken with today's premium fuel option would not be expected to provide an attractive value proposition to the customer; therefore, a new higher minimum-octane gasoline, 95–98 RON, is needed to achieve anticipated performance. In addition, the implementation of higher octane-rated gasoline in the marketplace would be a cost-effective means of immediately improving fuel economy for the existing light-duty vehicle fleet.

The widespread availability of higher octane-rated regular-grade gasoline (with increased knock resistance) is a key enabler for the next phase of advanced engines expected to dominate the fleet. Higher-octane gasoline enables opportunities for the use of key energy-efficient technologies, including higher compression-ratio engines, lighter and smaller engines, improved turbocharging, optimized engine combustion phasing and timing, and low-temperature combustion strategies (such as homogenous charge compression ignition (HCCI) engines). All of these technologies, when paired with higher-octane gasoline, permit smaller engines to meet the demands of the consumer while at the same time providing higher efficiencies; furthermore, depending on its composition, high-octane fuel is "backwards compatible" with existing vehicles. Figure 9.1 shows the relative efficiency gain enabled by higher octane-rated fuel for various air intake and fuel injection technologies. Fuel octane ratings of 95–98 RON can provide 2–6% relative efficiency gain via an increased compression ratio.

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available at http://papers.sae.org/2009-01-2622; Orlebar et al., *The Effects of Octane, Sensitivity and K on the Performance and Fuel Economy of a Direct Injection Spark Ignition Vehicle* (Soc'y Auto. Eng'rs, Technical Paper No. 2014-01-1216), *available at* http://papers.sae.org/2014-01-1216; Coordinating Research Council, *Fuel Antiknock Quality: Engine Response to Ron versus MON* (Report No. 660) (2011).

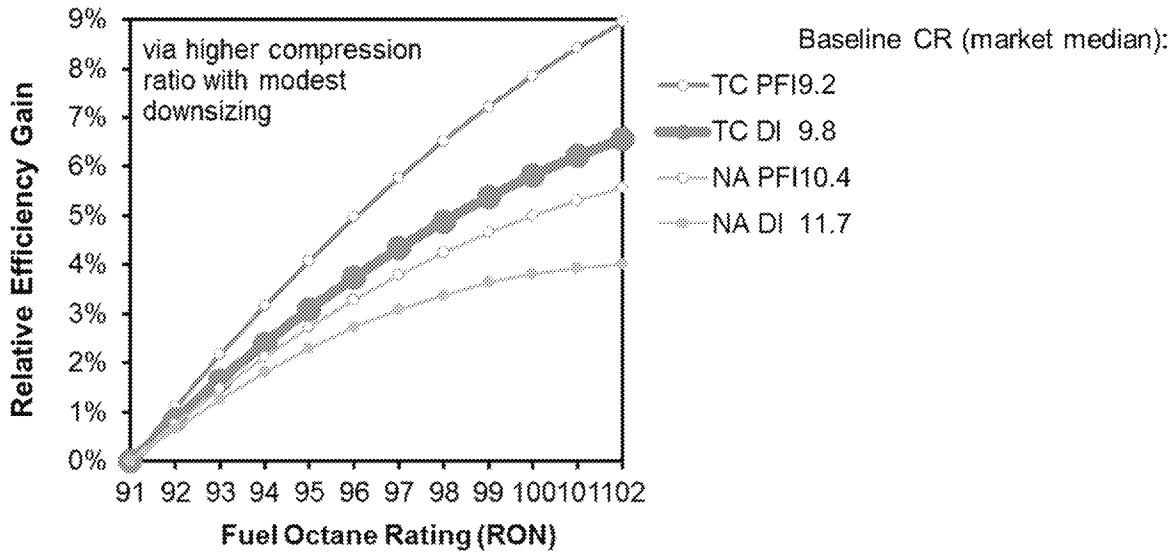

Figure 9.1: Higher fuel octane rating (RON) → Raise compression ratio (CR) → Improve engine efficiency.[235]

While Figure 9.1 shows the engine efficiency benefits of higher octane-rated fuels with higher compression ratio engines, optimal market fuel octane levels should be determined based on a "well-to-wheels" (WTW) analysis. WTW analysis accounts for both the benefits of a higher compression ratio and the slightly higher refinery CO_2 emissions and cost of higher-octane fuels. Several studies show that a transition to higher-octane gasoline in the United States, with light-duty vehicles optimized for the fuel, would yield significant net reductions in overall GHG emissions, including both vehicle and refinery emissions.

A recent WTW study performed by the Massachusetts Institute of Technology (MIT) modeled a vehicle fleet transition from regular to higher-octane gasoline.[236] The study factored in a policy decision period of about three years in order to put in place a revised octane rating system, and an additional three to five years for manufacturers to redesign engines to meet the new standards. The researchers estimated the environmental and economic impacts of such a scenario by running simulations of the oil-refining process and vehicle performance, and performing a life-cycle analysis of the resulting carbon dioxide emissions. The MIT team found that vehicles running on higher-octane fuel would be more efficient, consuming 3–4.5% less gasoline, for a projected savings of up to $6.4 billion per year by 2040. Based on its oil refinery modeling, the group found that producing higher-octane fuel would increase an oil refinery's emissions by 6%—an increase that is minor when compared with the balance of emissions from fuel production and combustion. When assessing the emissions produced by everything from extracting crude oil, to transporting it to refining it, to burning it in car engines, the study estimated that a higher-octane fuel supply would reduce overall CO_2 emissions by 35 million tons per year—a decrease that stems mostly from implementing more efficient engines. Overall, switching to higher-octane fuel (around 98

[235] Thomas G. Leone et al., *The Effect of Compression Ratio, Fuel Octane Rating, and Ethanol Content on Spark-Ignition Engine Efficiency*, 49 ENVT'L SCI. & TECH. 10,778 (2015), *available at* https://pubs.acs.org/doi/10.1021/acs.est.5b01420.

[236] Raymond L. Speth et al., *Economic and Environmental Benefits of Higher-Octane Gasoline*, 48 ENVT'L SCI. & TECH. 6561 (2014), *available at* https://pubs.acs.org/doi/10.1021/es405557p.

RON for regular-grade gasoline) decreased CO_2 emissions by 3–4%, all at a negative cost (i.e., et savings"). The study concluded that increasing the minimum octane level in the fuel is one of the few things society can do to decrease CO_2 emissions while saving money at the same time.

In another paper, Hirshfeld and his co-authors analyzed the refining economics, crude oil use, CO_2 emissions, and gasoline pool properties of raising the average octane of the U.S. gasoline pool by increasing the octane rating of refinery-produced hydrocarbon blendstocks for oxygenate blending and/or the ethanol content of the finished gasoline.[237] The study utilized refinery linear programming modeling to estimate the effects on the U.S. refining sector of producing a single future national gasoline. The study found a transition to higher-octane (95 RON, E10) gasoline was technically feasible without considerable increases for refineries in cost, CO_2 emissions, or petroleum consumption. The study also found that higher ethanol gasoline blends (E20 or E30) could provide a pathway for even higher-octane gasoline (e.g., 98 RON). The authors also noted that for vehicle manufacturers to optimize engine designs to realize the efficiency and performance benefits enabled by higher-octane fuels, these fuels would have to be readily available nationwide and competitively priced. They also state that a transition to higher-octane fuels would require concerted actions by multiple stakeholders, and that such transitions have been accomplished in the past (such as the transition to unleaded gasoline).

9.2. Eliminate Sub-Grade Octane Retail Gasoline

Low-octane fuels are a barrier to the introduction of more fuel-efficient engines, and so the Alliance has long urged national abolition of "sub-grade" octane retail gasoline (less than 87 AKI), which is still prevalent in the Rocky Mountain region and border states. Low-octane fuel in mountainous states was originally justified based on the knock performance of carbureted engines that ran richer at altitude. All modern automotive engines deploy feedback control of the air-fuel ratio, and require the same fuel octane regardless of altitude. Ongoing availability of sub-grade octane gasoline constrains automakers' abilities to implement efficient new technologies because these technologies cannot accommodate sub-grade fuels while optimizing performance. As ASTM D4814-18 points out,

> New vehicles have sensors to measure and engine management computers which take into account such conditions as air charge temperature and barometric pressure. These vehicles are designed to have the same antiknock requirement at all altitudes and a reduced sensitivity to changes in ambient temperature. This more sophisticated control technology began to be used extensively in 1984.[238]

Pre-1984 vehicles are no longer common on the road, and the fuel applicable only to those vehicles must be removed from the market.

EPA recognizes the importance of octane, as demonstrated by the close control of the AKI ((RON + MON) / 2) in Tier 3 certification fuel. The 87–88.4 range allowed by the specification is as

[237] David S. Hirshfeld et al., *Refining Economics of U.S. Gasoline: Octane Ratings and Ethanol Content*, 48 ENVT'L SCI. & TECH. 11,064 (2014), *available at* https://pubs.acs.org/doi/10.1021/es5021668.
[238] ASTM INTERNATIONAL, NO. D4814-14, STANDARD SPECIFICATION FOR AUTOMOTIVE SPARK-IGNITION ENGINE FUEL, *available at* https://www.astm.org/DATABASE.CART/HISTORICAL/D4814-18.htm.

narrow as the test methods will allow. EPA should mandate that market fuels introduced into vehicles certified on Tier 3 test fuel must have a minimum of 87 AKI, consistent with EPA's Tier 3 standards. Eliminating less than 87 AKI gasoline from the marketplace will remove a critical barrier to implementation of more efficient engine systems.

9.3. The Clean Air Act Allows for Regulation of Fuels to Prevent GHG Emissions

Under current law, the Clean Air Act provides statutory authority for EPA to regulate GHGs, which can "cause, or contribute to, air pollution which may reasonably be anticipated to endanger the public health or welfare."[239] Section 211 of the Clean Air Act provides EPA with the authority to regulate motor vehicle fuels in furtherance of the Act's goals. Specifically, Section 211(c) authorizes EPA to set new national fuel standards, including octane rating, under the following circumstances:

> [I]f, in the judgment of the Administrator, any fuel or fuel additive or any emission product of such fuel or fuel additive causes, or contributes, to air pollution . . . that may reasonably be anticipated to endanger the public health or welfare, or . . .if emission products of such fuel or fuel additive will impair to a significant degree the performance of any emission control device or system which is in general use, or which the Administrator finds has been developed to a point where in a reasonable time it would be in general use were such regulation to be promulgated.[240]

It is important to note that the addition of GHGs to the list of Clean Air Act "pollutants" is changing how one thinks of emissions control. For purposes of considering EPA's authority under Section 211(c)(1)(B), it is important to realize that the phrase "any emission control device or system" must be understood more broadly than it once was. With this recognition, it is easy to see that a new, more efficient engine offers emission control benefits. However, low-octane fuel acts as a barrier to these efficiency benefits. EPA has the authority and must stand firmly on the side of removing these barriers and providing manufacturers with a full menu of options for striving to meet the future GHG standards.

In light of increasing fuel economy and GHG requirements, it continues to be essential for vehicles and the fuels on which they operate to be treated as a system and developed in tandem. Prospective fuels should enable greater vehicle efficiency and lower emissions, optimize the consumer experience, and fulfill societal values. Technology is in place to produce advanced engines; however, without a promulgated higher-octane fuel standard, the advanced engines cannot optimize their potential operational efficiency. It is now timely for EPA to undertake an accelerated process to implement and synchronize the market introduction of a higher minimum-octane fuel that will enable the benefits of advanced technologies and support manufacturer investment. EPA has the authority to regulate national commercial gasoline octane specifications

[239] *Massachusetts v. EPA*, 549 U.S. 497 (2007); 42 U.S.C. § 7521(a)(1).
[240] 42 U.S.C. § 7545(c)(1).

under the Clean Air Act. EPA should initiate a fast-track process to assure higher-octane gasoline that meets the market and timing needs of new vehicle technology for the U.S. commercial supply.

APPENDIX 10 REGARDING INTERNATIONAL STANDARDS

Policymakers and other stakeholders often compare numeric targets from different regulatory structures around the world and use those values to assess and assert some degree of regulatory stringency. This type of comparison, while well-intentioned, is flawed for two fundamental reasons.

First, there are other regulatory differences between the regulatory structures of the United States and of other nations that influence numeric performance, such as the focus of vehicle regulations and the test methodologies required.

Second, and maybe more importantly, in order to accurately assess regulatory stringency, one must examine not just the regulatory framework but also the market differences between the regions. For example, if a government put in place market signals that encourage a specific consumer action (e.g., buying smaller vehicles), that nation would have higher fuel economy levels than another that did not have those same market signals, regardless of regulatory structure. While manufacturers have some influence on consumers, U.S. consumers demand a wide range of product offerings, and their ultimate purchase decisions balance many of their own vehicle needs and wants.

A common criticism of fuel economy standards in the United States is that they appear to be less stringent than those in other regions, such as Europe or China. The Alliance comments below on a variety of factors that often get minimized, or outright ignored, when making comparisons of fuel economy standards between countries. These factors include prioritization of criteria-based versus GHG emissions standards; vehicle mass-based versus footprint-based fuel economy targets; differences in drive cycles and testing requirements; and the market signals that differ by region and work to encourage fuel-efficient vehicle purchases.[241]

10.1. Regulatory Frameworks

When looking at both criteria and fuel economy/GHG regulations, the United States has historically prioritized lower criteria emissions, while Europe has prioritized lower GHG emissions. Comparing the current U.S. Tier 3 standard against Euro 6 illustrates this point. In the United States, the standard for NMOG + NO_x requirement for 2018 is 0.079 g/mi for light-duty vehicles and light light-duty trucks regardless of fuel type; in Europe, the standard is 0.209 g/mi for gasoline engine M1 category vehicles, and a more relaxed requirement of 0.274 g/mi for diesel engine M1 category vehicles. Recalling the understood trade-off between CO_2 and NO_x emissions, the more relaxed criteria emission regulations in Europe have allowed powertrain development and, more importantly, calibration strategies to further optimize fuel economy than is allowed for vehicles certified to U.S. Tier 3 emissions standards. Many European vehicles cannot be homologated for sale in the United States because they will not meet these more stringent criteria emission standards. In Europe, these higher NO_x requirements have allowed for higher light-duty diesel penetrations, which further helps lower GHG emissions, whereas the

[241] In its examination of these market signals, the Alliance is not advocating for additional consumer taxes; instead, we aim simply to highlight that different regulatory and market signals make a numerical comparison of only the regulatory targets myopic and flawed.

United States requires both diesel and gasoline engines to meet the same fleet average requirements.

The regulatory metric used to calculate fuel economy and GHG emission targets also varies by country and region. The United States uses a footprint-based standard, whereas Europe uses a mass-based standard. Other parts of the world follow one of these two formats. Canada, Mexico, and the Gulf Cooperation Council nations in the Middle East follow the U.S. footprint-based standards; China, Brazil, and South Korea follow mass-based standards. A footprint-based standard does not force the size of the vehicle to shrink to meet increasing fuel economy targets but instead encourages manufacturers to reduce the mass of a given-size vehicle, which helps to keep the size of vehicles aligned with the buying preferences of U.S. consumers. On the other hand, a mass-based system does not reward mass reduction comparably, so manufacturers often focus more on other vehicle attributes or technologies that attain a higher reward. For example, smaller vehicles with less frontal area would have lower vehicle demand energy due to aerodynamic drag. This aligns well with consumer preferences in Europe for smaller vehicles that fit their narrower streets.

Countries also use different drive cycle baselines to measure fuel economy. The United States uses the FTP-75 and HFET cycles, while Europe uses the quasi-steady state NEDC cycle and is currently transitioning to a more FTP-75-like cycle in the WLTP. Japan at first used the 10-15 Mode cycle, which was similar to the NEDC, before transitioning to the JC08 cycle, and will move to the WLTP on the future. China has adopted the NEDC. Brazil uniquely uses the U.S. test cycles but sets a mass-based standard instead of a footprint-based standard. South Korea, most distinctly, uses a mass-based standard for all light-duty vehicles but has a split testing program: gasoline-fueled light-duty vehicles are held to CARB emissions standards and tested over the U.S. drive cycles, while diesel light-duty vehicles are held to Euro 6 standards and tested over the NEDC cycle. There are many different testing procedures interwoven to develop standards based on either vehicle footprint or mass, all of which affect the vehicle demand energy requirements to which the vehicles are designed and against which they are tested.

Finally, vehicle weight classifications are different as well. The light-duty vehicle fuel economy and GHG regulations in the United States cover vehicles up to 8,500 pounds (3,856 kilograms) gross vehicle weight rating (GVWR). In Europe, the maximum weights for a light-duty vehicle is 3,500 kilograms, and in China it is only 2,500 kilograms. These lower weight thresholds remove some of the larger vehicles that are part of the light-duty fleet in the United States, and put them into categories, such as light commercial vehicles, that are covered by different regulatory programs. Removing the heaviest vehicles from a compliance fleet will increase the level of stringency that the fleet is able to achieve, but will do nothing to improve the fuel economy and GHG emission footprint of the total on-road vehicle fleet.[242] Therefore, comparisons with fuel economy and GHG emission targets for fleets in these regions are difficult to make because the

[242] In introducing this discussion, the Alliance is not asking for any changes to the 8,500-pound weight limit for light-duty vehicles, but merely highlighting differences in how light-duty vehicles are defined in other parts of the world.

vehicle fleets are regulated such that there are different vehicle mixes, regardless of consumer choice.

10.2. Market Signals

Governments across the world use tax policy to send market signals that align with their fuel economy regulatory policies, which then cause consumer to place greater emphasis on fuel economy over other vehicle attributes. However, these sorts of market signals are largely absent in the United States. These tax policy tools often take one of two forms: 1) fuel excise taxes, or 2) one-time purchase or annually recurring taxes based on fuel economy or GHG emissions, engine displacement, or engine power.

The Alliance undertook an analysis to compare the impact of tax policies used in multiple countries as incentives to encourage consumer acceptance of highly fuel-efficient vehicles. Conditions in the United States were compared with those in Germany, France, Italy, Sweden, the United Kingdom, China, and Mexico. These countries were chosen because they are large markets with significant domestic automotive production. Mexico is the exception; it was chosen because it has similar fuel economy regulatory policy to that of the United States, but has a median annual income (MAI) that is approximately one-quarter of that of the United States. Analyzing the effects of tax policies as market signals is much more meaningful when normalized by each country's MAI to represent the financial impact to the 50th percentile consumer in each country.

10.2.1. *Fuel Excise Taxes*

A direct challenge to fuel economy and GHG emission regulation is the fact that U.S. consumers enjoy some of the lowest fuel prices in the world, due in part to some of the lowest fuel tax rates in the world. Figure 10.1 shows the average tax on a per-gallon basis for gasoline, converted to U.S. dollars, for the target countries. The U.S. tax is $0.47 per gallon, which reflects the national average of the $0.184 federal tax plus individual state taxes. The gasoline tax in Mexico is nearly double this, at $1.14 per gallon. China is $1.30 per gallon, while the five European countries are significantly higher.

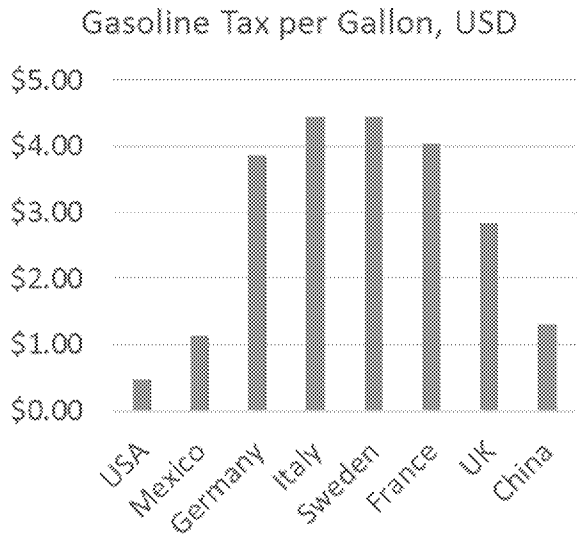

Figure 10.1: Gasoline tax per gallon in U.S. dollars by target country.[243]

Using this information, annual vehicle miles traveled (VMT) was then used to determine the financial impact of the fuel taxes in each country. Figure 10.2 shows the VMT values for each country. VMT was the highest in the United States, at 13,476 miles annually per vehicle. Mexico was the lowest, at 3,212 miles. Sweden, France, the United Kingdom, and China were all above 10,000 miles, while Germany was slightly above 8,000 miles, and Italy near 6,000 miles annually per vehicle. In the United States, the high VMT values and corresponding larger amounts of time spent in vehicles causes U.S. consumers to place higher value on large, comfortable vehicles over smaller, less-comfortable vehicles.

[243] *Frequently Asked Questions: How Much Tax Do We Pay on a Gallon of Gasoline and a Gallon of Diesel Fuel?*, U.S. ENERGY INFORMATION ADMINISTRATION, https://www.eia.gov/tools/faqs/faq.php?id=10&t=10 (last updated Sept. 7, 2018) (United States); EUROPEAN AUTOMOBILE MANUFACTURERS ASSOCIATION, 2018 ACEA TAX GUIDE 99, 106, 146, 231, 243 *available at* https://www.acea.be/uploads/news_documents/ACEA_Tax_Guide_2018.pdf (France, Germany, Italy, Sweden, United Kingdom); GlobalPetroPrices.com, https://www.globalpetrolprices.com/ (China); Ernst & Young, Indirect Taxes and Customs Implications for Downstream in Mexico (Mar. 27, 2017), *available at* https://www.api.org/~/media/Files/Policy/17-March-Customs-Conference/Indirect-Taxes-Customs-implications-for-downstream-Mexico.pdf.

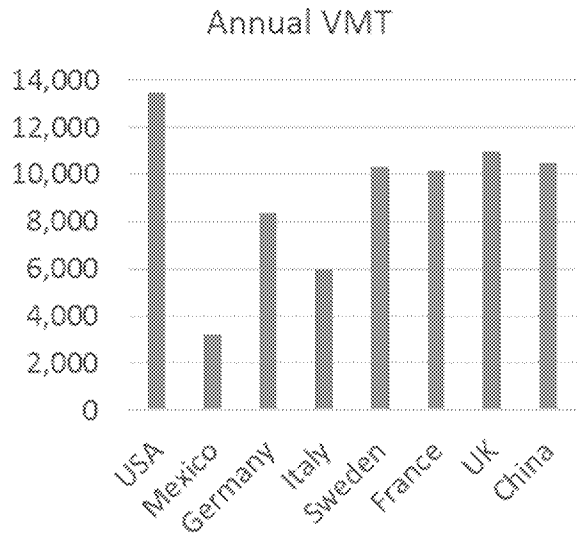

Figure 10.2: Annual VMT by target country.[244]

To assess the impact of these fuel taxes, four different light-duty vehicles were examined. These included a full-size pick-up truck with a V8 engine (17 MPG combined), a large SUV with a V6 engine (21 MPG combined), a mid-size SUV with a large I4 engine (25 MPG combined), and a compact car with a small I4 engine (29 MPG combined). These vehicles represent four different segments of the U.S. light-duty vehicle market and each have distinctively different engine displacements, engine power output, and vehicle fuel efficiency. Figure 10.3 shows the result of applying the fuel taxes in Figure 10.1 to the VMT from Figure 10.2 for each of these four vehicles. To normalize between the different drive cycles, U.S. label fuel economy was used for the comparison. Obviously, the more fuel-efficient vehicles incurred a lower tax burden, while less fuel-efficient vehicles incurred a higher tax burden. The spread in the United States between the compact car ($218.50) and the pick-up ($372.23) is only $154.23. Annualized over a year, this amount is insignificant compared to the additional utility and capability a full-size pick-up truck offers over a compact car to most consumer. However, in a country like Sweden, the gap is well over $1,000.

[244] *OHPI: Average Annual Miles per Driver by Age Group*, U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, https://www.fhwa.dot.gov/ohim/onh00/bar8.htm (last updated Mar. 29, 2018) (United States); *Vehicle Travel by Selected Country (Metric)*, U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (Apr. 2010), https://www.fhwa.dot.gov/policyinformation/statistics/2008/pdf/in5.pdf (Mexico); *Sectoral Profile – Transport,* ODYSSEE-MURE, http://www.odyssee-mure.eu/publications/efficiency-by-sector/transport/distance-travelled-by-car.html (last visited Oct. 4, 2018) (Italy); *OHPI: Annual Automobile Vehicle Miles of Travel (VMT) per Capita and Number of Automobiles per Capita 1997*, U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, https://www.fhwa.dot.gov/ohim/onh00/bar4.htm (last updated Mar. 29, 2018), scaled to 2009 using trends from INTERNATIONAL TRANSPORT FORUM, PEAK TRAVEL, PEAK CAR AND THE FUTURE OF MOBILITY: EVIDENCE, UNRESOLVED ISSUES, POLICY IMPLICATIONS, AND A RESEARCH AGENDA (Oct. 2012), *available at* https://www.itf-oecd.org/sites/default/files/docs/dp201213.pdf (Germany, Sweden, United Kingdom, and France); Hong Huo et al., *Vehicle-Use Intensity in China: Current Status and Future Trend*, 43 ENERGY POL'Y 6-16 (2012) (China).

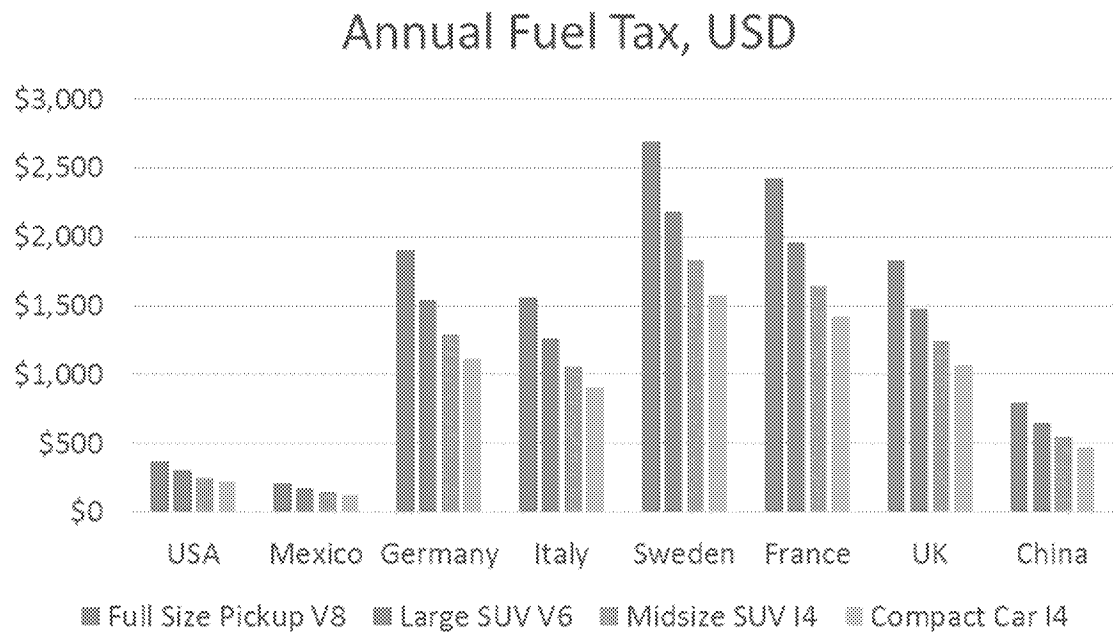

Figure 10.3: Annual fuel tax amount in U.S. dollars.

10.2.2. *Taxes Based on Fuel Economy, Engine Displacement, or Engine Power*

One-time or annual taxes based on fuel economy, engine displacement, or engine power are another set of policy tools used in other countries to incentivize consumer preferences for vehicles with higher fuel economy. Figure 10.4 shows the magnitude of these taxes for the four vehicles. Germany has an annual vehicle registration tax based on both engine displacement and fuel economy (g CO_2/km). Italy has an annual tax proportional to engine power above 53 kW. Sweden has a two-tiered annual tax based on fuel economy, with one rate for vehicles that emit 95–140 g CO_2 per kilometer and a higher rate for vehicles above 140 g CO_2 per kilometer. France has an annual tax on high-powered vehicles that uses a formula based on both engine power and CO2 emissions. That tax impacts on the pick-up truck in this analysis, but to a very substantial degree. France also has a bonus-malus program where the malus payment is made only at the time of purchase; that program impacts all the vehicles except the compact car. China has two different tax programs based on engine displacement that are incurred at the time of vehicle purchase. The costs shown in Figure 12.4 are amortized over five years of ownership, providing a better comparison to the other countries that have annual fuel economy-based taxes. Even with this amortization, costs in China exceed $11,000 for the pick-up and are nearly $5,000 for the large SUV. Generic sales taxes not tied to fuel economy or GHG performance are not included in this analysis, nor are value-added taxes on the vehicle purchase, which commonly exceed 20%.

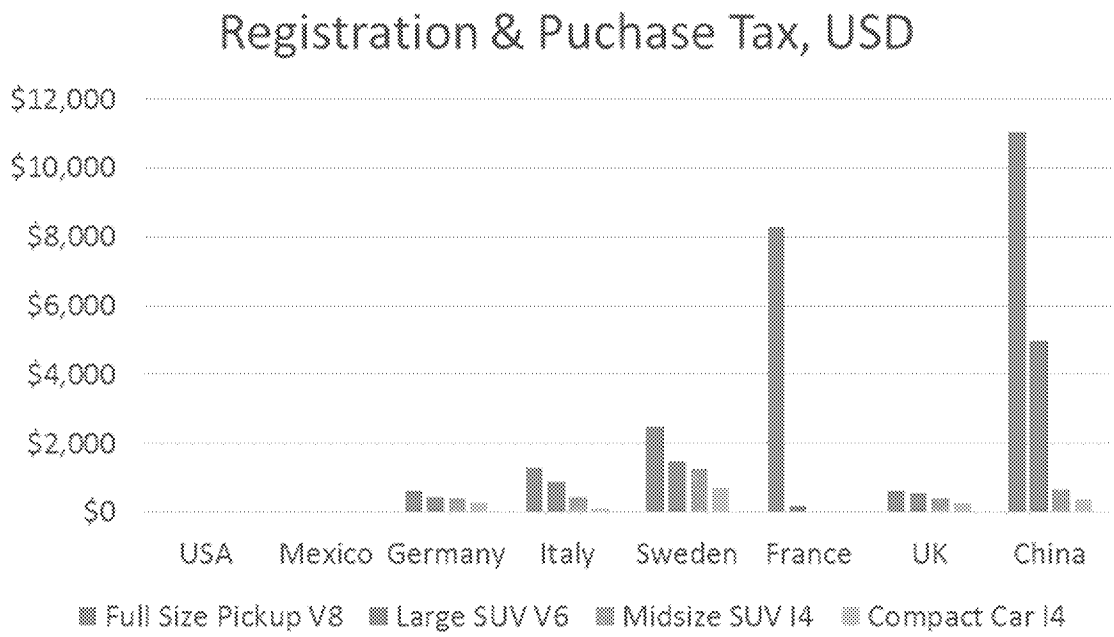

Figure 10.4: Registration and purchase-based fuel economy taxes in U.S. dollars.

Comparing the sum of fuel taxes and registration or purchase-based fuel economy or GHG taxes shows the strong market signals used by other governments to incentivize fuel-efficient vehicle purchases. Figure 10.5 shows the combined magnitude of these two policy tools. The magnitude of the annual cost increases caused by these policies are substantially higher for the European countries and China. Reviewing from the most fuel-efficient vehicle to the least, the increase can be fairly linear from the compact car to the mid-size SUV and then the large SUV, and there is an even larger increase shifting to the pick-up in Sweden and France. A similar large increase occurs in China when shifting from the mid-size SUV to the large SUV.

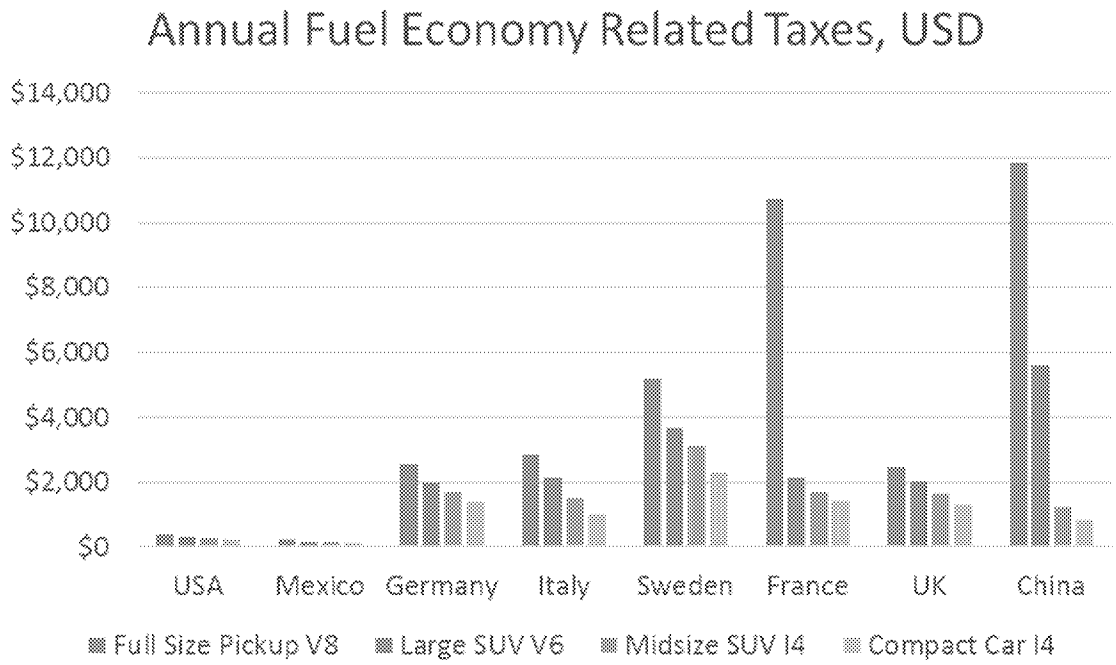

Figure 10.5: Annual fuel economy-related taxes in U.S. dollars.

