**Recommendation from the SAB Work Group on EPA Planned Actions for SAB Consideration of the Underlying Science**

**Name of planned action:** Control of Air Pollution from Aircraft and Aircraft Engines: Proposed GHG Emissions Standards and Test Procedures [RIN 2060-AT26]

**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 Work Group finds that the planned action is significant and would benefit from SAB advice and comment. The Work Group notes the temporal constraints on completing the rulemaking and recommends the SAB provide advice on this issue and at a minimum EPA should conduct a panel review that allows communication across the two proposed peer review panels in order to encourage synergistic understanding among the disciplines involved.

**Rationale:** While the underlying rule making will follow the lead of ICAO in setting emissions standards implementation of those standards through regulation will flow from an EPA led assessment of the aircraft GHG inventory, technological feasibility and cost analysis. The assessment of the underling science will determine the overall integrity of resulting regulations with respect to meeting the desired GHG goals. Given that these rules will impact a significant portion of the global aircraft industry and will provide the framework for any changes moving forward, ensuring the scientific integrity of these initial rules is of high importance. As is the case with development of any new rule it is critical to ensure that the range of scientific views from multiple perspectives are solicited in order to capture the

collective understanding of the relevant science. Towards that end we encourage involving a greater number of reviewers in a more integrative process using a panel review. The SAB hopes that there is time under the constraint of a December 2018 deadline for completing the standard setting ruling making to undertake this more integrative approach to a scientific review.

It is important to make the work products of the review public. Transparency can stimulate further reflection on the key science issues involved as well as precipitating advancements in the associated areas of research.

Within the temporal constraints on completing the rulemaking the SAB wishes to provide advice on this issue or at a minimum the EPA should conduct a panel review that allows communication across the two proposed panels in order to encourage synergistic understanding among the disciplines involved.

The Work Group notes the SAB previously reviewed *Proposed Finding that Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution that May Reasonably be Anticipated to Endanger Public Health and Welfare and Advanced Notice of Proposed Rulemaking* (2060-AS31) in the Fall 2014[10] Regulatory Review and found that subsequent steps in the regulatory process will involve substantive scientific issues that may warrant SAB consideration.

The Work Group anticipates that subsequent steps in the regulatory process will continue to involve substantive scientific issues that will warrant SAB consideration. It recommends that the SAB asks the agency to regularly inform the Board about the status of subsequent steps on this topic and also asks the EPA to provide it with briefings on the science underlying agency approaches to address greenhouse gas emissions and related climate change actions.

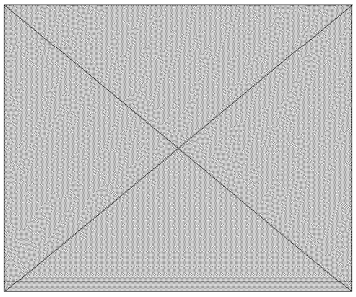
The Work Group submitted questions to the EPA as part of their research and fact-finding. The questions and agency responses directly follow in this attachment.

[10] SAB Discussions about EPA Planned Actions in the Fall 2014 Unified Agenda and their Supporting Science https://yosemite.epa.gov/sab/sabproduct.nsf/02ad90b136fc21ef85256eba00436459/d78924048110d085257dc4005dcef6!OpenDocument

**To:** Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Grundler, Christopher
**Sent:** Fri 1/9/2015 10:42:03 PM
**Subject:** FW: A4A Request for a Meeting to Discuss the ICAO CO2 Standard
removed.txt
Letter to Chris Grundler re Meeting 1-9-15.pdf

Here they come!

**From:** Young, Nancy [mailto:NYoung@airlines.org]
**Sent:** Friday, January 09, 2015 5:35 PM
**To:** Grundler, Christopher
**Cc:** Maurice, Lourdes
**Subject:** A4A Request for a Meeting to Discuss the ICAO CO2 Standard



January 9, 2015

***Submitted By Email to*** *Grundler.christopher@Epa.gov*

Christopher Grundler

Director, Office of Transportation and Air Quality (OTAQ)

U.S. Environmental Protection Agency

Washington, DC

**Re: Request for a Meeting to Discuss Progress on Development of an ICAO Aircraft Certification Standard for Carbon Dioxide and the Predicates for Adoption into U.S. Law**

Dear Chris:

I write to request a meeting with you within the coming weeks to discuss the progress at the International Civil Aviation Organization (ICAO) to develop an aircraft certification standard for carbon dioxide ($CO_2$) for approval at the February 2016 meeting of the ICAO Committee on Aviation Environmental Protection (CAEP) and action the U.S. government plans to take under Section 231 of the Clean Air Act to prepare for adoption of such a standard under U.S. law.

As you know, Airlines for America (A4A) and our members remain committed to the development of an appropriate $CO_2$ standard meeting the CAEP Terms of Reference.[1] We are pleased with the progress being made at ICAO. As the CAEP Members and Observers now are working to focus the final stages of the analysis, we thought it would be a good time to touch base with you again on the status of the ICAO process and the Agency's efforts to prepare to promulgate conforming regulations.

In particular, we understand from the Information Paper that the U.S. submitted at the CAEP Steering Group last September that the Agency plans to issue proposed "endangerment" and "cause or contribute" findings for the U.S. regulation of aircraft greenhouse gas emissions this spring. We concur with the observation the U.S. made in the CAEP Information Paper that such findings are a prerequisite to U.S. adoption of the expected ICAO standard. Accordingly, we would like to discuss with you the Agency's plans to proceed with this consistent with the timing of the ICAO process. Of course, we are keen to ensure that EPA keeps the U.S. airlines' strong record of fuel efficiency improvements and $CO_2$ emissions savings squarely in focus and look forward to the opportunity to refresh on these issues as well.

I would appreciate it if someone in your office could contact me about potential dates and times for meeting within the next several weeks. I can be reached at (202) 626-4207 or nyoung@airlines.org. Alternatively, I will plan to follow up with your office to explore potential dates. Thank you for your consideration.

Sincerely yours,

Nancy N. Young

Vice President, Environmental Affairs

cc: Lourdes Maurice, FAA, via email Lourdes.maurice@faa.gov

Nancy N. Young

Vice President, Environmental Affairs

**Airlines for America**

We Connect the World

1301 Pennsylvania Ave, NW, Suite 1100

Washington, DC 20004

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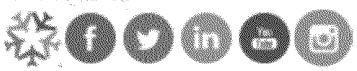
email: nyoung@airlines.org

**VISIT US:**



[1] Besides being well-established for international standard-setting, the CAEP Terms of Reference and the ICAO/CAEP standard-setting process align well with the bases for the adoption of aircraft engine emission standards by EPA and FAA under Section 231 of the Clean Air Act.

**From:** Ex. 6 - Former Administrator McCarthy's Email
**Location:** Administrator's Office
**Importance:** Normal
**Subject:** Finalizing US Position: ICAO– Aircraft GHG Standards
**Start Date/Time:** Fri 10/30/2015 7:30:00 PM
**End Date/Time:** Fri 10/30/2015 8:30:00 PM
Administrator's form request - 10-5-15.docx

******Please DO NOT forward this calendar invitation. You may "Accept" or "Decline" the invitation but DO NOT respond with questions or concerns. If you do have any questions or concerns about this invitation please contact the Scheduling Office at scheduling@epa.gov . ******

SCt: Liel Azoolin
Ct: Emily Atkinson, 202-564-1850

Staff:
Janet McCabe, Chris Grundler, Bill Charmley, Ben Hengst, Michael Samulski, Bryan Manning, David Orlin (OAR)
Mike Thrift (OGC)

Optional:
Gwen Stewart, Jonell Iffland (OAR/OTAQ)

Conference Line: Ex. 6 - Personal Privacy / Access Code: Ex. 6 - Personal Privacy

Video Conference Room:
Ann Arbor RM. C-174 DOD AA

Administrator's form request - 10-5-15.docx

**To:** Shoaff, John[Shoaff.John@epa.gov]
**Cc:** Mazza, Carl[Mazza.Carl@epa.gov]; Hockstad, Leif[Hockstad.Leif@epa.gov]; Burch, Julia[Burch.Julia@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Schenk, Ruth[schenk.ruth@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Sargeant, Kathryn
**Sent:** Wed 1/25/2017 9:46:14 PM
**Subject:** OTAQ Submission: Fall 2016 Reg Agenda SAB Review Templates
SAB Review for 2018 RFS annual rule otaq final2.docx
EPA action description_Aviation Lead Endangerment otaq final2.docx
EPA action description Aircraft GHG rule otaq final2.docx

Attached please find OTAQ's three submissions, as you requested.

These have been reviewed within OTAQ and by OGC.

Please let me know if you have any questions or feedback you'd like us to consider.

**From:** Shoaff, John
**Sent:** Wednesday, January 04, 2017 1:04 PM
**To:** Sargeant, Kathryn <sargeant.kathryn@epa.gov>; Rimer, Kelly <Rimer.Kelly@epa.gov>
**Cc:** Mazza, Carl <Mazza.Carl@epa.gov>; Hockstad, Leif <Hockstad.Leif@epa.gov>
**Subject:** FW: Happy Holidays and a few things for the new year -- Fall 2016 Reg Agenda SAB Review Templates due 1/25

Kathryn and Kelly,

Happy new year! I wanted to follow up on my note below and before the holidays though apologies Kelly, I missed you on the distribution. Need to circle back on the request for SAB templates related to actions from the Fall 2016 Reg Agenda. We've 14 actions listed and **SABSO had a few questions on the long term actions (12 – mostly RTRs and a couple other actions from OTAQ) that we'd like to update them on circa tomorrow AM if at all possible** – you're welcome to join the call at 9:30 as you like [Call in Ex. 6 - Personal Privacy, Code Ex. 6 - Personal Privacy Ex. 6 - Personal Privacy or we can do our best to relay current thinking to the best we can or follow up as needed. Here are Tom C's (SABSO) questions with some preliminary response notions in *italics*:

•□□□□□□ All the actions are listed as long term, are there any that will not have sufficient information for the Board to discuss? *Not sure about this one, thoughts?*

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Let me know your preference – joining call and/or us relaying notions above with your additions please. If there are others we should include on this, happy to forward or feel free to pass.
Thank you!

John

**John Shoaff** | Leader, Policy Support Group

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:** Shoaff, John
**Sent:** Thursday, December 22, 2016 2:31 PM
**To:** Hubbell, Bryan <Hubbell.Bryan@epa.gov>; Moltzen, Michael <Moltzen.Michael@epa.gov>; Sargeant, Kathryn <sargeant.kathryn@epa.gov>; Cook, Rich <Cook.Rich@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Bacanskas, Lisa <Bacanskas.Lisa@epa.gov>; Kolb, Laura <Kolb.Laura@epa.gov>
**Cc:** Koerber, Mike <Koerber.Mike@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Cook, Leila <cook.leila@epa.gov>; Krieger, Jackie <Krieger.Jackie@epa.gov>; Gitlin, Bonnie <Gitlin.Bonnie@epa.gov>; DeMocker, Jim <DeMocker.Jim@epa.gov>; Mazza, Carl <Mazza.Carl@epa.gov>; Hockstad, Leif <Hockstad.Leif@epa.gov>
**Subject:** Happy Holidays and a few things for the new year -- Fall 2016 Reg Agenda SAB Review Templates due 1/25

All,

Hope all have a safe and nice holiday not to mention a well-deserved break if you're so inclined. Wanted to relay a few quick updates in follow-up to my missive toward the end of November with all that was approaching this month. –

**SAB Templates**

While I know we just had extensive conversations with the SAB at the end of Nov/early Dec., we recently received the following note, see below, flagging the need to provide templates on the fall 2016 regulatory agenda by Feb. Several actions appear related so we should be able to recycle and reuse text from our recent spring submissions in several places if not consolidate. Will be back in touch with relevant folks in the new year regarding specifics, but we'd likely want **draft templates circa January 25th** so folks can review in advance of passing. On top of Tom's requisite background, first three attachments, I added his Spring 2016 Reg Review Memo to the SAB from Nov., see last attachment, which includes some of our prior submissions and salient info., see Attachments B and C in particular therein.

**C-PORT**

As many of you know, there have been extensive discussions and time spent commenting on ORD's C-PORT tool. Thank you for your continued patience and involvement with this though I certainly understand both the tension and frustration. My understanding is that Tim Watkins will send a note around shortly with some ideas to follow up on our call from earlier this month

and offer to share some of the underlying documents and data of interest that can help to further inform feedback and/or follow on discussions on specific areas of continued interest, e.g., emissions and dispersion modeling. Due to timing, some of this may need to occur in parallel with the planned peer review which should also be informed by the revised charge questions from awhile back. In any event, we'll continue to work through this without belaboring and will also be exploring upfront mechanisms to avoid in the future. The launch of the SHC PACTs circa Feb. may also present some opportunities in this regard as well.

**Annual Research Meeting & STPC**

We're still following up on the Betsy-Bob meeting as well as the December STPC and plan to provide more of a download with you on our Science Leads monthly call that's slated for Jan. 10. Will be back in touch toward the new year with an agenda for that and look forward to catching up, but don't hesitate to be in touch with Carl, Leif or myself as needed. Thank you again for respective contributions in Dec. responding to the bevy of issues and requests.