Viewing these results purely in terms of the costs can be a bit misleading because of economic disparity between the countries. Instead, framing the results as a percentage of MAI is a good method to normalize them and show the true cost pressures that these policies put on consumers. Figure 10.6 shows the same tax levels presented in Figure 10.5 divided by each country's MAI. The values for the United States are barely visible in the top chart, and so Figure 12.6 zooms in to make them clearer. The costliest vehicles are the pick-up and the large SUV in China, at 192% and 91%, respectively, of MAI. A consumer in China earning the median wage would need to spend 1.9 times their annual salary just to pay the annual cost of fuel economy-related taxes. In Italy, Sweden, and France, some vehicles exceed 10% of MAI. Again, the costs discussed are only those related to fuel economy—they do not consider vehicle purchase price, non-tax fuel costs, insurance, or other vehicle-related costs. Through these financial policy tools, many of the vehicles that are popular with consumers in the United States are financially disincentivized to the point that they are not economically feasible to own and operate in other countries.

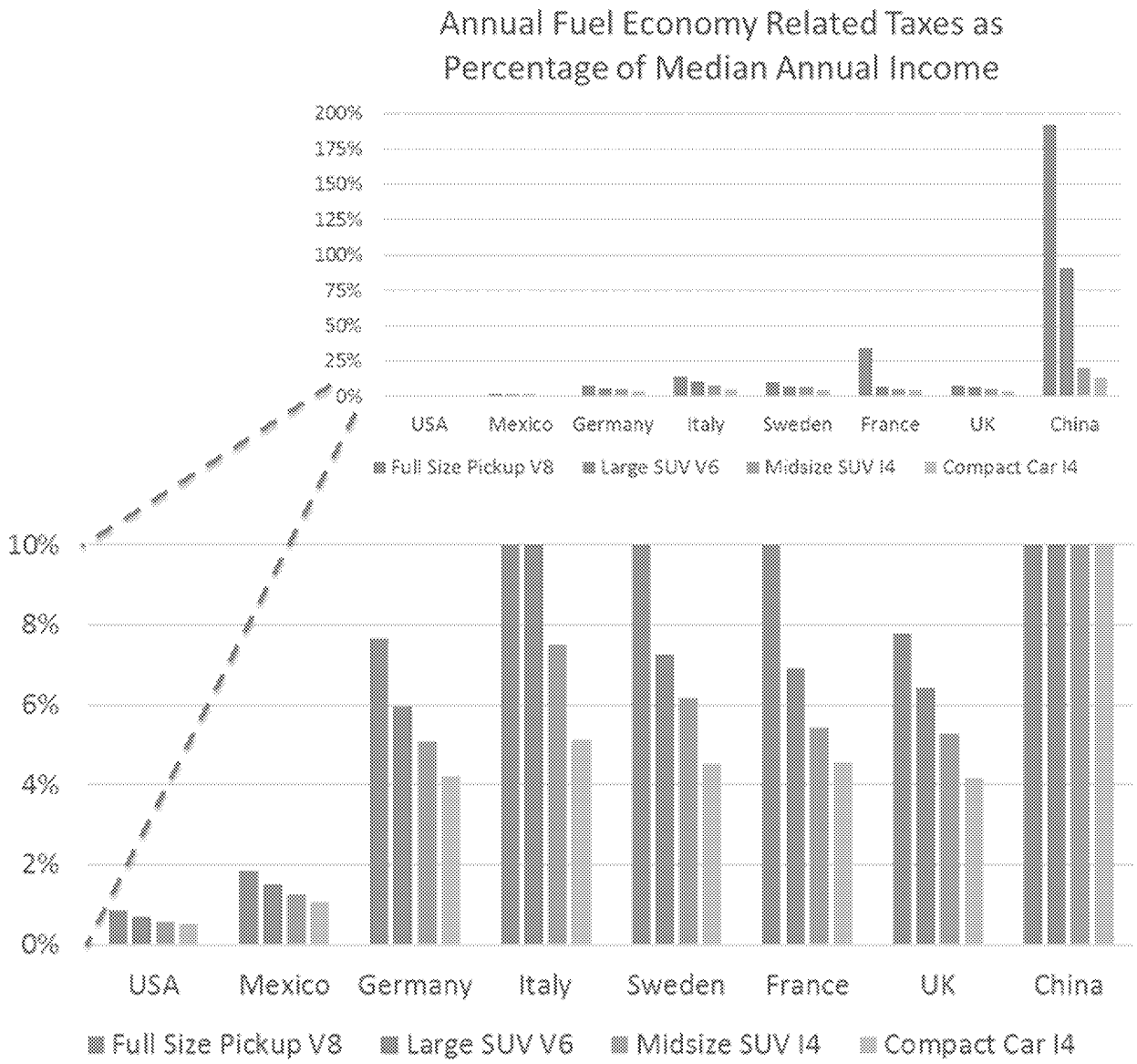

Figure 10.6: Annual fuel economy-related taxes in U.S. dollars, normalized by MAI.[245]

Finally, the best way to view the MAI-normalized data at a macroeconomic level is to further normalize the exemplar countries against the United States. Figure 10.7 shows this with the United States as a baseline. Because of the great disparity between countries, this data must be displayed on a logarithmic scale, and thus the 100% level for the United States is represented by columns of zero height. The analysis shows that the United States, Mexico, Germany, Sweden, the United Kingdom, and to a lesser extent Italy, in fact tax fuel economy fairly evenly, with neither overly progressive nor regressive schemes. The big difference between these five is the magnitude of the nearly flat rate tax placed upon fuel economy across all vehicles. Mexico has twice the tax-based incentive to choose vehicles with high fuel economy as compared with the United States, and the

[245] *Worldwide, Median Household Income About $10,000,* GALLUP (Dec. 16, 2013), https://news.gallup.com/poll/166211/worldwide-median-household-income-000.aspx.

incentives in Germany and the United Kingdom are nearly eight times as high. Policies in Italy and Sweden lead to incentives nine to sixteen times those in the United States. In France, the incentive is on par with Germany's, Sweden's, and the United Kingdom's for the compact car and SUVs, but spikes to nearly forty times higher for the pick-up than is the case in the United States. In China, the incentive is 27 to 34 times that of the United States for the compact car and mid-size SUV, respectively, but is 131 times as high for the large SUV, and 224 times as high for the pick-up truck.

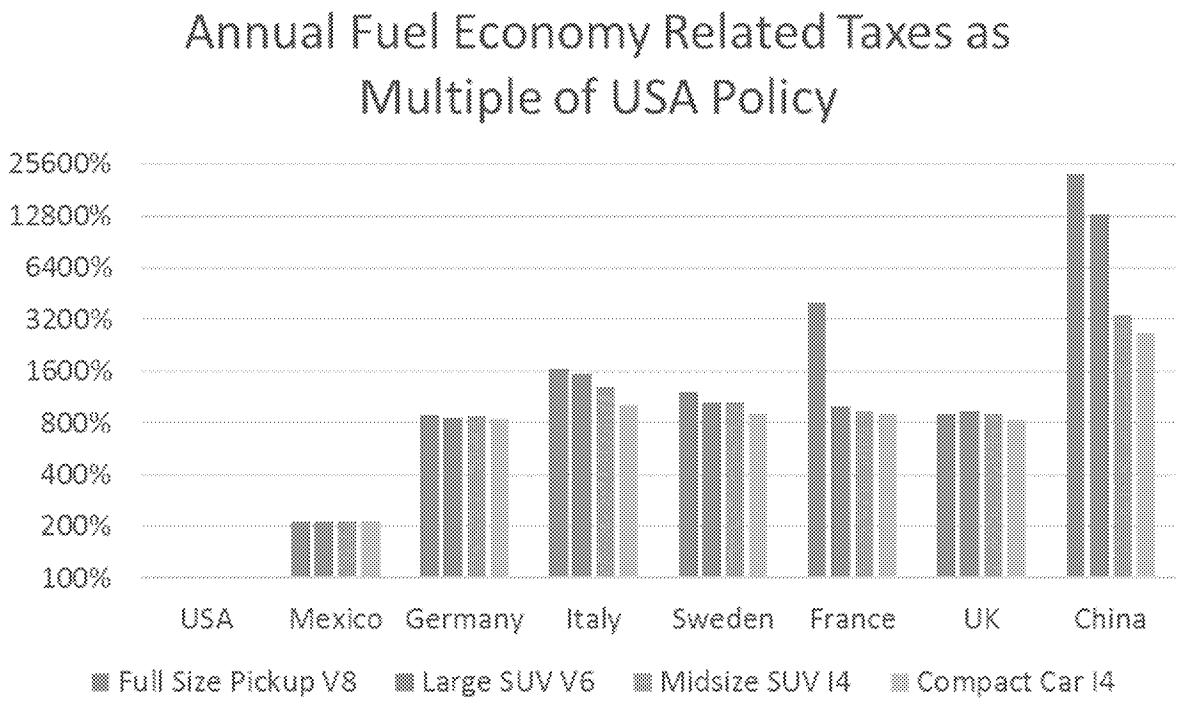

Figure 10.7: Fuel economy-related taxes in U.S. dollars, normalized by MAI and relative to the United States.

This analysis clearly shows why it is inappropriate to compare numerical fuel economy and GHG regulatory targets between countries. The United States is a roughly 17 million-unit market with its own unique regulatory, economic, and market differences that make drawing any conclusions based on such a comparison highly misleading. The Alliance is not advocating for tax-based market signals to accompany regulations in the United States, but they are used as implementation tools in other regions to align consumer demand with regulations.

APPENDIX 11 LEGAL ISSUES

11.1. NHTSA Has the Legal Authority and Sufficient Evidence to Set New and Different CAFE Standards for MY 2021–2026

As described in the Proposed Rule, NHTSA proposes to revise the CAFE standards for MY 2021 to the same level as the current MY 2020 standards, and to set the new standards for MYs 2022–2026 at that same level as well.[246] The Proposed Rule also considers a wide range of alternative proposals, including seven other possible alternative fuel economy levels for the CAFE standards for MY 2021–2026.[247]

The Alliance believes that fuel economy and GHG emissions from new automobiles should be regulated through a unified federal and state framework that not only promotes energy conservation and protects the environment, but also ensures coordinated and consistent standards across all jurisdictions within the United States. The Alliance agrees with NHTSA that the current MY 2021 CAFE standards, and the augural standards that NHTSA announced in 2012 for MY 2022–2025, exceed the maximum feasible average fuel economy standards for those model years. The Alliance believes that it would be appropriate to set the CAFE standards for MY 2021–2026 that provide for continuing increases in fuel economy performance at a manageable rate.[248] In light of the discretion that Congress has given NHTSA to balance the relevant factors in determining the appropriate level at which to set CAFE standards, and the extensive factual record supporting the standards that NHTSA has proposed, the Alliance believes that the agency has the legal authority and sufficient evidence to set standards at the level that it determines to be the maximum feasible, including the levels set forth in its proposed options.

11.1.1. *NHTSA Has Strong Grounds for its Decision to Revise the MY 2021 Standards and Not Adopt the Augural MY 2022–2025 Standards*

To begin with, the Alliance strongly agrees with NHTSA's view that the MY 2021 standards and augural MY 2022–2025 standards that the agency announced in 2012 are no longer feasible. The evidence demonstrates that many of the projections and assumptions on which those standards were based are outdated and do not realistically reflect existing circumstances. Although those standards may be technologically possible for an individual vehicle, applying the standards to the entire automobile fleet would eliminate consumer choice and distort the automobile market in ways that make them not economically practicable, and may have safety implications. NHTSA is therefore correct to indicate that those standards are no longer feasible under EPCA and so cannot be used as the CAFE standards for MY 2021–2025.

Under the Energy Policy and Conservation Act of 1975 ("EPCA"), as amended by the Energy Independence and Security Act of 2007 ("EISA"), NHTSA is required to set CAFE standards for passenger cars and light trucks for each model year.[249] The statute directs NHTSA to set those

[246] *See* 83 Fed. Reg. at 42,988.
[247] *See id.* at 42,990 tbl.I-4 (summarizing regulatory alternatives under consideration).
[248] As stated in our main comments, while we do not believe any of the specific alternatives proposed in the Proposed Rule are optimal, we envision that a workable set of standards could incorporate annual increases in stringency falling somewhere between the overall improvement rates of Alternative 8 and Alternative 1, along with the inclusion of appropriate flexibilities.
[249] 49 U.S.C. § 32902(a)-(b).

standards based on "the maximum feasible average fuel economy level that [NHTSA] decides the manufacturers can achieve in that model year."[250] If conditions change, NHTSA may also amend existing standards to set them at the maximum feasible level in light of those changed conditions.[251] In determining the "maximum feasible average fuel economy level," NHTSA is required to consider "technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy."[252]

As the Proposed Rule notes, it is well established that NHTSA also has the authority to consider other relevant factors in determining the maximum feasible average fuel economy level.[253] For instance, NHTSA "has always taken passenger safety into account" in determining the maximum feasible fuel economy standard, and courts have repeatedly affirmed its discretion to do so.[254] NHTSA is also free to revise its assessment of the relevant factors and the weight that it places on each factor, as long as it "provide[s] a reasoned explanation for the change."[255]

Under that settled law, and in light of the economic and technological developments that have taken place since NHTSA set the MY 2021 and augural MY 2022–2025 standards in 2012, the reasons set out in the Proposed Rule fully support the agency's authority to conclude that those standards are no longer feasible.

11.1.1.1. NHTSA Has Fully Explained the Relevant Factual Developments

The factual foundations on which NHTSA relied in its 2012 rulemaking have drastically shifted since that time. As the Proposed Rule explains, although the technology options available to improve fuel economy have not changed dramatically, the optimistic predictions about the costs and effectiveness of many of those technologies have not come to pass.[256]

In addition, experience has demonstrated that consumers often prefer vehicles that take advantage of technological advances to improve attributes other than fuel economy, and the market as a whole has developed since 2012 to reflect those preferences.[257] As a result, it has become increasingly difficult to achieve additional improvements in fuel economy while also delivering the vehicle features that consumers desire and have come to expect.[258] Indeed, as the Proposed Rule notes, most manufacturers have shifted over the last several years to managing their CAFE compliance

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[250] *Id.* § 32902(a).
[251] *Id.* § 32902(g).
[252] *Id.* § 32902(f).
[253] 83 Fed. Reg. at 43,206.
[254] *Competitive Enterprise Inst. v. NHTSA* ("*CEI II*"), 956 F.2d 321, 322 (D.C. Cir. 1992); *see, e.g.*, *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1203-04 (9th Cir. 2008) (upholding NHTSA analysis of vehicle safety issues in connection with CAFE rulemaking).
[255] *Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2125 (2016); *see, e.g.*, *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009).
[256] 83 Fed. Reg. at 42,991.
[257] *Id.*; *see also* Appendix 4 on Consumer Acceptance.
[258] That problem is compounded by the inescapable problem of diminishing returns. As the base level of fuel economy improves, each incremental addition to that base level costs more and more and delivers less and less. 83 Fed. Reg. at 42,991-92.

obligations through use of credits, because consumers have chosen to buy vehicles that are not as fuel-efficient as the existing CAFE standards envisioned.[259]

As the Proposed Rule also explains, the shifts in the market have been amplified by the changes since 2012 in domestic fuel prices and the global oil market.[260] In setting the MY 2021 and augural MY 2022-2025 standards, NHTSA assumed that oil prices would rise significantly from 2012 on; in fact, fuel prices have been much lower than anticipated, and are expected to remain low.[261] Relatedly, NHTSA assumed in 2012 that the United States would continue to rely heavily on imported oil; instead, the United States is now expected to become a net petroleum exporter in the next decade.[262] These unforeseen developments have spurred corresponding changes in consumer preferences. Despite full information about the fuel economy benefits of different vehicles, consumers today are demonstrating a consistent preference for other vehicle attributes at the expense of fuel efficiency.[263]

11.1.1.2. NHTSA Has Fully Explained its Analytical Changes

In addition to (and largely in response to) those factual changes, NHTSA has also made analytical changes regarding its understanding of the relevant factors and how they should be balanced.[264] As described above, NHTSA has discretion to revise its approach to balancing the relevant factors in setting CAFE standards, as long as it acknowledges and adequately explains the change.[265] NHTSA has met that standard here, and fully justified its decision to revise the MY 2021 standards and not adopt the augural MY 2022–2025 standards.

First, NHTSA recognizes that it has made a significant change in its approach to weighing "the need of the United States to conserve energy,"[266] which is both one of the factors that NHTSA must consider in setting CAFE standards and also the primary purpose behind EPCA as a whole.[267] In its 2012 rulemaking, NHTSA placed heavy weight on that factor, reading it as a one-way ratchet that "always pushes the balancing toward greater stringency."[268] In the current Proposed Rule, by contrast, NHTSA takes a more flexible approach to that factor; while continuing to recognize that energy conservation is the "overarching purpose of EPCA," it explains that it "no longer view[s] the need of the U.S. to conserve energy as nearly infinite."[269] Instead, in keeping with the common understanding of the word "conserve," NHTSA proposes to determine that this factor is satisfied as long as its proposed standard "conserves" energy by avoiding "wasteful or destructive" energy consumption.[270]

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[259] 83 Fed. Reg. at 43,217; *see also* Appendix 2 on compliance matters, and at section 2.2 on credits in particular.
[260] 83 Fed. Reg. at 42,993.
[261] *Id.*; *compare* 77 Fed. Reg. at 62,715 (predicting gasoline fuel price of $3.63 per gallon in 2017), *with Annual Energy Outlook 2018*, U.S. Energy Information Administration, at 57 (actual gasoline fuel price of $2.53 in 2017).
[262] *Id.*
[263] *See* Appendix 4 at section 4.4 for information on fuel prices and their impact on consumer behavior.
[264] *See* 83 Fed. Reg. at 43,213 ("Not only do we believe that the facts before us have changed, but … the balancing of the EPCA factors and other considerations must also change.")
[265] *See Encino*, 136 U.S. at 2125.
[266] 49 U.S.C. § 32902(f).
[267] 83 Fed. Reg. at 43,213.
[268] 77 Fed. Reg. at 63,038-39.
[269] 83 Fed. Reg. at 43,213, 43,216.
[270] *Id.*

NHTSA has given a detailed explanation for this change in approach, relying not only on the statutory language but also on the substantial changes in the global oil market since EPCA was enacted (and even since 2012).[271] As the agency recounts, the "original intent for the CAFE program" was to avoid gasoline price shocks and supply shortages like those seen during the OPEC oil embargo in the early 1970s.[272] At the time EPCA was enacted, the United States was especially vulnerable to changes in the global oil supply, because it consumed nearly a third of all oil production worldwide and because it relied heavily on oil from a small number of foreign oil-producing states.[273] Today, by contrast, the United States consumes a much smaller share of the world's oil, and the number of suppliers in the market has grown.[274] Moreover, the United States has substantially increased its domestic oil production, and is close to becoming a net oil exporter.[275] The United States is thus far less vulnerable to sudden oil price shocks and supply shortages, reducing the potential "need for the United States to conserve energy" that Congress envisioned in enacting EPCA.[276] That reasoned explanation of the changed circumstances readily justifies NHTSA's change in its approach to this factor.[277]

The second significant change in NHTSA's approach to the statutory factors is its revised assessment of economic practicability.[278] In this context, the Proposed Rule reflects a considered decision to place greater emphasis on the negative impacts of more stringent CAFE standards on consumer choice and vehicle affordability. As the Proposed Rule explains, the experience of recent years demonstrates that consumers have shown a consistent preference for vehicle attributes other than fuel economy, and sales of the most efficient vehicles have lagged despite record sales overall.[279] Given that fuel prices are expected to remain low, NHTSA reasonably predicts that those consumer preferences will remain stable for the foreseeable future.[280] As a result, NHTSA concludes that the increasing stringency of the MY 2021–2025 CAFE standards would force manufacturers to cross-subsidize prices for fuel-efficient vehicles to a greater and greater degree in order to increase sales of fuel-efficient vehicles—and increase the price of less fuel-efficient vehicles (which consumers actually want) to the point where they may become unaffordable for entry-level or low-income buyers.[281] And if manufacturers try to avoid losing sales by internalizing the additional costs of higher CAFE standards, those unsustainable additional

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[271] *Id.* at 43,213-16.
[272] *Id.* at 43,213.
[273] *Id.* at 43,213-14.
[274] *Id.*
[275] *Id.* at 43,214.
[276] *Id.* at 43,214-15.
[277] *US Oil Production and Imports in Millions of Barrels per Day*, ENERGY.GOV, https://www.energy.gov/maps/us-crude-oil-production-surpasses-net-imports (last visited Oct. 25, 2018). See *Encino Motorcars*, 136 S. Ct. at 2126; *Fox*, 556 U.S. at 515. As the Proposed Rule also explains, these changes in the oil market undermine any argument that the agency should put greater weight on energy conservation in order to reduce consumer costs, since consumers today are unlikely to face sudden price shocks and can be expected to value future fuel savings accurately. 83 Fed. Reg. at 43,216. The minimal impact of the standards at issue on global climate change likewise undermines any argument that NHTSA should be required to place greater weight on energy conservation for environmental reasons. *Id.* at 43,215-16; *see also* 83 Fed. Reg. at 42,996.
[278] *See* 83 Fed. Reg. at 43,216-26.
[279] *Id.* at 43,217, 43,221-22.
[280] *Id.* at 43,217.
[281] *Id.* at 43,222-24; *see also id.* at 42,993-94.

expenses will risk serious adverse economic consequences for the industry and the hundreds of thousands of people that it employs.[282]

NHTSA has also revised its analysis of the net savings to consumers from more stringent CAFE standards, finding (in contrast to its 2012 analysis) that consumer savings increase as stringency decreases.[283] The Proposed Rule explains that this change reflects a number of alterations in its analysis, including its update to a 2016-based analysis fleet rather than the 2008- or 2010-based fleet (used in the 2012 rule) and the use of updated fuel price forecasts.[284] Once again, that change in analysis represents an informed decision backed by more adequate up-to-date evidence, and further supports the determination that the standards announced in 2012 are not economically practicable.

Third, NHTSA has improved its understanding of the safety implications of imposing more stringent CAFE standards. According to the Proposed Rule, more stringent CAFE standards may affect highway safety by increasing vehicle prices, which discourages consumers from switching to new (and safer) cars, and by increasing the total number of miles traveled.[285] Although safety is not specifically mentioned in EPCA as one of the factors NHTSA must consider in setting CAFE standards, it is well established that NHTSA has discretion to do so, and the agency has traditionally taken safety impacts into account.[286] The agency's analysis of the safety implications involved provides additional support for the agency's determination that the standards published in 2012 are no longer feasible.

11.1.1.3. NHTSA Has Fully Supported Its Ultimate Conclusions

NHTSA has also fully explained how these factual and analytical changes have caused it to rebalance the relevant factors as a whole. In granting NHTSA discretion to weigh the appropriate factors to determine the "maximum feasible" average fuel economy level, "Congress recognized that 'maximum feasible' may change over time as the agency assessed the relative importance of each factor."[287] In light of the changes in the global energy market, it is reasonable for NHTSA to conclude that the need of the United States to conserve energy should no longer carry the same relative importance in the statutory balance, and no longer justifies setting CAFE standards just short of the "tipping point that presents [a] risk of significantly adverse economic consequences."[288] The converse is also true: it is entirely appropriate for NHTSA to choose to place more weight now on the economic practicability and safety issues that it has identified in the Proposed Rule, both in light of the changed circumstances since 2012 and as an exercise of informed agency discretion. That analysis continues to respect energy conservation as the overall

[282] *Id.* at 43,225.
[283] 83 Fed. Reg. at 43,225.
[284] *Id.*
[285] *Id.* at 42,995-96, 43,226; *see id.* at 43,106-58.
[286] *See, e.g.*, *CEI I*, 901 F.2d at 120 n.11; *CEI II*, 956 F.2d at 322; 77 Fed. Reg. at 62,670.
[287] 83 Fed. Reg. at 43,226; *see Center for Auto Safety*, 793 F.2d at 1341.
[288] 83 Fed. Reg. at 43,226 (quoting 77 Fed. Reg. at 63,039).

goal of the statutory scheme,[289] while also recognizing that Congress did not intend NHTSA to pursue that goal at all costs.[290]

NHTSA's decision to revise the MY 2021 standards and not adopt the augural MY 2022–2025 standards is also supported by practical reality. In the years since 2012, manufacturers have made their best efforts to comply with their existing CAFE obligations and to improve fuel economy. Nevertheless, in light of the changed factual circumstances described above, the levels envisioned in 2012 have become infeasible. In short, this is not a case where manufacturers have merely "assert[ed] current inability to meet [the] standard"; instead, manufacturers have made "sufficient efforts to improve their fuel economy," including record levels of CAFE and GHG attainment, but those efforts have been "overtaken by unforeseen events whose effects could not be overcome by available means within the time available."[291]

The decision to revise the MY 2021 standards and not adopt the augural MY 2022–2025 standards also does not implicate any "serious reliance interests" from other stakeholders.[292] When agencies impose more burdensome regulations on regulated entities, they may upset settled reliance interests premised on the continued existence of the less burdensome standards. In such cases, agencies should consider whether a safe-harbor provision is necessary to "shelter regulated entities from liability when they act in conformance with previous agency interpretations."[293] Here, by contrast, NHTSA proposes to *reduce* the burden on the regulated entities, and so no serious reliance interests are implicated. On top of that, as the 2012 Final Rule made clear, the augural MY 2022–2025 standards were just a "best estimate" of what fuel economy levels "*might be* maximum feasible" in MY 2022–2025; they did not, and by law could not, carry any binding force.[294] Those tentative predictions (from 2012) cannot support the kind of significant and reasonable reliance that NHTSA would be required to address before revising its approach. And in all events, NHTSA's thorough analysis adequately explains the benefits of setting different MY 2021–2025 standards, which outweigh any potential reliance interests at issue here.

11.1.2. *NHTSA Has the Legal Authority and Sufficient Evidence to Choose the Maximum Feasible Standards for MY 2021–2026 from the Range of Possible Options*

As the previous discussion indicates, the changed factual circumstances since October 2012 provide strong grounds for determining that *some* reduction in stringency from the MY 2021 standards and augural MY 2022–2025 standards is warranted. In light of those changed circumstances, NHTSA must now interpret and balance the relevant factors to determine *how much* that reduction should be. The agency is required to make that determination by balancing both the statutory factors under the CAFE program, and any other relevant non-statutory factors (such as safety) to determine the maximum feasible standards.[295] Given the wide-ranging factors that NHTSA must balance in determining what standards constitute the maximum feasible average

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[289] *Center for Biological Diversity*, 538 F.3d at 1195.
[290] *See* 49 U.S.C. § 32902(f); *Center for Auto Safety*, 793 F.2d at 1341 (upholding NHTSA decision to set CAFE standards below the maximum possible level in light of consumer demand).
[291] *Pub. Citizen v. NHTSA*, 848 F.2d 256, 264 (D.C. Cir. 1988).
[292] *Encino Motorcars*, 136 S. Ct. at 2126 (quoting *Fox*, 556 U.S. at 515).
[293] *Perez v. Mortgage Bankers Ass'n*, 135 S. Ct. 1199, 1209 (2015).
[294] 77 Fed. Reg. at 62,627; *see* 49 U.S.C. § 32902(b)(3)(B) (NHTSA may not set standards for more than five years at a time).
[295] 49 U.S.C. § 32902(a), (f); *see CEI II*, 956 F.2d at 322.

fuel levels for a given model year, the agency necessarily has discretion in deciding how to weigh the relevant factors.[296]

Of course, as the Proposed Rule recognizes, NHTSA must choose an overall balance among these factors that will "support the overarching purpose of EPCA," which is "energy conservation."[297] But that does not require NHTSA to prioritize energy conservation above all else, or sacrifice other relevant factors to that goal.[298] On the contrary, Congress specifically required NHTSA to consider additional relevant factors beyond energy conservation alone.[299] And by requiring NHTSA to set standards at the "maximum *feasible* average fuel economy level,"[300] rather than the maximum *possible* level, Congress made clear that CAFE standards are not required to embody the highest level of energy conservation that is physically possible. Instead, Congress fully expected NHTSA to apply its expertise and weigh each of the relevant factors in context in order to determine the maximum feasible average fuel economy level—and fully understood that in some cases, certain standards might be "technologically feasible but still beyond the level that NHTSA determines to be [the] maximum feasible due to consideration of the other relevant factors."[301]

As noted above, NHTSA may also revise its assessment of the relevant factors, and the weight it places on each factor, in setting new standards. Indeed, that flexibility is built into the statutory scheme, which requires NHTSA to set new CAFE standards for each model year and prohibits NHTSA from setting standards for more than five years at a time,[302] and authorizes NHTSA to amend those standards at any time.[303] That flexibility also rests on a fundamental principle of administrative law: that "[a]gencies are free to change their existing policies as long as they provide a reasoned explanation for the change."[304] As the Supreme Court has made clear, an initial agency interpretation "is not instantly carved in stone," and the agency "must consider varying interpretations and the wisdom of its policy on a continuing basis."[305] When an agency does decide to change its policies, it "need not demonstrate to a court's satisfaction that the reasons for the new policy are *better* than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency *believes* it to be better, which the conscious change of course adequately indicates."[306] In other words, the agency must "'display awareness that it is changing position' and 'show that there are good reasons for the new policy,'" as well as addressing any "serious reliance interests" engendered by its previous

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[296] *See, e.g.*, *Center for Biological Diversity*, 538 F.3d at 1195 (noting that EPCA "gives NHTSA discretion to decide how to balance the statutory factors"); *Center for Auto Safety v. NHTSA*, 793 F.2d 1322, 1341 (D.C. Cir. 1986) (noting that the "balancing process" required in setting CAFE standards was "specifically committed to the agency by Congress").

[297] 83 Fed. Reg. at 43,206; *see Center for Biological Diversity*, 538 F.3d at 1195.

[298] *Cf. Rodriguez v. United States*, 480 U.S. 522, 525-26 (1987) ("[N]o legislation pursues its purposes at all costs … and it frustrates rather than effectuates legislative intent simplistically to assume that *whatever* furthers the statute's primary objective must be the law.").

[299] *See* 49 U.S.C. § 32902(f).

[300] 49 U.S.C. § 32902(a) (emphasis added).

[301] 83 Fed. Reg. at 43,208.

[302] 49 U.S.C. § 32902(a), (b)(3)(B).

[303] *Id.* § 32902(c).

[304] *Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2125 (2016).

[305] *National Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 981 (2005) (quoting *Chevron U.S.A. Inc. v. NRDC*, 467 U.S. 837, 863-64 (1984)).

[306] *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009); *see Encino Motorcars*, 136 S. Ct. at 2125-26.

policies.[307] But it does not need to prove to a court that a new policy is "better" than a previous policy, or that it is the "best" option available.

Here, the agency has considered a range of potentially feasible alternatives for the MY 2021–2026 standards. Applying its revised analytical approach to the existing data, NHTSA has determined that applying the MY 2020 standards to MY 2021–2026 will produce the greatest net benefit for consumers and for society—a net benefit that NHTSA estimates at billions of dollars per year.[308] Although the standards that NHTSA has proposed for MY 2021–2026 are not exactly what the Alliance would recommend for those model years, they are within the bounds of reasoned decision-making. NHTSA has thoroughly analyzed the required statutory factors and other relevant considerations, and grounded its regulatory proposal on substantial evidence. Insofar as the current proposal departs from the CAFE standard for MY 2021 and the augural standards for MY 2022–2025 that NHTSA announced in 2012, the agency has more than adequately acknowledged its change of position and explained the reasons for that change. In short, although the Alliance believes that different standards would be more appropriate as a policy matter, the MY 2021–2026 CAFE standards proposed in the Proposed Rule are within the agency's legal authority and supported by sufficient evidence and analysis.

NHTSA has also provided sufficient explanation for its decision not to adopt additional "backstop" standards. As NHTSA recognizes in the Proposed Rule, "the Ninth Circuit has previously held that NHTSA must consider whether a 'backstop' is necessary for the CAFE standards based on the EPCA factors in 49 U.S.C. 32902(f), given that the overarching purpose of EPCA is energy conservation."[309] Here, NHTSA considered whether to include a backstop CAFE standard and ultimately concluded that "additional backstop standards are not necessary."[310] This conclusion is consistent with NHTSA and EPA's similar conclusion in 2010 that "designing an appropriate backstop was likely to be fairly complex and likely to undermine Congress' objective in requiring attribute-based standards."[311] Given that "[n]either the EPCA's language nor structure explicitly requires NHTSA to adopt a backstop,"[312] it is clear that NHTSA has discretion to determine whether backstop standards would be appropriate in light of the relevant circumstances, and NHTSA has adequately set forth its reasons for declining to adopt such standards here. Indeed, backstop standards would be especially inappropriate here in light of the safety implications that NHTSA has identified, since (if triggered) those standards would necessarily skew the careful balance that the agency has set between safety and the need for energy conservation. And insofar as EPA does not propose to adopt similar backstop standards for GHG emissions, the need for agency coordination in regulating the overlapping areas of fuel economy and GHG emissions weighs against NHTSA adopting backstop standards that could create conflicting regulatory requirements.[313]

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[307] *Encino Motorcars*, 136 S. Ct. at 2126 (quoting *Fox*, 556 U.S. at 515).
[308] 83 Fed. Reg. at 42,998. The Alliance's econometric study directionally confirmed this conclusion. See Appendix 1 for a discussion of the study results.
[309] 83 Fed. Reg. 43,227; *see Center for Biological Diversity*, 538 F.3d at 1204-06.
[310] *Id.*
[311] *See* 83 Fed. Reg. 43,227 (discussing NHTSA and EPA's previous discussion of "the concept of backstops in the context of the modern CAFE program" and citing 75 Fed. Reg. at 25,367–70).
[312] *Center for Biological Diversity*, 538 F.3d at 1205 (emphasis omitted).
[313] For technical discussion on this matter, please see Appendix 6 on Vehicle Classifications at sections 6.3 and 6.4.

The Alliance also submits that NHTSA should determine that its proposed MY 2021 standards are severable from its proposed MY 2022–2026 standards. Whether a portion of a regulation is severable from the remainder "depends upon the intent of the agency and upon whether the remainder of the regulation could function sensibly without the stricken provision."[314] While NHTSA has not spoken to this precise question in the Proposed Rule, it appears clear that the proposed standards for MY 2022–2026 would "function sensibly," and provide the benefits that the agency expects, whether or not the revised MY 2021 standards also go into effect. Assuming that NHTSA does indeed intend for the MY 2021 standards to be severable from the MY 2022–2026 standards, it would be useful for the agency to make that intent clear.

11.2. EPA Has the Legal Authority and Sufficient Evidence to Set New and Different GHG Emissions Standards for MY 2021–2026

In coordination with NHTSA, EPA proposes to revise its GHG emissions standards for MY 2021–2025 to the same level as the current MY 2020 standards, and to set the new GHG emissions standards for MY 2026 at that same level as well.[315] Like NHTSA, EPA has also considered a wide range of alternative proposals, including seven other possible alternative levels for its GHG standards for MY 2021–2026.[316]

As explained above, the Alliance believes that the best approach to fuel economy and GHG emissions regulation would be a unified federal and state framework that addresses the concerns of Alliance members. The Alliance agrees with EPA that the existing GHG emissions standards for MY 2021–2025 are no longer appropriate and should be reduced. Although the Alliance believes an alternative package of standards is more appropriate, in light of the extensive administrative record that the agency has assembled and reviewed, and the fact that EPA has put forth a reasoned justification for its proposal based on that record, the Alliance believes that EPA has the legal authority and sufficient evidence to determine the appropriate level at which to set the standards under consideration.

11.2.1. *EPA Has the Legal Authority and Sufficient Evidence to Set New and Different GHG Emissions Standards for MY 2021–2026*

11.2.1.1. EPA Has Strong Grounds for its Decision to Revise the MY 2021–2025 Standards

The Alliance fully agrees with EPA that the GHG emissions standards set in 2012 for MY 2021–2025 are no longer appropriate and should be revised. As the Alliance explained in its comments on EPA's decision to reconsider its first January 2017 determination on the MTE, many of the assumptions on which those standards were based are no longer accurate in light of subsequent developments.[317] The technology options available have not produced the levels of emissions reduction that EPA predicted, and consumers have not gravitated toward low-emissions vehicles in the numbers that EPA expected. In addition, as set forth in the Proposed Rule, EPA has discretion to reconsider the appropriate balance among the relevant factors in light of those

[314] *MD/DC/DE Broadcasters Ass'n v. FCC*, 236 F.3d 13, 22 (D.C. Cir. 2001) (emphasis omitted).
[315] *See* 83 Fed. Reg. at 42,988.
[316] *Id.* at 42,990 tbl.I-4.
[317] *See* Alliance MTE Reconsideration Comments, *supra* note 65.

changed circumstances. The evidence and EPA's analysis provide strong support for the view that the MY 2021–2025 GHG standards must be revised.

Section 202(a)(1) of the Clean Air Act ("CAA") provides that EPA "shall by regulation prescribe (and from time to time revise)" emissions standards for any pollutant that it determines "may reasonably be anticipated to endanger public health or welfare."[318] Section 202(a)(2) then addresses the timing of any such emissions standards, providing that new standards "shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period."[319] Those subsections leave EPA "significant latitude" to exercise its expert judgment in determining the level at which emissions standards should be set.[320] Unlike other CAA provisions, §202(a)(1) does not require EPA to set standards that will result in the greatest degree of emission reduction achievable.[321] Instead, the statute leaves EPA flexibility to decide what factors are relevant, and how to weigh those factors, in its decision-making process. EPA has considered a wide range of relevant factors in the past in setting emissions standards, such as:

> technology effectiveness, its cost (both per vehicle, per manufacturer, and per consumer), the lead time necessary to implement the technology, and based on this the feasibility and practicability of potential standards; the impacts of potential standards on emissions reductions of both GHGs and non-GHGs; the impacts of standards on oil conservation and energy security; the impacts of standards on fuel savings by consumers; the impacts of standards on the auto industry; other energy impacts; as well as other relevant factors such as impacts on safety.[322]

Like NHTSA, EPA has discretion to determine how to balance these various incommensurate factors.[323] And like NHTSA, EPA is free to revise its view of the relevant factors and the weight that it places on each factor, as long as it provides a reasoned explanation for doing so.[324]

EPA also has "significant latitude" regarding the "coordination of its regulations with those of other agencies."[325] That latitude is especially important where, as here, EPA is regulating in a field that overlaps substantially with the regulatory responsibilities assigned to another agency. In that context, EPA has discretion to coordinate with other interested federal agencies in order to produce a consistent regulatory environment.[326] Along similar lines, in evaluating the various factors relevant to its standard-setting process, EPA has discretion to defer to the judgment of other agencies regarding issues within their areas of expertise. As the D.C. Circuit recently remarked, an agency "can be expected to 'respect the views of such other agencies as to those problems' for

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[318] CAA § 202(a)(1), 42 U.S.C. § 7521(a)(1).
[319] CAA § 202(a)(2), 42 U.S.C. § 7521(a)(2).
[320] *See Massachusetts v. EPA*, 549 U.S. 497, 533 (2007).
[321] *Cf., e.g.*, CAA § 202(k), 42 U.S.C. § 7521(k).
[322] 83 Fed. Reg. at 43,227.
[323] *See* 83 Fed. Reg. at 43,228 (noting that the statute "does not specify the degree of weight to apply to each factor, and EPA accordingly has discretion in choosing an appropriate balance among factors").
[324] *Encino Motorcars*, 136 S. Ct. at 2125; *Brand X*, 545 U.S. at 981.
[325] *Massachusetts v. EPA*, 549 U.S. at 533.
[326] *Id.*; *see also, e.g.*, *Nat'l Min. Ass'n v. McCarthy*, 758 F.3d 243, 249 (D.C. Cir. 2014) ("[I]nter-agency consultation and coordination is commonplace and often desirable.").

which those 'other agencies are more directly responsible and more competent."[327] Finally, in carrying out its statutory mandate to regulate air pollutants, EPA should interpret and apply its governing statute in a manner designed to minimize conflicts with other federal statutes to the extent possible.[328]

In accordance with its authority to consider all of the relevant factors, EPA has set out a number of different considerations supporting its proposal to reduce the stringency of the current MY 2021–2025 standards. In some cases, those considerations do not differ from the views that EPA expressed in adopting the 2012 Final Rule; for instance, EPA continues to recognize that the primary purpose of the Clean Air Act is to protect the public health and welfare,[329] and continues to believe that the available technology makes it at least physically possible to build a vehicle that meets the existing standards.[330] With respect to other factors, however, EPA's assessment has changed considerably.

First, the Proposed Rule recognizes that the estimated cost to the automotive industry of compliance with the existing standards is far higher than EPA projected in 2012. As the Proposed Rule explains, compliance with the existing standards would cost the industry an estimated $260 billion more than the proposed standards, translating to an additional per-vehicle cost in MY 2030 of $2,260.[331] In *addition* to those costs of compliance—which might themselves be passed on to consumers in the form of higher prices—the existing standards would also impose increased costs on consumers in the form of changes in maintenance, financing, insurance, taxes, and fees. All together, the total increase in cost would be more than $2,810 in MY 2030 in additional costs relative to the proposed standards.[332] Those costs to the consumer are offset somewhat by the fuel savings associated with the existing standards, but would still leave a net additional cost to consumers of $690 per vehicle.[333] As the agency recognizes, that estimate "contrasts sharply with what EPA projected in 2012 when setting those [existing] standards," due in large part to the unexpected drop in fuel prices. Those changes in the expected costs of the existing standards provide significant reasoned support for EPA's view that the existing standards should be reduced.

In addition to those cost issues, the Proposed Rule also explains that EPA is concerned about the effects of the existing standards on consumer choice. That concern is well-founded. As noted in the CAFE context, in the years since 2012 (and in part due to the unexpected decrease in fuel prices), consumers have demonstrated less interest in high-efficiency/low-emission vehicles than EPA and NHTSA projected in issuing the 2012 Final Rule.[334] As such, compliance with the

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[327] *City of Boston Delegation v. FERC*, 897 F.3d 241, 255 (D.C. Cir. 2018) (quoting *City of Pittsburgh v. Fed. Power Comm'n*, 237 F.2d 741, 754 (D.C. Cir. 1956)); *see EMR Network v. FCC*, 391 F.3d 269, 273 (D.C. Cir. 2004).
[328] *See Cathedral Candle Co. v. U.S. Int'l Trade Comm'n*, 400 F.3d 1352 (Fed. Cir. 2005) (upholding agency interpretation designed to avoid statutory conflict); *cf. Morton v. Mancari*, 417 U.S. 535, 551 (1974) (noting that "when two statutes are capable of co-existence … the rule is to give effect to both if possible").
[329] *See* 83 Fed. Reg. at 43,228.
[330] *Id.* at 43,229.
[331] 83 Fed. Reg. at 43,229.
[332] 83 Fed. Reg. at 43,229.
[333] 83 Fed. Reg. at 43,229-30.
[334] *See* 83 Fed. Reg. at 43,231 (noting that sales of cars with advanced electrification technologies have remained relatively low).

existing standards would require a substantially greater variance than EPA expected from the vehicle fleet that consumers would otherwise choose.

EPA (in coordination with NHTSA) has also significantly revised its view of the projected effects of the existing standards on vehicle safety. As noted, EPA has discretion to consider all the relevant factors in setting appropriate emissions standards under §202(a)(1), including vehicle safety.[335] Moreover, given NHTSA's greater expertise in evaluating motor vehicle safety, it is appropriate for EPA to respect the views of its companion agency on those issues.[336]

The safety analysis in the Proposed Rule indicates that the existing GHG standards are likely to yield increased fatalities and accidents as compared to less stringent standards, by discouraging consumers from buying new vehicles, increasing the number of miles driven, and encouraging vehicle mass reduction.[337] That analysis is far different from EPA's prediction in 2012 that its MY 2021–2025 standards "should not have a negative effect on vehicle safety,"[338] and EPA has explained that difference, noting among other things that its 2012 analysis artificially "limited the amount of mass reduction assumed for certain vehicles, while acknowledging that manufacturers would not necessarily choose to avoid mass reductions in [that] way."[339] The new safety analysis likewise provides support for EPA's conclusion that the MY 2021–2025 GHG standards are not appropriate and should be reduced in stringency. Indeed, given that the "primary purpose" of §202(a)(1) is "the protection of public health and welfare,"[340] EPA would be abdicating its statutory duty if it ignored these concerns.

In addition, the fact that NHTSA proposes to conclude that its MY–2025 CAFE standards are no longer feasible under the criteria set forth in EPCA is itself good reason for EPA to adopt less stringent standards. As noted, EPA has wide latitude to ensure the "coordination of its regulations with those of other agencies,"[341] especially when (as here) its regulations will necessarily overlap with an area (fuel economy) that Congress has assigned another agency to supervise. Indeed, if EPA were to adopt GHG standards that effectively required manufacturers to achieve fuel economy levels beyond what NHTSA considered the "maximum feasible" level, its regulations would create an unnecessary conflict between the two statutory regimes.[342]

EPA states that its existing standards would tend to reduce GHG emissions further than less stringent standards.[343] But the correlation between more stringent standards and greater GHG emissions is not exact; instead, it is mitigated by a number of factors. For instance, as discussed above, more stringent standards lead to higher prices, which in turn lead some consumers to

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[335] Indeed, it would be obviously unreasonable (and contrary to Congress' intent) for EPA to set emissions standards that would require manufacturers to produce and sell unsafe vehicles.
[336] *City of Boston*, 897 F.3d at 255.
[337] 83 Fed. Reg. at 42,995-96, 43,231; *see id.* at 43,106-58.
[338] 77 Fed. Reg. at 62,633.
[339] 83 Fed. Reg. at 43,231. EPA and NHTSA have also explained the reasons for their assessment that the existing standards will affect safety by decreasing fleet turnover and increasing the number of miles driven as compared to less stringent standards. *See* 83 Fed. Reg. at 43,106-07.
[340] 83 Fed. Reg. at 43,228; *see also* 42 U.S.C. § 7206(h) ("effects on welfare" includes "effects on . . . hazards to transportation, as well as effects on economic values and on personal comfort and well-being").
[341] *Massachusetts v. EPA*, 549 U.S. at 533.
[342] *Cf. Morton*, 417 U.S. at 551 (statutes should be interpreted to avoid conflict where possible).
[343] *See* 83 Fed. Reg. at 43,240.

postpone or abandon buying new vehicles and continue driving their existing older models. Just as those older models are generally less safe than new vehicles, they also generally produce more emissions; and so the decreased fleet turnover caused by more stringent standards undercuts the emissions gains from those standards.[344]

In any event, §202(a)(1) of the Clean Air Act (unlike other sections of the same Act) does not require EPA to mandate the greatest degree of emissions reduction achievable. Instead, as explained above, it gives the agency authority to engage in reasoned decision-making, balancing all of the relevant factors in light of the available facts. EPA has done that here, and has provided a reasoned explanation of its determination that the environmental benefits of the existing MY 2021–2025 GHG standards are outweighed by their negative effects on costs and safety.[345] The Alliance fully agrees with EPA that in light of these considerations, the existing MY 2022–2025 GHG standards should be revised.

There are also no serious reliance interests that would warrant keeping the existing standards in place.[346] As with NHTSA and the CAFE standards, the fact that EPA proposes to adopt GHG standards that will reduce the burden on the regulated entities means that the agency will not disrupt any settled reliance interests those entities might have placed in the existing standards. Moreover, when EPA announced its MY 2022–2025 standards in 2012, it made clear that those standards would be reviewed, in conjunction with NHTSA, during the MTE before going into effect, and could well change depending on the results of that evaluation. Although EPA did issue a determination in January 2017 stating that the standards were appropriate and would remain in place, it announced its intent to reconsider that determination just two months later.[347] It then issued a revised final determination about a year later finding the standards inappropriate.[348] Given the obvious uncertainty surrounding these standards, a reasonable stakeholder could not have given them the kind of "significant reliance" that would require additional explanation from the agency to set aside.[349] In any event, EPA has fully explained its reasons for its conclusion that the existing MY 2021–2025 standards are no longer appropriate, and those reasons outweigh any reliance interests that could potentially be implicated.

11.2.1.2. EPA Has the Legal Authority and Sufficient Evidence to Choose Appropriate GHG Standards for MY 2021–2026 from the Range of Possible Options

Given that the existing MY 2021–2025 standards are not appropriate (and that no standards are yet in place for MY 2026), EPA must exercise reasoned judgment to determine what standards will instead be appropriate for those model years. In the view of the Alliance, the most appropriate standards for those years would provide for reductions in GHG emissions as compared to current levels, though not at the infeasible rate embodied in the current standards. At the same time, the

[344] *See Int'l Harvester Co. v. Ruckelshaus*, 478 F.2d 615, 634 (D.C. Cir. 1973) (recognizing this effect).
[345] 83 Fed. Reg. at 43,230-32.
[346] *Cf. Encino Motorcars*, 136 S. Ct. at 2126.
[347] *See* 82 Fed. Reg. 14,671 (Mar. 22, 2017).
[348] *See* 83 Fed. Reg. 16,077 (Apr. 13, 2018).
[349] *Encino*, 136 S. Ct. at 2126.

Alliance recognizes that it is ultimately up to EPA to determine the appropriate level in light of all the relevant factors (including appropriate coordination with NHTSA).[350]

The Alliance believes EPA has given an adequate explanation for its regulatory proposal to demonstrate that it has engaged in the kind of reasoned decision-making that administrative law requires. As the Proposed Rule demonstrates, EPA has considered a range of options for the MY 2021–2026 GHG standards.[351] Although the Alliance believes different standards than the current preferred alternative would be appropriate, it recognizes that this issue is ultimately for EPA to decide, and concludes that the agency has presented sufficient evidence and analysis to justify its current proposal as a legal matter.

The Alliance also submits that EPA should determine that its proposed MY 2021 standards are severable from its proposed MY 2022–2026 standards. As noted above, severability "depends upon the intent of the agency and upon whether the remainder of the regulation could function sensibly without the stricken provision."[352] As with the proposed CAFE standards, it appears clear that the proposed GHG standards for MY 2022–2026 would "function sensibly," and provide the benefits that the agency expects, whether or not they are accompanied by the MY 2021 standards. Assuming that EPA agrees that the MY 2021 standards should be severable from the MY 2022–2026 standards, the Alliance respectfully suggests that EPA should make that intent explicit.

11.3. NHTSA and EPA Should Avoid the Negative Consequences of Competing State and Federal Regulatory Regimes

In addition to proposing amended CAFE standards for MY 2021 and new CAFE standards for MY 2022–2026, the Proposed Rule announces that NHTSA is considering adopting a regulation interpreting EPCA and the CAFE standards issued under that statute to preempt certain state and local GHG standards and zero-emission vehicle (ZEV) mandates. The Proposed Rule also announces that EPA is considering withdrawing its waiver of federal preemption for California's GHG standards for MY 2021–2025 and its ZEV mandate. The Proposed Rule requests comment on these proposals.

Roughly a decade ago, prior to the establishment of One National Program, the auto industry was pursing litigation in various forums seeking to establish that state laws and regulations aimed at regulating motor vehicle GHG emissions are preempted by federal law. The Alliance embarked upon that litigation with the goal of avoiding a patchwork of overlapping and inconsistent federal and state regulations. In that litigation, the Alliance took the position that state laws and regulations pertaining to motor vehicle GHG emissions are expressly and impliedly preempted by EPCA. The Alliance also took the position that such state laws and regulations are not entitled to receive waivers of preemption pursuant to Section 209(a) of the Clean Air Act.

While those cases were moving into the appellate stage, efforts were underway on a parallel path to establish a new framework in which the auto industry would not be subject to three inconsistent and potentially conflicting sets of CAFE/GHG regulations pertaining to motor vehicle fuel economy and GHG emissions. Those efforts ultimately resulted in the creation of the One National

[350] *See* CAA § 202(a)(1)-(2), 42 U.S.C. § 7521(a)(1)-(2); *Massachusetts v. EPA*, 549 U.S. at 533.
[351] 83 Fed. Reg. at 43,232.
[352] *MD/DC/DE Broadcasters Ass'n*, 236 F.3d at 22 (emphasis omitted).

Program framework, in which EPA and NHTSA committed to harmonize their regulations to the maximum extent possible, and CARB (along with other states) committed to refrain from enforcing state-specific GHG standards against auto manufacturers complying with the Federal program. With those commitments, the industry felt that the concerns which had given rise to the preemption litigation were largely resolved. Therefore, the industry committed to dismiss all of the then-pending preemption litigation without prejudice upon implementation of the One National Program framework. Those dismissals occurred prior to any appellate rulings on the merits of the industry's claims.

In light of that background, the Alliance offers the following comments on the proposal in the Proposed Rule to pursue preemption of state laws and regulations pertaining to motor vehicle GHGs.

11.3.1. *NHTSA and EPA Should Work Toward Agreement with Other Stakeholders on a Unified Federal and State Regulatory Program*

As these comments make clear, the Alliance's goal is to achieve the continuation of One National Program under a workable set of GHG standards. One National Program is not perfect, but in general it has proven to be a successful framework for the regulation of motor vehicle GHGs. While the regulations underlying One National Program certainly have room for improvement—many of our suggestions in that regard are addressed elsewhere in these comments—the Alliance believes that One National Program is worth preserving. Our focus throughout the MTE process that was a key aspect of the 2012 joint rule between EPA, DOT, and California has been to 1) participate in a data-driven process to get the standards right going forward, and 2) work cooperatively toward revisions to the One National Program rules based on the outcome of that process. We believe that approach is in the interests of all stakeholders.

Failing to agree on One National Program and pursuing the preemption pathway would almost inevitably result in new litigation, which could result in a number of unintended consequences. For one thing, it appears very likely that at least in the short term, litigation would risk creating a situation in which the federal government and California would be insisting on different sets of emissions standards—the very "two-car" scenario that the One National Program was designed to avoid. That scenario could well undermine the benefits that NHTSA and EPA have calculated from their proposed rules, insofar as more stringent standards in California would reduce the overall impact of those rules on consumer choice, vehicle affordability, and safety (by reducing fleet turnover and increasing total miles driven).[353] A divided regulatory framework would also produce smaller environmental benefits than a weighted average of the two sets of standards would predict, since compliance with the higher standard for part of the fleet would be offset by decreased performance by the remainder of the fleet (a "leakage" effect). Indeed, one study has estimated

[353] As discussed below, the Alliance agrees with NHTSA and EPA that any decision the agencies make on the preemption-related issues in the Proposed Rule are severable from their decision about where to set the MY 2021-2026 standards. That being so, it would be useful for NHTSA and EPA to explain why the overall outcome of their analysis supports the levels at which they choose to set the MY 2021-2026 standards even without their preemption determinations (that is, even if California were to set different standards that were not preempted). Of course, that conclusion follows logically from the fact that the agencies have calculated a net-benefit analysis that shows an improvement in net benefits for any reduction in stringency below the current and augural standards, indicating that revised federal standards would produce some net benefit even if the California standards were to remain more stringent.

the leakage effects from divergent federal and California standards at about 65%.[354] Litigation would also contribute to regulatory uncertainty, since it is difficult for auto manufacturers to engage in product planning with confidence when the regulations underlying the basis of those plans are potentially subject to being stayed, remanded, or vacated by the courts.[355]

The Alliance believes litigation could be avoided by building upon the useful framework that has seen us through the last eight or so model years. Now that One National Program has been in place for a number of years, there is a blueprint that should enable the interested parties to find a way forward. The Alliance urges all key stakeholders, including the federal government and California, to join with us in working toward the continuation of One National Program.

11.3.2. *If Agreement on a Unified Federal and State Regulatory Program is not Possible, NHTSA May Reasonably Conclude that its CAFE Standards Should Supersede State GHG Standards and ZEV Mandates*

With respect to the substance of the preemption discussion in the Proposed Rule, the Alliance continues to believe that the positions it took a decade ago have legal merit. We simply refrained from continuing to pursue those positions in the courts once it became clear that we had an alternative way forward that no longer required litigation. Our previous litigation positions remain valid today, and NHTSA has sufficient grounds to adopt its proposed preemption determination in the unfortunate event that One National Program is dissolved.

As described in the Proposed Rule, NHTSA is considering adopting a regulation interpreting EPCA and the CAFE standards issued under that statute to preempt certain state and local GHG standards and zero-emission vehicle (ZEV) mandates. For the reasons given above, the Alliance prefers to be part of a unified federal and state regulatory framework that takes into consideration the concerns of the Alliance members and the realities of the marketplace. If such a resolution cannot be reached, however, NHTSA may then consider a preemption determination in the interests of ensuring a single national program.

As the agency responsible for administering the CAFE program, NHTSA has the authority under EPCA to adopt regulations interpreting that statute in order to carry out its administrative responsibilities.[356] As a general rule, when an agency adopts a regulation interpreting the statute it administers, that regulation is entitled to judicial deference under the two-step *Chevron* framework. At the first step, if Congress "has directly spoken to the precise question at issue" in the governing statute, then the agency interpretation "must give effect to the unambiguously expressed intent of Congress."[357] At the second step, if the statute is silent or ambiguous regarding

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[354] Lawrence H. Goulder et al., *Unintended consequences from nested state and federal regulations: The case of Pavley greenhouse-gas-per-mile limits*, J. ENVTL. ECON. & MGMT. 63, 187-207 (2012).

[355] That risk of litigation obviously does not undermine the conclusion that on the whole, the current and augural standards must be revised. Nevertheless, it would be useful for NHTSA and EPA to explain why the risk of litigation does not affect the overall outcome of their analysis supporting whatever new MY 2021-2026 standards they choose.

[356] 49 U.S.C. § 32910(d) (authorizing NHTSA to "prescribe regulations to carry out [its] duties … under this chapter").

[357] *Chevron*, 467 U.S. at 842-43.

the precise question at issue, the agency interpretation governs as long as long as it reflects "a permissible construction of the statute."[358]

The Supreme Court has not specifically decided whether *Chevron* deference applies to an agency regulation setting out the agency's interpretation of an ambiguous express preemption provision.[359] Even if NHTSA is not entitled to the full measure of deference envisioned under *Chevron*, however, its views on the impact of state law on federal objectives are at least entitled to persuasive weight.[360]

NHTSA also has the authority to interpret its own regulations, including the CAFE standards themselves.[361] An agency's interpretation of its own regulations is likewise entitled to significant deference, and is controlling unless "plainly erroneous or inconsistent with the regulation."[362]

11.3.2.1. State GHG Standards

According to the Proposed Rule, NHTSA proposes to find that EPCA and the CAFE standards issued under that statute preempt state regulations governing tailpipe emissions of carbon dioxide.[363] That proposal is based on theories of both express preemption and implied preemption. Although the Alliance would prefer a resolution in which the federal government, the states, and other stakeholders would agree on a consistent nationwide federal and state regulatory framework addressing the concerns raised by the Alliance, the Alliance does believe that NHTSA would have adequate grounds to find express or implied preemption, or both, if such a resolution proved to be impossible.

First, as the Proposed Rule explains, EPCA contains an express preemption provision that NHTSA can reasonably interpret as preempting state GHG standards. Under that provision, "a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter."[364] Insofar as the fuel economy and tailpipe GHG standards are inexorably linked, in that the identical test vehicles, test procedures, raw data, and sales fleet are

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[358] *Id.* at 843.

[359] *Compare Cuomo v. Clearing House Ass'n, L.L.C.*, 557 U.S. 519, 525 (2009) (applying *Chevron* deference to agency interpretation of express preemption clause), *with Wyeth v. Levine*, 555 U.S. 555, 576-77 (2009) (noting that "agencies have no special authority to pronounce on preemption absent delegation by Congress"). Some courts of appeals have held that *Chevron* deference does not apply to preemption questions, *see, e.g.*, *Grosso v. Surface Transp. Bd.*, 804 F.3d 110, 116-17 (1st Cir. 2015), while others have held that the issue is "unsettled," *see, e.g.*, *Bell v. Blue Cross & Blue Shield of Okla.*, 823 F.3d 1198, 1202-03 (8th Cir. 2016).

[360] *Wyeth*, 555 U.S. at 577 (noting that agencies have a "unique understanding of the statutes they administer and an attendant ability to make informed determinations about how state requirements may pose an 'obstacle to the accomplishment and execution of the full purposes and objectives of Congress'").

[361] *See* 49 U.S.C. § 32910(d).

[362] *Auer v. Robbins*, 519 U.S. 452, 461 (1997) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 359 (1989)); *see Bowles v. Seminole Rock & Sand Co.*, 325 U.S. 410, 414 (1945). That deference, however, extends only to the agency's interpretation of its regulations and their purposes, not the agency's "ultimate conclusion about whether state law should be pre-empted." *PLIVA v. Mensing*, 564 U.S. 604, 613 n.3 (2011).

[363] 83 Fed. Reg. at 43,234. The Proposed Rule clarifies that NHTSA does not believe EPCA or its CAFE standards preempt state regulation of GHG emissions that have at most an indirect relation to fuel economy, such as state regulation of vehicle air conditioning units that may cause GHG emissions. 83 Fed. Reg. at 43,234-35. That, too, is a reasonable interpretation of EPCA's preemption provision.

[364] 42 U.S.C. § 32919(a).

used to calculate compliance, NHTSA has strong factual grounds for concluding that the statute can reasonably be interpreted as preempting such state laws.

As the Proposed Rule explains, the Supreme Court has interpreted similar language to extend to any law that "has a connection with or refers to" the relevant area.[365] And as the Proposed Rule also explains, regulations limiting tailpipe GHG emissions are "directly related to" (and indeed "mathematically linked to") fuel economy.[366] Because carbon dioxide emissions are a direct and inevitable result of burning gasoline, laws that regulate the emission of carbon dioxide from motor vehicle tailpipes necessarily also regulate fuel economy, and vice versa.[367] Indeed, NHTSA measures and calculates fuel economy for purposes of CAFE compliance by using the same tests, vehicles, sales data, and emissions measurements that the EPA uses to measure carbon dioxide and tailpipe GHG emissions.[368] As such, NHTSA's proposal to interpret the EPCA preemption provision to reach state GHG standards is plainly a "permissible construction of the statute."[369]

Second, NHTSA could also conclude that state GHG emissions standards are preempted by EPCA and by its CAFE standards under the doctrine of implied preemption. It is well established that a state law is preempted if it "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress,"[370] and that federal regulations "have no less pre-emptive effect than federal statutes."[371] As the Proposed Rule explains, Congress directed NHTSA to balance the relevant statutory and non-statutory factors and determine maximum feasible fuel economy standards on a uniform nationwide basis.[372] By delegating those duties to NHTSA, Congress indicated a purpose to make that agency alone—not the fifty states and their countless municipalities—responsible for conducting that balancing. Given that context, NHTSA can reasonably read EPCA and its CAFE standards as intended "not only to bar what they prohibit but to allow what they permit,"[373] and specifically as intended to prevent states from adopting more stringent local GHG standards that would reflect a different balance of the relevant factors and undermine the uniform fuel economy program Congress intended.

11.3.2.2. State ZEV Mandates

A similar analysis applies to NHTSA's proposed determination that EPCA and its CAFE standards preempt state ZEV mandates. Again, the Alliance would prefer a resolution in which the federal government, the states, and other stakeholders would agree on a consistent nationwide federal and state regulatory framework for fuel economy and GHG emissions standards addressing the concerns raised by the Alliance.

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[365] 83 Fed. Reg. at 43,233 (quoting *Shaw v. Delta Airlines, Inc.*, 463 U.S. 85, 97 (1983)).
[366] *Id.* at 43,324.
[367] *Id.*
[368] *Id.*
[369] *Chevron*, 467 U.S. at 843. The Alliance also agrees with NHTSA that a waiver of preemption under section 209(b) of the Clean Air Act, 42 U.S.C. § 7543(b), does not affect EPCA preemption. *See* 83 Fed. Reg. at 43,235-37.
[370] *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941).
[371] *Fidelity Fed. Sav. & Loan Ass'n v. de la Cuesta*, 458 U.S. 141, 153 (1982).
[372] 83 Fed. Reg. at 43,237.
[373] *Crosby v. Nat'l Foreign Trade Council*, 530 U.S. 363, 380 (2000).

As with the state GHG standards, both express preemption and implied preemption doctrine could allow NHTSA to find that EPCA and its CAFE standards preempt state ZEV mandates.[374] With respect to express preemption, as described above, EPCA preempts any state regulation "related to fuel economy standards" for automobiles covered by a CAFE standard.[375] ZEV mandates require that a certain number or percentage of vehicles sold within a state produce no emissions—and so effectively require that those vehicles use no fuel, given that "the only feasible means to eliminate tailpipe CO_2 emissions is by eliminating the use of petroleum fuel."[376] In fact, the very purpose of state ZEV programs is "to affect fuel economy."[377] Thus state ZEV mandates are "related to" fuel economy standards, since requiring manufacturers to sell a certain number of vehicles that burn no petroleum plainly "has a connection with or refers to" fuel economy.[378]

With respect to implied preemption, NHTSA finds that state ZEV mandates "interfere with achieving the goals of EPCA" and the CAFE program.[379] As described above, Congress has instructed NHTSA to consider and balance the relevant factors to set uniform federal CAFE standards. Like state GHG standards, state ZEV mandates represent an attempt to revisit and revise that federal balancing and impose additional local fuel economy-related requirements beyond those that NHTSA has deemed appropriate, undermining the nationwide uniformity of the federal scheme.

As the Proposed Rule explains, the California ZEV mandate "involves implementation of some of the most expensive and advanced technologies in the automotive industry, regardless of consumer demand."[380] These additional costs will jeopardize, if not prevent, compliance with the CAFE standards by "forc[ing] investment in specific technology (electric and fuel cell technology) rather than allowing manufacturers to improve fuel economy through more cost-effective technologies that better reflect consumer demand."[381]

In sum, NHTSA could find that state ZEV mandates "interfere[] with NHTSA's balancing of statutory factors in establishing maximum feasible fuel economy standards," by forcing manufacturers to adopt a specific design approach (unlike the performance-based CAFE standards Congress envisioned) and to expend "further expensive investments in fuel-saving technology than NHTSA has determined appropriate to require in setting fuel economy standards."[382]

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[374] *See* 83 Fed. Reg. at 43,238.
[375] 49 U.S.C. § 32919.
[376] 83 Fed. Reg. at 43,238.
[377] *Id.* at 43,238. For instance, as the Proposed Rule notes, the California ZEV program regulations initially included numerous references to fuel economy, and only removed those references after a 2002 lawsuit raised preemption concerns. 83 Fed. Reg. at 43,238 (citing *Fact Sheet: 2003 Zero Emission Vehicle Program*, California Air Resources Board (Mar. 18, 2004), *available at* https://www.arb.ca.gov/msprog/zevprog /factsheets/2003zevchanges.pdf).
[378] *Shaw*, 463 U.S. at 97.
[379] 83 Fed. Reg. at 43,238.
[380] 83 Fed. Reg. at 43,239; *see id.* at 43,239 n.547 (citing study finding that by 2025, the cost of complying with CAFE and ZEV requirements will be around $600 higher per vehicle than complying with CAFE requirements alone).
[381] 83 Fed. Reg. at 43,239.
[382] 83 Fed. Reg. at 43,329.

The Alliance also agrees with NHTSA that its proposed preemption determination is severable. As above, whether a regulation is severable "depends upon the intent of the agency and upon whether the remainder of the regulation could function sensibly without the stricken provision."[383] NHTSA has made clear that it intends its proposed CAFE standards and its preemption determination to be severable from each other,[384] and it is wholly clear that either of those two portions of the proposed regulation could function without the other. The requirements for severability are therefore met.

11.3.3. *If Agreement on a Unified Federal and State Regulatory Program is Not Possible, EPA Has a Legal Basis to Conclude that its Waiver of Preemption for the California GHG Standards and ZEV Mandate Should Be Withdrawn*

The Proposed Rule also includes a proposal by EPA to withdraw its January 9, 2013 waiver of federal preemption for California's Advanced Clean Car program, ZEV mandate, and greenhouse gas standards for MY 2021–2025.[385] As stated above, the Alliance believes it would be preferable for the federal government, interested states, and other stakeholders to voluntarily agree on a unified regulatory approach that addresses the Alliance's concerns, especially due to the underlying agreement in 2012 in which the MTE was envisioned to be the mechanism to adjust (up or down) future CAFE and GHG standards based on the most up-to-date information.