Finally, am unsure whether we've had an opportunity to announce this as of yet, but we are very fortunate to have Leif Hockstad join our group. Leif was formerly with OAP CCD and has a wealth of expertise leading the annual U.S. Inventory of Greenhouse Gases among other roles and responsibilities. Welcome Leif and Happy holidays to all! Best,

John

**John Shoaff** | Leader, Policy Support Group

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** | **Ex. 6 - Personal Privacy**

**From:** Carpenter, Thomas

**Sent:** Tuesday, December 13, 2016 4:55 PM
**To:** Fegley, Robert <Fegley.Robert@epa.gov>; Cogliano, Gerain <Cogliano.Gerain@epa.gov>; Chun, Melissa <Chun.Melissa@epa.gov>; Mazza, Carl <Mazza.Carl@epa.gov>; Williams, Pat <Williams.Pat@epa.gov>; Evalenko, Sandy <Evalenko.Sandy@epa.gov>; Owens, Nicole <Owens.Nicole@epa.gov>; Muellerleile, Caryn <Muellerleile.Caryn@epa.gov>; Mazza, Carl <Mazza.Carl@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>
**Cc:** Sheppard, Tracy <Sheppard.Tracy@epa.gov>; Zarba, Christopher <Zarba.Christopher@epa.gov>; Johnston, Khanna <Johnston.Khanna@epa.gov>; Brennan, Thomas <Brennan.Thomas@epa.gov>
**Subject:** Fall 2016 Reg Agenda SAB Review Templates due 6/24

Greetings,

The Office of Policy identified 14 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 14 actions that need a completed template are listed in the table below. Also attached are the abstracts posted on the OMB webpage (*New planned actions Fall 2016.docx*) Please note that 11 actions are in the long-term action stage of rulemaking.

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. 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.

Attached is a word version of the annotated template for you to complete. Please provide your Office's completed templates to me by February 1, 2017. The SAB Staff Office will convene the Work Group as soon as possible after materials are provided.

Please call if you have any questions.

Best,

Tom

Ex. 5 - Deliberative Process

| | | | |
|---|---|---|---|
| 2060-AT26 | Control of Air Pollution From Aircraft and Aircraft Engines: Proposed GHG Emissions Standards and Test Procedures | EPA/OAR | Long-Term Actions |

Ex. 5 - Deliberative Process

**To:** OTAQ Materials[OTAQMaterials@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]; Iffland, JoNell[Iffland.JoNell@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 10/28/2015 8:41:08 PM
**Subject:** RE: Draft US position paper for Administrator (For tomorrow's briefing with Janet)
CAEP 10 WP XX US CO2 Stringency_ 23 October EPA + FAA.docx

Here is a second document for tomorrow's meeting with Janet. It is the draft US Position paper on the CO2 standard.

FAA shared this with the White House/IPC group as well as with Secretary Foxx.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Samulski, Michael
**Sent:** Wednesday, October 28, 2015 2:40 PM
**To:** Grundler, Christopher; OTAQ Materials
**Cc:** Charmley, William; Iffland, JoNell; Manning, Bryan; Thrift, Mike; Orlin, David; Williams, Melina; Audette, Lucie; Leggett, Cullen
**Subject:** Draft ICAO briefing for Administrator (For tomorrow's briefing with Janet)

Here is an updated briefing intended to respond to Chris' comments.

Slide 4 has been edited to more clearly define the two US position papers and their timelines (one to ICAO with formal position and an internal position document with our negotiating space)

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Grundler, Christopher
**Sent:** Tuesday, October 27, 2015 12:27 PM
**To:** Samulski, Michael; OTAQ Materials
**Cc:** Charmley, William; Iffland, JoNell; Manning, Bryan; Thrift, Mike; Orlin, David; Williams,

Melina; Audette, Lucie; Leggett, Cullen
**Subject:** RE: For Chris's review: ICAO briefing for Administrator

Quick reaction:

Clarify that there will be two us position papers, and the diff review timelines

**Ex. 5 - Deliberative Process**

Will look more carefully later today

**Ex. 5 - Deliberative Process**

**From:** Samulski, Michael
**Sent:** Tuesday, October 27, 2015 11:10 AM
**To:** OTAQ Materials <OTAQMaterials@epa.gov>
**Cc:** Charmley, William <charmley.william@epa.gov>; Iffland, JoNell <Iffland.JoNell@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** For Chris's review: ICAO briefing for Administrator

Here are the draft materials for our briefing with Gina on Friday regarding Aircraft CO2. Note that we have a pre-brief with Janet on Thursday.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Charmley, William[charmley.william@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 10/28/2015 6:58:06 PM
**Subject:** FW: S1 clearance achieved on US Position paper for CO2 Standard
CAEP 10 WP XX US CO2 Stringency_ 23 October EPA + FAA.docx

Bill,

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Wednesday, October 28, 2015 2:54 PM
**To:** Samulski, Michael; Manning, Bryan
**Subject:** S1 clearance achieved on US Position paper for CO2 Standard

Mike, Bryan,

**Ex. 5 - Deliberative Process**

Best Regards,

**Ralph Iovinelli**

Manager, Emissions Division (AEE-300)

Office of Environment and Energy

Federal Aviation Administration

800 Independence Ave., SW

Washington, DC 20591

+1-202-267-3566 office

+ **Ex. 6 - Personal Privacy**

ralph.iovinelli@faa.gov

# Description of Planned EPA Tier 1 or Tier 2 Action

1. **Name of action:** Control of Air Pollution from Aircraft and Aircraft Engines: Proposed GHG Emissions Standards and Test Procedures

2. **RIN Number:** 2060-AT26

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:**

   This rulemaking follows on the EPA's final endangerment and cause or contribute findings for aircraft GHG emissions which were published on August 15, 2016 (81 FR 54422). As a result of these positive findings, the EPA is obligated under section 231 of the Clean Air Act to set emission standards applicable to GHG emissions from the classes of aircraft engines used in certain types of aircraft included in the contribution finding.

   The EPA and the Federal Aviation Administration (FAA) traditionally work within the standard-setting process of the International Civil Aviation Organization (ICAO). ICAO's Committee on Aviation Environmental Protection (CAEP) establishes international aircraft emission standards and related requirements, which individual nations later adopt into domestic law. On July 1, 2015, the EPA issued an Advance Notice of Proposed Rulemaking (80 FR 37758) to provide an overview and seek input on a variety of issues related to the setting of an international aircraft $CO_2$ standard at ICAO, and the potential use of section 231 of the Clean Air Act to adopt and implement corresponding aircraft engine $CO_2$ emission standards domestically.

   At its meeting in February of 2016, ICAO/CAEP agreed on the first-ever international standards to regulate $CO_2$ emissions from aircraft. The ICAO Assembly approved these $CO_2$ standards in October 2016, and then ICAO is expected to formally adopt these standards in March 2017. If ICAO formally adopts the final $CO_2$ standards in March 2017, the EPA's standards will need to be at least as stringent as the ICAO $CO_2$ aircraft standards for the United States to meet its treaty obligations under the Convention on International Civil Aviation. This rulemaking would meet these treaty obligations.

5. **Timetable:** As indicated in the 2016 Fall Regulatory Agenda, the EPA expects to issue a Notice of Proposed Rulemaking by January 2018 and a Final Rule by December 2018. The FAA would then adopt regulations to implement and enforce the standards. The EPA schedule has been developed in consultation with the FAA, and reflects the need for both Agencies to act prior to the January 2020 implementation date for the international aircraft $CO_2$ standards. We anticipate that once EPA has completed its rulemaking, FAA will then begin its rulemaking for the enforcement of the standards. Under section 232 of the Clean Air Act, FAA must enforce the emission standards that EPA sets under section 231 of the Clean Air Act. Therefore, EPA intends to complete the standard setting rulemaking by the end of 2018 in order to provide FAA sufficient time for it to finalize its rules by 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.**

See section 6(c) below.

**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 section 6(c) below.

**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 intends to use two scientific products to inform its decision-making in this rulemaking. Both of these products meet the definition of an influential scientific or technical work product.

The EPA is developing an aircraft GHG inventory to assess the emissions impact of this rulemaking. The aircraft GHG inventory will be based on detailed estimates of the U.S. and global fleet fuel burn and potential emission reductions, from 2010 to 2040, for different stringency and implementation timing options. The EPA utilizes an aircraft performance model, PIANO (Project Interactive Analysis and Optimization), in the development of the aircraft GHG inventory. PIANO is commercially available and widely used across the industry and academia. It contains non-manufacturer provided estimates of the performance of numerous aircraft. The EPA previously utilized PIANO as part of the EPA's technical work for the ICAO technical workgroups charged with assessing the stringency options for the international aircraft $CO_2$ standard.

In addition, as part of the rulemaking, the EPA is developing a technological feasibility and cost analysis that will be based on updating a March 2015 ICF report entitled, "Cost Analysis of $CO_2$-Reducing Technologies for Aircraft," which was a reference for the Advance Notice of Proposed Rulemaking. The new report will be an updated assessment of the latest aircraft technical improvements, their costs, and their fuel burn or emissions reduction potential. The EPA previously used the information from the March 2015 report as part of EPA's technical work for the ICAO technical workgroups tasked with assessing the technologies and costs of stringency options for the international aircraft $CO_2$ standard, and ICAO utilized information from this report in its analysis.

**6(d). Peer review:**

The EPA is developing a technical report that will document the EPA assumptions, data sources, and methods for the aircraft GHG inventory. Also, the updates to the ICF report, "Cost Analysis of $CO_2$- Reducing Technologies for Aircraft," will include documenting any assumptions, data sources, and methods for the technology and cost analysis.

For both of the documents described above, the EPA is seeking an independent peer review of the assumptions, data sources, and methods provided in the documents. We plan to begin the peer review in the Spring of 2017, and we expect it to be completed by the end of the Summer of 2017, before the proposed rulemaking will be issued.

The letter peer review will be led and managed by a contractor. In selecting reviewers, the contractor will avoid any reviewer with actual or apparent conflict(s) of interest that would preclude an independent review. Three peer reviewers will be chosen to review each report (there will be different peer reviewers for each report, so there will be a total of six peer reviewers). Due to the complex nature of the subjects, EPA will request that the reviewers have one or more areas of relevant expertise in order to assure an effective peer review. The combined expertise of the selected reviewers will cover the following areas: aircraft emissions inventory assessment, aircraft engine fuel efficiency technology, airframe fuel efficiency technology, aircraft economics, and aircraft industry characterization. The contractor will distribute a charge letter and collect comments from the peer reviewers. The EPA will develop a response to the peer review comments and make revisions to the reports accordingly.

Airlines for America®
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January 9, 2015

*Submitted By Email to* Grundler.christopher@Epa.gov

Christopher Grundler
Director, Office of Transportation and Air Quality (OTAQ)
U.S. Environmental Protection Agency
Washington, DC

**Re: Request for a Meeting to Discuss Progress on Development of an ICAO Aircraft Certification Standard for Carbon Dioxide and the Predicates for Adoption into U.S. Law**

Dear Chris:

I write to request a meeting with you within the coming weeks to discuss the progress at the International Civil Aviation Organization (ICAO) to develop an aircraft certification standard for carbon dioxide ($CO_2$) for approval at the February 2016 meeting of the ICAO Committee on Aviation Environmental Protection (CAEP) and action the U.S. government plans to take under Section 231 of the Clean Air Act to prepare for adoption of such a standard under U.S. law.

As you know, Airlines for America (A4A) and our members remain committed to the development of an appropriate $CO_2$ standard meeting the CAEP Terms of Reference.[1] We are pleased with the progress being made at ICAO. As the CAEP Members and Observers now are working to focus the final stages of the analysis, we thought it would be a good time to touch base with you again on the status of the ICAO process and the Agency's efforts to prepare to promulgate conforming regulations.

In particular, we understand from the Information Paper that the U.S. submitted at the CAEP Steering Group last September that the Agency plans to issue proposed "endangerment" and "cause or contribute" findings for the U.S. regulation of aircraft greenhouse gas emissions this spring. We concur with the observation the U.S. made in the CAEP Information Paper that such findings are a prerequisite to U.S. adoption of the expected ICAO standard. Accordingly, we would like to discuss with you the Agency's plans to proceed with this consistent with the timing of the ICAO process. Of course, we are keen to ensure that EPA keeps the U.S. airlines' strong record of fuel efficiency improvements and $CO_2$ emissions savings squarely in focus and look forward to the opportunity to refresh on these issues as well.

I would appreciate it if someone in your office could contact me about potential dates and times for meeting within the next several weeks. I can be reached at (202) 626-4207 or nyoung@airlines.org. Alternatively, I will plan to follow up with your office to explore potential dates. Thank you for your consideration.

Sincerely yours,

Nancy N Young

Nancy N. Young
Vice President, Environmental Affairs

cc: Lourdes Maurice, FAA, via email Lourdes.maurice@faa.gov

[1] Besides being well-established for international standard-setting, the CAEP Terms of Reference and the ICAO/CAEP standard-setting process align well with the bases for the adoption of aircraft engine emission standards by EPA and FAA under Section 231 of the Clean Air Act.

1301 Pennsylvania Ave, NW, Suite 1100, Washington, DC 20004-1707 T: 202.626.4000 E: a4a@airlines.org W: airlines.org

# *Internal Meeting/Briefing Request Form for Administrator Gina McCarthy*

Today's Date: October 6, 2015
Requesting Office: OAR
Title of the Meeting: Finalizing US Position: ICAO– Aircraft GHG Standards

Purpose: To update and finalize EPA's position on appropriate levels for the ICAO Aircraft GHG standards in preparation for the Administrator's meeting with Secretary Fox to finalizing the US position on international aircraft GHG standards. This joint position must be finalized in advance of submitting the US Position Paper to ICAO in November.

Role of the Administrator: To be briefed; provide final decision on appropriate EPA position; prep for call or meeting with Secretary Fox

Background: Final international Aircraft GHG standards are scheduled to be voted on by ICAO/CAEP in early 2016. The US position paper outlining our position on both in-production and new-type aircraft GHG standards is scheduled to be submitted to ICAO in early November. This meeting is to provide the Administrator an overview of the status of negotiations at ICAO and to finalize the EPA position on what constitutes appropriate standards the Agency can support in advance of an Administrator phone call or meeting with DOT Secretary Fox to finalize a joint approach.

The White House, NSC and DPC, are proposing to hold an interagency meeting on the developing the US position for the ICAO CO2 standard to identify both the "going in" position for the US position paper that will be submitted to ICAO, as well as the US bottom line position on each issue.

Possible dates for the meeting: Request Meeting for the Week of October 12, 2015.

Is the meeting urgent and if so, why?: Yes. Final US position must be developed by late October. White House has requested a meeting in the next week to discuss.

Requested Time Length: 1 hour
EPA Staff (Required):
Janet McCabe, Chris Grundler, Bill Charmley, Ben Hengst, Michael Samulski, Bryan Manning (OAR)

EPA Staff (Optional):
Gwen Stewart, Jonell Iffland (OAR/OTAQ)

External Participants: None
Teleconference Required?: Yes
Video Conference Required?: Yes – Ann Arbor RM. C-174 DOD AA
Point of Contact for the Meeting: Emily Atkinson, 202-564-1850

*NOTE: All OA Special Assistant's must be CC on all requests to the Administrator's Scheduling Office. All briefing material must be sent to briefings@epa.gov 72 hours before the scheduled meeting. Failure to comply will result in the meeting being rescheduled at the Director of Scheduling and Advance's discretion.*

**To:** Grundler, Christopher[grundler.christopher@epa.gov]; OTAQ Materials[OTAQMaterials@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]; Iffland, JoNell[Iffland.JoNell@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 10/28/2015 6:40:34 PM
**Subject:** Draft ICAO briefing for Administrator (For tomorrow's briefing with Janet)
ICAO Aircraft CO2 Std_Gina briefing 10-28-15.pptx

Here is an updated briefing intended to respond to Chris' comments.

Slide 4 has been edited to more clearly define the two US position papers and their timelines (one to ICAO with formal position and an internal position document with our negotiating space)

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Grundler, Christopher
**Sent:** Tuesday, October 27, 2015 12:27 PM
**To:** Samulski, Michael; OTAQ Materials
**Cc:** Charmley, William; Iffland, JoNell; Manning, Bryan; Thrift, Mike; Orlin, David; Williams, Melina; Audette, Lucie; Leggett, Cullen
**Subject:** RE: For Chris's review: ICAO briefing for Administrator

Quick reaction:

Clarify that there will be two us position papers, and the diff review timelines

**Ex. 5 - Deliberative Process**

Will look more carefully later today

**Ex. 5 - Deliberative Process**

**From:** Samulski, Michael
**Sent:** Tuesday, October 27, 2015 11:10 AM
**To:** OTAQ Materials <OTAQMaterials@epa.gov>
**Cc:** Charmley, William <charmley.william@epa.gov>; Iffland, JoNell <Iffland.JoNell@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** For Chris's review: ICAO briefing for Administrator

Here are the draft materials for our briefing with Gina on Friday regarding Aircraft CO2. Note that we have a pre-brief with Janet on Thursday.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** OTAQ Materials[OTAQMaterials@epa.gov]; Charmley, William[charmley.william@epa.gov]
**Cc:** Iffland, JoNell[Iffland.JoNell@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 6/17/2015 7:02:46 PM
**Subject:** Materials for Thursday meeting with Chris on aircraft
Chris Briefing on CAEP SG15 US WPs 6-17-15.docx

Here are the materials for our 1:00 briefing with Chris on the upcoming ICAO steering group meeting.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Thrift, Mike[thrift.mike@epa.gov]; Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; Yen, David[Yen.David@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]
**From:** Samulski, Michael
**Sent:** Mon 10/26/2015 4:18:53 PM
**Subject:** RE: Draft Aircraft CO2 Briefing for Gina
ICAO Aircraft CO2 Std_Gina briefing 10-26-15.pptx

These edits look fine to me. Here is a clean version.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Thrift, Mike
**Sent:** Monday, October 26, 2015 12:13 PM
**To:** Samulski, Michael; Charmley, William
**Cc:** Manning, Bryan; Audette, Lucie; Leggett, Cullen; Orlin, David; Mueller, John; Yen, David; Williams, Melina
**Subject:** RE: Draft Aircraft CO2 Briefing for Gina

Here are a couple suggested edits on slides 7 and 8.

# Ex. 5 - Deliberative Process

Mike Thrift

United States Environmental Protection Agency

Office of General Counsel

San Diego Border Office

610 West Ash Street

San Diego, CA 92101

Thrift.mike@epa.gov

619-321-1960

**From:** Samulski, Michael
**Sent:** Monday, October 26, 2015 8:44 AM
**To:** Charmley, William <charmley.william@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Mueller, John <mueller.john@epa.gov>; Yen, David <Yen.David@epa.gov>
**Subject:** Draft Aircraft CO2 Briefing for Gina

Bill,

Here is the draft aircraft CO2 briefing for Gina. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

OGC is reviewing the draft briefing concurrently. I know that you wanted to get this to Chris today or tomorrow.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Samulski, Michael
**Sent:** Mon 10/26/2015 3:44:27 PM
**Subject:** Draft Aircraft CO2 Briefing for Gina
ICAO Aircraft CO2 Std_Gina briefing 10-23-15.pptx

Bill,

Here is the draft aircraft CO2 briefing for Gina. **Ex. 5 - Deliberative Process**
**Redacted**

OGC is reviewing the draft briefing concurrently. I know that you wanted to get this to Chris today or tomorrow.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Audette, Lucie[audette.lucie@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Charmley, William[charmley.william@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Ghanta, Venu
**Sent:** Fri 2/28/2014 5:33:18 PM
**Subject:** RE: GHG Endangerment for Aircraft Engines

**Ex. 5 - Deliberative Process**

Thanks, Venu

**From:** Audette, Lucie
**Sent:** Friday, February 28, 2014 11:40 AM
**To:** Hengst, Benjamin; Charmley, William; Samulski, Michael
**Cc:** Ghanta, Venu
**Subject:** RE: GHG Endangerment for Aircraft Engines

**Ex. 5 - Deliberative Process**

**From:** Hengst, Benjamin
**Sent:** Friday, February 28, 2014 11:30 AM
**To:** Charmley, William; Audette, Lucie; Samulski, Michael
**Cc:** Ghanta, Venu

**Subject:** FW: GHG Endangerment for Aircraft Engines

Ex. 5 - Deliberative Process

**From:** Ghanta, Venu
**Sent:** Friday, February 28, 2014 10:10 AM
**To:** Hengst, Benjamin
**Subject:** RE: GHG Endangerment for Aircraft Engines

Ex. 5 - Deliberative Process

**From:** Hengst, Benjamin
**Sent:** Friday, February 28, 2014 10:06 AM
**To:** Ghanta, Venu
**Subject:** RE: GHG Endangerment for Aircraft Engines

Ex. 5 - Deliberative Process

**From:** Ghanta, Venu
**Sent:** Friday, February 28, 2014 10:02 AM
**To:** Birgfeld, Erin; Mylan, Christopher
**Cc:** Hengst, Benjamin
**Subject:** GHG Endangerment for Aircraft Engines

# Ex. 5 - Deliberative Process

This is an approximation of what will go public:

# Ex. 5 - Deliberative Process

**To:** Charmley, William[charmley.william@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Mon 9/18/2017 6:26:50 PM
**Subject:** RE: Can OTAQ confirm with stakeholders who are asking that EPA is moving forward with the development of an NPRM for aircraft CO2 standards

Bill—I have some thoughts about this. Maybe we can chat for 5 min at our 2:30

**From:** Charmley, William
**Sent:** Monday, September 18, 2017 2:11 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Sutton, Tia <sutton.tia@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** Can OTAQ confirm with stakeholders who are asking that EPA is moving forward with the development of an NPRM for aircraft CO2 standards

Ben and Erin,

My staff and manager who work on aircraft issues have received a number of questions in the past few days regarding whether or not US EPA is working on a rulemaking to adopt the ICAO CO2 standards, which as you know last year we informed many stakeholders we were.

There is some confusion among our stakeholders because of 3 things that various external stakeholders have seen;

1. **July 2017:** The 2017 update to the Unified Agenda (the reg/de-reg agenda) listed the aircraft GHG proposal work as "inactive"

2. **August 2017**: EPA's August 15, 2017 letter to the EPA Science Advisory Board stated that this rulemaking work was "inactive"

3. **September 2017:** In an recent Bloomberg BNA article (copied below), there are the following statements *"A plan to regulate greenhouse gases from aircraft was put into the EPA's regulatory graveyard but will be re-born again this fall, the agency said."* and *"An EPA spokeswoman said the rulemaking will move to the active category in the fall regulatory agenda, due out in a few months."*

**Ex. 5 - Deliberative Process**

Thanks

Bill

**179 DEN 10**

**Climate Policy**

# Airline Climate Emissions Rule Not Dead Yet: EPA

## Snapshot

• EPA “inactive” listing of air sector rule on agenda sparks environmentalists’ FOIA

• Agency insists it will continue developing rulemaking

*By Dean Scott* **Bloomberg BNA**

A plan to regulate greenhouse gases from aircraft was put into the EPA's regulatory graveyard but will be re-born again this fall, the agency said.

The clarification comes after an environmental group announced it would be seeking—via the Freedom of Information Act—the Environmental Protection Agency's reasoning for abandoning the aircraft regulations, which had been inching forward since the Obama administration.

But President Donald Trump's rollback of an array of climate regulations sowed doubts as to whether the agency would slow or seek to end progress toward an air sector rule, and the agency in its spring regulatory agenda appeared to do just that by moving the air sector rule (RIN:2060-AT26) into its list of inactive regulations.

The Center for Biological Diversity, which notes that the aviation industry backed an international emissions deal as well as EPA's implementation of the limits, spotted the reclassification and filed a FOIA request with EPA this week seeking clarification on its rule.

**Among Fastest Growing Sectors**

Carbon emissions from the air sector represent about 2 percent of the global total, according to the Air Transport Action Group. But it is one of the fastest growing sources of emissions. From 1990-2010 carbon emissions from aircraft grew 40 percent, according to the Center for Climate and Energy Solutions. The U.S. accounts for 29 percent of global aircraft emissions. If the sector were a country, it would rank as the seventh largest carbon emitter, the center said.

That is one reason more than 190 nations agreed last year to a UN deal to peak such emissions in 2020. The EPA, which had moved somewhat tentatively under the Obama administration to regulate such emissions under the Clean Air Act, also would have to issue implementing regulations if the U.S. is to comply with the global pact negotiated under the International Civil Aviation Organization.

Industry groups such as the General Aviation Manufacturers Association have backed the upcoming greenhouse gas rule, saying it would make them competitive globally as ICAO moves forward with its own standards.

The agency downplayed the practical effect of putting the rule in the “inactive” column, saying it was meant more to reflect what little progress was being made on the rulemaking last spring, when Trump's EPA Administrator Scott Pruitt had only barely begun his tenure. An EPA spokeswoman said the rulemaking will move to the active category in the fall regulatory agenda, due out in a few months.

Vera Pardee, senior counsel for the Center for Biological Diversity's Climate Law Institute, told Bloomberg BNA that the regulatory agenda is supposed to be forward-looking and the rule “is now listed as inactive for all of 2017.”

The agency is compelled to develop the rule after issuing a 2016 decision that found aircraft emissions endangered public health and the environment, she said.

“Under Obama, it was a full-blown initiative after the endangerment finding, as it was and is required to be under the Clean Air Act,” Pardee said. “Someone stopped the ongoing work, which is now coming to light,” in part, Pardee said, because her environmental group noted the “inactive” listing.

To contact the reporter on this story: Dean Scott in Washington at dscott@bna.com

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

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 1/5/2016 4:11:12 PM
**Subject:** Draft aircraft options selection briefing for Sarah/Chris
Options Selection Aircraft for Sarah_Chris_01-05-16.pptx

Bill,

On Thursday at 10:30, OAP is prebriefing Sarah Dunham on options selection for the aircraft endangerment FRM.