11.3.3.1. Withdrawal of Section 209(b) Waivers Generally

The Clean Air Act ("CAA") includes an express preemption provision that prohibits states and their subdivisions from adopting "any standard relating to the control of emissions from new motor vehicles."[386] However, it also permits EPA to waive application of that preemption provision to standards set by California if California determines that its standards "will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards."[387] EPA must grant such a waiver unless it finds that (1) California's determination that its standards will be as least as protective as federal standards is arbitrary and capricious; (2) California does not need such standards to meet compelling and extraordinary conditions; or (3) California's standards and accompanying enforcement procedures are not consistent with CAA §202(a).[388]

Although the Clean Air Act does not include an express provision authorizing EPA to withdraw a waiver of preemption, this authority "is implicit in section 209(b)."[389] As the legislative history makes clear, Congress understood this provision to give EPA the authority "to withdraw the waiver at any time [if] after notice and opportunity for public hearing he finds that the State of California no longer complies with the conditions of the waiver."[390] EPA has consistently adopted the same

[383] *MD/DC/DE Broadcasters Ass'n*, 236 F.3d at 22 (emphasis omitted).
[384] *See* 83 Fed. Reg. at 43,239.
[385] 83 Fed. Reg. at 43,240.
[386] CAA § 209(a), 42 U.S.C. § 7543(a).
[387] CAA § 209(b), 42 U.S.C. § 7543(a).
[388] CAA § 209(b), 42 U.S.C. § 7543(b)(1); 42 U.S.C. § 7521(a) (authorizes EPA to prescribe emissions standards)
[389] 83 Fed. Reg. at 43,242.
[390] S. Rep. No. 50-403, at 34 (1967).

understanding, and indeed has relied on that understanding to justify issuing §209(b) waivers on the assumption that those waivers can be withdrawn if circumstances change.[391]

As the Proposed Rule notes, that understanding is also consistent with "the judicial principle that agencies possess inherent authority to reconsider their decisions."[392] Moreover, that understanding makes eminent practical sense. Given the statutory context, and the factors relevant to the waiver determination, it would be very odd if §209(b) waivers were a one-way ratchet that could be granted but never rescinded. For instance, as noted above, §209(b) prohibits EPA from granting a waiver if California does not need the standards at issue to meet compelling and extraordinary conditions.[393] For example, it would run contrary to the statutory scheme to require EPA to leave a waiver in place even after the compelling and extraordinary conditions that justified the waiver are fully addressed. Likewise, it would make little sense to require EPA to leave a waiver in place when federal standards are revised to require greater reductions in emissions than the state standards for which preemption has been waived. Finally, to the extent there is any statutory ambiguity as to whether EPA has the authority to withdraw a waiver, its interpretation of the statute to permit that action is entitled to *Chevron* deference.[394]

11.3.3.2. Withdrawal of the Section 209(b) Waiver for the MY 2021–2025 GHG and ZEV Regulations in Particular

The Proposed Rule sets out three grounds for EPA's decision to withdraw the waiver. First, EPA proposes to conclude that state standards that are preempted under EPCA cannot be granted a §209(b) waiver. While the Alliance believes this could potentially be an adequate ground for granting a §209(b) waiver, EPA's discussion of this ground in the Proposed Rule is relatively brief. EPA recognizes that it "has historically declined to consider as part of the waiver process whether California standards are … legal under other Federal statutes apart from the Clean Air Act,"[395] thereby "display[ing] awareness that it is changing position" on this issue (a necessary step in providing an adequate explanation for the change).[396] However, if EPA intends to rely on this ground to defend its decision to withdraw the waiver, it would be useful to provide more discussion of *why* EPA has decided to depart from its historical practice in the "unique situation" presented here.[397]

Second, EPA proposes to withdraw the waiver covering the standards at issue because California "does not need such State standards to meet compelling and extraordinary conditions."[398] As EPA recognizes, this proposed finding reflects two changes in its interpretation of the requirement

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[391] *See, e.g.*, 74 Fed. Reg. at 32,752 ("If federal greenhouse gas standards are promulgated in the future, and if such standards bring this [waiver] determination into question, then EPA can revisit this decision at that time.").
[392] 83 Fed. Reg. at 43,242; *see, e.g.*, *Ivy Sports Medicine v. Burwell*, 767 F.3d 81, 86 (D.C. Cir. 2014); *The Last Best Beef, LLC v. Dudas*, 506 F.3d 333, 340 (4th Cir. 2007); *Macktal v. Chao*, 286 F.3d 822, 825-26 (5th Cir. 2002).
[393] 42 U.S.C. § 7543(b)(1)(B).
[394] *Chevron*, 467 U.S. at 842-43. For the same reasons, the Alliance also agrees with EPA that the agency has the authority to withdraw the preemption waiver only in part. *See* 83 Fed. Reg. at 43,243.
[395] 83 Fed. Reg. at 43,240.
[396] *Encino Motorcars*, 136 S. Ct. at 2126 (quoting *Fox*, 556 U.S. at 515).
[397] 83 Fed. Reg. at 43,240; *see Fox*, 556 U.S. at 515 (agency that changes policy must "show that there are good reasons for the new policy").
[398] CAA § 209(b)(1)(B), 42 U.S.C. § 7543(b)(1)(B).

imposed by this statutory subsection: one relating to the scope of the analysis necessary under this subsection, and one relating to the substance of that analysis.[399]

With respect to the scope of the analysis, as the Proposed Rule explains, the statute is ambiguous as to whether EPA should evaluate the particular standards at issue in the waiver request to determine whether California "need[s] such State standards to meet compelling and extraordinary conditions," or should instead consider California's motor vehicle program in the aggregate in making that determination.[400] In the past, EPA has fluctuated between these two approaches. It applied the aggregate approach to all waiver requests sought by California from the 1977 Clean Air Act Amendments until 2008, none of which involved GHG standards.[401] When California filed its first request for a waiver for state GHG standards, however, EPA adopted the standard-by-standard approach to address the unique considerations presented by that context, as explained in its 2008 decision to deny that waiver request.[402] A year later, however, EPA reversed course, and applied the aggregate approach in the GHG context in its decision reconsidering the 2008 denial.[403]

The Proposed Rule now proposes to return to the view that EPA adopted when it first confronted California GHG standards in 2008, finding that the statute is ambiguous and applying the standard-by-standard approach to determine whether California needs the particular standards covered by the 2013 waiver.[404] The agency has acknowledged that this constitutes a change from its approach since 2008.[405] It has also given reasons for making that change, including the fact that the §209(a) preemption provision itself applies individually to each state standard, and the fact that an aggregate approach could reduce the statutory requirement to a nullity as long as California needed some part (no matter how small) of its motor vehicle program to address compelling conditions.[406] EPA has thus satisfied its responsibility to provide an adequate explanation for this change in position.[407]

With respect to the substance of the analysis, the statute is also ambiguous as to whether the phrase "compelling and extraordinary conditions" refers to conditions specific to California, or whether it can include conditions that are similar on a global scale.[408] Once again, EPA has fluctuated

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[399] *See* 83 Fed. Reg. at 43,246-48.
[400] 83 Fed. Reg. at 43,246.
[401] *See* 83 Fed. Reg. at 43,240-41.
[402] *See* 73 Fed. Reg. 12,156 (Mar. 6, 2008).
[403] *See* 74 Fed. Reg. 32,744 (July 9, 2009); *see also* 83 Fed. Reg. at 43,240-41 (recounting this history).
[404] *See* 83 Fed. Reg. at 43,241, 43,247-50.
[405] *See* 83 Fed. Reg. at 43,241.
[406] *See* 83 Fed. Reg. at 43,246. At the same time, EPA proposes to continue to "examine California's program as a whole" in evaluating waiver requests for standards that are "designed to address local or regional air pollution problems." 83 Fed. Reg. at 43,247. As the Proposed Rule explains, that approach is reasonable insofar as the waiver provision is "designed in part to permit California to adopt standards for some criteria pollutants that are less stringent than the Federal standards as a trade-off for standards for other criteria pollutants" at the local level. *Id.* No such trade-off is involved in setting GHG standards, which are designed to address global problems rather than issues specific to California. *See id.* While this rationale is apparent in the analysis applied in the Proposed Rule, EPA should consider explaining in more detail why it is appropriate to apply the aggregate approach in analyzing standards that address local problems and the standard-by-standard approach in analyzing standards that address global problems.
[407] *See Fox*, 556 U.S. at 515.
[408] 83 Fed. Reg. at 43,247.

between these two interpretations, applying the former in its 2008 waiver denial and the latter in reconsidering that denial.[409] The Proposed Rule proposes to adopt the former interpretation. It acknowledges that EPA is changing its position, and gives reasons for doing so—including the normal meaning of the word "extraordinary," and legislative history showing that Congress intended the waiver provision to address California's "peculiar local conditions."[410] That is again sufficient to carry EPA's burden to explain its decision.[411]

Applying those interpretations, EPA proposes to conclude that the 2013 waiver was not appropriate under §209(b)(1)(B) because California does not need its GHG and ZEV standards to meet any compelling and extraordinary conditions. Because the GHG and ZEV standards are directed at a *global* problem rather than a local one,[412] and because that global problem has similar significant effects across the country (and around the world), EPA could determine that California does not face any "extraordinary" conditions that would set it apart from the rest of the country and warrant different GHG emissions standards.[413]

Moreover, insofar as the available evidence shows that the GHG and ZEV standards at issue would not have any significant impact on global climate change (or on the effects of global climate change in California), EPA could take the position that California does not "need" those standards to resolve conditions that those standards "will not meaningfully address."[414] Indeed, as the Proposed Rule notes, the plain language of the statute itself is enough to justify the view that California does not "need" standards "that would not meaningfully address the problem."[415] That said, to the extent this analysis differs from EPA's view in 2009 that "there is no need to delve into the extent to which the GHG standards at issue … would address climate change" in deciding whether to grant a waiver,[416] and that any minimal reduction in GHG emissions can be sufficient to justify a waiver, it would be useful for EPA to discuss the reasons for its change in analysis in more detail.[417] Even without that additional explanation, however, the analysis and evidence that EPA has set out on these issues in the Proposed Rule is sufficient to meet EPA's obligation to "examine the relevant data and articulate a satisfactory explanation for its action."[418]

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[409] *See id.* at 43,241 (recounting this history).
[410] 83 Fed. Reg. at 43,247; *see* S. Rep. No. 403, 90th Cong. 1st Sess., at 32 (1967).
[411] *Encino Motorcars*, 136 S. Ct. at 2126; *Fox*, 556 U.S. at 515.
[412] In the past, EPA has taken the position that GHG levels can exacerbate local air pollution problems. *See, e.g.*, 74 Fed. Reg. at 32,763. EPA has addressed this issue in the Proposed Rule by explaining that it believes "any effects of global climate change would apply to the nation, indeed the world, in ways similar to the conditions noted in California." 83 Fed. Reg. at 43,249. And, as the Proposed Rule explains, California's waiver request notably "did not indicate how [its] GHG standards would help California" in addressing its local air pollution issues. *Id.* Nevertheless, it would be useful for EPA to explain in more detail its current views with respect to the relationship between increased GHG levels and local air pollution conditions in California. *Cf.* 74 Fed. Reg. at 32,765.
[413] *See* 83 Fed. Reg. at 43,248-49. The Proposed Rule specifically explains why EPA has concluded that other States would face similar issues with respect to rising sea levels, water supply issues, increased risk of wildfires, and other effects of global climate change. 83 Fed. Reg. at 43,249.
[414] 83 Fed. Reg. at 43,248; *see id.* at 42,996-97 (noting minimal effects on atmospheric CO_2 and global average temperatures from less stringent GHG emissions standards).
[415] 83 Fed. Reg. at 43,248.
[416] 74 Fed. Reg. at 32,766.
[417] *See Fox*, 556 U.S. at 515.
[418] *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

Third, EPA proposes to find that the California GHG and ZEV standards are not consistent with CAA §202(a),[419] and so the waiver is not appropriate under CAA §209(b)(1)(B),[420] because the California standards do not provide sufficient lead time to permit the development of the requisite technology in light of the necessary compliance costs.[421] With respect to the GHG standards, as the Proposed Rule recognizes, this finding follows from EPA's determination that the equivalent federal GHG standards are not feasible under the same standard. The federal and California GHG standards "are equally stringent and have the same lead time."[422]

EPA has likewise set forth an explanation for its proposed determination that the California ZEV standards are no longer feasible. As the Proposed Rule notes, its technical analysis "raises questions as to CARB's technological projections for ZEV-type technologies," and indicates that the requirements based on those projections "are technologically infeasible within the provided lead-time."[423] In addition, the projected levels of ZEV development have become economically impracticable due to "lack of market penetration, consumer demand levels that are lower than projections …, and lack of or slow development of necessary infrastructure."[424] Those factors have increased the projected costs of compliance to the point where it would be reasonable for EPA to conclude the California ZEV standards no longer provide adequate lead time in light of those costs.[425] Especially in light of the "substantial room for deference to the EPA's expertise in projecting the likely course of [technological] development,"[426] the available evidence would support the proposed determination on this ground as well.[427]

Finally, the Alliance agrees with EPA that its proposed GHG standards for MY 2021–2026 and its proposed decision to withdraw the January 2013 waiver are severable.[428] Again, severability "depends upon the intent of the agency and upon whether the remainder of the regulation could function sensibly without the stricken provision."[429] EPA has made clear that it intends its proposed GHG standards and its waiver determination to be severable,[430] and it is wholly clear

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[419] 42 U.S.C. § 7421(a).
[420] 42 U.S.C. § 7543(b)(1)(C).
[421] *See* 83 Fed. Reg. at 43,240, 43,250-53.
[422] 83 Fed. Reg. at 43,250.
[423] 83 Fed. Reg. at 43,250.
[424] 83 Fed. Reg. at 43,250; *see id.* at 43,252.
[425] EPA also proposes to set aside its prior view that costs of compliance are only excessive if they represent a "doubling or tripling of vehicle cost." 83 Fed. Reg. at 43,251. The reasons for that change in position are more or less apparent on their face—in particular, because the statute does not set any such bright-line rule for when the cost of compliance is so high as to require additional lead-time, and is more naturally read to adopt the holistic approach that EPA proposes to follow. *See* CAA § 202(a)(1), 42 U.S.C. § 7521(a)(2). Nevertheless, in an abundance of caution, EPA should consider making those reasons explicit. *See Fox*, 556 U.S. at 515.
[426] *NRDC v. EPA*, 655 F.2d 318, 331 (D.C. Cir. 1981).
[427] Certain comments in the Proposed Rule suggest that EPA also proposes to find that the California standards should be withdrawn because California's determination that its standards are as protective as federal standards was arbitrary and capricious. *See, e.g.*, 83 Fed. Reg. at 43,244. The Alliance respectfully submits that EPA should provide a more thorough discussion of its reasoning if it decides to take that approach.
[428] 83 Fed. Reg. at 43,253.
[429] *MD/DC/DE Broadcasters Ass'n*, 236 F.3d at 22 (emphasis omitted).
[430] *see* 83 Fed. Reg. at 43,253.

that either of those two actions could function without the other. The requirements for severability are therefore met.[431]

[431] The Alliance also agrees with EPA that each of its three proposed reasons for withdrawing the waiver is sufficient on its own and severable from the others. 83 Fed. Reg. at 43,240, 43,244; *see* CAA § 209(b)(1), 42 U.S.C. § 7543(b)(1) (authorizing EPA to deny a waiver if any of the statutory conditions is not met).

APPENDIX 12 MISCELLANEOUS REGULATORY DRAFTING ISSUES

The Alliance identified a small number of technical issues in the proposed and existing regulatory text that should be addressed as part of the Final Rule. The Alliance views these issues generally as errors in the drafting, and not representative of the intended proposal (or prior final rules); and we provide the following comments in that context.

12.1. Certain Definitions in 49 C.F.R. § 523.2 Reference Non-Existent Regulations

The 2012 light-duty vehicle fuel economy and GHG final rule set definitions in 49 C.F.R. § 523.2 for "mild hybrid vehicle" and "strong hybrid vehicle" as having the meanings given in 40 C.F.R. § 86.1803-01.[432] These specific terms are not currently found in 40 C.F.R. § 86.1803-01, but the similar terms "mild hybrid electric vehicle" and "strong hybrid electric vehicle" are.

In the 2016 heavy-duty vehicle Phase 2 fuel efficiency and GHG standards final rule, "mild hybrid vehicle" was replaced with "mild hybrid gasoline-electric vehicle" and "strong hybrid vehicle" was replaced with "strong hybrid gasoline-electric vehicle." These new terms were defined as meaning a vehicle as defined by EPA in 40 C.F.R. § 86.1866-12(e).[433]

First, a brief search through 49 C.F.R. Subtitle B, Chapter V (broadly including light- and heavy-duty vehicle fuel efficiency regulations) failed to identify any specific use of either the original or amended terms. Thus is it unclear why these terms are defined in 49 C.F.R. § 523.2.

Second, the new terms (referencing 40 C.F.R. § 86.1866-12(e)) have meaningless definitions. Although 40 C.F.R. § 86.1866-12 exists, there is no subsection (e), nor are the specific terms in "mild hybrid gasoline-electric vehicle" or "strong hybrid gasoline-electric vehicle" defined elsewhere in that section.

The Alliance recommends that the terms in question be removed from 49 C.F.R. § 523.2 if they are not used elsewhere in NHTSA's regulations. If similar terms with the same intended meaning are used in NHTSA regulations, the Alliance recommends that the terminology be harmonized within the NHTSA regulations and with the EPA terminology. Furthermore, if the terms in question are needed in NHTSA regulations, the Alliance recommends that the definitions direct the reader to 40 C.F.R. § 86.1803-01, or given their otherwise intended meaning.

[432] 77 Fed. Reg. at 63,189.
[433] 81 Fed. Reg. 74,236, 75,327 (Oct. 25, 2016).

Message

From: Grundler, Christopher [grundler.christopher@epa.gov]
Sent: 10/24/2018 11:12:40 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
Subject: OIG Glider inquiry

Bill—OIG here all day today conducting interviews. We gave them about 8 inches of documents they had requested. I am told interviews went smoothly.

C--

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 10/24/2018 6:02:04 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]; Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: RE: Letter from Tennessee Technological University (TTU) to EPA, Mr. Fitzgerald, and Congresswoman Diane Black regarding the TTU glider emissions study

Chris,

Thanks. As is happens, Molly Block, ever alert to these sorts of developments on the press front, had a short time ago reached out to Mandy to see if we might want to say anything if asked (and, if so, what). I believe that she and Molly worked out some sort of nominal response, of the type we've used before when the TTU study has come up.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Grundler, Christopher
Sent: Wednesday, October 24, 2018 1:26 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: FW: Letter from Tennessee Technological University (TTU) to EPA, Mr. Fitzgerald, and Congresswoman Diane Black regarding the TTU glider emissions study

For situational awareness. The Administrator was copied on this Oct 23 letter to Fitzgerald and Cong. Black

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

From: Charmley, William
Sent: Wednesday, October 24, 2018 12:59 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Sargeant, Kathryn <sargeant.kathryn@epa.gov>; Nelson, Brian <nelson.brian@epa.gov>; Moulis, Charles <moulis.charles@epa.gov>; Carrillo, Andrea <Carrillo.Andrea@epa.gov>; Orlin, David

<Orlin.David@epa.gov>; Burch, Julia <Burch.Julia@epa.gov>
Subject: Letter from Tennessee Technological University (TTU) to EPA, Mr. Fitzgerald, and Congresswoman Diane Black regarding the TTU glider emissions study

Dear all,

Attached is a letter dated October 23, 2018 (yesterday) from TTU to EPA, Mr. Fitzgerald, and Congresswoman Black regarding the TTU emissions testing program and the June 15, 2017 letter from the President of TTU to Congresswoman Black that was attached to the Fitzgerald et. al. petition regarding the EPA glider provisions.

Deliberative Process / Ex. 5

Below is also an article on this topic, which includes a link to the letter, which is where I downloaded the letter from.
bu
Thanks
Bill

Bloomberg GOVERNMENT

The Hill: University: Truck pollution research cited by EPA was 'not accurate'

October 24, 2018 12:15PM ET | The Hill

University: Truck pollution research cited by EPA was 'not accurate' The research the Environmental Protection Agency (EPA) cited in proposing to roll back a major truck pollution rule was "not accurate," the university that conducted the study ...

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Appointment

From: Christensen, Kevin [Christensen.Kevin@epa.gov]
Sent: 2/15/2019 7:41:46 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: FW: Meeting with OIG re: Glider Repeal Rule Significance Determination
Location: WJC - N 5400 + Video with R3 3203 & R8 4103 + Conference Line/Code / Ex. 6

Start: 2/20/2019 4:00:00 PM
End: 2/20/2019 4:30:00 PM
Show Time As: Busy

Appointment

From: Goldman, Todd [Goldman.Todd@epa.gov]
Sent: 2/12/2019 9:43:28 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meeting with OIG re: Glider Repeal Rule Significance Determination
Location: WJC - N 5400 + Video with R3 3203 & R8 4103 + Conference Line/Code / Ex. 6

Start: 2/20/2019 4:00:00 PM
End: 2/20/2019 4:30:00 PM
Show Time As: Busy

Appointment

From: Dutton, Allison [Dutton.Allison@epa.gov]
Sent: 2/12/2019 9:05:44 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meeting with OIG re: Glider Repeal Rule Significance Determination
Location: WJC - N 5400 + Video with R3 3203 & R8 4103 + Conference Line/Code / Ex. 6

Start: 2/20/2019 4:00:00 PM
End: 2/20/2019 4:30:00 PM
Show Time As: Busy

Appointment

From: Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Sent: 9/5/2018 9:34:26 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald Trucks re: glider kits (Confirmed)
Location: WJC-N 5400 + Video with AA + Conference Line/Code / Ex. 6

Start: 9/7/2018 3:30:00 PM
End: 9/7/2018 4:15:00 PM

Recurrence: (none)

Appointment

From: Cook, Leila [cook.leila@epa.gov]
Sent: 9/5/2018 7:16:46 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald Trucks re: glider kits (Confirmed)
Location: WJC-N 5400 + Video with AA + Conference Line/Code / Ex. 6

Start: 9/7/2018 3:30:00 PM
End: 9/7/2018 4:15:00 PM
Show Time As: Busy

Appointment

From: Stewart, Gwen [Stewart.Gwen@epa.gov]
Sent: 9/5/2018 1:47:12 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald Trucks re: glider kits (Confirmed)
Location: WJC-N 5400 + Video with AA + Conference Line/Code / Ex. 6

Start: 9/7/2018 3:30:00 PM
End: 9/7/2018 4:15:00 PM
Show Time As: Busy

Appointment

From: Iffland, JoNell [Iffland.JoNell@epa.gov]
Sent: 9/5/2018 1:35:47 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald Trucks re: glider kits (Confirmed)
Location: WJC-N 5400 + Video with AA + Conference Line/Code / Ex. 6

Start: 9/7/2018 3:30:00 PM
End: 9/7/2018 4:15:00 PM
Show Time As: Busy

Appointment

From: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Sent: 6/15/2018 4:41:28 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald re: Glider Kits (Confirmed)
Location: WJC - N 5400 + Video AA + Conference Line/Code / Ex. 6

Start: 6/22/2018 5:00:00 PM
End: 6/22/2018 5:45:00 PM

Recurrence: (none)

Appointment

From: Schwab, Justin [Schwab.Justin@epa.gov]
Sent: 6/13/2018 4:30:50 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Tentative: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 + Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM

Recurrence: (none)

Appointment

From: Stewart, Gwen [Stewart.Gwen@epa.gov]
Sent: 6/13/2018 4:27:23 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 **Conference Line/Code / Ex. 6**

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM
Show Time As: Busy

Appointment

From: Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Sent: 6/13/2018 4:15:47 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM

Recurrence: (none)

Appointment

From: Nelson, Brian [nelson.brian@epa.gov]
Sent: 6/13/2018 4:09:42 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 + Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM
Show Time As: Busy

Appointment

From: Woods, Clint [woods.clint@epa.gov]
Sent: 6/13/2018 4:00:42 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM
Show Time As: Busy

Appointment

From: Sanchez, James [sanchez.james@epa.gov]
Sent: 6/13/2018 3:51:27 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 - Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM
Show Time As: Busy

Appointment

From: Sargeant, Kathryn [sargeant.kathryn@epa.gov]
Sent: 6/13/2018 3:50:36 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 + Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM
Show Time As: Busy

Appointment

From: Carrillo, Andrea [Carrillo.Andrea@epa.gov]
Sent: 6/13/2018 3:50:31 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Briefing on HD GHG Phase 2 glider program
Location: WJC - N 5400 + Video AA C- 174 + Conference Line/Code / Ex. 6

Start: 6/15/2018 1:30:00 PM
End: 6/15/2018 2:30:00 PM
Show Time As: Busy

Appointment

From: Woods, Clint [woods.clint@epa.gov]
Sent: 6/22/2018 2:44:20 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald re: Glider Kits (Confirmed)
Location: WJC - N 5400 + Video AA + Conference Line/Code / Ex. 6

Start: 6/22/2018 3:00:00 PM
End: 6/22/2018 3:45:00 PM
Show Time As: Busy

Appointment

From: Stewart, Gwen [Stewart.Gwen@epa.gov]
Sent: 6/22/2018 2:23:35 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald re: Glider Kits (Confirmed)
Location: WJC - N 5400 + Video AA + Conference Line/Code / Ex. 6

Start: 6/22/2018 3:00:00 PM
End: 6/22/2018 3:45:00 PM
Show Time As: Busy

Appointment

From: Charmley, William [charmley.william@epa.gov]
Sent: 6/20/2018 10:05:24 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]

Subject: Accepted: Meet with Fitzgerald re: Glider Kits (Confirmed)
Location: WJC - N 5400 + Video AA + Conference Line/Code / Ex. 6

Start: 6/22/2018 5:00:00 PM
End: 6/22/2018 5:45:00 PM

Recurrence: (none)

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 2/20/2019 2:37:39 PM
To: Lewis, Josh [Lewis.Josh@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]
Subject: RE: Calendar for Wednesday

Thanks Josh.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Lewis, Josh
Sent: Wednesday, February 20, 2019 9:32 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Woods, Clint <woods.Clint@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Atkinson, Emily <Atkinson.Emily@epa.gov>; Millett, John <Millett.John@epa.gov>; DeLuca, Isabel <DeLuca.Isabel@epa.gov>
Subject: Re: Calendar for Wednesday

Here's the latest:

Deliberative Process / Ex. 5

On Feb 20, 2019, at 8:17 AM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Deliberative Process / Ex. 5

Bill Wehrum
Assistant Administrator
Office of Air and Radiation

U.S. Environmental Protection Agency
(202) 564-7404

From: Lewis, Josh
Sent: Wednesday, February 20, 2019 7:54 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Woods, Clint <woods.Clint@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Rakosnik, Delaney <rakosnik.delaney@epa.gov>; Atkinson, Emily <Atkinson.Emily@epa.gov>; Millett, John <Millett.John@epa.gov>; DeLuca, Isabel <DeLuca.Isabel@epa.gov>
Subject: Re: Calendar for Wednesday

Ok. Before I get in touch with Jon and Sarah and others, are you planning to be in the office today? Or taking calls from home?

On Feb 20, 2019, at 7:34 AM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

> Thanks. I'm okay with everything else. I leave it to Sarah and Jon to decide if they want to do the one on ones. Same for the IG. The rest are calls with OAQPS or OTAQ, which should be fine.
>
> _____
> Bill Wehrum
> Assistant Administrator
> Office of Air and Radiation
> U.S. Environmental Protection Agency
> (202) 564-7404
>
> On Feb 20, 2019, at 7:32 AM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:
>
>> Ok I'll get word to Otaq folks now about the 9 am
>>
>> On Feb 20, 2019, at 7:27 AM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:
>>
>>> I know for sure that I need to reschedule the 9:00 OTAQ meeting. Let's wait to pick another time. I will get back to you on everything else.
>>>
>>> _____
>>> Bill Wehrum
>>> Assistant Administrator
>>> Office of Air and Radiation
>>> U.S. Environmental Protection Agency
>>> (202) 564-7404
>>>
>>> On Feb 20, 2019, at 7:14 AM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:
>>>
>>>> Bill - given the closure today, let us know how you want to proceed with meetings. I can open the phone lines for meetings as needed.

On Feb 19, 2019, at 5:37 PM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:

Let's check tomorrow morning to see what's going on weather-wise. At a minimum, I'll open the line at 9 am for

Deliberative Process / Ex. 5

Re: the IG meeting at 11, the email from

Deliberative Process / Ex. 5

That meeting is set up to be video conference with R3 and R8. We'll play that one by ear.

<Picture (Device Independent Bitmap) 1.jpg>

<Picture (Device Independent Bitmap) 2.jpg> Wed, Feb 20

<Picture (Device Independent Bitmap) 3.jpg>	**Before 8:00 AM**
<Picture (Device Independent Bitmap) 4.jpg>	**8:00 AM – 9:00 AM**
<Picture (Device Independent Bitmap) 5.jpg>	9:00 AM – 9:30 AM
<Picture (Device Independent Bitmap) 6.jpg>	**9:30 AM – 9:45 AM**
<Picture (Device Independent Bitmap) 7.jpg>	9:45 AM – 10:30 AM
<Picture (Device Independent Bitmap) 8.jpg>	10:30 AM – 11:00 AM
<Picture (Device Independent Bitmap) 9.jpg>	11:00 AM – 11:30 AM
<Picture (Device Independent Bitmap) 10.jpg>	11:30 AM – 1:00 PM
<Picture (Device Independent Bitmap) 11.jpg>	1:00 PM – 2:30 PM
<Picture (Device Independent Bitmap) 12.jpg>	2:30 PM – 3:00 PM
<Picture (Device Independent Bitmap) 13.jpg>	3:00 PM – 4:00 PM
<Picture (Device Independent Bitmap) 14.jpg>	4:00 PM – 4:30 PM
<Picture (Device Independent Bitmap) 15.jpg>	**4:30 PM – 5:00 PM**
<Picture (Device Independent Bitmap) 16.jpg>	**5:00 PM – 5:15 PM**

	<Picture (Device Independent Bitmap) 17.jpg>	5:15 PM – 5:45 PM
	<Picture (Device Independent Bitmap) 18.jpg>	**After 5:45 PM**
<Picture (Device Independent Bitmap) 19.jpg>		

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 9/19/2018 10:18:23 PM
To: DeLuca, Isabel [DeLuca.Isabel@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Millett, John [Millett.John@epa.gov]
Subject: Re: Bill's calendar 9/3-9/14

This looks fine. Thanks.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Sep 19, 2018, at 11:43 AM, DeLuca, Isabel <DeLuca.Isabel@epa.gov> wrote:

> Hi Bill,
> It's calendar week once again -- your calendar for 9/3-9/14 is pasted below for your review.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/26/2018 12:27:18 PM
To: Harlow, David [harlow.david@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: FW: gliders - draft withdrawal; draft cover letter
Attachments: Draft NAA response template 7-25.docx; DRAFT Memo to Withdraw Gliders NAA 7.25.18 1146am.docx

David – This looks pretty straightforward to me. Will you please do a reality check for me? Thanks.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Schwab, Justin
Sent: Wednesday, July 25, 2018 1:01 PM
To: Bodine, Susan <bodine.susan@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Leopold, Matt (OGC) <Leopold.Matt@epa.gov>
Subject: gliders - draft withdrawal; draft cover letter

Please find attached 2 items for your review.

Redlines from an earlier version that some may have seen are only in the last paragraph reflected changes from OECA leadership and from Matt L., the rest is clean.

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 8/8/2018 2:48:29 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Fwd: Letter to Acting Administrator Wheeler
Attachments: Wheeler 8.8.18.pdf; ATT00001.htm

FYI

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

Begin forwarded message:

> **From:** "Janet McCabe" <janetgmccabe@gmail.com>
> **Date:** August 8, 2018 at 10:35:59 AM EDT
> **To:** <Wheeler.Andrew@epa.gov>
> **Cc:** "'Wehrum, Bill'" <Wehrum.Bill@epa.gov>, <jackson.ryan@epa.gov>
> **Subject: Letter to Acting Administrator Wheeler**
>
> Dear Acting Administrator Wheeler:
>
> Attached please find a letter from myself and several other former leaders of EPA's Office of Air and Radiation.
>
> Sincerely,
>
> Janet G. McCabe

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 8/27/2018 12:28:52 PM
To: Shoaff, John [Shoaff.John@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Lubetsky, Jonathan [Lubetsky.Jonathan@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: FW: QFRs for review/refinements circa Monday
Attachments: 2018.08.24b - OAR Wheeler QFRs 08.01.2018.docx

Here are a few comments in track changes.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Shoaff, John
Sent: Friday, August 24, 2018 12:45 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.clint@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Lubetsky, Jonathan <Lubetsky.Jonathan@epa.gov>
Subject: QFRs for review/refinements circa Monday

Bill et al,

Per mention at Roundtable this AM, please find attached the latest proposed responses to the QFRs from the SEPW Wheeler Hearing. Aiming to turn these around Monday if at all possible noting that OCIR wanted as soon as today. Thanks!

John

JOHN SHOAFF | DIRECTOR
OFFICE OF AIR POLICY & PROGRAM SUPPORT (OAPPS)
OFFICE OF AIR & RADIATION | U.S. EPA | WJC NORTH 5442-B
1200 PENNSYLVANIA AVE. NW | MC 6103A | WASHINGTON, D.C. | 20460 | USA
Shoaff.john@epa.gov | 1-202-564-0531 DIRECT | 1-202-257-1755 MOBILE

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/31/2018 12:40:34 PM
To: Millett, John [Millett.John@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: FW: Morning Energy, presented by ExxonMobil: 'Minibus' pulling out — FERC ready to get technical — EPA on what's trending in the air

See the blurb below on the trends report. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: POLITICO Pro Energy [mailto:politicoemail@politicopro.com]
Sent: Tuesday, July 31, 2018 5:44 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: Morning Energy, presented by ExxonMobil: 'Minibus' pulling out — FERC ready to get technical — EPA on what's trending in the air

By Eric Wolff | 07/31/2018 05:42 AM EDT

With help from Darius Dixon, Alex Guillén, and Anthony Adragna

ALL ABOARD THE MINI-BUS: The House may be on summer vacation, and President Donald Trump may be threatening a government shutdown, but the Senate is going to pass its appropriations — if top Democratic and Republican appropriators have anything to say about it. Committee leaders on both sides said they're making strides toward finalizing a manager's amendment to the pending minibus H.R. 6147 (115) and voiced confidence they'd be able to pass the bill shortly. "We're hoping to pass this minibus this week," Senate Appropriations Chairman Richard Shelby told reporters. "We've made a lot of progress, but I don't think [the manager's amendment] is sealed yet." That panel's ranking Democrat, Sen. Patrick Leahy, echoed that confidence: "We spent a lot of time this weekend and earlier today" on the manager's amendment, he said. "So far things are going pretty well."

Senate Majority Leader Mitch McConnell indicated the chamber would wrap up on the minibus, which contains the Agriculture, S. 2976 (115), Financial Services, S. 3107 (115), Interior-Environment, S. 3073 (115), and Transportation-HUD S. 3023 (115) titles, this week. "We'll finish up the set of appropriations measures we've been considering for several days and take four more big steps towards our goal of completing a regular appropriations process and funding the government in a timely and orderly manner," he said in floor remarks.

Shelby urged President Donald Trump not to follow through on his threats to shut down the government over border wall funding. "I'm hoping the idea of shutting down the government is not a serious thing," he said. "It's

not good for the Republicans, the Democrats and it's certainly not good for the thousands and thousands of people who depend on the certainty of government funding." He said the threats don't help prospects for finalizing individual appropriations measures and advised the Trump not to veto individual bills to attempt and secure additional border funding.

IT'S RUBY TUESDAY: I'm Eric Wolff, covering for your usual maestro, Kelsey Tamborrino, who's enjoying a well-earned break on the beach. Your trivia winner was Duke Energy's Vicky Sullivan, who correctly identified Delaware as the only state with a border based on a circle, though an honorable mention to Jim Colthart, chairman of C3 Global Technologies, who noted that all the states with boundaries on the 49th parallel *also* have part of their borders based on a circle, just a much larger one. For today: Name the most visited National Park (Hint: It's an actual park, not a recreation area or monument). Send your answer along with your Morning Energy snark to me at ewolff@politico.com, and send your newsletter tips to Anthony Adragna at aadragna@politico.com, who will be taking the wheel for Wednesday's edition, and follow any and all of us on Twitter, @ericwolff, @anthonyadragna, @kelseytam, @Morning_Energy and @POLITICOPro.

GOOD OLD RELIABLE POWER GRID: A big portion of the energy world turns its attention to FERC today as the agency hosts a technical conference focused on the all-important topic of electric grid reliability. Regulators have tried to hold this type of event — which hits on everything from cybersecurity to managing intermittent resources like solar — on an annual basis, and this year's gathering may get more attention because of all the drama surrounding the Trump administration's plans to boost particular power sources. Although it's not specifically mentioned in the meeting agenda , the cybersecurity panel at the end of the day may wind its way to the issue at the heart of the Energy Department's argument for anchoring coal and nuclear power to the grid: that there are cyberthreats specific to natural gas infrastructure. Energy Secretary Rick Perry and other DOE officials have argued that the growth of the gas industry is threatening coal and nuclear power, making the grid too dependent on power generated by the fuel. FERC has lined up top executives from most of the nation's grid operators (except PJM, which is notably absent) and energy industry trade associations, as well as government officials from DOE, the FBI and the Department of Homeland Security and those from Mexico and Canada.

Get your R-words straight: This isn't the first FERC technical conference to reference grid "resilience" as well as reliability (despite what some people think, resilience was in the FERC lexicon before the Trump administration came along) but the word got an elevated, headlining status this year for one of this morning's sessions. The deadline to comment on a series of resilience questions floated by FERC recently closed and Alison Silverstein, who will be speaking on the subject today, says "the fun is in how differently everyone explains how a resilient system is actually manifested."

"This is where everyone's talking up their book — transmission folks think resiliency means more wires, coal people say it's fuel security, NERC says it's standards and drills, services and studies," she added. So, pity the regulators: "I don't envy FERC, which will have to find some public interest, statute-based rationality from a conversation where everyone's talking across each other."

We (re)hear you, ok?! Monday was the deadline for those wanting to challenge FERC's contentious, late-June order deeming PJM's capacity market unjust and unreasonable — a move that kicked off a process to rewrite them in a way that seeks to guard that market from power generators receiving state-level incentives. Requests for rehearing or clarification came in from the Organization for PJM States, Exelon Corp., the American Public Power Association, and others. How FERC will handle the rehearing requests once Commissioner Rob Powelson departs in a few weeks is unclear.

If you go: The conference starts at 9 a.m. at FERC headquarters at 888 First St. NE and runs all day.

AIR IS TRENDING: EPA this afternoon will release its annual air trends report with new tracking of 2017 air quality across the U.S. Last year's report — which highlighted long-term improvement in air quality for

pollutants like ozone, particulate matter, sulfur dioxide and lead — drew criticism from environmentalists who noted much of those gains were attributable to past regulations the Trump EPA is working to loosen.

CARPER: 'ENCOURAGING SIGNS': Senate EPW ranking member Tom Carper (D-Del.) told reporters there were "encouraging signs" that acting EPA Administrator Andrew Wheeler had ushered real changes to the agency's operations. "Some of early the developments — he's only been there three weeks — have been encouraging," Carper said, pointing to his reversal of an exemption for glider trucks and what he deemed a new tone that is "more respectful of the employees." He told reporters to expect "tough questions" for Wheeler at a Wednesday hearing though.

** **Presented by ExxonMobil:** Natural gas has become more important than ever. That's because it's fueling an American manufacturing revival and creating jobs while lowering emissions. And ExxonMobil is one of the world's largest providers. EnergyFactor.com **

ICYMI: Wheeler getting transparent: Wheeler issued an endorsement of transparency to the public and the press in an all-hands memo sent Monday. Pro's Emily Holden has more.

SCOTUS TELLS KIDS TO CARRY ON: The Supreme Court on Monday gave the go-ahead to a climate lawsuit brought by children and young adults, rejecting a Trump administration request to toss the suit. But, as Pro's Alex Guillén reports , the court had advice for the district judge handling the case. "The breadth of [the children's and young adults'] claims is striking, however, and the justiciability of those claims presents substantial grounds for difference of opinion. The District Court should take these concerns into account in assessing the burdens of discovery and trial, as well as the desirability of a prompt ruling on the Government's pending dispositive motions," the Supreme Court wrote.

ZINKE: FIX THOSE PARKS! Interior Secretary Ryan Zinke will today introduce a video on the need to rebuild national parks infrastructure. He'll be joined by Sen. Lamar Alexander (R-Tenn.). The event will be at 3 p.m. at the Belmont Paul Women's Equality National Monument.

GREENS, STATES APPEAL METHANE WASTE STAY: The Environmental Defense Fund along with other groups filed their opening brief in their appeal of a lower court's stay of BLM's waste prevention rule. The case pits Interior, enviros and blue states like California and New Mexico against red states like Wyoming and North Dakota. Greens are furious with the lower court decision. "The district court committed a serious legal error," the groups say in their brief.

THE NICEST RACE IN THE COUNTRY? Republican Rep. Kevin Cramer is out with what has to be one of the gentlest political ads of the Trump era in his bid to challenge Democratic Sen. Heidi Heitkamp in the shale state of North Dakota. The ad opens with a woman at a roundtable saying, "I like Heidi. Who doesn't like Heidi? But I don't like the way she votes in Washington."

Kochs not it: The ad lands the same day news broke that the Koch network will not be helping Cramer in his Senate bid, as Campaign Pro's Maggie Severns reports. "We can't support him at this time. And to be clear, we've met with his team, explained this, and lobbied him on this to change their ways," Americans for Prosperity president Tim Phillips told donors Monday. At issue are priorities for the Koch network, such as reducing government spending and supporting free trade.

MICHIGAN PFAS CRISIS HITS A FOURTH DAY: The people of Parchment, Mich., just outside of Kalamazoo, are still forbidden from drinking their water after high levels of PFAS chemicals were found. The state declared an emergency last week, and levels of the chemical that makes things nonstick remained far too high on Monday. Kalamazoo is trying to build a new water main to link the two systems, but officials didn't know how long it would take, according to MLive. The Trump administration only recently released a study

finding adverse human health impacts from exposure to PFAS chemicals at far lower levels than previously deemed safe, after delaying its release due to fears of a "public relations nightmare."

CLEARPATH ACTION ENDORSES REED, PAULSEN: ClearPath Action Fund, the political arm of Jay Faison's ClearPath Foundation, will endorse two Republicans today, Reps. Thomas Reed (R-N.Y.) and Erik Paulsen (R-Minn.). Reed's race is considered safely Republican, but Paulsen is listed as a toss-up on Cook Report. ClearPath Action will spend in the six figures on digital ads to support both candidates. "One way to help the U.S. lead in the global clean energy race is by ensuring our tax code incentivizes some of our cleanest and most reliable forms of baseload power," Faison said. "Representatives Reed and Paulsen have been, and continue to be, leaders in this space."

MOVERS, SHAKERS: McKie Campbell, former staff director of the Senate Energy and Natural Resources Committee under Chairman Lisa Murkowski, and Melanie Kenderdine, former director of the Department of Energy Office of Energy Policy and Systems Analysis and energy counselor to the secretary during the Obama administration, are both joining the Energy Policy Institute at the University of Chicago as visiting fellows for 2018-19.

THE LIGHTER SIDE: This moose almost takes out the drone that's watching it, but the drone operator pulled back at the last second. ME will score it for the moose, anyway.

QUICK HITS

— How Record Heat Wreaked Havoc on Four Continents, NYT

— Oil Tops $70 as Supply Concerns Outweigh Higher Production, WSJ

— The world's largest solar farm rises in the remote Egyptian desert, LAT

— AEP Cancels Nation's Largest Wind Farm: 3 Challenges Wind Catcher Faced, Inside Climate News

HAPPENING TODAY

9 a.m. — FERC Technical Conference, 888 First Ave. NW

9 a.m. — Energy Efficiency for All and the Environmental and Energy Study Institute host a breakfast briefing on "Federal Programs for Energy and Housing: A Lifeline for America's Low-income Families." Rayburn 2060.

2 p.m. — The Environmental Law Institute hosts a webinar on "Proposed USFWS Endangered Species Act Regulations."

THAT'S ALL FOR ME!

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To view online:
https://subscriber.politicopro.com/newsletters/morning-energy/2018/07/minibus-pulling-out-300718

Stories from POLITICO Pro

Trump: 'I would have no problem doing a shutdown' Back

By Rebecca Morin | 07/30/2018 02:35 PM EDT

President Donald Trump doubled down Monday on his claim that he would shut down the government this fall if the funding he wants for border security is not approved by Congress.

"As far as the border is concerned, and personally, if we don't get border security, after many, many years of talk within the United States, I would have no problem doing a shutdown," Trump said during a press conference with Italian Prime Minister Giuseppe Conte, adding that the two are "united in our conviction that strong nations must have strong borders."

Trump's statement comes a day after he tweeted that he would shut down the government "if the Democrats do not give us the votes for Border Security, which includes the Wall!"

Currently, government funding is set to run out just 37 days before Nov. 6, the day of the midterm elections. Republicans control both the Senate and House, along with the presidency, but Trump and lawmakers have put the blame on Democrats for not passing immigration reform.

Trump said that his administration is "working hard to pass border security legislation, improve vetting, and establish a merit-based immigration system."

"It's time we had proper border security. We're the laughing stock of the world. We have the worst immigration laws anywhere in the world," Trump said.

The president later said he would be willing to "leave room for negotiation" in terms of his immigration demand. He added that $25 billion for a wall is not a "red line" for him.

But last month, Trump expressed frustration in a private meeting with senators and his staff that he was not getting $25 billion in full for a border wall. The Senate is planning to send Trump $1.6 billion this fall for the border wall.

"I have no red line, unlike President Obama," Trump said Monday, referring to comments Obama made in 2012 about chemical weapons use in Syria. "I just want great border security."

To view online click here.

Back

With FERC split, LaFleur's profile set to rise Back

By Darius Dixon | 07/30/2018 05:01 AM EDT

Cheryl LaFleur won't be wielding the gavel at FERC anytime soon, but she is about to become the commission's most powerful member.

The impending departure of Republican Robert Powelson will leave FERC evenly split along party lines, potentially throwing a wrench into an agenda for several months or longer until a fifth commissioner is confirmed.

"In my personal experience at the FERC, a four-person commission can be very difficult," said former FERC Chairman Jim Hoecker. "Agencies like this are odd numbers for a reason. It's always important for the chairman to develop a workable majority when opinions are divided."

Tyson Slocum, a longtime FERC watcher who directs Public Citizen's energy program, said LaFleur "has conditioned herself as sort of a swing vote" on the commission.

While LaFleur has split with Republicans on key issues like climate change, she is seen as the more moderate of FERC's pair of Democratic commissioners. That may give her an opportunity to shape new rules in the country's largest power market, and it could force greater consideration of greenhouse gas emissions before new pipelines are approved. But the split commission also may be less likely to undertake more contentious work such as any major overhaul of the agency's natural gas policy.

"We'll have to work harder to come to consensus on things — some of these hotly debated items," LaFleur said at the POLITICO Pro Summit in Washington earlier this month. "In order to get out orders, we'll have to find three people who vote together, and I'm happy to be part of that majority and try to influence the orders."

FERC Chairman Kevin McIntyre sets the agency's agenda, but he can't do much without a majority of commissioners on his side. When decision-making gets contentious, Hoecker said, the chairman may have to negotiate hard to get something voted out and, at the same time, avoid any resentments that might hold up the flow of routine business.

LaFleur laughed off a comparison to recently retired Supreme Court Justice Anthony Kennedy, a perennial swing vote, but she didn't dispute his influence.

"I've been at FERC so long that when I first got to FERC, someone told me I was the Sandra Day O'Connor," she said. "Now, a whole new generation of Supreme Court justices has come and gone and I'm still there."

While President Donald Trump will be able to pick a Republican to replace Powelson, a new commissioner may not be in place until sometime next year, after the Supreme Court fight and midterm elections expected to dominate the fall agenda in Washington. Formal vetting does not appear to have started, according to industry sources and other FERC watchers, but potential commissioners include Bruce Walker, the Energy Department's top electricity policy official; Sean Cunningham, a DOE official who used to direct the agency's policy office; and Doug Little, a former Arizona regulator who joined DOE's external affairs office last fall.

Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska), who recently boasted about having a fully stocked FERC, said she's eager to make sure there are enough commissioners to keep agency business flowing, particularly after last year's six-month stretch without a quorum and the project backlog that created.

"I'm going to kinda put a fire on this. We worked very aggressively to get the FERC filled out, and I guess we'll just do it again," Murkowski told reporters earlier this month.

While FERC can still conduct business with four commissioners, its agenda will be more complicated for a while.

The divide will be felt within a few weeks on a controversial FERC order directing the PJM grid operator to write new rules for its capacity market aimed at protecting power markets from state-level support for nuclear

and renewable power. PJM, the largest power market in the U.S., manages the grid spanning 13 states and the District of Columbia, from Illinois to New Jersey.

In June, Powelson delivered the tie-breaking vote on the order directing PJM to find a way to prevent subsidized power plants from undercutting competing sources such as coal.

LaFleur offered a more moderate dissent than her fellow Democratic Commissioner Richard Glick, who questioned the need for FERC to step in at all. While she acknowledged FERC may need to act, she was skeptical of the order's novel application of a mechanism known as a "Fixed Resource Requirement," a move that has sparked confusion across the industry.

"I do not share the majority's confidence that this proposal is the obvious solution to the challenge before us, in no small part because it is not clear to me how this construct will actually work," LaFleur wrote in her dissent. The majority, she said, had signaled their intent to adopt "the most sweeping changes to the PJM capacity construct since the market's inception more than a decade ago."

Now, it will be up to PJM to try to convince her.

The grid operator must submit a new plan by late August that meets the set of technical criteria laid out in FERC's order. PJM hopes to have the rules in place for its next capacity auction in the spring of 2019, and that will mean getting FERC's sign-off by January, before another commissioner is likely to be in place.

PJM would be smart to "to design a proposal that's going to at least get LaFleur's vote," because Glick isn't anywhere close to the Republicans on the issue, said Rob Gramlich, a consultant for renewable energy and storage companies who used to work for former FERC Chairman Pat Wood.

"All the RTOs and all the regulated utilities to some extent think about that. It's true on rates, and return on equity as well," Gramlich added. "Where the commissioners are is usually pretty well-known, and you don't want to file something that's going to be incompatible with commissioners' past positions."

LaFleur's position as FERC's swing vote will also be felt in the commission's reviews of pipelines and related natural gas infrastructure.

While LaFleur has generally voted to approve such applications, she has recently pushed her fellow commissioners to more seriously consider climate change in their reviews. She has cited as a motivation for that shift the August 2017 D.C. Circuit Court of Appeals decision that directed FERC to estimate how much carbon would be generated by natural gas power plants because of deliveries expected from the Sabal Trail pipeline and related projects in the Southeast.

But in the wake of the Sabal Trail ruling, LaFleur described doing a basic back-of-envelope emissions calculation she felt the agency should be doing — something McIntyre may have to consider if he wants LaFleur's vote. Even in some concurrences where she supported projects, LaFleur has pressed FERC to take climate change more seriously.

"I'm working to try to make a case-by-case public interest determine in each pipeline application or petition for rehearing based on the facts in the record and the governing law as I understand it," LaFleur said at FERC's July open meeting, explaining what she looks for before supporting pipelines.

LaFleur's position changed quickly enough that Republican FERC Commissioner Neil Chatterjee jokingly jabbed at her when talking about how he first met Powelson in the early 2010s.

"That was a lifetime ago," Chatterjee said at the meeting this month. "Cheryl used to vote for pipelines back then with no regard whatsoever for emissions."

Fewer than a half-dozen pipeline projects are slated to need leadership approval over the next several months, but sorting out how the policy divide is bridged in this four-member commission falls to McIntyre. Among them are Cheniere's Midcontinent Supply Header Interstate Pipeline, running 200 miles from central Oklahoma to the Texas border, that the developer had hoped to have in service by early 2019.

McIntyre has also launched an open-ended, loosely defined review to take a "fresh look" at the agency's gas infrastructure policy, which has not been updated since the Clinton administration. The policy outlines FERC's philosophy on how to assess the "need" for a project by weighing its environmental costs with market demand and other factors, and the ongoing review has turned into another front in the battle over climate change.

In comments submitted to FERC last week, environmental organizations like the Environmental Defense Fund say FERC needs to reassess how it prevents overbuilding the nation's pipeline network, and a slew of other green groups also argue that more greenhouse gas emissions data need to be disclosed. The Harvard Electricity Law Initiative suggests that FERC "explicitly acknowledge" the economic risks and environmental effects of greenhouse gas emissions. On the other hand, industry groups like the American Gas Association are asking regulators to keep their hands off the policy.

Now it's unclear how the initiative continues in Powelson's absence, whether McIntyre tries to make concessions to LaFleur to win her support for a new policy, or if he waits until a new commissioner is in place before proceeding further.

Public Citizen's Slocum said that while the commission may find a middle ground on some issues, he did not expect the agency to craft any notable new policies on gas infrastructure with its current makeup.

"FERC isn't gripped with the kind of partisan atmosphere of distrust that you see in Congress," he said. "But that doesn't mean that they're going to be able to work out their differences."

To view online click here.

Back

Wheeler: EPA must operate as if it were in a 'fishbowl' Back

By Emily Holden | 07/30/2018 02:52 PM EDT

Acting Administrator Andrew Wheeler on Monday called on EPA staff to operate in an open and transparent manner, invoking the calls from previous chiefs for the agency to work "as if it were in a fishbowl."

In a memo to staff obtained by POLITICO, Wheeler said the openness was needed to win the public's trust, and he cited the first "fishbowl" memo issued by former Republican EPA administrator Bill Ruckelshaus in the 1980s. Last year, Ruckelshaus criticized now-departed administrator Scott Pruitt for "taking the absolute opposite approach" of that pledge.

"The mission of EPA is to protect human health and the environment," Wheeler wrote. "We exist to serve the public. As such, the public should trust our work. We are committed to earning and maintaining the public's trust through transparency and accountability in our actions and civility and fairness in our public participation processes."

President Barack Obama's first EPA chief, Lisa Jackson, sent out a similar memorandum in 2009. EPA confirmed that Wheeler had sent the memo to staff.

Wheeler called for EPA to provide the fullest possible public participation in decision making, and he pledged that he and other other senior officials will make public their appointment calendars. The memo also guides staffers to speak through lawyers when discussing matters that involve litigation, to work with senior managers and legislative affairs staff when communicating with Congress and to coordinate with the press team when speaking with the media.

The memo said the press "performs a vital role in informing the public about the EPA's actions," and responses should respect the agency's deliberative process and "strive for accuracy and integrity."

Alex Guillén contributed to this report.

To view online click here.

Back

Supreme Court says kids' climate lawsuit can continue Back

By Alex Guillén | 07/30/2018 04:12 PM EDT

The Supreme Court today said that a sweeping climate change lawsuit brought by children and young adults against the U.S. government can proceed, setting the stage for the case to go to trial as soon as this fall.

"The Government's request for relief is premature and is denied without prejudice," the Supreme Court wrote in a short order rejecting the Trump administration's request.

But the high court also warned that the lawsuit is unwieldy and shared some advice for the district court judge handling the trial, slated to begin in October, about how to handle the likely controversy.

"The breadth of [the children's and young adults'] claims is striking, however, and the justiciability of those claims presents substantial grounds for difference of opinion. The District Court should take these concerns into account in assessing the burdens of discovery and trial, as well as the desirability of a prompt ruling on the Government's pending dispositive motions," the Supreme Court wrote.

The 9th Circuit Court of Appeals in March also rejected the government's request to immediately end the lawsuit. And the 9th Circuit last week rejected a second request from the Trump administration.

WHAT'S NEXT: The district court judge in Oregon has set an Oct. 29 deadline to begin the trial, although that date may get pushed back if there are disagreements about discovery.

To view online click here.

Back

Koch network snubs key GOP Senate candidate Back

By Maggie Severns | 07/30/2018 05:22 PM EDT

COLORADO SPRINGS, Colo. — The powerful Koch political network won't help the Republican nominee in a crucial Senate race less than 100 days before the midterm elections, saying Rep. Kevin Cramer (R-N.D.) doesn't do enough to further the Koch's policy issues to warrant their help.

And as the Koch network pushes Republicans to not take its support for granted, the network has quietly taken other steps to withhold its support from Senate candidates it sees as out-of-line with its views, despite the party's push to maintain or expand its majority this fall.

Cramer was the first Republican Senate candidate to be publicly jettisoned by the powerful Koch network this cycle. But during a private briefing over the weekend, donors were given a hand-out that indicated the network is also currently not supporting Senate candidates in two other key states — Indiana and Nevada — according to a photo of the document obtained by POLITICO.

Cramer is challenging Sen. Heidi Heitkamp (D-N.D.) in a must-win contest that could decide the balance of power in the Senate during the next Congress. In pushing him aside, Koch officials were clear to the donors that they are sending a message: Republicans in Congress should not take their support for granted.

Standing in front of a 20-foot high photo of Cramer projected on a screen, Americans for Prosperity president Tim Phillips told hundreds of top conservative donors that Cramer is "inconsistent" on a range of other issues that are key to the Koch network, such as reducing government spending and supporting free trade.

"We can't support him at this time. And to be clear, we've met with his team, explained this, and lobbied him on this to change their ways," Phillips said.

"There are risks involved any time you take a stand," said Emily Seidel, CEO of Americans for Prosperity. "Why would Cramer or any other Republican feel like they need to listen to this network if they know we'll support them anyway?"

Not everyone here at the Koch network's biannual confab agrees: Dan K. Eberhart, a donor to the Koch network and fundarising vice chairman for Cramer's campaign, said that "Kevin Cramer is an excellent public servant who looks out for North Dakota."

"This proves he isn't bought," Eberhart added.

Cramer's campaign shrugged off the snub. "As I have always said, I work for the people of North Dakota and will always vote with them in mind," Cramer said in a statement. "My voting record may not be exactly what every national organization wants, but it is exactly what the majority of North Dakotans expect."

The Koch network has passed over supporting some moderate Republican candidates in the past. During the 2016 elections, for example, then-Sen. Kelly Ayotte (R-N.H.) did not receive support from the Koch network during her reelection bid. (Ayotte was narrowly defeated that November by Democrat Maggie Hassan.)

But this year, Cramer is not the only Republican candidate the Koch network is considering leaving behind. The network is currently only active in four Senate races, a network official said Monday: Wisconsin, Missouri, Tennessee and Florida.

And during the weekend retreat held in Colorado Springs, donors briefed on the network's plans were given a handout on candidates the network is supporting that omitted three Republican senate candidates in particular from its list: Cramer, Indiana Senate nominee Mike Braun and incumbent Sen. Dean Heller (R-Nev.).

Braun, a businessman, is challenging Indiana Sen. Joe Donnelly — an incumbent the Koch network originally announced in January as one of its top targets for the midterm elections. But the Koch network is not currently doing any door-to-door work or airing television ads in Indiana at all, an unusual pull-back.

In Nevada, the Koch network is helping state Attorney General Adam Laxalt in his gubernatorial bid — but not Heller, who was the subject of criticism from Phillips about his stance on health care and a vote in favor of a spending bill opposed by the Koch network in the Las Vegas Review-Journal in April. Heller is among the most moderate Republicans in the Senate and one of the most endangered senators from either party running for reelection.

In such races, the Koch network can offer its favored candidates not just millions of dollars in television advertising — but also paid staff and volunteers who knock doors and work year-round to identify swing voters and turn them out for elections.

At this weekend's summit, Seidel told the donors about a Republican senator who told his colleagues to not "worry about the Kochs" during a caucus meeting as the senators debated legislation. "By 'Kochs,' he was talking about all of you," Seidel said. "We can't just keep falling into the trap of doing what we need to do to get through November."

Phillips did hint that the door might be open for Cramer, if he were willing to change his policy platform, however: "Give Kevin Cramer a call — urge him to step up and lead."

To view online click here.

Back

Trump administration finally issues report on toxic chemicals Back

By Annie Snider | 06/20/2018 01:21 PM EDT

The Trump administration finally released a delayed report on toxic water contamination on Wednesday, months after White House officials expressed fears it would spark a "public relations nightmare" if released.

As expected, the report by the Department of Health and Human Services shows that toxic nonstick chemicals that have leaked into communities' drinking water supplies endanger human health at levels the EPA had previously deemed safe.

POLITICO first reported last month on the delay in publishing the report, which followed an intervention by White House and EPA officials, including EPA Chief of Staff Ryan Jackson.

The 852-page scientific draft assessment of so-called PFAS chemicals, posted Wednesday by the Agency for Toxic Substances and Disease Registry, details how people are exposed to the chemicals and the health risks the chemicals pose to populations ranging from infants and breastfeeding mothers to adult males. It finds that the chemicals can pose risks to the most vulnerable populations at levels lower than those EPA had deemed safe in its 2016 health advisory for two of the chemicals, known as PFOA and PFOS.

The chemicals at issue in the HHS study have long been used in products such as Teflon and firefighting foam, and are contaminating water systems around the country. They have been linked to thyroid defects, pregnancy problems and certain cancers, even at low levels of exposure.

The problem has already proved to be enormously costly for chemicals manufacturers. The 3M Co., which used them to make Scotchgard, paid more than $1.5 billion to settle lawsuits related to water contamination and personal injury claims.

EPA will hold its first community meeting on PFAS in New Hampshire next week.

To view online click here.

Back

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Yes, very | Somewhat | Neutral | Not really | Not at all

You received this POLITICO Pro content because your customized settings include: Morning Energy. To change your alert settings, please go to https://subscriber.politicopro.com/settings

This email was sent to wehrum.bill@epa.gov by: POLITICO, LLC 1000 Wilson Blvd. Arlington, VA, 22209, USA

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/6/2018 8:48:58 PM
To: Bodine, Susan [bodine.susan@epa.gov]
CC: Traylor, Patrick [traylor.patrick@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: Final NAA Request
Attachments: NAA Request Clean.docx

Susan – Attached is a final version of our NAA request.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/6/2018 8:43:35 PM
To: Woods, Clint [woods.Clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Schwab, Justin [schwab.justin@epa.gov]
Subject: RE: No Action Assurance request

I fixed it.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Woods, Clint
Sent: Friday, July 6, 2018 4:39 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Harlow, David <harlow.david@epa.gov>; Schwab, Justin <Schwab.Justin@epa.gov>
Subject: Fwd: No Action Assurance request

Deliberative Process / Ex. 5

Begin forwarded message:

> **From:** "Szabo, Aaron L. EOP/CEQ" <EOP / Ex. 6
> **Date:** July 6, 2018 at 4:24:41 PM EDT
> **To:** "Woods, Clint" <woods.clint@epa.gov>
> **Subject: Re: No Action Assurance request**
>
> Okay. As an FYI. I sent it to Francis who said he wants to review before it is sent out.
>
> Sent from my iPhone
>
> On Jul 6, 2018, at 4:23 PM, Woods, Clint <woods.clint@epa.gov> wrote:
>
>> Think so. Deliberative Process / Ex. 5
>>
>> On Jul 6, 2018, at 4:22 PM, Szabo, Aaron L. EOP/CEQ <EOP / Ex. 6 wrote:
>>
>>> Is the plan to try and send this out tonight?
>>>
>>> Sent from my iPhone
>>>
>>> On Jul 6, 2018, at 4:21 PM, Woods, Clint <woods.clint@epa.gov> wrote:

Draft attached - No separate policy. Thanks!

Begin forwarded message:

From: "Harlow, David"
<harlow.david@epa.gov>
Date: July 6, 2018 at 4:17:20 PM EDT
To: "Woods, Clint"
<woods.clint@epa.gov>
Cc: "Wehrum, Bill"
<Wehrum.Bill@epa.gov>
Subject: No Action Assurance request

Clint,

Attached is a clean copy of the request.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

<consolRLSOnaamem (002).pdf>

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/6/2018 9:56:12 PM
To: Bodine, Susan [bodine.susan@epa.gov]
CC: Traylor, Patrick [traylor.patrick@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]
Subject: NAA Request
Attachments: NAA Request Clean (003).docx

Susan – Attached is our final NAA request for small manufacturers of gliders.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/6/2018 9:15:00 PM
To: Bodine, Susan [bodine.susan@epa.gov]
CC: Traylor, Patrick [traylor.patrick@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: RE: Final NAA Request
Attachments: NAA Request Clean (003).docx

Susan – Here's a revised final version that corrects typos and Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Wehrum, Bill
Sent: Friday, July 6, 2018 4:49 PM
To: Bodine, Susan <bodine.susan@epa.gov>
Cc: Traylor, Patrick <traylor.patrick@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Woods, Clint <woods.Clint@epa.gov>; Harlow, David <harlow.david@epa.gov>
Subject: Final NAA Request

Susan – Attached is a final version of our NAA request.

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 7/5/2018 7:47:58 PM
To: Harlow, David [harlow.david@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: RE: Tweet

Let's keep moving. Deliberative Process / Ex. 5

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Harlow, David
Sent: Thursday, July 5, 2018 3:46 PM
To: Woods, Clint <woods.clint@epa.gov>; Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: RE: Tweet

Deliberative Process / Ex. 5

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Woods, Clint
Sent: Thursday, July 5, 2018 3:43 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: Tweet
Importance: High

https://twitter.com/realDonaldTrump/status/1014956568129892352

Donald J. Trump
@realDonaldTrump

Follow

I have accepted the resignation of Scott Pruitt as the Administrator of the Environmental Protection Agency. Within the Agency Scott has done an outstanding job, and I will always be thankful to him for this. The Senate confirmed Deputy at EPA, Andrew Wheeler, will...

12:37 PM - 5 Jul 2018

1,415 Retweets **2,614** Likes

745 1.4K 2.6K

Donald J. Trump @realDonaldTrump · 3m

...on Monday assume duties as the acting Administrator of the EPA. I have no doubt that Andy will continue on with our great and lasting EPA agenda. We have made tremendous progress and the future of the EPA is very bright!

250 563 1.5K

Clint Woods
Deputy Assistant Administrator
Office of Air and Radiation, U.S. EPA
202.564.6562

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 4/11/2018 10:41:21 PM
To: Lewis, Josh [Lewis.Josh@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Re: OCFO request for briefing for Kristin Richmond (HAC)

Let's discuss on Friday.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Apr 11, 2018, at 2:08 PM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:

> See below regarding a briefing request from the house appropriations committee. Quite a list of issues so would appreciate any thoughts on how you would like to respond.
>
> Josh
>
> **From:** Wolfe, Michael
> **Sent:** Monday, April 09, 2018 3:05 PM
> **To:** Lewis, Josh <Lewis.Josh@epa.gov>
> **Cc:** Walters, Margaret <Walters.Margaret@epa.gov>; LaRue, Steven <LaRue.Steven@epa.gov>; Hyde, Courtney <Hyde.Courtney@epa.gov>
> **Subject:** OCFO request for briefing for Kristin Richmond (HAC)
>
> Hi Josh,
>
> Please see below - we received a request from Ed Walsh to set up a briefing for Kristin Richmond, HAC majority staff. Kristin is requesting that the briefing include discussion of the following topics:
>
> - Ozone and background ozone
> - DERA
> - Glider Kits
> - Auto emissions/CA waiver
> - Biomass

- EnergyStar
- Methane
- Small refiners/exemptions

Betsy asked that we forward the request to you to discuss how best to proceed at the management round table. Could you please add this item to the meeting agenda for discussion?

Please let us know if you have any questions.