Chris Grundler was also invited to the meeting, but I do not know if he is attending.

The draft materials are attached. I believe OAP staff are going through this with Paul Gunning today.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** OTAQ Materials[OTAQMaterials@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Sargeant, Kathryn[sargeant.kathryn@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; Charmley, William[charmley.william@epa.gov]; Iffland, JoNell[Iffland.JoNell@epa.gov]; Cook, Leila[cook.leila@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Burch, Julia[Burch.Julia@epa.gov]; Gonzalez, Gail[Gonzalez.Gail@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 10/12/2017 5:10:27 PM
**Subject:** Pre-Brief: Aircraft CO2 Rulemaking (Oct 16 at 11:00)
Status Briefing_Aircraft GHG Std_for Sarah Dunham v.4_10-12-17.pptx

Hi,

Attached please find the pre-brief for Chris on Oct 16 at 11:00 – aircraft CO2 rulemaking. Let us know if you have any questions.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Samulski, Michael

**Sent:** Thursday, October 12, 2017 10:42 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Revised Aircraft CO2 rule briefing for Sarah (Pre-Briefing for Chris): PLEASE REVIEW

A couple of minor comments:

**Ex. 5 - Deliberative Process**

Thanks,

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Manning, Bryan
**Sent:** Tuesday, October 10, 2017 5:31 PM
**To:** Samulski, Michael <samulski.michael@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** Revised Aircraft CO2 rule briefing for Sarah (Pre-Briefing for Chris): PLEASE REVIEW

Hi Mike and Lucie,

Based on the meeting with Bill last week, attached please find a revised briefing for Sarah on the aircraft CO2 rule (scheduled for 10/17). This version is for the pre-brief with Chris on 10/16. The changes are found mainly on slides 7-10 and 12 (and one minor change on slide 17). Let me know if you have any comments.

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]
**From:** Young, Nancy
**Sent:** Tue 2/24/2015 4:34:45 PM
**Subject:** Re: Draft agenda for today's meeting between Airlines for America and EPA

Thanks Bill. We will share with you our observations on that issue, if okay, recognizing that you will not be able to respond.

Sent from my iPhone

On Feb 24, 2015, at 11:32 AM, Charmley, William <charmley.william@epa.gov> wrote:

Dear Nancy,

I am looking forward to meeting with you and your colleagues this afternoon. Sorry it is so cold here in Michigan.

My secretary provided to me this morning a copy of the proposed Agenda you provided for our discussion today. Overall I think this looks fine, with the exception of item #3.

In your organization's request for a meeting with our Office Director from early January I understood that the purpose of today's meeting is to discuss EPA's efforts to develop a proposed endangerment finding for GHG emissions from aircraft and EPA's plans for publishing an Advanced Notice of Proposed Rulemaking that will accompany the proposed endangerment finding. We are prepared today to hear from Airlines for America on those topics and to provide a high level overview of the purpose of the proposed endangerment finding and the ANPRM.

We are not prepared today to engage in a dialog on item #3 regarding the ICAO CO2 Standard Work. Because the proposed endangerment finding and the ANPRM are EPA work products we did not coordinated today's meeting with our colleagues at FAA. However, the topic of the ICAO CO2 standard development process is clearly an area where EPA and FAA are working together at ICAO, and I think it would be most appropriate to postpone that discussion to a future meeting where EPA and FAA could here

your organization's messages on those topics together.

We can discuss this further at the beginning of todays meeting.

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

-

**Draft Agenda**

-

1. Introductions

2. Overview of A4A Airline Approach to Addressing Aviation Greenhouse Gas Emissions

3. Discussion Regarding the ICAO CO2 Standard Work

a. New Type and In Production Aircraft Issues

b. Cost Effectiveness Analysis Issues

c. Post-Standard Communication – The Role and Effectiveness of the Standard

4. Discussion Regarding EPA Preparation to Adopt the Future CO2 Standard into U.S. Law

a. Cause or Contribute/Endangerment Finding

b. Potential ANPR on the Standard

5. Conclusion/Sum Up

**To:** Charmley, William[charmley.william@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Samulski, Michael
**Sent:** Fri 10/23/2015 6:35:24 PM
**Subject:** FW: ICAO CO2 Standard Meeting - Agenda and NEW TIME
CO2 Standard - Status of Members 2015-10-23.pdf
CAEP 10 WP XX US CO2 Stringency_ 23 October EPA + FAA.docx

Here is what FAA sent up.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Lourdes.Maurice@faa.gov [mailto:Lourdes.Maurice@faa.gov]
**Sent:** Friday, October 23, 2015 2:27 PM
**To:** Samulski, Michael; Ralph.Iovinelli@faa.gov
**Cc:** curtis.holsclaw@faa.gov; Donald.Scata@faa.gov; Adrienne.Vanek@faa.gov
**Subject:** FW: ICAO CO2 Standard Meeting - Agenda and NEW TIME

Mike/Ralph – FYI Thanks so much for all your hard work getting us to this point. Ex. 5 - Deliberative Process
Ex. 5 - Deliberative Process Cheers Lourdes

**From:** Maurice, Lourdes (FAA)
**Sent:** Friday, October 23, 2015 1:36 PM
**To:** 'Vahlsing, Candace'; 'McCabe, Janet'; 'Hengst, Benjamin'; 'charmley.william@epa.gov'; 'lefranc.maurice@epa.gov'; Swayze, Rich (FAA); Burleson, Carl (FAA); Lew, Shoshana (OST); 'Atkinson, Emily'; Belford, Brandon (OST)
**Cc:** Welsh, Kevin; Utech, Dan G.; Bodnar, Paul; Duke, Rick; Zaidi, Ali; Mohtadi, Shara
**Subject:** RE: ICAO CO2 Standard Meeting - Agenda and NEW TIME

Dear Kevin and Candace

**Ex. 5 - Deliberative Process**

Cheers Lourdes

**From:** Vahlsing, Candace **Ex. 6 - Personal Privacy**
**Sent:** Sunday, October 18, 2015 10:00 PM
**To:** 'McCabe, Janet'; 'Hengst, Benjamin'; 'charmley.william@epa.gov'; 'lefranc.maurice@epa.gov'; Swayze, Rich (FAA); Burleson, Carl (FAA); Maurice, Lourdes (FAA); Lew, Shoshana (OST); 'Atkinson, Emily'; Belford, Brandon (OST)
**Cc:** Welsh, Kevin; Utech, Dan G.; Bodnar, Paul; Duke, Rick; Zaidi, Ali; Mohtadi, Shara
**Subject:** RE: ICAO CO2 Standard Meeting - Agenda and NEW TIME

Great meeting on Thursday. Attaching a Summary of Conclusions, which includes key next steps and a revised timeline based on our discussion.

Please let us know if you have any questions.

Many thanks!

Kevin and Candace

**IPC ON Aircraft CO2 Standard**

DATE: October 15, 2015

LOCATION: EEOB 208

TIME: 6:00-7:00pm

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

**From:** Welsh, Kevin
**Sent:** Wednesday, October 14, 2015 6:21 PM
**To:** 'McCabe, Janet'; 'Hengst, Benjamin'; 'charmley.william@epa.gov'; 'lefranc.maurice@epa.gov'; 'Rich.Swayze@faa.gov'; 'carl.burleson@faa.gov'; 'Lourdes.Maurice@faa.gov'; 'shoshana.lew@dot.gov'; 'Atkinson, Emily'; 'brandon.belford@dot.gov'
**Cc:** Utech, Dan G.; Bodnar, Paul; Duke, Rick; Vahlsing, Candace
**Subject:** RE: ICAO CO2 Standard Meeting - Agenda and NEW TIME

Ahead of tomorrow's meeting is an updated agenda Ex. 5 - Deliberative Process
Ex. 5 - Deliberative Process

Look forward to seeing you tomorrow.

Thanks,

Kevin

**From:** Welsh, Kevin
**Sent:** Tuesday, October 13, 2015 7:56 PM
**To:** 'McCabe, Janet' <McCabe.Janet@epa.gov>; 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>; 'charmley.william@epa.gov' <charmley.william@epa.gov>; 'lefranc.maurice@epa.gov' <lefranc.maurice@epa.gov>; 'Rich.Swayze@faa.gov' <Rich.Swayze@faa.gov>; 'carl.burleson@faa.gov' <carl.burleson@faa.gov>; 'Lourdes.Maurice@faa.gov' <Lourdes.Maurice@faa.gov>; 'shoshana.lew@dot.gov' <shoshana.lew@dot.gov>; 'Atkinson, Emily' <Atkinson.Emily@epa.gov>
**Cc:** Utech, Dan G. <Ex. 6 - Personal Privacy>; Bodnar, Paul <Ex. 6 - Personal Privacy>
Duke, Rick <Ex. 6 - Personal Privacy> Vahlsing, Candace

Ex. 6 - Personal Privacy

**Subject:** ICAO CO2 Standard Meeting - Agenda and NEW TIME

All,

Attached is the agenda for Thursday's aircraft CO2 discussion. Also please note that due to a conflict that has arisen here, WE WILL START AT 6PM (we will still plan to stop at 7pm).

Thanks,

Kevin

**From:** Welsh, Kevin
**Sent:** Friday, October 09, 2015 12:03 PM
**To:** 'McCabe, Janet' <McCabe.Janet@epa.gov>; 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>; 'charmley.william@epa.gov' <charmley.william@epa.gov>; 'lefranc.maurice@epa.gov' <lefranc.maurice@epa.gov>; 'Rich.Swayze@faa.gov' <Rich.Swayze@faa.gov>; 'carl.burleson@faa.gov' <carl.burleson@faa.gov>; 'Lourdes.Maurice@faa.gov' <Lourdes.Maurice@faa.gov>; 'shoshana.lew@dot.gov' <shoshana.lew@dot.gov>; 'Atkinson, Emily' <Atkinson.Emily@epa.gov>
**Cc:** Utech, Dan G Ex. 6 - Personal Privacy Bodnar, Paul < Ex. 6 - Personal Privacy Duke, Rick Ex. 6 - Personal Privacy Vahlsing, Candace < Ex. 6 - Personal Privacy Ex. 6 - Personal Privacy
**Subject:** RE: NEW TIME: RE: ICAO CO2 Standard Meeting - Please Hold October 15 from 5:30-7pm

All,

Next Thursday's meeting will be in EEOB 208 at 5:30pm. Here is a link to register for the meeting: https://events.whitehouse.gov/form?cid=701t00000000s1c

We will send a detailed agenda by COB Tuesday, Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Also, since this is a late meeting, we will do are best to start right on time, so please leave enough time for security.

Thanks,

Kevin

**From:** Welsh, Kevin
**Sent:** Thursday, October 08, 2015 4:09 PM
**To:** 'McCabe, Janet' <McCabe.Janet@epa.gov>; 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>; 'charmley.william@epa.gov' <charmley.william@epa.gov>; 'lefranc.maurice@epa.gov' <lefranc.maurice@epa.gov>; 'Rich.Swayze@faa.gov' <Rich.Swayze@faa.gov>; 'carl.burleson@faa.gov' <carl.burleson@faa.gov>; 'Lourdes.Maurice@faa.gov' <Lourdes.Maurice@faa.gov>; 'shoshana.lew@dot.gov' <shoshana.lew@dot.gov>
**Cc:** Utech, Dan G. < Ex. 6 - Personal Privacy ; Bodnar, Paul Ex. 6 - Personal Privacy
Duke, Rick < Ex. 6 - Personal Privacy ; Vahlsing, Candace
Ex. 6 - Personal Privacy
**Subject:** NEW TIME: RE: ICAO CO2 Standard Meeting - Please Hold October 15 from 5:30-7pm

All,

Due to several conflicts, we will now hold this meeting on October 15 from 5:30pm to 7pm. Apologies for the late time, but looks to be about the only time that will work in the next couple of weeks.

Thanks,

Kevin

**From:** Welsh, Kevin
**Sent:** Monday, October 05, 2015 8:01 PM
**To:** 'McCabe, Janet' <McCabe.Janet@epa.gov>; 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>; charmley.william@epa.gov; 'lefranc.maurice@epa.gov' <lefranc.maurice@epa.gov>; 'Rich.Swayze@faa.gov' <Rich.Swayze@faa.gov>; 'carl.burleson@faa.gov' <carl.burleson@faa.gov>; 'Lourdes.Maurice@faa.gov' <Lourdes.Maurice@faa.gov>; 'shoshana.lew@dot.gov' <shoshana.lew@dot.gov>
**Cc:** Utech, Dan G. <Ex. 6 - Personal Privacy>; Bodnar, Paul Ex. 6 - Personal Privacy
Duke, Rick Ex. 6 - Personal Privacy; Vahlsing, Candace
Ex. 6 - Personal Privacy Ex. 6 - Personal Privacy
**Subject:** ICAO CO2 Standard Meeting - Please Hold October 15 from 3:00-4:30pm

All,

NSC and DPC will hold an interagency meeting on the developing the US position for the ICAO CO2 standard next week. Please hold Thursday, October 15 from 3-4:30pm.

Ex. 5 - Deliberative Process

Best regards,

Kevin

**To:** Charmley, William[charmley.william@epa.gov]
**From:** Stewart, Lori
**Sent:** Tue 1/5/2016 4:05:53 PM
**Subject:** RE: This morning's 11:30 White House agency call with EPA and FAA on Aircraft Standards

Thanks Bill. I'll make sure Janet has this.

**From:** Charmley, William
**Sent:** Tuesday, January 05, 2016 10:57 AM
**To:** McCabe, Janet <McCabe.Janet@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>
**Cc:** Stewart, Lori <Stewart.Lori@epa.gov>
**Subject:** This morning's 11:30 White House agency call with EPA and FAA on Aircraft Standards

Janet and Chris -

Regarding the call today between the White House agencies, EPA, and FAA on the ICAO CO2 aircraft standard.

As Janet mentioned, this is the 2nd of 3 calls that the WH agencies have set up. Candice sent an Agenda around yesterday (see below). This call is only scheduled for 30 minutes, and I don't know how they expect to get through all of these agenda items. In addition, FAA sent around as

**Ex. 5 - Deliberative Process**

There are 2 major points for today's call for EPA that Mike, Bryan and I will make, and both relate to the In-production Aircraft > 60 ton options.

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Given that this meeting is only 30 minutes, I think making these 2 points are sufficient.

If Janet is able to participate that would be great, but if not I will make sure we make these two points.

Thanks

Bill

**AGENDA for Today's Interagency Call on Aircraft CO2 standards**

Ex. 5 - Deliberative Process

-----Original Message-----
From: McCabe, Janet
Sent: Monday, January 04, 2016 10:34 PM
To: Grundler, Christopher
Cc: Charmley, William
Subject: Re: For ICAO call FW: Emissions Table (SBU - Pre Decisional)

There was a series of three calls scheduled before Christmas, of which this is the second. I think it was three.

Sent from my iPhone

> On Jan 4, 2016, at 10:04 PM, Grundler, Christopher <grundler.christopher@epa.gov> wrote:

>

> Janet--I'm afraid that this call comes as a complete surprise to me

>

>

> Christopher Grundler, Director

> Office of Transportation and Air Quality U.S. Environmental Protection

> Agency

> 202.564.1682 (Washington)

> 734.214.4207 (Ann Arbor)

> www.epa.gov/otaq

>

>> On Jan 4, 2016, at 9:04 PM, McCabe, Janet <McCabe.Janet@epa.gov> wrote:

>>

>>

>>

>> -----Original Message-----

>> From: Vahlsing, Candace M. EOP/WHO

>> Ex. 6 - Personal Privacy

>> Sent: Monday, January 04, 2016 5:31 PM

>> To: McCabe, Janet <McCabe.Janet@epa.gov>

>> Subject: FW: Emissions Table (SBU - Pre Decisional)

>>

>> Hi Janet,

>>

>> Happy New Year!

>>

>> Just wanted to make sure you have this table for the FAA call tomorrow.

>>

>> <Table2_v6.pdf>

**To:** Charmley, William[charmley.william@epa.gov]
**From:** Iffland, JoNell
**Sent:** Tue 2/24/2015 4:17:29 PM
**Subject:** FW: Confirming EPA meeting for tomorrow
removed.txt
A4A-EPA Meeting on CO2 Standard Draft Agenda 2-24-15.docx

JoNell L. Iffland

Assessment and Standards Division

U.S. Environmental Protection Agency

Direct ph. 734-214-4454

e-mail: iffland.jonell@epa.gov

**From:** Young, Nancy [mailto:NYoung@airlines.org]
**Sent:** Monday, February 23, 2015 10:39 AM
**To:** Iffland, JoNell
**Subject:** RE: Confirming EPA meeting for tomorrow

Hi JoNell. The letter we sent requesting the meeting explained what we wanted to discuss, but I have reflected that in a draft agenda, which I have attached.

The attendees on our side will be:

- Nancy Young, Vice President, Environmental Affairs, Airlines for America (A4A)
- Tim Pohle, Senior Managing Director, Environmental Affairs, A4A
- Dave Anvid, Delta Air Lines
- David Jensen, FedEx
- Angela Foster-Rice, United Airlines

I understand that Mill Charmley & Mike Samulski will participate in the meeting for EPA. Will there be other EPA attendees?

Thank you, Nancy

Nancy N. Young

Vice President, Environmental Affairs

**Airlines for America**

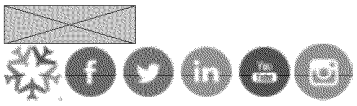
**We Connect the World**

1301 Pennsylvania Ave, NW, Suite 1100

Washington, DC 20004

Phone: (202) 626-4207

email: nyoung@airlines.org



**From:** Iffland, JoNell [mailto:Iffland.JoNell@epa.gov]
**Sent:** Monday, February 23, 2015 9:50 AM
**To:** Young, Nancy
**Subject:** Confirming EPA meeting for tomorrow

Good morning Nancy:

I am confirming the meeting for tomorrow. Can you send me the final list of participants and an agenda?

Thanks,

JoNell L. Iffland

Assessment and Standards Division

U.S. Environmental Protection Agency

Direct ph. 734-214-4454

e-mail: iffland.jonell@epa.gov

**To:** OTAQ Materials[OTAQMaterials@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Sutton, Tia
**Sent:** Mon 7/13/2015 6:31:35 PM
**Subject:** Materials for Tuesday's 3pm Aircraft briefing "ICAO CO2 Standard Briefing"
FAA-EPA CO2 Standard briefing_10 July 2015_final.docx

Hello,

Materials for Tuesday's 3pm "ICAO CO2 Standard Briefing" are attached. We will need 12 copies of this briefing printed for OTAQ participants (Chris Grundler, Bill Charmley, and Mike Samulski) to take over to the White House for the briefing.

Thank you!

-Tia

**From:** Sutton, Tia
**Sent:** Monday, July 13, 2015 9:26 AM
**To:** Manning, Bryan
**Subject:** FW: Materials for aircraft meetings next Monday and Tuesday

All set- Ben sent them down on Friday afternoon (I was pretty sure he sent them, but just wanted to double-check for you).

I'll check in with folks in OAR IO to make sure they're all set with copies.

**From:** Hengst, Benjamin
**Sent:** Friday, July 10, 2015 1:50 PM
**To:** OAR Briefings
**Cc:** Sutton, Tia
**Subject:** Materials for aircraft meetings next Monday and Tuesday

Hello,

Attached are (1) talking points/backgrounder for Janet's call with FAA on Monday, and (2) the final version of the briefing for next Tuesday's WH meeting.

Thanks,

Ben

**To:** Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]
**From:** Sutton, Tia
**Sent:** Mon 7/13/2015 5:12:16 PM
**Subject:** FW: Materials for aircraft meetings next Monday and Tuesday
FAA-EPA CO2 Standard briefing_10 July 2015_final.docx

Hi all,

Just wanted to touch base on the call from this morning/tomorrow's White House briefing. Attached is the briefing that we sent to the OAR IO on Friday afternoon – is this still the version that you all plan to use tomorrow, or will you be making any edits? (Just wasn't sure if anything came up during the 10:30 call this morning that would warrant needing to edit the briefing?)

If you do need to make edits, please let me know ASAP, and it would be great if you could send said edits by 4:30 today. If there are no edits, no need for you to do anything other than to let me know that this is all set. ☺

For tomorrow, are you guys planning on coming by EPA first? I will be over at DOJ for training all day tomorrow, but was planning to have copies of the briefing materials ready for you guys first thing in the morning (I'm assuming 10 copies is good?). If you will not be swinging by the 6th floor first, just let me know and we can figure out some other way for you to get the materials.

Thanks!

-Tia

**From:** Sutton, Tia
**Sent:** Monday, July 13, 2015 9:26 AM
**To:** Manning, Bryan
**Subject:** FW: Materials for aircraft meetings next Monday and Tuesday

All set- Ben sent them down on Friday afternoon (I was pretty sure he sent them, but just wanted to double-check for you).

I'll check in with folks in OAR IO to make sure they're all set with copies.

**From:** Hengst, Benjamin
**Sent:** Friday, July 10, 2015 1:50 PM
**To:** OAR Briefings
**Cc:** Sutton, Tia
**Subject:** Materials for aircraft meetings next Monday and Tuesday

Hello,

Attached are (1) talking points/backgrounder for Janet's call with FAA on Monday, and (2) the final version of the briefing for next Tuesday's WH meeting.

Thanks,

Ben

**A4A-EPA CO2 MEETING**
**February 24, 2015, 2-4 pm**
**EPA OFFICE**
**NVFEL Office Building**
**2000 Traverwood Drive**
**Ann Arbor, MI 48105**

1. Introductions

2. Overview of A4A Airline Approach to Addressing Aviation Greenhouse Gas Emissions

3. Discussion Regarding the ICAO CO2 Standard Work

    a. New Type and In Production Aircraft Issues
    b. Cost Effectiveness Analysis Issues
    c. Post-Standard Communication – The Role and Effectiveness of the Standard

4. Discussion Regarding EPA Preparation to Adopt the Future CO2 Standard into U.S. Law

    a. Cause or Contribute/Endangerment Finding
    b. Potential ANPR on the Standard

5. Conclusion/Sum Up

**To:** Charmley, William[charmley.william@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; DeLuca, Isabel[DeLuca.Isabel@epa.gov]; Gunning, Paul[Gunning.Paul@epa.gov]; Birnbaum, Rona[Birnbaum.Rona@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**Cc:** Mylan, Christopher[Mylan.Christopher@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Wed 6/10/2015 6:43:01 PM
**Subject:** Fwd: Aircraft Emissions Standards Clips 6/10
image001.jpg

Press clips so far....

Sent from my iPhone

Begin forwarded message:

**From:** "Kowalski, Kennedy" <Kowalski.Kennedy@epa.gov>
**Date:** June 10, 2015 at 2:41:02 PM EDT
**To:** "DeLuca, Isabel" <DeLuca.Isabel@epa.gov>, "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Purchia, Liz" <Purchia.Liz@epa.gov>, "Harrison, Melissa" <Harrison.Melissa@epa.gov>, "Millett, John" <Millett.John@epa.gov>, "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>, "Grundler, Christopher" <grundler.christopher@epa.gov>, "Mylan, Christopher" <Mylan.Christopher@epa.gov>, "Reynolds, Thomas" <Reynolds.Thomas@epa.gov>, "StClair, Christie" <StClair.Christie@epa.gov>, "Allen, Laura" <Allen.Laura@epa.gov>, "Abrams, Dan" <Abrams.Dan@epa.gov>
**Subject: RE: Aircraft Emissions Standards Clips 6/10**

Business Wire:

http://www.businesswire.com/news/home/20150610006215/en/Airlines-America-Supports-Ongoing-Work-International-Aircraft#.VXiEAflVhHw

## Airlines for America Supports Ongoing Work on International Aircraft Emissions Standard

June 10, 2015 02:24 PM Eastern Daylight Time

WASHINGTON--(BUSINESS WIRE)--Airlines for America (A4A), the industry trade organization for the leading U.S. airlines, today issued the following statement in response to the Environmental Protection Agency's (EPA) announced finding, as required under the

Clean Air Act and Advance Notice of Proposed Rulemaking on aircraft greenhouse gas (GHG) emissions.

"The technology, operations and infrastructure initiatives that our airlines are undertaking to further address GHG emissions are designed to responsibly and effectively limit their carbon emissions and potential climate change impacts while allowing them to continue to serve as drivers of U.S. and global economies."

U.S. airlines drive 5 percent of U.S. economic activity but account for only 2 percent of the nation's GHG emissions. A4A and our members support the work at the International Civil Aviation Organization (ICAO) to develop a carbon dioxide (CO2) certification standard for new type aircraft, as it will further support our global aviation coalition's emissions goals to achieve 1.5% annual average fuel efficiency improvements through 2020 and carbon neutral growth from 2020, subject to critical aviation infrastructure and technology advances achieved by government and the industry. Before EPA may adopt the future international standard into U.S. law, the Clean Air Act requires the Agency to have made the proposed finding that aircraft GHG emissions "cause or contribute" to the climate change effects generally posed by GHG emissions. EPA made that general finding in 2009 and has been conducting the Clean Air Act-required assessments on a sector-by-sector basis in the years since.

"Aviation is a global industry, making it critical that aircraft emissions standards continue to be agreed upon at the international level," said A4A Vice President, Environmental Affairs Nancy Young. "While we believe that any regulatory action must be consistent with both the agency's authority under the Clean Air Act and the future ICAO standard, today's action reconfirms the EPA's commitment to the ICAO process for achieving a global CO2 standard for new aircraft."

Young noted the U.S. aviation industry's exceptional environmental track record, having improved fuel efficiency over 120 percent since 1978, and saving over 3.8 billion metric tons of CO2, the equivalent to taking 23 million cars off the road each of those years. Further, the U.S. airlines carried 20 percent more passengers and cargo in 2014 than they did in 2000, while emitting 8 percent less CO2.

"U.S. airlines are green and we are getting even greener," said Young. "The technology, operations and infrastructure initiatives that our airlines are undertaking to further address

GHG emissions are designed to responsibly and effectively limit their carbon emissions and potential climate change impacts while allowing them to continue to serve as drivers of U.S. and global economies."