Thanks,

Mike

From: Walters, Margaret
Sent: Monday, April 9, 2018 9:44 AM
To: Wolfe, Michael <Wolfe.Michael@epa.gov>
Subject: FW: HAC

Margaret Walters

Office of Program Management Operations

Office of Air and Radiation - U.S. Environmental Protection Agency

1200 Pennsylvania Ave NW | Washington, DC 20460-0001

202-564-4107 | walters.margaret@epa.gov

From: Walsh, Ed
Sent: Friday, April 06, 2018 2:31 PM
To: LaRue, Steven <LaRue.Steven@epa.gov>; Walters, Margaret <Walters.Margaret@epa.gov>; Lubetsky, Jonathan <Lubetsky.Jonathan@epa.gov>

Cc: Hanson, Paige (Catherine) <hanson.catherine@epa.gov>
Subject: RE: HAC

Just added ---- small refiners/exemptions please

Thanks

Ed

From: Walsh, Ed
Sent: Friday, April 06, 2018 2:27 PM
To: LaRue, Steven <LaRue.Steven@epa.gov>; Walters, Margaret <Walters.Margaret@epa.gov>; Lubetsky, Jonathan <Lubetsky.Jonathan@epa.gov>
Cc: Hanson, Paige (Catherine) <hanson.catherine@epa.gov>
Subject: HAC

Kristin Richmond from HAC majority is interested in continuing her 101's next week and hope to talk to you all about:

Ozone and background ozone

DERA

Glider Kits

Auto emissions/CA waiver

Biomass

EnergyStar

Methane

Any days better than others next week? Maybe Thursday? Probably need an hour.

I am happy to bring her to your office to help out.

Thanks

Ed

Edward A. Walsh

Senior Policy Advisor and Liaison to the Committees on Appropriations

Office of the Chief Financial Officer

United States Environmental Protection Agency

Washington, D.C. 20460

202.564.4594 (o)

walsh.ed@epa.gov

<image001.png>

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 3/2/2018 11:49:37 PM
To: Sutton, Tia [sutton.tia@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]; Orlin, David [Orlin.David@epa.gov]
Subject: Re: No Action Assurance request memo for your signature - coming Monday

Thanks Tia.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Mar 2, 2018, at 5:30 PM, Sutton, Tia <sutton.tia@epa.gov> wrote:

> Bill,
> OGC is currently reviewing the memo, and we realize you need to head out in mere minutes, so we will have the OAR-to-OECA NAA request memo for you to sign first thing Monday. And if there are edits to the other documents, we will make sure to send you those as well.
>
> Thanks,
> Tia

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 2/7/2018 5:52:40 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]
Subject: RE: Heads Up: Tomorrow Morning Meeting with Cummins et al

Thanks Chris. I have not yet had a chance to discuss HD NOx with the Administrator. I may have a chance tomorrow.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

From: Grundler, Christopher
Sent: Wednesday, February 7, 2018 12:45 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Subject: Heads Up: Tomorrow Morning Meeting with Cummins et al

Bill—see note below on what to expect. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Have you had a chance to touch base with the Administrator on the question of HD Nox?

Chris

Christopher Grundler, Director
Office of Transportation and Air Quality
U.S. Environmental Protection Agency
202.564.1682 (Washington, DC)
734.214.4207 (Ann Arbor, MI)

From: Charmley, William
Sent: Wednesday, February 07, 2018 10:28 AM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Subject: Discussion with Jed Mandel, President of the Truck and Engine Manufacturers Association

Chris,

Late yesterday I gave Jed Mandel a call to get an understanding of what the Truck and Engine Manufacturers Association will be discussing at their meeting with Bill Wehrum on Thursday (tomorrow).

3 stakeholders are coming for this meeting;

- Jed Mandel, President of the Truck and Engine Manufacturers Association (EMA)
- Glen Kedzie, Vice President, Energy and Environment, American Trucking Associations (ATA)
- Brian Mormino, Executive Director - Environmental Strategy and Compliance, Cummins

Deliberative Process / Ex. 5

Thanks
Bill

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 11/22/2017 6:53:14 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]
CC: Harlow, David [harlow.david@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Charmley, William [charmley.william@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]
Subject: RE: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

Thanks Chris. Is there a phase 2 HD rule underway?

From: Grundler, Christopher
Sent: Wednesday, November 22, 2017 1:47 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: Fwd: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

FYI. These results were previously shared with Mandy and David. This testing will be part of the tour next week.

Happy Thanksgiving!

Chris

Christopher Grundler, Director

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202.564.1682 (Washington DC)

734.214.4207 (Ann Arbor MI)

734.645.5221 (mobile)

www.epa.gov/otaq

Begin forwarded message:

> **From:** "Charmley, William" <charmley.william@epa.gov>
> **To:** "Grundler, Christopher" <grundler.christopher@epa.gov>

Cc: "Cullen, Angela" <cullen.angela@epa.gov>, "Haugen, David" <haugen.david@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Sargeant, Kathryn" <sargeant.kathryn@epa.gov>, "Cook, Leila" <cook.leila@epa.gov>
Subject: RE: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

Dear Chris –

Yesterday we submitted to the heavy-duty phase 2 docket the OTAQ test report which documents the emissions testing program we have done on the two glider vehicles.

Attached is a copy of that test report.

Many thanks to the TATD staff for their very responsive and excellent work on performing this testing, and also many thanks to Angela, George Mitchell, James Sanchez, and Connie Hart in ASD for working with the TATD staff, and for writing the test report.

Thanks
Bill

From: Charmley, William
Sent: Friday, November 17, 2017 5:25 PM
To: Grundler, Christopher <grundler.christopher@epa.gov>
Cc: Angela Cullen <Cullen.Angela@epa.gov>; Haugen, David <haugen.david@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Kathryn Sargeant (sargeant.kathryn@epa.gov) <sargeant.kathryn@epa.gov>
Subject: Emission results from the EPA Ann Arbor labs testing of 2 heavy-duty glider vehicles

Dear Chris,

On November 13, I sent you an email summarizing the emission results from the first glider vehicle that we tested at the laboratory, and I mentioned we had a second glider vehicle undergoing tests. That second vehicle testing is now complete. This email summarizes the results from both of the glider's we have tested. We continue to look at the possibility of testing a third glider vehicle, but no decisions have yet been made on testing a third vehicle.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Please let me know if you have any questions on this topic.

Bill

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 12/8/2017 12:46:37 AM
To: Lewis, Josh [Lewis.Josh@epa.gov]
CC: Shaw, Betsy [Shaw.Betsy@epa.gov]; Cyran, Carissa [Cyran.Carissa@epa.gov]
Subject: Re: for review: OAR weekly report

Looks fine to me.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Dec 7, 2017, at 5:05 PM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:

I'm planning to send this forward first thing tomorrow morning. Comments before then welcome!

OAR Weekly Report – December 7, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 12/1/2017 2:13:47 PM
To: Cyran, Carissa [Cyran.Carissa@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
CC: Millett, John [Millett.John@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; DeLuca, Isabel [DeLuca.Isabel@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: RE: FOR REVIEW - OAR Weekly Report

I'm fine with it. Thanks.

From: Cyran, Carissa
Sent: Friday, December 1, 2017 9:12 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>
Cc: Millett, John <Millett.John@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; DeLuca, Isabel <DeLuca.Isabel@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: RE: FOR REVIEW - OAR Weekly Report

Good morning,

Just following up to see if there are any additional comments/edits before sending forward. Thank you.

From: Cyran, Carissa
Sent: Thursday, November 30, 2017 3:21 PM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Harlow, David <harlow.david@epa.gov>
Cc: Millett, John <Millett.John@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>; DeLuca, Isabel <DeLuca.Isabel@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: FOR REVIEW - OAR Weekly Report

Let me know if you have any comments/edits and I will revise the email and word document.

OAR Weekly Report – November 30, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 11/30/2017 11:58:41 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: EPA Glider Testing

I talked with Christian and Troy about this earlier today. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Nov 30, 2017, at 6:54 PM, Gunasekara, Mandy <Gunasekara.Mandy@epa.gov> wrote:

Deliberative Process / Ex. 5

Sent from my iPhone

Begin forwarded message:

From: "Millett, John" <Millett.John@epa.gov>
Date: October 27, 2017 at 4:56:10 PM EDT
To: "Bowman, Liz" <Bowman.Liz@epa.gov>, "Dunham, Sarah" <Dunham.Sarah@epa.gov>, "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>
Cc: "Grantham, Nancy" <Grantham.Nancy@epa.gov>, "Hewitt, James" <hewitt.james@epa.gov>
Subject: RE: EPA Glider Testing

Deliberative Process / Ex. 5

Happy to fill you in more . . .

From: Bowman, Liz
Sent: Friday, October 27, 2017 3:09 PM

To: Dunham, Sarah <Dunham.Sarah@epa.gov>; Millett, John <Millett.John@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Cc: Grantham, Nancy <Grantham.Nancy@epa.gov>; Hewitt, James <hewitt.james@epa.gov>
Subject: EPA Glider Testing

Deliberative Process / Ex. 5

Thank you,

Liz Bowman
U.S. Environmental Protection Agency (EPA)
Office: 202-564-3293

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 11/30/2017 11:44:06 PM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: Re: FOR REVIEW - OAR Weekly Report

Thanks. I asked David to read it through. We should include him in our discussion.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Nov 30, 2017, at 6:42 PM, Gunasekara, Mandy <Gunasekara.Mandy@epa.gov> wrote:

Thank you for passing that along and the opportunity. It was fun!

Deliberative Process / Ex. 5

Sent from my iPhone

On Nov 30, 2017, at 6:36 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

By the way, you got rave reviews for your presentation at Hunton today. Great job.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Nov 30, 2017, at 6:12 PM, Wehrum, Bill <Wehrum.Bill@epa.gov> wrote:

Deliberative Process / Ex. 5

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

Begin forwarded message:

From: "Cyran, Carissa" <Cyran.Carissa@epa.gov>
Date: November 30, 2017 at 3:21:06 PM EST
To: "Wehrum, Bill" <Wehrum.Bill@epa.gov>, "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Harlow, David" <harlow.david@epa.gov>
Cc: "Millett, John" <Millett.John@epa.gov>, "Lewis, Josh" <Lewis.Josh@epa.gov>, "DeLuca, Isabel" <DeLuca.Isabel@epa.gov>, "Shaw, Betsy" <Shaw.Betsy@epa.gov>, "Dominguez, Alexander" <dominguez.alexander@epa.gov>
Subject: FOR REVIEW - OAR Weekly Report

Let me know if you have any comments/edits and I will revise the email and word document.

OAR Weekly Report – November 30, 2017

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 11/30/2017 11:21:18 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: Re: Glider Testing Timeline

Thanks Chris. This is very helpful.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Nov 30, 2017, at 5:07 PM, Grundler, Christopher <grundler.christopher@epa.gov> wrote:

Bill—I asked Bill Charmley to pull together the below chronology on glider testing as we discussed. Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Let me know if you have any questions

Chris

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 11/30/2017 10:59:09 PM
To: Grundler, Christopher [grundler.christopher@epa.gov]
Subject: Re: Heads Up; Glider Hearing

Thanks Chris.

_____
Bill Wehrum
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
(202) 564-7404

On Nov 30, 2017, at 5:11 PM, Grundler, Christopher <grundler.christopher@epa.gov> wrote:

Bill,

A quick reminder for you that this upcoming Monday, December 4, we are holding the public hearing for EPA's recent proposal to rescind the heavy-duty glider provisions. The hearing will be held here at EPA headquarters . Several of the OTAQ staff from D.C. and Ann Arbor will run the hearing. Kathryn Sargeant and Bill Charmley will be the presiding officers, and we will also have David Orlin and/or Mark Kataoka from OGC attending.

As of today there are 60 testifiers signed up, from a wide range of stakeholders: truck dealerships, rebuilders, truck OEMs, industry trade groups, state/local government agencies, public health NGOs, environmental NGOs,a number of private citizens, and one member of Congress (Rep. Jamie Raskin (D-MD))

Later in December, or after the close of the public comment period (January 5), we will give you a briefing on the rulemaking and the public comments.

Thanks,

C--

Message

From: Wehrum, Bill [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=33D96AE800CF43A3911D94A7130B6C41-WEHRUM, WIL]
Sent: 11/30/2017 4:50:39 PM
To: Ringel, Aaron [ringel.aaron@epa.gov]
CC: Lyons, Troy [lyons.troy@epa.gov]
Subject: RE: Gliders & Hearing Prep

Aaron – yes, happy to talk. Between noon and 1 is best for me.

From: Ringel, Aaron
Sent: Thursday, November 30, 2017 10:30 AM
To: Wehrum, Bill <Wehrum.Bill@epa.gov>
Cc: Lyons, Troy <lyons.troy@epa.gov>
Subject: Gliders & Hearing Prep

Hey Bill, do you have a second today to chat with Troy and I about the Glider Kit report that came out of Ann Arbor as well as hearing prep documents for the Administrator?

Thanks,
Aaron

Aaron E. Ringel
Deputy Associate Administrator
Office of Congressional & Intergovernmental Relations
U.S. Environmental Protection Agency

W: 202.564.4373
Ringel.Aaron@epa.gov

Message

From: Pritchard, Eileen [Pritchard.Eileen@epa.gov]
Sent: 2/15/2019 7:40:19 PM
To: Wheeler, Andrew [**Administrator / Ex. 6**]; Darwin, Henry [darwin.henry@epa.gov]; Jackson, Ryan [jackson.ryan@epa.gov]; Wooden-Aguilar, Helena [Wooden-Aguilar.Helena@epa.gov]
CC: Bailey, KevinJ [Bailey.KevinJ@epa.gov]; Brennan, Thomas [Brennan.Thomas@epa.gov]; Benjamin-Sirmons, Denise [Benjamin-Sirmons.Denise@epa.gov]; Bolen, Brittany [bolen.brittany@epa.gov]; Firestone, Michael [Firestone.Michael@epa.gov]; Grantham, Nancy [Grantham.Nancy@epa.gov]; Hope, Brian [Hope.Brian@epa.gov]; Johnston, Khanna [Johnston.Khanna@epa.gov]; Kime, Robin [Kime.Robin@epa.gov]; Lesperance, Twanna [Lesperance.Twanna@epa.gov]; McCluney, Lance [McCluney.Lance@epa.gov]; McIlwain, Serena [McIlwain.Serena@epa.gov]; Richardson, RobinH [Richardson.RobinH@epa.gov]; Rogers, JoanB [Rogers.JoanB@epa.gov]; Simons, Vicki [Simons.Vicki@epa.gov]; Stanich, Ted [Stanich.Ted@epa.gov]; Tanner, Lee [Tanner.Lee@epa.gov]; White, Elizabeth [white.elizabeth@epa.gov]; Cortes, Emilio [Cortes.Emilio@epa.gov]; Molina, Michael [molina.michael@epa.gov]; Fraser, Scott [Fraser.Scott@epa.gov]; Burton, Tamika [burton.tamika@epa.gov]; Teplitzky, Andy [Teplitzky.Andy@epa.gov]; Gutshall, Renee [Gutshall.Renee@epa.gov]; Johnson, Laura-S [Johnson.Laura-S@epa.gov]; Vann, Alexis [vann.alexis@epa.gov]; DeBell, Kevin [debell.kevin@epa.gov]; Sauerhage, Maggie [Sauerhage.Maggie@epa.gov]; Eng, Connie [Eng.Connie@epa.gov]; Vann, Alexis [vann.alexis@epa.gov]; Dickerson, Aaron [dickerson.aaron@epa.gov]; Willis, Sharnett [Willis.Sharnett@epa.gov]; Hughes, Hayley [hughes.hayley@epa.gov]; Eby, Natasha [eby.natasha@epa.gov]; Pritchard, Eileen [Pritchard.Eileen@epa.gov]
Subject: AO Weekly Report
Attachments: AO Staff Office Weekly Report 2-15-19.docx; AO Staff Office Weekly Report 2-15-19.pdf

Please find the attached report for the AO Staff Offices for the week ending February 15, 2019.

Have a fantastic, long weekend!

Eileen Pritchard
Special Assistant: Office of the Administrator
(202) 564-6578 (d)
Pritchard.eileen@epa.gov

Message

From: Kelly Mankin Personal Email / Ex. 6
Sent: 9/12/2018 1:26:47 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Fwd: The Energy 202: Even the EPA acknowledges its new methane rule may be costly

Sir:

At a time when Science and the U.N. are calling on leaders of all nations to acknowledge that we have one last, urgent chance to address climate change you and this administration are rushing headlong into burning the planet for the sake of Petroleum lobbyists.

The proposed rule changes on methane leaks are misguided and dangerous. Even your own agency analysis concludes that the cost of change to society will offset any savings by the oil companies. Which of course makes one wonder what is motivating this?

Do you have children? Grandchildren? Your legacy to them will be a rotting, barley inhabitable planet I'm sure, should they survive the effect of climate change they will remember your legacy.
Yours sincerely,

Kelly Mankin
Sent from my iPad

Begin forwarded message:

From: The Washington Post <email@washingtonpost.com>
Date: September 12, 2018 at 7:36:18 AM EDT
To: klmankin Personal Email / Ex. 6
Subject: The Energy 202: Even the EPA acknowledges its new methane rule may be costly
Reply-To: The Washington Post <email@washingtonpost.com>

The Washington Post

Pow

Analysis on the energy and environment debate. Not on the list? Sign up here.

PowerPost

The Energy 202

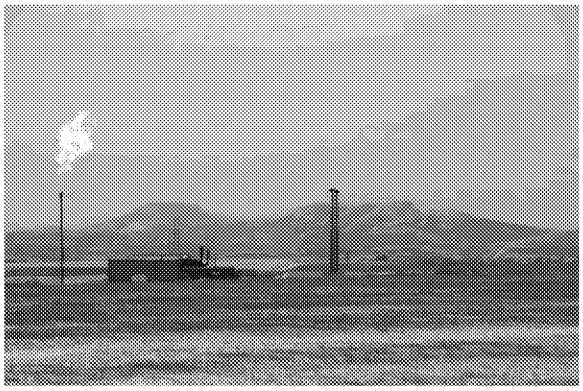
Your daily policy charge

Share Share

Even the EPA acknowledges its new methane rule may be costly

BY DINO GRANDONI
with Paulina Firozi

THE LIGHTBULB



A gas flare is seen at a natural gas processing facility near Williston, N.D. in 2015. (AP Photo/Matthew Brown)

Another day, another set of regulations targeted for reversal by President Trump's E
The latest possible rollback affects a powerful greenhouse gas with up to 36 times m
carbon dioxide.

The agency moved Monday to make it easier for drillers to meet requirements mean
methane, from oil and natural gas infrastructure. The rules are not final, and the pub
on the potential changes after they are published in the Federal Register

**While the changes will save industry money, the agency's own analysis found
pump hundreds of thousands more tons of the climate-warming gas into the a
dollars in agricultural, health-care and other costs to the U.S. economy becaus**

The potential changes would decrease the frequency of leak inspections, from twice
eliminate a requirement that vent systems be certified by professional engineers.

Taken together, those small tweaks could make for a sizable contribution to cl
environmentalists, public-health advocates and elected Democrats who issued scath
EPA's announcement.

"At a time when the science is telling us the methane problem is much greater than p
proposal is taking us in exactly the wrong direction," Matt Watson, associate vice pre
the Environmental Defense Fund (EDF), said in an interview.

But oil and gas lobbying groups, including the American Petroleum Institute, p
reining in what they see as federal overreach. They say they have every incentive
as possible, since it is the main component of natural gas.

"We welcome EPA's efforts to get this right, and the proposed changes could ensure
engineering practices and cost-effective," said Howard Feldman, API's senior directo
affairs.

And acting EPA administrator Andrew Wheeler said his agency's "common-sense re
companies up to $75 million annually, according to an EPA analysis. He added that
state efforts to regulate methane leaks.

But even the EPA acknowledged the proposal has costs to the rest of the econ
rule changes if enacted would contribute 380,000 tons of methane to the atmosphere
addition to smaller amounts of other air pollutants.

During that seven-year period, the United States would forgo up to $54 million
would have come through reducing the impact of climate change, according to

The agency came to that estimate by calculating the social cost of methane. Th
tally up the expense every additional pound of the planet-warming gas contributes to
loss, lower labor productivity and other effects of climate change.

But the measurement, developed by the EPA under President Barack Obama t of tackling climate change, is itself under attack **by the Trump administration**, tabulation for its methane proposal.

"Reducing methane is a highly effective way to reduce the rate of climate change," E one of the cheapest and easiest things we can do to reduce climate pollution."

The EPA, he added, is "clearly more concerned with helping out the worst-run comp are with the health and welfare of average Americans."

Given that methane equals money for oil and gas companies, the larger ones t capture more of the gas in their operations. Last year, eight energy multinational Royal Dutch Shell, volunteered to monitor and reduce methane emissions along gui

Brady Dennis contributed to this report.

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Imagine turning soybean oil, used cooking oil and waste animal fats into fuel so amazing it sup
economic activity. That's biodiesel. Transporting goods across the country and driving our ecor

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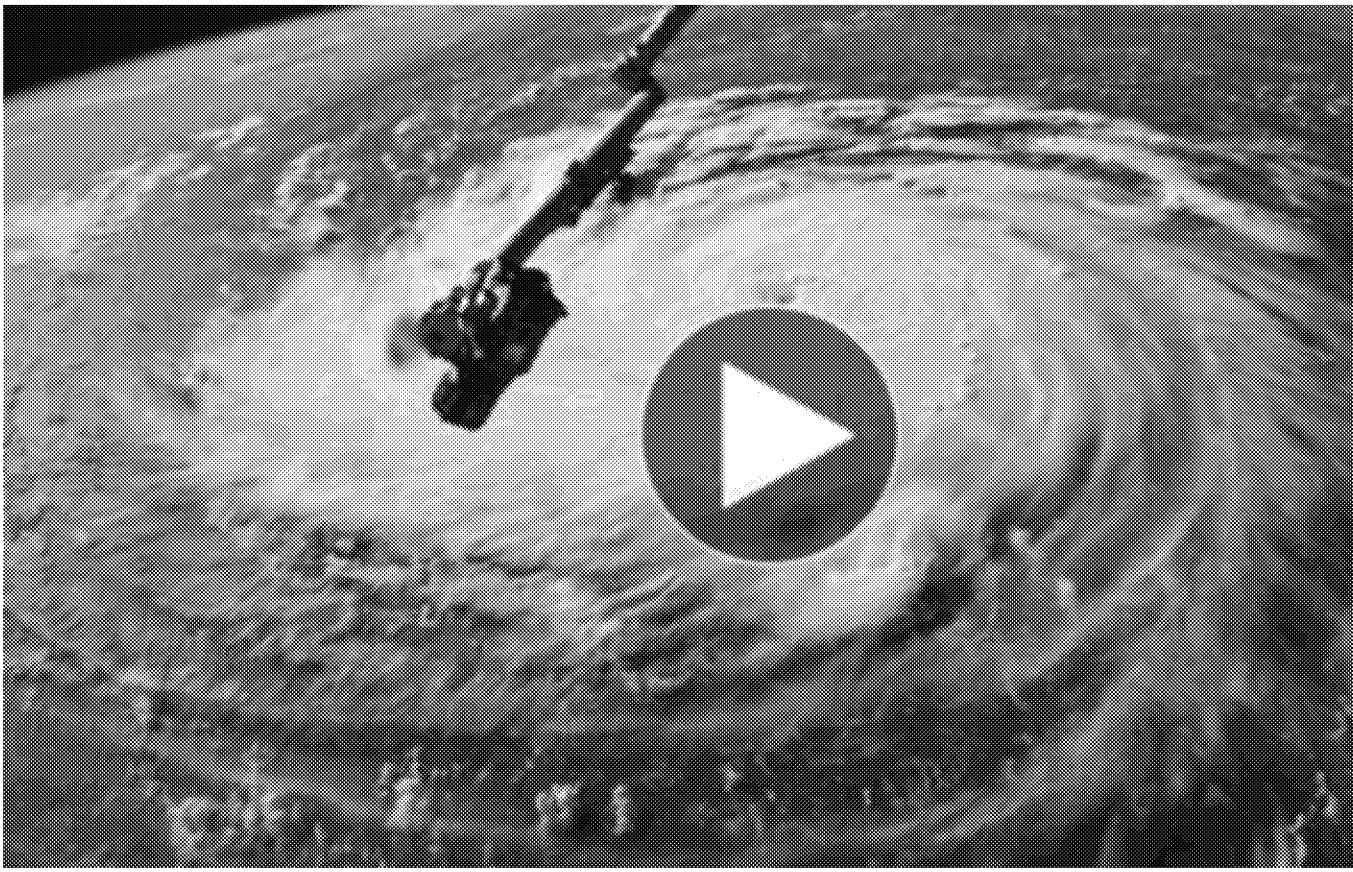
THERMOMETER



Capital Weather Gang's Hurricane Florence forecast

— The Carolinas and Virginia get ready for Hurricane Florence: Florence is charg Carolinas "where it threatens to become the most intense storm to strike the region in Jason Samenow reports. The Category 4 storm is generally projected to make landfa Friday as a Category 3 or 4 storm and is likely to produce "catastrophic" flooding in th likely be the storm of a lifetime for portions of the Carolina coast, and that's saying a l from hurricanes Diana, Hugo, Fran, Bonnie, Floyd, and Matthew," wrote the on-duty meteorologist serving Wilmington, N.C. "I can't emphasize enough the potential for ur storm surge, and inland flooding with this storm."

-- Prepare for lots of rain if you live in the Washington region, but the worst of t residents here. "There is still some chance that the region will endure disruptive rain

risk increases as you head south into central Virginia toward Charlottesville and Richr
and southwestern Virginia," writes The Capital Weather Gang's Jason Samenow. "In
center remains well south of the Washington region, there may still be a push of seaw
Chesapeake Bay sufficient to cause some flooding along its shores."

-- D.C. has declared a state of emergency just in case. "District officials said they l
periods of heavy rain, starting Thursday night and into Friday. 'We will see torrential r
days,' said Christopher Rodriguez, director of the D.C. Homeland Security and Emerg
report Dana Hedgpeth and Luz Lazo.

**-- The Washington Post is offering coverage of Florence without a paywall, so y
the massive storm even if you don't have a subscription.**

Residents from the Carolinas are busy preparing:

'This one's bad': Along the North Carolina coast, a race away from Hurricane Florence

Meanwhile, Trump told reporters that his administration's response to Hurricane Mari
"incredible, unsung success:"

Trump calls Puerto Rico response 'an incredible unsung success'

— As Florence looms, Trump touts last year's response in Puerto Rico: In resp
briefing on Florence, Trump called the response in Puerto Rico "one of the best jobs t
respect to what this is all about," The Post's Felicia Sonmez and John Wagner report
U.S. territory was virtually without electricity prior to the storm.

The facts: Researchers from George Washington University estimated last month th
the six months following Maria, and FEMA itself has acknowledged it was not fully pre

Gov. Ricardo Rossello said would become the official death toll for the storm and mal
U.S. history. Thousands of Puerto Ricans also remained without power for months af

Here's how San Juan mayor Carmen Yulín Cruz responded to the president's remark

Carmen Yulín Cruz
@CarmenYulínCruz

Success? Federal response according to Trump in
Rico a success? If he thinks the death of 3,000 pe
a success God help us all.

4:21 PM - Sep 11, 2018

14.5K 5,593 people are talking about this

And Trump took a shot at her, and re-upped his praise for his administration's respon

Donald J. Trump
@realDonaldTrump

We got A Pluses for our recent hurricane work in T
and Florida (and did an unappreciated great job in
Rico, even though an inaccessible island with very
electricity and a totally incompetent Mayor of San
We are ready for the big one that is coming!

6:51 AM - Sep 12, 2018

5,448 3,931 people are talking about this

-- Ashley Parker writes about Trump's tendency to talk in hyperbole, even when
disaster: "Flanked in the Oval Office by charts showing the path of Hurricane Florenc
issued a warning about the potentially catastrophic storm that at times felt strangely e

tremendously wet — tremendous amounts of water,' Trump said, expressing somethi
expected precipitation."

Hurricane Florence will be "devastating," FEMA chief says

— **FEMA vows it is ready this time:** The Federal Emergency Management Agency
Florence. The agency's associate administrator Jeff Byard said Tuesday he's "confide
told reporters, according to Bloomberg News. Meanwhile, the Transportation Departm
hour limit on how long truckers can drive in an effort to prevent shortages of fuel and
per the Washington Examiner.

Meanwhile, FEMA chief makes comparisons to Hurricane Hugo: William "Brock"
interview on CBS his experience with Hurricane Hugo in his hometown of Newton, N.

The Post's Reis Thebault reports. Hugo "came right over my house," Long said. "This similar to that one." Hugo was the last Category 4 storm to make landfall in the Caroli

Ahead of storm, Democratic senators took shots at FEMA:

- **Sen. Elizabeth Warren (D-Mass.)** made public a letter from FEMA's Long reve requests from Puerto Ricans who applied for funeral assistance following Maria approved. "Although Long did not give a specific reason in his letter for the reje requirements" that death certificate attribute the death to the disaster, according
- And **Sen. Jeff Merkley (D-Ore.)** shared documents live on MSNBC on Tuesday administration took nearly $10 million from FEMA's budget and diverted it to U. Enforcement, per USA Today. Both agencies fall under the Department of Hom

S.C. state troopers reverse highway traffic for hurricane evacuations

— **A Category 6 future?** As the climate continues to warm, hurricanes may well inter research suggests, similar to the way Florence jumped from a Category 1 to Categor Post's Chris Mooney reports. And in some extreme situations, he writes the storms m

"Category 6." Right now, there is no "Category 6" on the Saffir-Simpson hurricane sca
grouping is open-ended. Lead author of the research Kieran Bhatia, who did the work
Princeton University, told Mooney: "The reason there are going to be more major hur
are going to be that many more storms … it's really the fact that those storms are goi

— Bigger, slower, and more rain: Meteorologists are predicting Florence will be we
in Texas, HuffPost reports. Those characteristics made last year's storm particular da
risk of flooding. Pennsylvania State University climate scientist Michael Mann said Flo
been "supercharged" by climate change. "Most scientists are careful not to attribute a
climate," HuffPost reports. "But the scientific community — including experts at the fe
Atmospheric Administration — has long warned that anthropogenic climate change in
events."

POWER PLAYS

Environmental scientist Jake Pellicano, a contractor with the EPA, crosses Arbuckle Creek after collecting sediment samples in
PCB levels and evaluating whether the area should be placed on the National Priorities List. (Bonnie Jo Mount/The Washington

— EPA proposes cleaning up West Virginia town haunted by chemical dumping
of Minden, W.Va. to a list of list of "National Priorities List" for cleanup. The once-thriv
experienced an "alarming number of cancers and other health issues," The Post's Bra
250 people who remain have long suspected that the polychlorinated biphenyls, or PC
area have played a role in sickening residents." Dennis published a deep dive into the
today.

Interior Secretary Ryan Zinke speaks during the daily briefing at the White House in Washington in April. (Photo by Jabin Botsfo

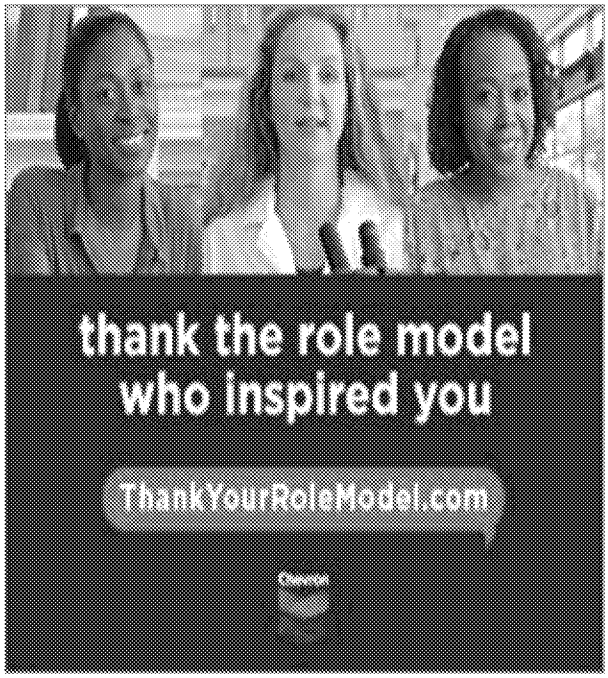
— **Zinke takes aim at wildlife rules:** In a memo on Monday, Interior Secretary Ryan Service to find areas where federal wildlife policies were more strict than state policie federal rules to align better with them. "The effective stewardship of fish and wildlife r various states and the federal government," Zinke wrote in the memo, released by Pu Responsibility.

DAYBOOK

Coming Up

- The House Oversight and Government Reform Committee holds a hearing on e response and recovery efforts on **Thursday.**
- The House Science, Space and Technology subcommittees on oversight and c hearing on "Examining the Underlying Science and Impacts of Glider Truck Reg
- The Senate Commerce, Science and Transportation Committee holds a hearin technologies on **Thursday.**
- The Senate Energy and Natural Resources Committee holds a hearing on U.S. energy demand on **Thursday.**
- The Senate Environment and Public Works Committee holds a hearing on nucl

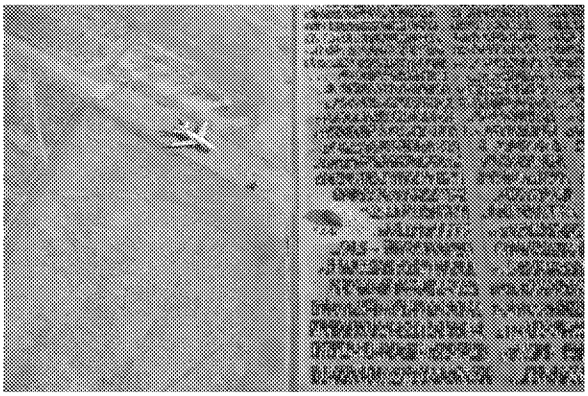
- The House Energy and Commerce subcommittee on the environment holds a h
  of wildfires on **Thursday.**



Powered by Liveintent

EXTRA MILEAGE

— **"A wild ride":** That's how Jassen Todorov, a music professor at San Francisco S
flight over the Mojave Desert, during which he captured this image of some hundreds
reacquired after its historic emissions scandal. His photo was an honorable mention
travel photo contest.