The ICAO work on an aircraft CO2 certification standard for new aircraft commenced in 2010 under the Committee on Aviation Environmental Protection. EPA and the U.S. Federal Aviation Administration are key participants in this work, which is expected to culminate in February 2016 with a recommended international aircraft standard.

ABOUT A4A

Annually, commercial aviation helps drive nearly $1.5 trillion in U.S. economic activity and more than 11 million U.S. jobs. Airlines for America (A4A) vigorously advocates on behalf of the American airline industry as a model of safety, customer service and environmental responsibility and as the indispensable network that drives our nation's economy and global competitiveness. Our member carriers and their affiliates transport more than 90 percent of all U.S. airline passenger and cargo traffic.

America needs a cohesive National Airline Policy that will support the integral role the nation's airlines play in connecting people and goods globally, spur the nation's economic growth and create more high-paying jobs. A4A works collaboratively with the airlines, labor groups, Congress and the Administration to improve air travel for everyone.

For more information about the airline industry, visit our website airlines.org and our blog, A Better Flight Plan, at airlines.org/blog.

To learn how you can support a National Airline Policy, a better flight plan for everyone, visit www.nationalairlinepolicy.com.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 2:37 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John;

Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Daily Caller:**

http://dailycaller.com/2015/06/10/obama-moves-to-regulate-co2-from-airplanes/

# Obama Moves To Regulate CO2 From Airplanes

Photo of Michael Bastasch

MICHAEL BASTASCH

First tailpipes, then power plants and now airplanes. The Obama administration announced another major effort to regulate carbon dioxide emissions from airplanes after the Environmental Protection Agency linked airliners to global warming.

The EPA issued a proposal Wednesday declaring that CO2 from airliners threatens public health because it contributes to global warming. The agency says it's doing this in conjunction with an international effort to bring the airline industry under global carbon dioxide standards for commercial jets.

Republicans have already vowed to challenge the EPA's proposal to regulate airline emissions, saying new federal regulations would increase travel costs and fuel prices.

"The sky is the limit when it comes to how much of the U.S. economy the EPA wants to control," Texas Republican Rep. Lamar Smith said in a statement.

"The EPA today released a finding that emissions from commercial airplanes are harmful to

human health, which opens the door for new regulations," Smith added. "Such regulations would increase the price of airfare for Americans and harm our domestic carriers."

Environmentalists, on the other hand, celebrated the news, arguing regulating airline emissions is necessary to fighting global warming.

"With today's announcement, President Obama has a unique and extremely important opportunity to demonstrate leadership not only domestically but around the world," William Becker, executive director of the National Association of Clean Air Agencies, told The New York Times.

The EPA says international rules over airline emissions are expected to be completed in 2016, adding that the U.S. proposal will set "the necessary foundation for the development and implementation of a domestic aircraft standard."

This marks another major effort by the Obama administration to "green up" the U.S.'s image ahead of United Nations climate talks in Paris slated for later this year. The administration also recently announced carbon dioxide standards for heavy trucks and is set to finalize CO2 limits for power plants this summer.

The EPA says airliners "emit roughly 11 percent of [greenhouse gas] emissions from the U.S. transportation sector and 29 percent of [greenhouse gas] emissions from all aircraft globally."

"Today's action supports the goals of the President's Climate Action Plan to reduce emissions from large sources of carbon pollution," the agency said in a press release.

The airline industry says it's already working on ways to lower its carbon footprint by increasing fuel efficiency and decreasing use. Some airline companies are looking into using biofuels to power their aircraft, but biofuels are expensive and less dense when it

comes to energy output.

The New York Times notes the challenges airlines already face in trying to reduce emissions. The Times reports that the aviation sector "is among the fastest--growing sources of global greenhouse gas emissions as air travel becomes more affordable and more people travel around the world."

"Over the last fifty years, the fuel efficiency of jetliners has increased by 70 percent. Incentives are already in place to make air travel more energy efficient," Smith said. "This proposal is the next leg of a nonstop journey by the EPA to control how Americans live, work and travel."

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 2:36 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**New Jersey.com:**

http://www.nj.com/news/index.ssf/2015/06/epa_to_regulate_aircraft_emmissions.html

# EPA takes first step toward regulating aircraft emissions

Print Email Steve Strunsky | NJ Advance Media for NJ.com By Steve Strunsky | NJ Advance Media for NJ.com

Email the author | Follow on Twitter

on June 10, 2015 at 2:24 PM, updated June 10, 2015 at 2:30 PM

WASHINGTON – The Environmental Protection Agency (EPA) is trying to keep air craft from polluting the air.

For the first time, the EPA has proposed regulating carbon emissions from commercial aircraft in the United States. The EPA said the move was consistent with steps already underway by the international community to limit aircraft emissions.

In inviting public comment on the proposal, the EPA is taking an initial step toward regulating aircraft emissions following a 2007 petition from the environmental law group Earth Justice, which jumped ahead of the agency Wednesday in announcing the EPA's decision.

In an announcement on Wednesday, the EPA said it was,

"proposing to find under the Clean Air Act that greenhouse gas (GHG) emissions from commercial aircraft contribute to the pollution that causes climate change endangering the health and welfare of Americans."

"At the same time, the agency is releasing information about the international process already underway by the International Civil Aviation Organization (ICAO) for developing carbon dioxide (CO2) standards for aircraft and EPA's participation in that process," the agency said. "EPA is now seeking public input to inform future steps by the agency."

The EPA said it had been working with the aviation industry on the issue for the past five years. The main industry group, Airlines for America, did not immediately respond to a

request for comment.

Earth Justice issued a statement commending the EPA for moving forward on regulation, but urged the agency to use its authority under the federal Clean Air Act to take more definitive action.

"We commend EPA for completing this important first step in regulating carbon pollution from airplanes, but unfortunately, given the magnitude of aircraft's contribution to climate change, the tentative approach that EPA is considering is not up to the task," Earth Justice said. "The EPA's Endangerment Finding confirms that aircraft are a significant source of climate pollution, emitting approximately 700 million metric tonnes per year. This makes global aviation, if it were equivalent to a country, the 7th largest global emitter, just below Germany and more than Korea and Canada."

Steve Strunsky may be reached at sstrunsky@njadvancemedia.com. Follow hin on Twitter @SteveStrunsky. Find NJ.com on Facebook.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 2:29 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Demajo:**

http://www.demanjo.com/news/world/2055396/u-s--epa-takes-first-step-to-regulate-aircraft-greenhouse-gas-emissions.html

EPA says it intends to regulate emissions by US airliners

Demanjo NewsDesk - Last Updated: 13 minutes ago

EPA says it intends to regulate emissions by US airliners

The U.S. Environmental Protection Agency on Wednesday said greenhouse gases from aircraft endanger human health, taking the first step toward regulating emissions from the domestic aviation industry.

The EPA's endangerment finding kicks off a process to regulate greenhouse gas emissions from the aviation industry, the latest sector to be regulated under the Clean Air Act after cars, trucks and large stationary sources like power plants.

The International Civil Aviation Organization, or ICAO, a U.N. agency, has been working for several years on developing global aircraft emissions standards for the first time.

Airlines, aircraft makers and the Federal Aviation Administration have also been working with biofuels companies to develop alternatives to jet fuel that could potentially reduce the aviation's industry's vulnerability to the ups and downs of oil supplies and prices, as well as reduce carbon emissions.

Since 2009 and 2010, when Mr. Obama first proposed emissions restrictions on the automotive sector, the EPA said new scientific research has determined that aircraft emissions also are a danger to public health.

“The body of science on human-induced climate change has strengthened, supporting today’s proposed finding — under a different section of the Clean Air Act — that [greenhouse gases] emitted from aircraft engines contribute to pollution that causes climate change endangering public health and welfare,” the agency said.

The center is one of several environmental groups that sued the EPA to force the agency to issue its finding that emissions endanger public health.

**From:** Kowalski, Kennedy

**Sent:** Wednesday, June 10, 2015 2:24 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**The Week:**

http://theweek.com/speedreads/559833/epa-regulate-airplanes-greenhouse-gas-emissions

## The EPA will regulate airplanes' greenhouse gas emissions

1:34 p.m. ET

Meghan DeMaria

The Obama administration announced Wednesday that it plans to regulate greenhouse gas emissions. The emissions contribute to climate change and threaten public health, according to the Environmental Protection Agency (EPA).

The move marks the administration's first step toward applying climate change regulations to the airline industry, though it remains to be seen how strict the EPA's airplane regulations will be. Wednesday's announcement didn't include specific requirements for airlines operating in the U.S., but the EPA is expected to finalize its "endangerment finding" on airplanes' greenhouse gases next year. The New York Times also notes that the proposal will affect commercial aircraft, not recreational and military planes.

While airplanes only account for three percent of greenhouse gas emissions, the U.S. is responsible for 30 percent of global emissions, the Times explains. A 2012 court order forced the EPA to issue Wednesday's endangerment finding.

The announcement accompanies other actions by President Obama to address climate change, including new rules on power plant emissions that will be released in August

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 2:20 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Washington Examiner:**

http://www.washingtonexaminer.com/epa-aircraft-emissions-endangers-americans-causes-global-warming/article/2565972

# EPA: Aircraft emissions endangers Americans, causes global warming

BY JOHN SICILIANO | JUNE 10, 2015 | 2:04 PM

The Environmental Protection Agency announced Wednesday that emissions from commercial jets cause climate change, endangering the public's health and welfare.

"Today's action supports the goals of the President's Climate Action Plan to reduce emissions from large sources of carbon pollution," the EPA said in a press release.

The announcement is the first step in regulating the emissions from commercial airlines that most scientists say are to blame for manmade climate change. The regulations fall in step with the agency's efforts to regulate the emissions from cars, trucks and power plants. The EPA says it is excluding military and smaller aircraft from the regulations.

The agency also is taking action to support a United Nations process for regulating carbon dioxide from jets by 2016, called the International Civil Aviation Organization.

The EPA's power plant rules have been contentious for the potential impact they would have on energy prices. Some says the aircraft rules, as well, could lead to higher airfares.

Commercial aircraft account for 11 percent of the nation's carbon emissions and 29 percent of global emissions, according to the EPA.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 2:16 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**International Business Times:**

http://www.ibtimes.com/epa-regulate-airlines-environmental-risk-human-health-1961060

## EPA To Regulate Airlines For Environmental 'Risk' To Human Health

By Eben Blake @ebenblake on June 10 2015 2:07 PM EDT

The Obama administration plans to begin regulating greenhouse gas emissions from aircrafts after an Environmental Protection Agency report published Wednesday found that airline emissions pose a serious risk to human health in part because they contribute to global warming. But the enforcement of any environmental regulations is expected to be difficult and complex as international flights and airlines could be outside of the EPA's jurisdiction.

"If you're a big airline and you're flying to 100 countries a day, then complying with all those different regimes is an administrative nightmare," Paul Steele, senior vice president at the International Air Transport Association, the industry's main global organization, told Reuters.

The aviation industry is responsible for roughly 11 percent of greenhouse gas emissions in America's transportation sector and 3 percent of the United States' total output, according to coverage by International Business Times last week. Airlines have been placed under the Clean Air Act in part because of a lawsuit in 2012 against the EPA by environmental groups to regulate the industry.

"With today's announcement, President Obama has a unique and extremely important opportunity to demonstrate leadership not only domestically but around the world," William Becker, executive director of the National Association of Clean Air Agencies, told the New York Times.

While the administration has not announced any new rules or regulations on airlines with the "endangerment finding" by the EPA, the announcement puts the United States ahead of the United Nations' International Civil Aviation Organization, which is set to release its CO2 standard for aircrafts in February 2016. Those regulations are expected to apply only to new aircraft designs released after 2020, leaving out many older planes that could still be in the air for another 20 to 30 years, according to Reuters.

The aviation industry generally prefers internal or international regulation rather than different national standards in order to not have to deal with multiple governmental and bureaucratic complexities. And many airlines have been trying to implement energy and fuel efficient measures on their own, in part because of high fuel costs. Each 5.5 pounds of weight reduced on an airplane translates to a one-ton reduction in carbon emissions per year, according to the IATA.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 2:08 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

Associated Press:

http://www.wowktv.com/story/29287418/epa-says-it-intends-to-regulate-emissions-by-us-airliners

# EPA says it intends to regulate emissions by US airliners

By JOAN LOWY Associated Press

WASHINGTON (AP) - The Obama administration proposed Wednesday to regulate aircraft emissions in much the same way as power plants, saying they are a threat to human health because they contain pollutants that help cause global warming.

Using its authority under The Clean Air Act, the Environmental Protection Agency finding of endangerment to human health clears the way for possible U.S. adoption of international emissions standards.

The International Civil Aviation Organization, or ICAO, a U.N. agency, has been working for several years on developing global aircraft emissions standards for the first time. Final agreement on those standards is expected in February of next year.

U.S. regulations would apply only to large planes like airliners and cargo jets and turboprop aircraft, and not to smaller jet aircraft, piston-engine planes, helicopters or military aircraft.

While negotiations on the standards are still underway, they aren't expected to go into effect until 2020 or afterward, and possibly as late as 2025, say environmentalists following the matter.