(Photo by Jassen Todorov)

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The Washington Post

Democracy Dies in Darkness

Message

From: Perry Byrd [pbyrd@midsouthsales.com]
Sent: 8/23/2018 2:29:37 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Help trucking

Don' t side with Volvo on Glider kits.
They are NOT super polluting trucks as reported by the liberal NYtimes.

https://www.tdsource.com/2016/08/03/if-trucking-stops/?utm_content=76001812&utm_medium=social&utm_source=linkedin

Perry Byrd, (C.L.S.)
VP
Mid-South Sales
MRB Transport
Please excuse the typos
Sent from my iPhone
[MSS]
Confidentiality Notice

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Mid-South Sales, Inc.<http://www.midsouthsales.com>

Message

From: Perry Byrd [pbyrd@midsouthsales.com]
Sent: 8/15/2018 3:54:58 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: glider vehicles / please help stop regulation
Attachments: ATT00001.txt; image002.png; ATT00002.txt; image002.png

Mr. Wheeler,
So Volvo had their hands in the testing....
Are you supportive of a foreign truck manufacturer that has a presence in the US directing this engine testing?

Good evening and thank you for your willingness to serve this country.

I respect your wanting to separate yourself from some of the scandals of the former director.

As POTUS has stated many times getting rid of regulations is helping to Make America Great Again.

I respectfully ask you to remove the regulation preventing the manufacture and sale of glider kit trucks, as built in the past.

Please stop this regulation. We need these dependable glider kit trucks.

They are NOT super polluting trucks as stated by the liberal NY Times.

We need your help.

These glider kit trucks have allowed many of us to continue in business that otherwise would have closed.

The repair bills of new SCR trucks are unbelievable.

I have one in the shop now, and the first estimate is almost $7000.00.

I can promise you, it will have to go back to the shop shortly after it's released, it's the way things are now.

We have had repair bills on one unit to exceed $20,000.00

10% of a truck fleet with SCR type engines are in the shop on a daily basis.

Here are a few facts you might find interesting:

10.55 billion tons of freight moves by truck annually.

3.5 million truck drivers, drive those trucks that move the freight.

The trucking industry needs 51,000 more drivers today.

10% of a fleet of new SCR equipped trucks are in the shop on a given day.

91% of the trucking companies operate 6 or fewer trucks

97.3% operate less than 20 trucks

It's hard to operate much less make money, with 1 out of 10 new trucks in the shop all the time

75% of accidents involving trucks are due to passenger car vehicles.

ELD's provide no added safety benefit, according to FMCSA conclusions.

In one year previously only 136,585 HOS violations were issued where a driver violated time limits. (out of 3.5 million)=3.9%

Glider Kits aren't a problem. Many have passed road side emission tests in the Liberal state of CA.

These small manufacturers provide jobs and a quality truck for us moving freight.

There are many Glider manufacturers out there, supporting workers, families and communities.

Glider Kits are reliable, get good fuel mileage, aren't in the shop compared to new SCR trucks, and do not smoke like old log trucks.

Small trucking companies and independent truckers are quitting due to the high cost of keeping trucks on the road.

Also due to Government involvement in things such as the ELD mandate.

The time is coming soon when goods and services will not show up on time.

Things will cost more, due to the lack of trucks available to move those goods.

In the words of Mike Huckabee, "the more the government is involved, the worse things get."

Regards,

Perry R. Byrd, (C.L.S.)

Vice-President

[redacted]

pbyrd@midsouthsales.com

(870) 763-6300 office

(870) 763-1365 fax

Personal Phone / Ex. 6

"Excellence is...caring more than others think is wise; Risking more than others think is safe; Dreaming more than others think is practical.

Expecting more than others think is possible."

-Winston Churchill

[redacted]

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Message

From: Main, John [JMain@palmertrucks.com]
Sent: 8/6/2018 2:44:36 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: What is a Glider?

Dear acting administrator Wheeler,

A glider is a new cab and frame sold to replace a previous cab and frame which has been damaged, totaled or has run its life course. It contains no driveline components. It produces no emissions. As former Administrator Pruitt pointed out, it does not fall under the EPA's jurisdiction to regulate it. Agreed? Unless an existing driveline which has already been EPA certified is installed it can never move under its own power. Agreed?

So if a third party puts an old engine, transmission and rear axle in the glider it is now a completed vehicle. However, since by law it can legally use the VIN of the donor chassis, if the assembler called it a new truck has he not just committed fraud? How, then, can the EPA call it a new truck? Keep in mind that there is NO REQUIREMENT that remanufactured components be installed in a glider. How does a 15 year old driveline on a new chassis become a new truck? It cannot, and yet your agency is calling it a new truck for the sole intent of regulating it. Your Obama appointed predecessor issued a regulation which amounts to criminal fraud and your agency is enforcing it. Anyone can now sell old components in a new cab and call it a new truck. The EPA agrees.

To fully comply with your own agency's regulations, the EPA should direct each state's county clerk to register gliders as new trucks, regardless of whether any of the major components have been rebuilt. After all, there is no requirement for re-built components to be used when classifying a glider as new. If it's a new truck for regulating, it's a new truck for titling. Agreed?

People who don't want the new emissions are going to re-build older engines and continue to operate them. They will do so in older trucks with inferior lighting, outdated braking systems and none of the latest safety features. They won't stop as fast and some people are going to die because of it. Gliders offer these people a cost-effective way to upgrade to a safer truck. When you take away the glider option the owner has to run Old Smokey until he's forced to re-build it because the cost of the re-build is more than the value of the truck. The regulation makes us less safe. Engines needing rebuilding spew more emissions that rebuilt engines, so the only thing accomplished by the reduction of gliders is that we have dirtier air and more fatalities.

I don't believe that either of these things serve the EPA well. Do you?

John Main

Cell Personal Phone / Ex. 6

Message

From: Perry Byrd [pbyrd@midsouthsales.com]
Sent: 8/3/2018 12:20:15 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: glider vehicles / help stop regulation
Attachments: ATT00001.txt; image002.png

Mr. Wheeler,

Good evening and thank you for your willingness to serve this country.

I respect your wanting to separate yourself from some of the scandals of the former director.

As POTUS has stated many times getting rid of regulations is helping to Make America Great Again.

I respectfully ask you to remove the regulation preventing the manufacture and sale of glider kit trucks, as built in the past.

Please stop this regulation. We need these dependable glider kit trucks.

They are NOT super polluting trucks as stated by the liberal NY Times.

We need your help.

These glider kit trucks have allowed many of us to continue in business that otherwise would have closed.

The repair bills of new SCR trucks are unbelievable.

I have one in the shop now, and the first estimate is almost $7000.00.

I can promise you, it will have to go back to the shop shortly after it's released, it's the way things are now.

We have had repair bills on one unit to exceed $20,000.00

10% of a truck fleet with SCR type engines are in the shop on a daily basis.

Here are a few facts you might find interesting:

10.55 billion tons of freight moves by truck annually.

3.5 million truck drivers, drive those trucks that move the freight.

The trucking industry needs 51,000 more drivers today.

10% of a fleet of new SCR equipped trucks are in the shop on a given day.

91% of the trucking companies operate 6 or fewer trucks

97.3% operate less than 20 trucks

It's hard to operate much less make money, with 1 out of 10 new trucks in the shop all the time

75% of accidents involving trucks are due to passenger car vehicles.

ELD's provide no added safety benefit, according to FMCSA conclusions.

In one year previously only 136,585 HOS violations were issued where a driver violated time limits. (out of 3.5 million)=3.9%

Glider Kits aren't a problem. Many have passed road side emission tests in the Liberal state of CA.

These small manufacturers provide jobs and a quality truck for us moving freight.

There are many Glider manufacturers out there, supporting workers, families and communities.

Glider Kits are reliable, get good fuel mileage, aren't in the shop compared to new SCR trucks, and do not smoke like old log trucks.

Small trucking companies and independent truckers are quitting due to the high cost of keeping trucks on the road.

Also due to Government involvement in things such as the ELD mandate.

The time is coming soon when goods and services will not show up on time.

Things will cost more, due to the lack of trucks available to move those goods.

In the words of Mike Huckabee, "the more the government is involved, the worse things get."

Regards,

Perry R. Byrd, (C.L.S.)

Vice-President

pbyrd@midsouthsales.com

(870) 763-6300 office

(870) 763-1365 fax

Personal Phone / Ex. 6

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-Winston Churchill

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Message

From: Perry Byrd [pbyrd@midsouthsales.com]
Sent: 8/1/2018 4:00:27 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: glider vehicles / help stop regulation
Attachments: ATT00001.txt

Mr. Wheeler,
Good evening and thank you for your willingness to serve this country.
I respect your wanting to separate yourself from some of the scandals of the former director.
As POTUS has stated many times getting rid of regulations is helping to Make America Great Again.

I respectfully ask you to remove the regulation preventing the manufacture and sale of glider kit trucks, as built in the past.
Please stop this regulation. We need these dependable glider kit trucks.
They are NOT super polluting trucks as stated by the liberal NY Times.
We need your help.

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I have one in the shop now, and the first estimate is almost $7000.00.
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3.5 million truck drivers, drive those trucks that move the freight.
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91% of the trucking companies operate 6 or fewer trucks
97.3% operate less than 20 trucks
It's hard to operate much less make money, with 1 out of 10 new trucks in the shop all the time

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Regards,

Perry R. Byrd, (C.L.S.)
Vice-President

pbyrd@midsouthsales.com
(870) 763-6300 office
(870) 763-1365 fax
Personal Phone / Ex. 6

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Mid-South Sales, Inc.

Message

From: Steve Milloy [milloy@me.com]
Sent: 10/19/2018 4:40:14 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Meeting request

Hi Andrew,

I am requesting a meeting at your earliest convenience.

Jon Toomey of Fitzgerald Glider Kits would also attend.

Thanks,

Steve

Message

From: alexmark@everyactionadvocacy.com [alexmark@everyactionadvocacy.com]
on behalf of Alexandra Mark [alexmark@everyactionadvocacy.com]
Sent: 1/19/2019 11:54:15 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

Glider vehicles combine the shell of a new truck with an old, dirty engine, usually one that will emit 10 to 40 times the amount of dangerous air pollution that is allowable in completely new trucks. Although these trucks only make up five percent of the freight fleet on the road today, they are responsible for emitting one third of the total heavy-duty truck pollution. If these trucks are allowed back on the road in large numbers, it could lead to more than 12,800 premature deaths by 2025.

The mission of the EPA is to protect human health and the environment. Unfortunately, former EPA Administrator Scott Pruitt put the desires of a very small group of manufacturers of these highly polluting vehicles above the health of Americans. This is your chance to show the American people that you will not follow in his footsteps and will take the role of EPA administrator seriously.

Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Miss Alexandra Mark
2420 Ingalls St Edgewater, CO 80214-1106
alexmark@bu.edu

Message

From: aloctober27@everyactionadvocacy.com [aloctober27@everyactionadvocacy.com]
on behalf of alicia londos [aloctober27@everyactionadvocacy.com]
Sent: 1/8/2019 2:14:25 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

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Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Ms. alicia londos
3625 N Pine Grove Ave Apt 3W Chicago, IL 60613-4513
Personal Email / Ex. 6

Message

From: joychambers@everyactionadvocacy.com [joychambers@everyactionadvocacy.com]
on behalf of Joy Chambers [joychambers@everyactionadvocacy.com]
Sent: 12/22/2018 11:13:42 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

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Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Ms. Joy Chambers
14 Cronin Brook Way Millbury, MA 01527-3952
Personal Email / Ex. 6

Message

From: hbauer03@everyactionadvocacy.com [hbauer03@everyactionadvocacy.com]
on behalf of Heather Bauer [hbauer03@everyactionadvocacy.com]
Sent: 12/18/2018 11:22:14 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

Glider vehicles combine the shell of a new truck with an old, dirty engine, usually one that will emit 10 to 40 times the amount of dangerous air pollution that is allowable in completely new trucks. Although these trucks only make up five percent of the freight fleet on the road today, they are responsible for emitting one third of the total heavy-duty truck pollution. If these trucks are allowed back on the road in large numbers, it could lead to more than 12,800 premature deaths by 2025.

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Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Ms. Heather Bauer
501 S Evergreen St Chandler, AZ 85225-6264
Personal Email / Ex. 6

Message

From: joannhaddock@everyactionadvocacy.com [joannhaddock@everyactionadvocacy.com]
on behalf of Joann Haddock [joannhaddock@everyactionadvocacy.com]
Sent: 12/5/2018 10:27:28 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

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Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Ms. Joann Haddock
542 County Road 101 Lorenzo, TX 79343-3532
Personal Email / Ex. 6

Message

From: sophia@everyactionadvocacy.com [sophia@everyactionadvocacy.com]
on behalf of Sophia Santitoro [sophia@everyactionadvocacy.com]
Sent: 12/7/2018 3:23:20 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

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Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Ms. Sophia Santitoro
1012 Franklin Ct Simi Valley, CA 93065-4300
Personal Email / Ex. 6

Message

From: savannahgbrink@everyactionadvocacy.com [savannahgbrink@everyactionadvocacy.com]
on behalf of Savannah Brink [savannahgbrink@everyactionadvocacy.com]
Sent: 12/9/2018 11:49:19 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

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Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Miss Savannah Brink
235 Acadia Park Drive Covington La Slidell, LA 70460
Personal Email / Ex. 6

Message

From: jimloveland52@everyactionadvocacy.com [jimloveland52@everyactionadvocacy.com]
on behalf of Jim Loveland [jimloveland52@everyactionadvocacy.com]
Sent: 2/13/2019 12:34:28 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

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Sincerely,
Mr. Jim Loveland
1410 Freemont St S Gulfport, FL 33707-3327
Personal Email / Ex. 6

Message

From: dussourd@everyactionadvocacy.com [dussourd@everyactionadvocacy.com]
on behalf of Joanne Dussourd [dussourd@everyactionadvocacy.com]
Sent: 2/3/2019 3:15:02 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

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I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

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The mission of the EPA is to protect human health and the environment. Unfortunately, former EPA Administrator Scott Pruitt put the desires of a very small group of manufacturers of these highly polluting vehicles above the health of Americans. This is your chance to show the American people that you will not follow in his footsteps and will take the role of EPA administrator seriously.

Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Dr. Joanne Dussourd
2800 Wills Ct Conway, AR 72034-7516
Personal Email / Ex. 6

Message

From: msavilonis@everyactionadvocacy.com [msavilonis@everyactionadvocacy.com]
on behalf of Melissa Savilonis [msavilonis@everyactionadvocacy.com]
Sent: 1/26/2019 7:55:04 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

Dear Administrator Andrew R. Wheeler,

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

Glider vehicles combine the shell of a new truck with an old, dirty engine, usually one that will emit 10 to 40 times the amount of dangerous air pollution that is allowable in completely new trucks. Although these trucks only make up five percent of the freight fleet on the road today, they are responsible for emitting one third of the total heavy-duty truck pollution. If these trucks are allowed back on the road in large numbers, it could lead to more than 12,800 premature deaths by 2025.

The mission of the EPA is to protect human health and the environment. Unfortunately, former EPA Administrator Scott Pruitt put the desires of a very small group of manufacturers of these highly polluting vehicles above the health of Americans. This is your chance to show the American people that you will not follow in his footsteps and will take the role of EPA administrator seriously.

Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Miss Melissa Savilonis
96 Cornell Dr Enfield, CT 06082-4210
Personal Email / Ex. 6

Message

From: Carroll, Carly [Carroll.Carly@epa.gov]
Sent: 7/6/2018 12:27:11 PM
Subject: Hot Topics - 07.06.18
Attachments: Hot Topics_07.06.18.docx

Carly Carroll
Special Assistant
U.S. Environmental Protection Agency
(202) 564-2769
carroll.carly@epa.gov

Message

From: T.J. Willings [tjwillings@nextrancorp.com]
Sent: 7/31/2018 1:10:20 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Glider Kits

Dear Mr. Wheeler:

Thank you for the EPA's recent decision to reinstate the glider kit limits.

Gliders have been sold as a direct product substitute to new trucks since 2010 for buyers wishing to evade 2010 emission standards. Make gliders meet the same standards as new trucks and everyone is on a level playing field and the public's air is protected

Thank you

T. J. Willings
Nextran Truck Centers
tjwillings@nextranusa.com
205.849.3122 direct
Personal Phone / Ex. 6

Message

From: Tom Personal Email / Ex. 6
Sent: 7/28/2018 11:56:26 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Glider trucks - Thank You!

Dear Director Wheeler:
Thank you for honoring the duty of the office you have been entrusted with and protecting the health and welfare of your family and all Americans.

Best regards,
Tom B.

Sent from my iPhone

Message

From: Maureen Forney Personal Email / Ex. 6
Sent: 7/27/2018 8:30:57 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Truck emissions

Dear Administrator Wheeler,

Thank you for restoring common sense diesel emission regulations. I am grateful and hope that you will roll back the devastating decisions of your predecessor.

https://www.cnn.com/2018/07/27/politics/epa-scott-pruitt-glider-trucks/index.html

Respectfully,

Maureen Forney
San Leandro, CA

Message

From: rexperson Personal Email / Ex. 6
Sent: 7/26/2018 11:41:21 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Enforce the glider kit cap!

Dear Administrator Wheeler,

I'm writing to ask the Environmental Protection Agency to enforce the cap on the number of glider kits sold in the United States. Glider kits allow dirty, old engines to be sold in new semi-truck bodies. They save shipping companies money, but they pollute up to 55 percent more. The EPA planned to place a sales cap on manufacturers of 300 glider kits per year. The cap could prevent 350 to 1,600 premature deaths each year from lung cancer and other causes. The former Administrator, Scott Pruitt killed the plan to enforce the cap, creating a giant loophole for dirty engines.

In 2015, about 10,000 glider kits were sold in the United States. Without the enforcement of the cap, the numbers are expected to return to that level.

The rule limiting manufacturers to 300 kits per year is a sensible measure to improve air quality, and reduce the number of health risks associated with heavily polluting truck engines. Enforce the cap!

Yours truly,
Susan Robin
email: Personal Email / Ex. 6

Message

From: T.J. Willings [tjwillings@nextrancorp.com]
Sent: 7/10/2018 1:54:20 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Glider Kits

Dear Mr. Wheeler:

The EPA created the current glider kit business by opening a loophole.

Fitzgerald and all of the other glider kit makers are simply selling new trucks with diesel engines without diesel particulate traps (DPF) and selective catalytic reduction (SCR) systems on them. Half the truck manufacturers have plunged forward in to the future making emission compliant products while the other half keeps one foot in the past, selling non-compliant gliders.

The EPA erred in creating this loophole. Correct it now by ending the sale of glider kits with non-compliant engines. Then everyone's playing on a level field, the citizens are getting 100% compliance on emission standards and the loophole is history.

We sell and service commercial trucks. We see glider kits every day. We also see trucks sold after 2010 that the owners have hired "shade tree" mechanics to remove their DPF and SCR systems. The EPA's support of glider kits is no different than the product of these "shade tree" mechanics.

Please take corrective action now

Thank you

T. J. Willings
Nextran Truck Centers
tjwillings@nextranusa.com
205.849.3122 direct
Personal Phone / Ex. 6

Message

From: Andrea Niemiec Personal Email / Ex. 6
Sent: 7/23/2018 5:22:03 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Glider Kit Truck Regulation

Dear Deputy Administrator Wheeler,

The EPA's announcement on July 6th that it would suspend enforcement of the 2018 cap limiting glider kit truck production is a shameful act that puts our nation's clean air and public health at risk. Failing to limit the number of these trucks - trucks which by the EPA's own estimates emit approximately 55 times more soot and fine particulates than new trucks - flies in the face of the mandate of the EPA, which is to protect the environment and U.S. citizens. Moreover, it is once again an example of the Trump administration putting corporate interests (in the form of lobbying from manufacturers led by Fitzgerald Glider Kits) ahead of the well-being of the public. While allowing glider kit trucks to be on the road affects all of us, the use of these trucks disproportionately impacts low-income residents of cities, who are much more likely to live in lower-valued properties near major roads and highways. The fact that the EPA is taking this stance on a national health concern is egregious, and is a dereliction of its mission.

Mr. Wheeler, as the new head of the EPA, you have the opportunity to take a different stance than that of your predecessor, Scott Pruitt, a man who dedicated his short, scandal-filled tenure to rolling back environmental regulations right and left. As an engaged voter, I am looking forward to voting for, donating money to, and volunteering for as many candidates as possible who support environmentalism in the 2018 and 2020 elections. I will be urging my friends, family, and neighbors to do the same. I appeal to your sense of duty and ask that you make your time at the EPA one in which we advance further toward adopting renewable energy sources, tighten our legislation protecting our water, air, and soil, and continue to protect the pristine wilderness areas already designated as state and national wilderness areas. In addition, it is of utmost importance that we sign the Paris Climate Agreement and abide by its agreements; reneging on this agreement is short-sighted and asinine. At the end of the day, we all breathe the same air, drink the same water, and share one home, the Earth. Let's keep it habitable for as long as possible.

Sincerely yours,

Andrea Niemiec

Message

From: Molina, Michael [molina.michael@epa.gov]
Sent: 7/21/2018 8:23:30 PM
To: Wheeler, Andrew Administrator / Ex. 6
CC: Bodine, Susan [bodine.susan@epa.gov]
Subject: Fwd: MECA-AESI letter to Admn Wheeler on gliders
Attachments: MECA-AESI letter on EPA Glider non-enforcement memo - 180718.docx; ATT00001.htm

Sir.

See the email below.

CC'ing Susan.

MIchael.

Sent from my iPhone

Begin forwarded message:

> **From:** Chris Miller <cmiller@ajw-inc.com>
> **Date:** July 21, 2018 at 8:12:23 AM EDT
> **To:** Michael Molina <Molina.michael@Epa.gov>
> **Cc:** Bill Wehrum <wehrum.william@epa.gov>, Christopher Grundler <grundler.christopher@epa.gov>, Bill Charmley <charmley.william@epa.gov>
> **Subject: MECA-AESI letter to Admn Wheeler on gliders**
>
> Hello - I was told that you may be acting as Administrator Wheeler's chief of staff. I'd be much obliged if you could forward the attached to him for consideration, and also pass along my personal regards/greetings.
>
> Thanks, Chris
>
> **Christopher J Miller**
> Executive Director
> Advanced Engine Systems Institute
> www.advancedengines.org
> 2200 Wilson Blvd., Suite 310
> Arlington, VA 22201-3352
> 202-296-8086 x 112 desk
> Personal Phone / Ex. 6

Message

From: laura[redacted] Personal Email / Ex. 6
Sent: 7/21/2018 2:43:39 PM
To: Wheeler, Andrew [redacted] Administrator / Ex. 6
Subject: Glider Trucks

Dear Mr. Wheeler,

I greatly respect and support the roll of EPA in our federal government system. Protection of the environment is essential to every human endeavor and must be pursued relentlessly.

I hope you will use the authority of your position to ensure that dirty glider trucks will not be allowed to use our public roadways. This one small step can help so much to keep our air breathable.

Thank you for considering my opinion.

Respectfully,

Laura Hood

Sent with SolMail App

Message

From: Robert Rutkowski Personal Email / Ex. 6
Sent: 7/20/2018 10:34:41 AM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

The Honorable Andrew Wheeler, Acting Administrator
U.S. Environmental Protection Agency Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., NW; Mail Code 1101A
Washington, DC 20460
Administrator / Ex. 6

Re: Please keep glider vehicles off the road

Dear Acting Administrator Wheeler:

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

Glider vehicles combine the shell of a new truck with an old, dirty engine, usually one that will emit 10 to 40 times the amount of dangerous air pollution that is allowable in completely new trucks. Although these trucks only make up five percent of the freight fleet on the road today, they are responsible for emitting one third of the total heavy-duty truck pollution. If these trucks are allowed back on the road in large numbers, it could lead to more than 12,800 premature deaths by 2025.

The mission of the EPA is to protect human health and the environment. Unfortunately, former EPA Administrator Scott Pruitt put the desires of a very small group of manufacturers of these highly polluting vehicles above the health of Americans. This is your chance to show the American people that you will not follow in his footsteps and will take the role of EPA administrator seriously.

Thank you for the opportunity to bring these remarks to your attention.

Yours sincerely,
Robert E. Rutkowski

cc: House Democratic Whip Office

2527 Faxon Court
Topeka, Kansas 66605-2086
P/F: 1 785 379-9671
E-mail: Personal Email / Ex. 6

Message

From: Lisa Della Valle Personal Email / Ex. 6
Sent: 7/19/2018 10:24:35 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Glider truck pollution

Mr. Wheeler,
I just read an announced that EPA under your leadership, would not enforce pollution rules for dirty trucks. This would allow these trucks, known as glider vehicles, which are trucks that have a new shell and an old, dirty engine, to be driven on our roads unregulated.

I am appalled by this news especially since I live in California, known world wide as a leader in clean energy, highest emissions standards and lowest pollution rates.

While these vehicles only make up five percent of the freight fleet, they emit a third of the pollution for ALL long-haul trucks. According to the EPA's own analysis, the toxic pollution emitted from these vehicles could cause at least 1,600 premature deaths every year and emit up to 40 times more pollution than new trucks.

How sad for the environment and people of the United States that would you continue with the devastating agenda set by your predecessor?
You are showing complete disregard for your own staff.

With hope you will see beyond the administrations short sighted, destructive agenda.
Lisa Della Valle
167 Crescent Rd
San Anselmo Ca 94960
Independent voter

Sent from my iPhone

Message

From: K L Personal Email / Ex. 6
Sent: 7/19/2018 8:53:32 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Please keep glider vehicles off the road

I am writing to ask you to please reconsider the Environmental Protection Agency's (EPA) move to stop the enforcement of pollution rules for glider vehicles and commit to keeping this loophole closed.

Glider vehicles combine the shell of a new truck with an old, dirty engine, usually one that will emit 10 to 40 times the amount of dangerous air pollution that is allowable in completely new trucks. Although these trucks only make up five percent of the freight fleet on the road today, they are responsible for emitting one third of the total heavy-duty truck pollution. If these trucks are allowed back on the road in large numbers, it could lead to more than 12,800 premature deaths by 2025.

The mission of the EPA is to protect human health and the environment. Unfortunately, former EPA Administrator Scott Pruitt put the desires of a very small group of manufacturers of these highly polluting vehicles above the health of Americans. This is your chance to show the American people that you will not follow in his footsteps and will take the role of EPA administrator seriously.

Please rescind the EPA's decision to stop enforcing pollution rules for glider vehicles, which would put the health of tens of thousands of Americans at risk.

Sincerely,
Ms. Katy Love
20 Tufts St Arlington, MA 02474-6803
Personal Email / Ex. 6

Message

From: Hoffmann, David (OAG) [David.Hoffmann@dc.gov]
Sent: 7/19/2018 1:49:20 PM
To: Wheeler, Andrew Administrator / Ex. 6
Subject: Request for Withdrawal or Administrative Stay of EPA's "Conditional No Action Assurance Regarding Small Manufacturers of Glider Vehicles"
Attachments: Glider.Corr.to.Wheeler.pdf

On behalf of the Attorney General for the District of Columbia, please see attached correspondence regarding the above-captioned matter.

David S. Hoffmann
Assistant Attorney General
Public Integrity Section
Office of the Attorney General
for the District of Columbia
441 Fourth Street N.W.
Suite 650 North
Washington, D.C. 20001
O: (202) 442-9889
F : (202) 715-7768
david.hoffmann@dc.gov

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Office of the Attorney General

ATTORNEY GENERAL
KARL A. RACINE

PUBLIC ADVOCACY DIVISION

July 19, 2018

Via Email and Overnight Mail
Andrew K. Wheeler
Acting Administrator, United States
Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Ave N.W.
Washington, D.C. 20004

Re: *Request for Withdrawal or Administrative Stay of United States Environmental Protection Agency's "Conditional No Action Assurance Regarding Small Manufacturers of Glider Vehicles"*

Dear Acting Administrator Wheeler:

The Attorney General for the District of Columbia writes to join in full, the request from the Attorneys General of California, Connecticut, Illinois, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Vermont, and Washington, and the Pennsylvania Department of Environmental Protection and the California Air Resources Board in their July 13, 2018 letter to you, annexed hereto, that you immediately withdraw or issue an administrative stay of the United States Environmental Protection Agency's ("EPA's") unlawful de facto suspension of its duly promulgated regulation limiting the production of highly polluting glider vehicles and glider kits ("Glider Rule").[1] *See* Susan P.Bodine, Assistant Administrator, "Conditional No Action Assurance Regarding SmallManufacturers of Glider Vehicles" (July 6, 2018) ("de facto suspension").

[1] 1 The Glider Rule is part of the Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2 (81 Fed. Reg. 73, 478 (Oct. 25, 2016)).

441 Fourth Street, NW, Suite 1100S, Washington, D.C. 20001, (202) 727-3400, Fax (202) 741-0580

Thank you for your consideration.

Sincerely,

KARL A. RACINE
Attorney General

By:_____/S/_____
DAVID S. HOFFMANN
Assistant Attorney General
Office of the Attorney General
for the District of Columbia
441 Fourth Street N.W.
Suite 650 North
Washington, D.C. 20001
O: (202) 442-9889
F : (202) 715-7768
david.hoffmann@dc.gov

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RICHARD M. RUSSELL, MAJORITY STAFF DIRECTOR
MARY FRANCES REPKO, MINORITY STAFF DIRECTOR

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510-6175

July 6, 2018

The Honorable Andrew Wheeler
Acting Administrator
U.S. Environmental Protection Agency (EPA)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Andrew:

I write to congratulate you on being named Acting Administrator of the EPA and to ask you to do all that you can to restore the American people's confidence in the agency's mission, which is the protection of human health and our environment.

Scott Pruitt's record of corruption, wasteful spending on himself while attempting to slash the EPA budget and workforce, secrecy, retaliation against those who dared object, and legally questionable rulemaking proposals have been well-documented.

They say that history doesn't always repeat itself, but it often rhymes. A review of a different chapter in EPA's history reveals the truth of that adage. Mr. Pruitt's tenure at the agency brings to mind the tenure of former EPA-Administrator Anne Gorsuch, which was described as "marked by sharp budget cuts, rifts with career EPA employees, a steep decline in cases filed against polluters and a scandal over the mismanagement of the Superfund cleanup program that ultimately led to her resignation in 1983….She filled various departments at EPA with subordinates recruited from the very industries the agency was supposed to be regulating.[1]"

When Ms. Gorsuch was forced to resign, President Reagan nominated William Ruckelshaus, who had served as the nation's first EPA Administrator, and who had since that time also worked on behalf of many companies regulated by EPA, to serve as Ms. Gorsuch's replacement. Much like your nomination to serve as EPA's Deputy Administrator, Mr. Ruckelshaus's industry ties[2] led to considerable skepticism[3] when his nomination was considered by the Environment and Public Works Committee.

In his opening statement (attached), he observed that the opposition to his nomination during the two days of hearings that preceded his appearance gave him "a sense that I was witnessing my own

[1] https://www.washingtonpost.com/news/energy-environment/wp/2017/02/01/neil-gorsuchs-mother-once-ran-the-epa-it-was-a-disaster/?utm_term=.1417a04c3592
[2] https://www.nytimes.com/1983/03/26/us/ruckelshaus-s-ties-split-environmental-leaders.html
[3] https://www.washingtonpost.com/archive/politics/1983/05/04/wildlife-federation-endorses-ruckelshaus-other-groups-neutral/b649ff6f-c7aa-4fee-896c-6324974f52a0/?utm_term=.13b427678ce7

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lynching." During his confirmation hearing, Mr. Ruckelshaus committed to following and enforcing environmental laws, said he would request and use the advice provided to him by EPA's career staff, and also said: "There will be no hit list. There will be no "Big P" political decisions, there will be no sweetheart deals.... I will seek help from scientists, from environmentalists, from economists, from industrialists and from the general public... Recognizing the important oversight function that Congress must play, a better dialogue and increased trust between the legislative and administering authorities in this area will be a high priority of mine."

After he was nominated, the Washington Post reported (attached) that he received "an emotional hero's welcome" from the beleaguered EPA employees as he promised that "the atmosphere of the demoralized agency will change dramatically." Within a week after he re-assumed the helm of the agency, Mr. Ruckelshaus authored the 'fishbowl memo' (attached) to establish strong transparency and ethics procedures at EPA. When he resigned in 1985, The New York Times said[4] that "he has widely been credited with restoring the morale of the career employees at the agency, bringing in a cadre of competent, experienced assistant administrators and restoring much of the agency's will and capacity to carry out the environmental laws. He also insisted that the agency's enforcement staff step up its operations against violators of the environmental laws."

Mr. Ruckelshaus recently opined,[5] of Scott Pruitt's EPA, that the "EPA should have no natural constituency but the public whose health it is mandated to protect.... the consequence of such conduct is the slow, destructive erosion of public trust in the EPA. Once trust is lost and warnings of unsafe air or contaminated water are ignored, Americans will pay the price. Without that trust, not only will people question whether they can believe their government but also business and industry will face public backlash."

Andrew, you have been granted an enormous challenge and responsibility, but an even greater opportunity. The damage Scott Pruitt has done to the Agency will not easily be undone. While you and I have not always agreed, and will not always agree, on every environmental policy matter, it is my hope and expectation that you will carefully consider the lessons of the past as you prepare to chart the Agency's future. My staff and I stand ready to help, and to that end, I request a meeting in the near future to discuss what we feel are some of the most important near-term steps you could take to restore confidence in the Environmental Protection Agency (attached).

With best personal regards, I am,

Sincerely yours,

Tom Carper
Ranking Member

[4] https://www.nytimes.com/1984/11/29/us/ruckelshaus-resigning-post-as-chief-of-the-epa.html
[5] https://www.washingtonpost.com/opinions/pruitt-is-turning-his-back-on-transparency-at-the-epa/2017/11/01/cd2c1b84-bd88-11e7-8444-a0d4f04b89eb_story.html?utm_term=.67fb14489d0a

Restoring Trust in the EPA

This is a non-exhaustive list that does not include all EPA actions that are of concern. Rather, this list represents ways to remedy some of Administrator Pruitt's most egregious proposals, practices and missed opportunities.