The ICAO standards are also not expected to apply to airliners in service today or those that might be purchased before the effective date, said Vera Pardee, an attorney with the Center for Biological Diversity. The center is one of several environmental groups that sued the EPA to force the agency to issue its finding that emissions endanger public health.

Airlines typically fly planes for 20 years or more before replacing them. That means it's likely to be decades before planes that meet the anticipated global standards are in

widespread use.

Airline emissions account for about 2 percent of total annual global greenhouse gas emissions. That sounds small, but it's nearly as much as the emissions produced by Germany, the sixth-greatest greenhouse gas producing country, according to a study released last year by The International Council on Clean Transportation, an environmental group with offices in the U.S. and Germany.

Aircraft manufacturers have already made significant strides in increasing fuel efficiency. Since the early years of the jet age in the 1960s, the fuel efficiency of airliners has increased 70 percent, according to Boeing. There's plenty of incentive to be as efficient as possible: Fuel typically vies with labor as airlines' greatest expense.

The U.S. airline industry has a set a target of an average annual improvement in fuel efficiency of 1.5 percent, and so far has been successful in meeting that goal, said Nancy Young, vice president for environmental affairs at Airlines for America, trade association for major carriers.

Alaska, Frontier and Spirit airlines were tied for most fuel-efficient U.S. airlines, the study found. The least fuel efficient was American, which operates a fleet of MD-80 airliners, an older design that is being phased out.

Changes in the operating strategies of airlines in recent years have also contributed to greater efficiency. Airlines are packing more people into fewer flights.

However, global aviation emissions are rising because there is more air travel overall. U.S. airlines, which include several of the world's largest carriers, account for about 29 percent of global airline carbon emissions if both domestic and international flights are included.

The world's two largest aircraft makers have recently introduced into service more fuel-efficient planes designed for long-distance international routes - the Boeing 787 and the Airbus A350.

Airlines, aircraft makers and the Federal Aviation Administration have also been working with biofuels companies to develop alternatives to jet fuel that could potentially reduce the aviation's industry's vulnerability to the ups and downs of oil supplies and prices, as well as reduce carbon emissions.

"We're not dragging our feet," said Tim Neale, a spokesman for Boeing. "We're hard at work on lighter airplanes, and GE is hard at work on more efficient engines. And we're working a lot of these operational issues with the carriers so they operate the planes more efficiently."

Boeing and airline industry officials say they support ICAO's effort to develop a single global standard, since airlines fly globally. But Pardee said environmentalists hope that if the ICAO standard turns out to be weak, the EPA will move forward with stronger standards for U.S. airlines.

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Follow Joan Lowy on Twitter at http://twitter.com/AP_Joan_Lowy

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 1:57 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Popular Mechanics:**

http://www.popularmechanics.com/flight/a15973/epa-will-regulate-airplane-emissions/

# The EPA Will Regulate Emissions From Airplanes

The Obama Administration says it will write new rules to make flying more efficient

By Andrew Moseman

Barack Obama Has To Tweet From a Borrowed iPhone

The Environmental Protection Agency will set new rules to regulate emissions from the aviation industry, The New York Times reports today. It's an expected move by the Obama Administration, and part of what could be a big year for setting up new environmental rules:

The announcement represents the latest of Mr. Obama's major initiatives to combat global warming. Next week, the agency is expected to propose new rules on emissions from heavy-duty trucks, and in August it is expected to announce new rules to rein in power plant pollution.

EPA hasn't said what the new regulations will be and when they'll be enforced. Basically, this announcement is the agency telling the world that yes, they're going to write some rules, so get ready.

The Times article contains your typical expected boilerplate responses to this move, with environmental groups praising it and aviation groups saying the industry has already been cutting its fuel usage an emissions without having to be told to do so by the federal government. (After all, fuel is money, and airlines desperately need to save money.)

Whatever EPA decides to do, it had better do it fast.

Aviation accounts for about 2 percent of global emissions, but it is among the fastest-growing sources of global greenhouse gas emissions as air travel becomes more affordable and more people travel around the world.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 1:49 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Reason.com (Hit & Run Blog):**

http://reason.com/blog/2015/06/10/obama-wants-you-to-fly-the-carbon-friend

## Obama Wants to Make You to Fly the Carbon-Friendly Skies

New regs will not inconvenience Paris climate conference attendees in December

Ronald Bailey|Jun. 10, 2015 1:32 pm

The Environmental Protection Agency is issuing a scientific finding the emissions from aircraft boost global warming and thus endanger the health of Americans. As result the agency is asserting authority to regulate (reduce) such emissions. Reuters reports:

An "endangerment finding" by the Environmental Protection Agency would allow the administration to implement a global carbon dioxide emissions standard being developed by the United Nations' International Civil Aviation Organization. ...

The ICAO is due to release its CO2 standard for comment in February 2016, with the aim of adopting it later that year. But the requirement is expected to apply only to new aircraft designs certified from 2020, leaving most of the world's existing fleets unaffected for years to come.

Aviation accounted for 11 percent of energy-related carbon dioxide emissions from the

transportation sector in 2010 in the United States, according to the International Council on Clean Transportation.

On the other hand, I earlier reported a recent University of Michigan study that found that airline travel - considering how much fuel it takes to transport a person a given distance - is much more fuel efficient than automobile travel.

I also noted that those folks especially worried about their carbon sins can always buy carbon indulgences.

In any case, the new EPA regulations will not be adopted in time to inconvenience the diplomats and activists who need to fly over the pond to attend the big United Nations climate change conference in Paris this December.

Ronald Bailey is a science correspondent at Reason magazine and author of Liberation Biology (Prometheus).

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 1:41 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Bloomberg Business:**

http://www.bloomberg.com/news/articles/2015-06-10/aircraft-spew-3-of-greenhouse-gases-epa-says-in-emissions-plan

# Aircraft Spew 3% of Greenhouse Gases, EPA Says in Emissions Plan

by Jim Snyder

June 10, 2015 — 1:32 PM EDT

Aircraft account for 3 percent of all U.S. greenhouse-gas emissions and warrant regulation, the Environmental Protection Agency said as it expanded a fight against climate change beyond automobiles and power plants.

As a first step, the EPA on Wednesday said it intended to declare that burning jet fuel endangered human health and welfare. The agency will take public comments before a final recommendation.

The agency also announced plans to write a rule to limit or offset the emissions, and said it would coordinate with an effort by the United Nations' International Civil Aviation Organization to issue new limits on aircraft exhaust.

Environmental groups pushed the EPA since 2007 to regulate aircraft emissions. The agency said U.S. planes account for 11 percent of greenhouse gases from U.S. transportation activity annually and 29 percent from all aircraft globally.

"President Obama is taking an important step on climate once again by finding that carbon pollution from airplanes poses the same danger to our climate as carbon pollution from other sources," Joanne Spalding, an attorney with the Sierra Club, an environmental group, said in a statement.

President Barack Obama, who has made fighting climate change a top priority of his final years in office, is also planning to limit emissions from heavy-duty trucks.

Groups Concerned

Some environmental groups expressed concern that the agency's work on aircraft will be linked to ICAO's, which they worry won't be strong enough.

"It is critical that EPA and the rest of the world, through the International Civil Aviation Organization, move quickly and seek meaningful greenhouse gas emission reductions," William Becker, executive director of the National Association of Clean Air Agencies, which represents the air pollution control agencies from 42 states, said in a statement.

Airlines for America, the main lobby group for the airline companies, said its important that the EPA not act on its own given the global nature of the industry.

"It is critical that aircraft emissions standards continue to be agreed at the international level," Vaughn Jennings, a spokesman for the group, said in a statement before the

announcement.

The EPA plans to hold a public hearing on the aircraft proposal on Aug. 11 in Washington. The public will have 60 days to comment before the EPA issues a final decision.

The EPA issued a finding in 2009 that greenhouse gases were a danger to public health, part of the agency's effort to establish fuel-economy standards for automobiles and trucks. The same finding was used last year in proposing regulations for power plants.

**From:** Cox, Taylor
**Sent:** Wednesday, June 10, 2015 1:36 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan; Kowalski, Kennedy
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Washington Times:**

http://www.washingtontimes.com/news/2015/jun/10/epa-regulate-emissions-aircraft/

# Obama, EPA target emissions from aircraft

By Ben Wolfgang - The Washington Times - Wednesday, June 10, 2015

The Obama administration said Wednesday it will restrict greenhouse-gas emissions from commercial aircraft, the latest in a long line of steps the White House has taken to address climate change.

The announcement from the Environmental Protection Agency does not lay out the specific emissions standards. The EPA says it will begin crafting standards and expects to formally adopt them early next year.

U.S. aircraft account for about 11 percent of greenhouse-gas emissions from the transportation sector, the agency said. Since 2009 and 2010, when Mr. Obama first proposed emissions restrictions on the automotive sector, the EPA said new scientific

research has determined that aircraft emissions also are a danger to public health.

"The body of science on human-induced climate change has strengthened, supporting today's proposed finding — under a different section of the Clean Air Act — that [greenhouse gases] emitted from aircraft engines contribute to pollution that causes climate change endangering public health and welfare," the agency said. "Today's action supports the goals of the president's climate action plan to reduce emissions from large sources of carbon pollution."

The regulations will not apply to small aircraft used for recreational purposes, the agency said.

**From:** Cox, Taylor
**Sent:** Wednesday, June 10, 2015 1:14 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan; Kowalski, Kennedy
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**The Hill:**

http://thehill.com/policy/energy-environment/244550-obama-to-seek-climate-rules-for-airplanes

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## Obama to seek climate rules for airplanes

The Obama administration wants to declare that the greenhouse gas emissions from airplanes are harmful, which would set up regulations to limit the pollution.

The Environmental Protection Agency (EPA) released a proposed "endangerment finding"

Wednesday that would formally conclude that carbon dioxide and any other greenhouse gases from commercial airplanes contribute to climate change and harm the public health and welfare.

The move is a major win for environmentalists, since aircraft are the largest source of greenhouse gases that the EPA is not either regulating or planning to regulate.

But the EPA's proposed solution to the airplane climate problem — adopting upcoming international standards for aircraft — received quick condemnation from environmentalists who predict that the worldwide rules will be weak.

And Republicans were immediately skeptical of the Obama administration extending its climate regulations over another major sector.

Along with the proposed endangerment finding, the EPA set the stage Wednesday for eventually writing a formal regulation limiting airplanes' emissions, which it said would likely align with International Commercial Aviation Organization (ICAO) rules due out in February 2016. ICAO, a United Nations agency, is the main regulatory body for international air travel.

Airplanes in the United States emit about 11 percent of the transportation sector's carbon, or about 29 percent of the carbon from the worldwide aviation industry. But their emissions are only 3 percent of the total greenhouse gases in the country.

The EPA's action mirrors similar endangerment findings it made starting in 2009 regarding greenhouse gases from cars, trucks and power plants.

The early action from the EPA did not set any particular targets for reducing planes' carbon output, nor what measures could be used to cut it.

Environment America applauded the move, but urged stronger standards than the international ones.

"Since today's announcement will likely cause a fight in Congress, we hope the president makes this a fight worth having by requiring real cuts in airplane pollution," Anna Aurilio, director of the group's global warming program, said in a statement. "Bold action on climate should solve the problem of pollution from airplanes, not just acknowledge it."

Rep. Mike Pompeo (R-Kan.) blasted the EPA's action.

"If there is any endangerment finding that needs to be released it is on the danger the EPA poses to the American economy," he said in a statement. "This regulation will only serve to hurt Kansas aviation workers and their families, while doing nothing to achieve any measurable reduction in carbon emissions."

**National Journal**

http://www.nationaljournal.com/energy/the-epa-wants-to-ground-soaring-airplane-emissions-20150610

# The EPA Wants To Ground Soaring Airplane Emissions

Government says aviation emissions cause climate change, pose public health threat.

Having gone after power plants, refineries and cars, the EPA has turned its sights to another source of the greenhouse gas emissions: airplanes.

The EPA Wednesday said that the greenhouse gas emissions from the airline industry pose a threat to public health and opened the door to regulating the industry for the first time.

According to the agency's draft "endangerment finding," the emissions from commercial aircraft contribute to climate change, "endangering the health and welfare of Americans." That opens the door for further action, similar to the regulations EPA has imposed on light duty cars and trucks, although the agency did not propose such action today.

Airline emissions contribute about 2 percent of the world's greenhouse gas emissions and 3 percent of the country's total emissions. According to the EPA, U.S. aircraft account for 11 percent of the country's greenhouse gas emissions and make up 29 percent of the world's airline emissions.

But thanks to growth in the industry at home and abroad -- American airlines are expecting record numbers this year -- those numbers are expected to grow. The International Council on Clean Transportation says emissions are rising at a rate of 3 to 4 percent a year, with the potential to quadruple by 2050.

The regulations come amid international action on airline emissions from the International Civil Aviation Organization (ICAO), which has been slowly looking at a global emissions strategy. ICAO is scheduled to release its own CO2 standard for aircraft in February 2016 for public comment, with adoption later that year.

An airline industry official told *Reuters* that ICAO is weighing either a market-based system that would allow airlines to buy carbon offsets to balance emissions, or a global emission standard for aircraft.