Restore transparency, trust and accountability

1. Provide daily, more detailed information about the activities of confirmed and other senior unconfirmed EPA officials.
2. Ensure that all policy and other decisions are properly documented in writing.
3. Respond to Freedom of Information Act requests in a complete, minimally redacted, and timely manner.
4. Respond to Congressional oversight letters in a complete, accurate, and timely manner.
5. Cease efforts to dramatically shrink, exclude, or retaliate against members of the EPA workforce.
6. Restore scientific information that was removed from EPA's website.
7. Advocate in support of a budget that appropriately reflects the agency's needs and responsibilities.
8. Ensure that environmental laws are enforced through enabling the detection and deterrence of potential violations and requiring appropriate monetary and/or environmental remedies.

Abandon legally questionable policies and proposals

1. Withdraw EPA's proposal to repeal air emission standards for glider trucks, which appears to largely benefit a single company while being opposed by the vast majority of industry, and was influenced by an industry-funded "study" that is currently the subject of an official investigation into research misconduct for failing to adhere to basic scientific standards.
2. Withdraw EPA's "secret science" proposal, which will require EPA—when developing rules—to rely only on scientific studies where the underlying data have been made public and are available to be reproduced. Such a policy would likely violate several laws that mandate the use of "best available science," including the Toxic Substances Control Act and Safe Drinking Water Act because it would require EPA to ignore some of the "best" scientific studies, and would also likely run afoul of the Administrative Procedure Act, which requires agencies to consider and respond to all information presented to it pursuant to a rulemaking.
3. Abandon efforts to complete the draft proposed rule that seeks to dramatically weaken vehicle fuel economy and greenhouse gas tailpipe standards and preempt California's authority to set and enforce its own greenhouse gas tailpipe standards (as well as that of the 12 additional states, including Delaware, that have adopted them). Instead, work to negotiate a 'win-win' solution on federal fuel economy and tailpipe emissions standards that can be supported by both the automobile industry and the State of California.

4. Implement the near-unanimously enacted Toxic Substances Control Act in a manner consistent with Congressional intent that new and existing chemical safety reviews be conducted for all uses of a chemical substance, and additionally, that proposed bans for some uses of three chemical substances be quickly finalized.
5. Follow the law when revising, implementing and enforcing rules to limit air pollution under the Clean Air Act, abandon efforts to weaken existing mercury and air toxics and ozone rules, and live up to the responsibility to protect downwind states from air pollution blown in from upwind states.

EPA-HQ-2019-30664

Senator STAFFORD. Thank you very much, Senator Simpson.
Mr. Ruckelshaus, we would be glad to hear your statement.

STATEMENT OF WILLIAM D. RUCKELSHAUS, ADMINISTRATOR-DESIGNATE, ENVIRONMENTAL PROTECTION AGENCY

Mr. RUCKELSHAUS. Thank you very much, Mr. Chairman and members of this committee.

I appreciate very much those kind comments that many of you have made in your charge to me to take my new assignment seriously. I watched these committee proceedings yesterday on television, and I must confess I had a sense that I was witnessing my own lynching. Here this morning, I have a sense in part that I have been at my own funeral.

Somewhere in between, I am sure, lies the real me.

Twelve years ago I appeared before this same committee and I asked the members to recommend that the full Senate confirm me as the first Administrator of the Environmental Protection Agency. I am today asking the committee to repeat its earlier vote of confidence.

The committee has amassed more information about me than I knew existed 6 weeks ago. You have all my financial data, my personal recusal statement, my work history, and virtually everything I have said, written, or thought about the environment or public health for the last 12 years. You even have every personal letter I have been able to find in my files relating to the job of Administrator of EPA, and all of this information has been furnished by me or at my direction by the organizations with which I am affiliated.

Mr. Chairman, I am about to note in passing the personal letters that the committee has. When the President announced his intention to nominate me some 6 weeks ago, I told my staff at Weyerhaeuser and elsewhere to cooperate with the committee fully, to give them anything they wanted. I gathered all of the speeches, testimony, articles that I had written. I even gathered all my personal correspondence, and I gave all that material to my staff and told them to give it to the committee. It never occurred to me, frankly, that the Committee would want my personal correspondence, but it was requested and turned over to the committee by my staff.

I didn't realize that this had happened until last Friday. By way of explanation, Mr. Chairman, of a letter that I wrote to you on Thursday enclosing some of the correspondencec that had appeared in the New York Times, I indicated to you I didn't know where it was coming from. On Friday, a member of my staff brought up the bundle he had sent and he was very proud of the fact that he had followed my instructions and turned everything over to the committee. That is how it happened.

I did find over the weekend some mention of the environment in a couple of letters that I sent to my mother which I would be glad to turn over to the committee.

She, like some other members of this committee, had a question about judgment in returning. She asked me on the phone how I could possibly take a job 10 years later in which I was not getting a promotion.

I told her she wouldn't want to hear the whole thing.

20-646 O - 83 - 13

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EPA-HQ-2019-30664

Well, I don't believe it is possible, Mr. Chairman, for this committee to know any more about me than you now do. What you see is really what you get. I will, of course, answer any questions that you might have regarding the material that I have given you, and I would respond to any questions that might have arisen at the hearing yesterday.

In this statement I will not dwell on the record before you but instead will tell you what I plan to do if confirmed, how I intend to do it and what I hope to accomplish my second time around.

Before I start, let me make clear my personal perception of the issues the EPA was created to address. To the American people, protection of public health and our national environment embodies a terribly important and enduring set of values. The survey data I have seen and my own experience strongly indicate that Americans feel more deeply committed to the protection of public health and the environment than any people on earth.

Our country, acting through Federal, State and local governments over the past two decades, has translated that commitment into a massive network of laws and regulations to protect the health of our people, the air, water and earth that they all share. As these laws attest, the debate in this country over whether we are going to protect public health and our environment has long since ended.

I completely share our Nation's commitment to the values of public health and the environment. Since first coming to EPA in 1970, I have participated in the national dialog about how to translate those values into achievable goals. I intend, while at EPA, to continue to participate, and if confirmed, many of the same arguments I have made in the past whether in or out of the government.

Now, if I am confirmed, what do I plan to do? I discussed the nature of the Administrator's job with the President and his immediate staff before he asked me to serve. We agreed that people and resources to do the job were essential ingredients of success.

My first priority will be to recruit the best people I can find to manage the agency. I am gratified that in the last 6 weeks, there have been literally thousands of offers to help. Many have come from people who were there before who have proven themselves under fire and who are willing to disrupt their lives to help their country.

I am confident that from that group and others a superior group of people can be assembled.

As to the resources to do the job, it will be a very high priority of mine to review the existing budgetary ceilings to see if additional money or people are needed to carry out the mandate of Congress. If I conclude we need more help, working with the administraion, we will submit an amended 1984 budget request and supplemental 1983 budget request consistent with the 1984 amendments.

Many of you have expressed an interest in whether I intend to request additional budgetary authority or whether I will seek policy changes on virtually every program area the agency administers. These questions are hard, if not impossible, to answer in the abstract, and many of them I simply cannot properly respond to until I have a chance to review the policies and program needs in more detail.

I can offer some guidance on what I now see as high-priority issues. Much has been said and written in criticism of EPA's enforcement

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policies. The questions seem to focus on three aspects of enforcement. The will, capacity and organization.

As to will, let me disabuse anyone who believes EPA, while I am there, will not have the requisite determination to enforce the laws as written by Congress. The environmental laws of this country were passed by Congress and were meant to be taken seriously by the administering authorities. I do take the Congressional charge seriously, and if I am confirmed, EPA will take that charge seriously.

We will enforce the laws of this country. We will be firm, and we will be fair. We must never forget that in a time of high emotion such as we now face where the public interest demands fairness in the enforcement of our law, the public good mirrored in the Bill of Rights demands that due process not be abandoned. The EPA I head will adhere to both principles.

I have asked the people now at EPA for a review of both the capacity to enforce, which is a resource question, and the organization of the enforcement function, which is a management question. I have had a preliminary response to both questions but have come to no final conclusions as to what makes the most sense for the agency.

The whole issue of toxic substances, as some of you have already mentioned, is of much greater prominence than when I was first at EPA. The law to regulate pesticides, FIFRA, was already enacted. There were provisions in the Clean Air Act and Clean Water Act that related to toxic substances, but only since I left has EPA established the basic structure to control the manufacture, distribution, use and ultimate disposal of toxic substances.

In the last 6 weeks, I have seen in the press that the number of problems, this has had an impact on me. Mr. Chairman and members of the committee, I had some feeling for the scope of this problem, but nothing like I received in the last 6 months by reviewing the clippings that EPA gets from all over the country relating to toxic substances. I have seen that the number of problems surfacing all over the country relating to toxic substances and toxic chemicals is truly staggering.

We have in place a complex set of laws and regulations to deal with the toxic substance problems. I certainly have no preconception whether these laws or regulations or the resources we have committed to their implementation are adequate. I do know that wise and aggressive implementation of these laws must be a very high priority of mine, and it will be.

There are other matters which will immediately demand my attention such as the reauthorization of most of the organic laws of EPA—8 out of 10 have expired—along with specific issues such as acid rain.

Last and certainly not least, I will make a concerted effort to harness the energies and the talents of the people at EPA toward the Agency's mission.

EPA's greatest resource today is the same as when we started: It's people. Mr. Chairman, when EPA was created in 1970, in the first 45 days of its existence, we received 250,000 applications for jobs from all over this country. That was an expression that was impressive to me at the time of the concern of the people of this country about the environment, and as best I can tell, that concerns has not diminished since.

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If these people there are trusted, if they are included in and given clear guidance as to what is expected of them, they will perform to a very high standard. I will work hard, and they will work hard toward our common objective.

To carry this message of trust and reliance forward, I intend to personally visit and talk to as many people at EPA here and in the 10 regions and laboratories in the first few weeks after confirmation.

That is what I intend to do. How am I going to do it? In my judgment, it is important for this committee's deliberations to know what I intend to do. It is also important to know how I will do it.

The charges currently lodged against some of the people of EPA focus primarily on abuse of process. There are many policy differences, but the main allegations concentrate on the way the existing laws are administered. Without commenting on the substance of those charges, this committee should know how I intend to operate.

The existing laws will be administered as written. I will continue to bring to this committee's attention recommendations for change where I believe change is warranted, but in the meantime, ours remains a Nation of laws and not of men, and the laws will remain supreme.

As I did before when I was there, I will do now, and that is, operate EPA as honestly as I know how. There will be no hit list. There will be no "Big P" political decisions, there will be no sweetheart deals. We will attempt to communicate with everyone from the environmentalists to those we regulate, and we will do as openly as possible.

Mr. Chairman, I have already directed that my staff attempt to prepare—assuming this body confirms me—to prepare some guidance for how we will communicate so that it will be clear to everyone exactly how this communication can take place, and it will be as open as we know how to make it.

I will seek the best advice I can get on how to deal with the terribly complex problems EPA must confront. I will seek help from scientists, from environmentalists, from economists, from industrialists and from the general public. I hope to engage former administrators of EPA in a constant dialogue to take advantage of their collective wisdom.

Lastly, I hope to engage this committee—and I know, Mr. Chairman, every Committee that ever confirms anybody, and this body hears the same pledge made by the person they confirm, but I am going to do the best I can to live up to this pledge. I hope to engage this Committee, this Committee's staff and other committees of Congress and their staffs in a joint effort to improve our Nation's ability to respond to the mission of health and environmental problems facing EPA.

Recognizing the important oversight function that Congress must play, a better dialogue and increased trust between the legislative and administering authorities in this area will be a high priority of mine.

In the past weeks, I have given a good deal of thought to what I would like to do at EPA, what goals I would set for myself, what I would like to accomplish, and I thought it might be well to share with this committee at least my preliminary thoughts about those goals. First and foremost, the American people need to believe that the agency charged with protecting so many aspects of their health and their natural environment is staffed with first-rate people doing their very best. The problems EPA confronts are hard ones. Some of these prob-

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lems just defy solution. Throughout, from the definition of the problem to its solution, the agency must deal with enormous scientific uncertainty. It often must act before it is clear what the optimum solution would be.

To function at all in such uncharted waters, the American people must trust EPA's motivation and ability. To insure that necessary trust will be a prime objective of mine.

I will endeavor to instill in the employees of EPA a sense of mission and dedication to excellence. I will try to convince them that EPA's mission must be carried out by people who recognize they are servants of the public and not their masters and by people who are as dedicated to fairness and civility to others as to excellence in themselves. An agency steeped in this tradition is a legacy to which I will aspire.

I will attempt to put a management system in place that can meet our goals effectively and efficiently. To accomplish this, EPA and all its elements must first understand our mission and objectives so we know what we are managing toward.

Most of EPA's mission and objectives are defined by statute. I would hope, working with the Congress, to create for the country a more effective legal framework to attain our goals. As I have stated, my obligation as an Administrator is to faithfully execute the laws of the country. In the process of such execution, I will seek to evaluate the impact of the law on both the intended and unintended targets.

Where I think we can lessen the effect on the unintended target without sacrificing our objectives, I will recommend change to the Congress. I did this at EPA before, and I will do it again.

As part of my effort to improve our legal framework, I intend to address the question of the role that the various levels of government play in administering our environmental and health laws.

Too much time is spent by one level of government overseeing the work of the other. With a more clear definition of understanding of who is supposed to do what and who pays for it, we could eliminate much of the public and private frustration over environmental laws. That is a tall order in our Federal system, but with a joint effort by the EPA, the Congress, and the States, more clarity and less redundancy is possible.

I will work toward gaining greater public comprehension of the complexities of managing risk in a free society. I also hope to enlist the scientific community in a more aggressive participation in the public dialog. In my view, the public needs to hear more of what the Administrator of a place like EPA hears regarding scientific uncertainty if they can be expected to support sound public policies.

I will work particularly hard to foster a better dialog between government and environmentalists and the regulated industries. The endless public and private acrimony that surrounds the mix of problems before EPA deflects energy, saps resources, and is ultimately debilitating to the whole effort. Over the last several years, I have become convinced that as Americans, we must first remember we all share this geography of our country, if we are to convince the rest of mankind that we must share and conserve the geography of our planet.

I have other goals regarding such things as developing new and accepted ways of measuring progress against our environmental and health goals and fashioning effective long-term strategies for controlling toxic substances.

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I could go on, but accomplishing even a fraction of these objectives will be task enough. I will welcome suggestions from this committee regarding the what and how of my hopes.

I did not seek this job. But having decided to accept it, I am energized and excited by the challenge. If confirmed, I pledge to this committee and to the American people to do the best I can as long as I'm there.

Thank you, Mr. Chairman.

Senator STAFFORD. Thank you very much, Mr. Ruckelshaus, for your excellent opening statement.

I have conferred with Senator Randolph, and we would propose to our colleagues on the committee that we limit ourselves in the first round to 10 minutes per member for questions.

There will be as many rounds as necessary to satisfy all members of the committee. Questions which they wish to addres to Mr. Ruckelshaus will be addressed to him, and he will have a chance to respond to them. Is there objection to following that procedure?

[No response.]

Senator STAFFORD. I hear none, and that being the case, we will start. Again, Senator Randolph and I have conferred, and we would like to propose continuing the hearing today until 1 o'clock, at least, and then starting again at 10 o'clock tomorrow morning and running as long as necessary to see that the members are satisfied in connection with questions and answers.

Is there objection to following that procedure?

[No response.]

Senator STAFFORD. Before going to questions, the Chair is delighted to see that Senator Moynihan, a most valuable member of this committee, has joined us.

Senator Moynihan, do you have any opening statements that you would like to make? We would put them in an appropriate place in the record for you.

Senator MOYNIHAN. I would like to welcome my old friend, Mr. Ruckelshaus. We were together at the time of the drafting of the Executive order which created the EPA and which is still its basis. We welcome you back, sir. May I be the first to congratulate you on a superb opening statement.

Senator STAFFORD. Mr. Ruckelshaus, in my opening statement, I alluded to the fact that some decisions are entrusted by law to the Administrator of the Environmental Protection Agency and to no other person. It has long been the collective view of this committee that there are some decisions which even the President himself cannot make, even though the Administrator is a Presidential appointee. One example is the requirement of the Clean Air Act that the Administrator establish the ambient standards for air pollutants. I would like to ask you some questions regarding your view of the Administrator's independence in the administration as well as what assurances you have received, and from whom?

But first, let me make this brief observation: After the election of 1980, but before the administration had actually changed hands, David Stockman wrote an article laying out what he called a "regulatory blueprint." This article, entitled "Avoiding a GOP Economic

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3/23/83
Wash. Post

Ruckelshaus Given an Emotional Welcome By 1,000 Employes of Embattled EPA

By Dale Russakoff
Washington Post Staff Writer

William D. Ruckelshaus returned yesterday to the embattled Environmental Protection Agency, receiving an emotional hero's welcome from more than 1,000 agency employes who applauded him noisily, laughed at his jokes and hoisted a banner reading: "How do you spell relief? RUCKELSHAUS."

Ruckelshaus, the EPA's first administrator who was nominated Monday by President Reagan to return to his old post, pledged to restore public trust in the troubled agency, to make it "adhere to an iron integrity," to respect civil servants and to "administer and enforce the laws as they're written by Congress."

Those simple promises drew thunderous ovations from the employes, who crowded into Waterside Mall, where the agency is headquartered, to hear Ruckelshaus' first major address since his nomination. He did not mention his predecessor, Anne M. Burford, and made no specific commitments on policy or personnel shifts, but he appeared to be sending a message that the atmosphere of the demoralized agency will change dramatically.

The mood was reminiscent, many employes said, of the early 1970s, when the agency was founded amid a national clamor for environmental protection. Many of the EPA workers said they came to the agency as young college graduates with a sense of mission and they viewed Ruckelshaus as their comrade.

"The agency and the world were different then," said Hugh Kaufman, a self-styled "whistle blower" in the EPA toxic waste cleanup program. "In the last two years, we have been very much oppressed. We had poor management, outrageous management, potential criminal mismanagement, oppression of civil servants, a feeling that we as EPA regulators were being spat on by the White House. Seeing Bill Ruckelshaus come back is like opening the gates and tearing down the bars."

Ruckelshaus waded into the [illegible] and said through tears: "I'm so happy you're back, I missed you."

Another woman put one hand on each of his shoulders and said with feeling: "The toxic waste program needs you badly." Ruckelshaus answered confidently: "Great, we're going to straighten her out."

Ruckelshaus told the employes he is convinced that Reagan "is committed to doing the job we have been assigned by Congress and to giving us adequate resources to do it," one of the few statements in the speech that was not followed by cheers. He also portrayed himself as a supporter of Reagan's positions.

Ruckelshaus indicated that he will support the administration's effort to revise the Clean Air Act and other landmark environmental laws, despite strong resistance from Congress in the last two years. White House-sponsored amendments to relax portions of the Clean Air Act have been defeated, with members of Congress denouncing them as an effort to favor industry over the public.

"We need to examine the means to achieving these goals [of environmental protection] and where we find or where we believe that better means can be used, we should ask the Congress for the authority necessary to adopt those means," he said. "In the meantime, we will administer and enforce the laws as they are written by Congress."

Interior Secretary James G. Watt said yesterday that he had talked with Ruckelshaus and was "greatly impressed with his commitment to the Reagan philosophy."

Ruckelshaus acknowledged that he had worked on behalf of many industries regulated by the EPA since leaving the Nixon administration in 1973, and said he expects close scrutiny for those ties during his Senate confirmation hearings.

As a Washington attorney he represented manufacturers of vinyl chloride and aluminum and other products. Since 1975 he has been senior vice president of the huge forest products concern, Weyerhaeuser Co. of Tacoma, Wash., named one of the nation's "Filthy Five" companies by Environmental Action, an environmentalist lobbying group.

Weyerhaeuser has contested EPA efforts to curb spraying of forests with herbicides containing toxic chemicals, including dioxin.

"My job as a lawyer was to represent my clients. My job at Weyerhaeuser was to represent all the stakeholders in that enterprise," Ruckelshaus said. "My job as EPA administrator is the same today as it was when I held that job before, and that is to represent the public interest to the best of my ability." That comment also drew loud applause.

Ruckelshaus also hinted at plans to bring in a new team of top EPA managers, but gave no specifics other than saying that Reagan "is committed to getting the best people we can find in this agency, the best people with iron integrity." Employes cheered those words as several top EPA political appointees, targets of congressional and Justice Department probes, watched quietly. They included acting EPA Administrator John W. Hernandez, Assistant Administrator John Todhunter and general counsel Robert M. Perry.

Todhunter and Hernandez came under new fire yesterday as a draft report by a House subcommittee accused them of allowing the formaldehyde industry to influence an agency decision not to regulate the suspected cancer-causing substance. Both men have denied showing favoritism toward industry.

White House officials yesterday told presidential aides to report to White House counsel Fred F. Fielding all contacts with EPA officials in the last two years, regardless of how insignificant they may seem.

The instructions came after reports that James Medas, special assistant in the White House office of intergovernmental affairs, had not reported a discussion with ousted EPA official Rita M. Lavelle on the political impact of toxic-waste cleanup decisions.

United States
Environmental Protection
Agency

Office of
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Washington DC 20460

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EPA

Environmental News

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FOR RELEASE: THURSDAY, MAY 19, 1983

(202) 382-4355

RUCKELSHAUS TAKES STEPS TO IMPROVE FLOW OF AGENCY INFORMATION

William D. Ruckelshaus, Administrator of the U.S. Environmental Protection Agency, today set forth a number of operating principles to carry out his pledge that EPA will operate "in a fish-bowl."

In addition, his legal staff has established a recusal system to assure his avoiding conflicts of interest and the appearance of conflicts of interest in the performance of his duties. Agency matters in which he excuses (recuses) himself from taking part will be made available to the public.

In a memorandum to all EPA employees, the Administrator said, "When I recently appeared before the Senate Committee on Environment and Public Works, I promised that EPA would operate 'in a fishbowl.' I said, 'We will attempt to communicate with everyone from the environmentalists to those we regulate and we will do so as openly as possible.'"

Ruckelshaus said he thought it was critical to set out for the guidance of all EPA employees a set of basic principles to guide their communications with the public.

Ruckelshaus' letter covers four areas: general principles, appointment calendars, litigation and formal adjudication, and rulemaking proceedings. They call for:

-- General principles. EPA will provide, in all its programs, for the fullest possible public participation in decision-making. This requires not only that EPA employees remain open and accessible to those representing all points of view, but also that

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EPA employees responsible for decisions take affirmative steps in an open manner to seek out the views of those who will be affected by the decisions. EPA will not accord privileged status to any special interest group, nor will it accept any recommendation without careful critical examination.

He added that the guidelines would be disseminated to the public for its comments. "While this is not a formal solicitation of views, we will have a 30-day waiting period in which to receive the opinions of the public. We want to get feedback from the public because of the high and continuing degree of interest in how the agency deals with the regulated community and other affected parties."

Ruckelshaus pointed out that the principles are general in nature "because you can't cover every eventuality." But he said that even while awaiting public comment which could lead to modifications, these guidelines will be in effect as agency policy.

-- Appointment Calendars. "In order to make the public fully aware of any contacts with interested persons," Ruckelshaus wrote, "I have directed that a copy of my appointment calendar for each week be placed in the Office of Public Affairs and made available to the public at the end of the week." He added that all other key EPA officials will make their appointment calendars available in a similar manner.

-- Litigation and formal adjudication. All communication with parties in litigation must be through the attorneys assigned to the case. Program personnel who receive inquiries from parties in matters under litigation should immediately notify the assigned attorney, and should refer the caller to that attorney. Formal adjudications, such as pesticide cancellation proceedings, are governed by specific requirements to which Ruckelshaus said he would adhere and which he expected all EPA employees to meet. All adjudicatory rules governing ex parte (the interest of one party only) communications will be made available to all EPA employees and to the public to assure a policy of openness and candor.

-- Rulemaking proceedings. EPA employees must ensure that the basis for the agency's decisions appear in the record. Ruckelshaus instructed employees to be certain that all written comments received from persons outside the agency be entered in the rulemaking docket, and that a memorandum summarizing any significant new factual information likely to affect the final decision received during a meeting or other conversations be placed in the rulemaking docket.

"You are encouraged to reach out as broadly as possible for views to assist you in arriving at final rules," Ruckelshaus said. "How-

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ever, you should do so in a manner that ensures, as far as practicable, that final decisions are not taken on the basis of information which has not been disclosed to members of the public in a timely manner."

To avoid conflicts of interest or the appearance of them, a system has been established in which agency officials will use a recusal form to warn the Administrator of issues from which he should excuse himself.

Ruckelshaus has provided a list of companies in which he is in the process of divesting his financial interests as well as a list of various public institutions with which he has been associated as guidance in determining areas where conflicts of interest could exist. (lists attached.)

Gerald H. Yamada, Deputy General Counsel and the agency's chief ethics officer, said that the Administrator must, in instances where he still has a financial involvement, excuse himself. These instances are mandatory recusals covered by statute, Yamada said.

There also are discretionary recusals in which the Administrator will recuse himself because of the appearance of an impropriety or conflict of interest. Ruckelshaus' associations with public institutions, such as the Bio-Energy Council as an example, would fall into this discretionary category, Yamada said.

Some issues will be decided on a case-by-case basis. Once program officials have provided advice in discretionary matters, a final decision will be made by the Administrator, with the advice of Yamada. In a memorandum on the subject, it was noted that specific procedures must be followed to identify and track matters involving rulemaking, correspondence, litigation and enforcement, formal adjudication, policy statements, grants and contracts.

The memo on recusal to agency officials states, "When Mr. Ruckelshaus has recused himself from participating in any particular matter, your office is not to send him any written material or give him any briefings on such matters. His recusals will be made available to the public."

Yamada said the recusal system, however, does not mean that the Administrator will not be kept informed of everything that is going on at the agency. "He has to be made aware of what is happening, even if he can't participate in some of these matters," Yamada pointed out.

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In developing the guidance principles he announced today, Ruckelshaus had his staff meet with staff members of the Administrative Conference of the United States, an independent agency that develops improvements to legal procedures used by federal agencies in administering their programs. The principles are based on recommendations made by this group and EPA's Office of General Counsel.

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NOTE:

Attachment A lists those firms in which Mr. Ruckelshaus has a financial interest and is in the process of divesting himself of his financial involvement.

Attachment B is a list of public institutions with which Mr. Ruckelshaus has been associated. There may be instances involving some of these groups in which Mr. Ruckelshaus may decide to recuse himself because of the appearance of a conflict of interest.

Until Mr. Ruckelshaus finishes divesting himself of his financial interest in the firms listed on Attachment A, he is prohibited by statute from participating in any particular matter that would involve any of the firms. Once his divesiture is completed, the firms on Attachment A will be moved to the Attachment B list.

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Attachment A

Weyerhaeuser Company (pulp and paper manufacturing, logging, wood and plywood products)
Cummins Engine Company, Inc. (diesel engine manufacturing)
Peabody International Corp. (manufacture of solid and hazardous waste cleanup equipment, manufacture of wet and dry scrubbers and electrostatic precipitators)
Nordstrom, Inc. (wearing apparel, shoes)
Pacific Gas Transmission Company (gas transmission)
U.S. West (telephone services holding company)
United Siscoe Mines, Ltd. (on-shore oil and gas extraction, gold mining)
Geothermal Kinetics, Inc. (a subsidiary of United Siscoe Mines)
SeaFirst Corp. (variety of financial services- mortgage lending, leasing, computers, insurance)
Seattle First National Bank (banking services- a subsidiary of SeaFirst Corp.)
Lincoln National Corp. (insurance services-life, health, property, pension)

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Attachment B

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AFS International/Intercultural Programs
American Enterprise Institute for Public Policy Research
American Paper Institute
American Refugee Committee
Bio-Energy Council
Conservation Foundation
Council for Public Interest Law
Council on Foreign Relations, Inc.
Council on Solar Bio Fuels
The Diet
Economic Development Council of Puget Sound
Environmental & Energy Study Institute
Environmental Law Institute
Explorers Club
Handgun Control, Inc.
Harvard University
Harvard/Monsanto Advisory Board
Indiana Academy
INFORM
Monday Club
National Business Council for ERA
National Research Council
National Victims of Crime
Pacific Science Center
Public Agenda Foundation
Resolve (Center for Environmental Conflict Resolution)
Seattle Art Museum
Seattle Chamber of Commerce
Seattle University
Twentieth Century Fund
University of Puget Sound
University of Washington
Urban Institute
U.S. Business Commission on the Reconstruction of Lebanon
Weyerhaeuser Company Archives
Weyerhaeser Company Foundation

3412-8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

3472-8

THE ADMINISTRATOR

MEMORANDUM

SUBJECT: Contacts with Persons Outside the Agency

TO: All EPA Employees

When I recently appeared before the Senate Committee on Environment and Public Works, I promised that EPA would operate "in a fishbowl." I said, "We will attempt to communicate with everyone from the environmentalists to those we regulate and we will do so as openly as possible." Therefore, I believe it is important to set out for the guidance of all EPA employees a set of basic principles to guide our communications with the public.

In formulating these principles I considered more stringent restrictions on contacts with those outside the Agency than those described below. At my request, my staff met with staff members of the Administrative Conference of the United States to discuss these issues. This organization is an independent agency that develops improvements to the legal procedures by which Federal agencies administer their programs. Based on the recommendations of the staff members of the Administrative Conference and those of the Office of General Counsel, I am convinced that restrictions beyond those set out below would unnecessarily inhibit the free flow of information and views. In adopting these flexible procedures I am relying on EPA employees to use their common sense and good judgment to conduct themselves with the openness and integrity which alone can ensure public trust in the Agency.

General Principles

EPA will provide, in all its programs, for the fullest possible public participation in decision-making. This requires not only that EPA employees remain open and accessible to those representing all points of view, but also that EPA employees responsible for

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decisions take affirmative steps to seek out the views of those who will be affected by the decisions. EPA will not accord privileged status to any special interest group, nor will it accept any recommendation without careful critical examination.

Appointment Calendars

In order to make the public fully aware of my contacts with interested persons, I have directed that a copy of my appointment calendar for each week be placed in the Office of Public Affairs and made available to the public at the end of the week. The Deputy Administrator, and all Assistant Administrators, Associate Administrators, Regional Administrators, and Staff Office Directors shall make their appointment calendars available in a similar manner.

Litigation and Formal Adjudication

EPA is engaged in a wide range of litigation, both enforcement and defensive in nature. All communication with parties in litigation must be through the attorneys assigned to the case. Program personnel who receive inquiries from parties in matters under litigation should immediately notify the assigned attorney, and should refer the caller to that attorney.

Formal adjudications, such as pesticide cancellation proceedings, are governed by specific requirements concerning ex parte communications, which appear in the various EPA rules governing those proceedings. These rules are collected and available in the Office of General Counsel, Room 545, West Tower. I will conduct myself in accordance with these rules, and I expect all EPA employees to do the same.

Rulemaking Proceedings

In either formal or informal rulemaking proceedings under the Administrative Procedure Act, EPA employees must ensure that the basis for the Agency's decision appears in the record. Therefore, be certain (1) that all written comments received from persons outside the Agency (whether during or after the comment period) are entered in the rulemaking docket, and (2) that a memorandum summarizing any significant new factual information or argument likely to affect the final decision received during a meeting or other conversations is placed in the rulemaking docket.

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You are encouraged to reach out as broadly as possible for views to assist you in arriving at final rules. However, you should do so in a manner that ensures, as far as practicable, that final decisions are not taken on the basis of information or arguments which have not been disclosed to members of the public in a timely manner. This does not mean that you may not meet with one special interest group without inviting all other interest groups to the same meeting, although all such groups should have an equal opportunity to meet with EPA. It does mean, however, that any oral communication regarding significant new factual information or argument affecting a rule, including a meeting with an interest group, should be summarized in writing and placed in the rulemaking docket for the information of all members of the public.

William D. Ruckelshaus

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Message

From: Molina, Michael [molina.michael@epa.gov]
Sent: 6/7/2018 6:56:34 PM
To: Carroll, Carly [Carroll.Carly@epa.gov]
CC: Wheeler, Andrew [Administrator / Ex. 6]
Subject: Re: SCAQMD Meeting Request -- June 20-21

Deliberative Process / Ex. 5

Sent from my iPhone

On Jun 7, 2018, at 2:53 PM, Gary Hoitsma <hoitsmag@carmengroup.com> wrote:

Great! Thanks!

From: Carroll, Carly [mailto:Carroll.Carly@epa.gov]
Sent: Thursday, June 07, 2018 2:48 PM
To: Gary Hoitsma
Cc: Molina, Michael
Subject: RE: SCAQMD Meeting Request -- June 20-21

Thanks Gary. Adding Michael for awareness. We'll be in touch soon!

Carly Carroll
Special Assistant to the Deputy Administrator
U.S. Environmental Protection Agency
(202) 564-2769
carroll.carly@epa.gov

From: Gary Hoitsma [mailto:hoitsmag@carmengroup.com]
Sent: Thursday, June 07, 2018 2:38 PM
To: Carroll, Carly <Carroll.Carly@epa.gov>
Subject: SCAQMD Meeting Request -- June 20-21

Hi Carly,

As we discussed by phone, this is to request a short meeting with **Andrew** on **Wednesday June 20**, or **Thursday, June 21**, with myself and several top staff from **South Coast Air Quality Management District** (**SCAQMD**) who will be in town those days. FYI, They had met recently with Bill Wehrum and his OAR group. Interested now to touch base with the Deputy Administrator.

Purpose: General overview discussion of federal topics of most interest to SCAQMD right now; These would include include a) Ultra Low NOx standard for heavy trucks; b) General NAAQS implementation stuff; c) DERA/Targeted Airshed grant programs d) Glider rule; and e) CAFÉ rule.

Five Attendees:
--**Wayne Nastri**, SCAQMD Executive Officer (former EPA Regional Administrator—Region 9 ---under Bush43)
--**Dr. Phil Fine,** SCAQMD Deputy Executive Officer for Planning
--**Dr. Matt Miyasato**, SCAQMD Deputy Executive Officer for Technology Advancement
--**Derrick Alatorre**, SCAQMD Deputy Executive Officer for Legislative and Public Affairs
--**Gary Hoitsma**, Carmen Group

Best Times: Any time **after 2:00pm on June 20** or **anytime June 21** can work for us. Appreciate consideration.

Thanks very much,

Gary

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