Given the global nature of the industry, airlines say they'd like to see one international standard rather than individual countries.

They'd like to avoid, for example, further action by the European Union, which put a fee on greenhouse gas emissions for flights in and out of Europe. That system faced opposition from companies and countries who bristled at paying into a scheme they didn't participate in (the U.S. passed a law exempting domestic airlines), and the EU backtracked to confine the regulations only to flights within the European Economic Area until ICAO takes further action.

In a statement, EPA said it was working with ICAO and that the agency's action "lay the necessary foundation for the development and implementation of a domestic aircraft standard, in accordance with U.S. law and the ICAO process."

Environmentalists say that ICAO is moving far too slowly to check airline emissions and that the standards being considered by the body just aren't sufficient.

Vera Pardee, a senior attorney at the Center for Biological Diversity, said her group is "especially concerned" about ICAO's laxity, especially if it produces a rumored standard that would apply only to newly designed aircraft. That, Pardee said, could leave ICAO regulating as little as 5 percent of the fleet in a few decades, since aircraft have a lifespan of 25-30 years.

CBD, along with Friends of the Earth and Earthjustice, petitioned EPA for action on aviation last spring, saying that the agency had been required under a 2010 court order to crack down. That action prompted the rulemaking, although greens say they'd like to see EPA move quickly to ensure the regulations take effect soon.

"President Obama is taking an important step on climate once again by finding that carbon pollution from airplanes poses the same danger to our climate as carbon pollution from other sources," said Sierra Club attorney Joanne Spalding. "This finding paves the way for action next year to create safeguards that will result in more efficient airplanes which pollute less while saving airlines and air travelers money on fuel costs."

**From:** Cox, Taylor
**Sent:** Wednesday, June 10, 2015 1:04 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan; Kowalski, Kennedy
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**USA Today:**

http://www.usatoday.com/story/news/2015/06/10/epa-airlines-greenhouse-gas-emissions-a4a-iata-icao/28487755/

# EPA proposes to limit greenhouse-gas emissions from airlines

WASHINGTON -- Airline emissions threaten human health by contributing to climate change, theEnvironmental Protection Agency proposed Wednesday.

The proposal for a so-called "endangerment finding" under the Clean Air Act is a precursor to the EPA proposing regulations to limit heat-trapping emissions from plane exhaust. The agency will hold a hearing Aug. 11 about the proposal.

But airlines have bridled at national or regional rules for curbing emissions, preferring worldwide standards for the competitive industry. Airlines worldwide agreed in 2013 to halt the growth in emissions from international flights by 2020.

"As aviation is a global industry, with airlines and aircraft operators operating internationally and aircraft manufacturers selling their aircraft in international markets, it is critical that aircraft emissions standards continue to be agreed to at the international level," said Melanie Hinton, spokeswoman for Airlines for America, a trade group representing the country's largest carriers. "Any regulatory action EPA takes must be consistent with both the agency's authority under the Clean Air Act, as well as the expected" standard from the International Civil Aviation Organization, a branch of theUnited Nations.

The EPA rule applies to commercial planes, but not general aviation and the military.

Airlines produce about 11% of the country's greenhouse gases from transportation sources, or about 3% of total greenhouse-gas emissions, according to an analysis of EPA data by the International Council on Clean Transportation.

Environmentalists have praised President Obama for using the Clean Air Act to develop regulations reducing emissions from cars and power plants. But critics including Republicans in Congress have fought the rules.

Environmental groups – Earthjustice, Center for Biological Diversity and Friends of the Earth –filed a lawsuit in 2010 and the the U.S. Circuit Court of Appeals for the District of Columbia ruled in 2012 that the Clean Air Act required the EPA to act.

The groups warned that after domestic emissions were cut in half from 1993 to 2010, emissions have stagnated since then and could quadruple from growth by 2050, according to an analysis by the International Council on Clean Transportation.

Airlines have worked voluntarily for years to curb carbon emissions. Strategies include flying planes that burn less fuel because of composite hulls, developing shorter routes and adding extensions to the ends of wings called winglets that make flight more efficient.

The International Civil Aviation Organization, a branch of the United Nations that recommends policies, said the 2013 agreement to halt the growth in emissions by 2020 will allow airlines to support the economy and tourism.

Talks continue on details of the policy. But the group's goal is to adopt the specific policy by fall 2016, which airlines would then decide individually how to meet.

The International Air Transport Association, which represents 250 airlines worldwide; Airports Council International representing 1,860 airports; the Civil Air Navigation Services Organization; and the International Business Aviation Council agreed last year to the broad goal of halting emissions growth. The agreement calls for:

--Developing more efficient alternative fuels.

--Improving flight operations.

--Managing air traffic better.

--Designing a market-based measure for international flights.

But that last point has been contentious. For example, emissions limits adopted for flights the European Union caused a rift until U.S. flights to the continent were exempted.

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**New York Times:**

http://www.nytimes.com/2015/06/11/business/energy-environment/epa-says-it-will-set-rules-for-airplane-emissions.html?_r=0

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# E.P.A. Says It Will Set Rules for Airplane Emissions

By JAD MOUAWAD and CORAL DAVENPORT JUNE 10, 2015

The Obama administration on Wednesday said it would regulate greenhouse gas emissions from airplanes, a move that could significantly strengthen President Obama's environmental legacy, but also present major new challenges for the airline industry.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 12:45 PM
**To:** Cox, Taylor
**Subject:** FW: Aircraft Emissions Standards Clips 6/10

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 12:22 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan

**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Junk Science:**

http://junkscience.com/2015/06/10/a-big-propaganda-announcement-without-much-effect/

# A big propaganda announcement without much effect

Posted on June 10, 2015 by Bob Greene | 1 Comment

The White House has announced approval of the EPA's endangerment finding for CO2 emissions from aviation. Reducing CO2 emissions from aviation are unlikely to have any measurable effect on global warming. The Hill announcement of OMB's approval of the EPA's aviation endangerment finding on GHG emissions from aviation. So, how much global warming do we get from commercial aviation? It's hard to find an answer. When I search for a number can find a tap dance on particulate from contrails, increased forcing and other nasty things, but not X°C. I did find a 2009 article in Nature suggesting 8% to surface temperature or 0.03-0.06°C since 1850. Not much per year, but then we weren't doing much flying in 1850.

In 2013, the estimated CO2 from all commercial aviation was 705 million metric tonnes. At 0.0000000000015°C/tonne that's 0.001°C. The EPA estimated 114.4 Tg of CO2 equivalent from commercial aviation. That's 114.4 million tonnes, or 0.00017°C contribution to global warming. Since any rule making will only reduce GHG's from U. S. aviation by a fraction. So, the whole thing is all for show, everyone doing his part and the shoulder-to-shoulder push for propaganda. The regulations will make aviation more expensive.

As a wise man once said, more and more regulations about less and less.

If anyone has a different number for global warming for a tonne of CO2, let me know. I doubt it will bring this into a measurable change.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 12:01 PM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**CNBC Video:**

http://www.nbcnews.com/video/cnbc/57480999/#57480999

**From:** Kowalski, Kennedy

**Sent:** Wednesday, June 10, 2015 11:58 AM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Reuters:**

http://uk.reuters.com/article/2015/06/10/usa-aviation-carbon-idUKL1N0YW0HY20150610

# UPDATE 2-U.S. EPA moves toward regulating aircraft emissions

(Adds details throughout, recasts first paragraph)

By Valerie Volcovici

(Reuters) - The Obama administration is expected on Wednesday to release a scientific finding that greenhouse gases from aircraft pose a risk to human health, paving the way for regulating emissions from the U.S. aviation industry.

An "endangerment finding" by the Environmental Protection Agency would allow the administration to implement a global carbon dioxide emissions standard being developed by the United Nations' International Civil Aviation Organization.

The finding had been under review at the White House Office of Management and Budget and returned to the EPA for final release.

The ICAO is due to release its CO2 standard for comment in February 2016, with the aim of adopting it later that year. But the requirement is expected to apply only to new aircraft designs certified from 2020, leaving most of the world's existing fleets unaffected for years to come.

Aviation accounted for 11 percent of energy-related carbon dioxide emissions from the transportation sector in 2010 in the United States, according to the International Council on Clean Transportation.

The EPA's ruling will mark the first step toward regulating aviation's greenhouse gas emissions, and aviation will become the latest industrial sector to be regulated under the Clean Air Act after cars, trucks and large stationary sources like power plants.

But it came only after a federal court ruled in 2012 in favor of environmental groups that had sued the EPA, saying it was obligated to regulate aircraft emissions under the law.

The airline industry favors a global standard over individual national standards since carriers operate all over the world and want to avoid a patchwork of rules and measures, such as taxes, charges and emissions trading programs.

"If you're a big airline and you're flying to 100 countries a day, then complying with all those different regimes is an administrative nightmare," said Paul Steele, senior vice president at the International Air Transport Association, the industry's main global organization.

But some environmental groups are concerned that the standard being discussed at ICAO will do little to change the status quo right now.

"The stringency being discussed at ICAO is such that existing aircraft are already meeting the standard they are weighing," said Sarah Burt, a lawyer at Earthjustice, one of several groups that sued the EPA.

Planes generally stay in service for 20 or 30 years, she added.

International Council on Clean Transportation Program Director Dan Rutherford said that to ensure real emissions reductions from airlines, ICAO should apply a carbon dioxide standard to all new aircraft delivered after 2020.

But ICAO is weighing a standard that would apply only to new designs certified after the expected application date of Jan. 1, 2020.

Such an approach would mean the standard would only cover about 5 percent of the global aircraft fleet in 2030, he said. (Reporting by Valerie Volcovici; additional reporting by Victoria Bryan in Miami; Editing by Bruce Wallace and Lisa Von Ahn)

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 11:36 AM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Reuters:**

http://in.reuters.com/article/2015/06/10/usa-aviation-carbon-idINL1N0YW0HY20150610

# UPDATE 1-U.S. EPA takes first step to regulate aircraft greenhouse gas emissions

(Adds background)

By Valerie Volcovici

(Reuters) - The U.S. Environmental Protection Agency on Wednesday said greenhouse

gases from aircraft endanger human health, taking the first step toward regulating emissions from the domestic aviation industry.

The EPA's endangerment finding kicks off a process to regulate greenhouse gas emissions from the aviation industry, the latest sector to be regulated under the Clean Air Act after cars, trucks and large stationary sources like power plants.

The finding allows the EPA to implement domestically a global carbon dioxide emissions standard being developed by the International Civil Aviation Organization (ICAO).

The U.N. agency is due to release its CO2 standard for comment in February 2016 and adopt it later that year.

The EPA had been under pressure from environmental groups who first petitioned it to regulate aircraft emissions under the Clean Air Act in 2007 and sued it in 2010. A federal court ruled in favor of those green groups in 2012.

Aviation accounted for 11 percent of energy-related carbon dioxide emissions from the transportation sector in 2010 in the United States, according to the International Council on Clean Transportation.

The airline industry has favored a global standard over individual national standards since airlines operate all over the world and want to avoid a patchwork of rules and measures, such as taxes, charges and emissions trading programs.

"If you're a big airline and you're flying to 100 countries a day, then complying with all those different regimes is an administrative nightmare," said Paul Steele, senior vice president at the International Air Transport Association, the main global airline industry group.

But some environmental groups are concerned that the standard being discussed at ICAO will do little to change the status quo since it would only apply to new and newly designed aircraft that will not be in operation for several years.

"The stringency being discussed at ICAO is such that existing aircraft are already meeting the standard they are weighing," said Sarah Burt, an attorney at Earthjustice, one of several groups that sued the EPA to regulate aircraft. (Reporting By Valerie Volcovici; additional reporting by Victoria Bryan in Miami; Editing by Susan Heavey and Doina Chiacu)

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 11:31 AM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**The Hill:**

http://thehill.com/policy/energy-environment/244505-white-house-approves-epas-airplane-emissions-plan

# White House approves EPA's airplane emissions plan

By Timothy Cama -

The White House has approved a plan that would allow the Obama administration to regulate carbon dioxide emissions from airplanes.

The White House Office of Management and Budget (OMB) review is the last step before the Environmental Protection Agency releases the finding publicly.

EPA will solicit public comments on the finding after its release, and then proceed to write a regulation.

OMB on Wednesday announced it had approved the EPA "endangerment finding" that analyzed the extent to which carbon from planes is harmful.

The administration has not revealed exactly what is in the analysis, but the EPA is expected to conclude that carbon from airplanes is harmful because it contributes to climate change — a similar finding to what it has said about carbon from cars, trucks and power plants.

The agency is likely to align its policies with regulations that the International Civil Aviation Organization, an agency of the United Nations, is developing. Those international rules are due to be announced in February 2016.

But environmentalists have already objected to that strategy, fearing that the international rules will not be strong enough to make a significant dent in the aviation sector's greenhouse gases. Greens say the EPA has the power and responsibility to go further than the international standards.

The commercial airlines want the EPA to align with international rules, fearing that anything else would put them at a disadvantage with their competitors in other countries.

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 11:25 AM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**NY Mag:**

http://nymag.com/daily/intelligencer/2015/06/epa-will-regulate-chemtrails.html

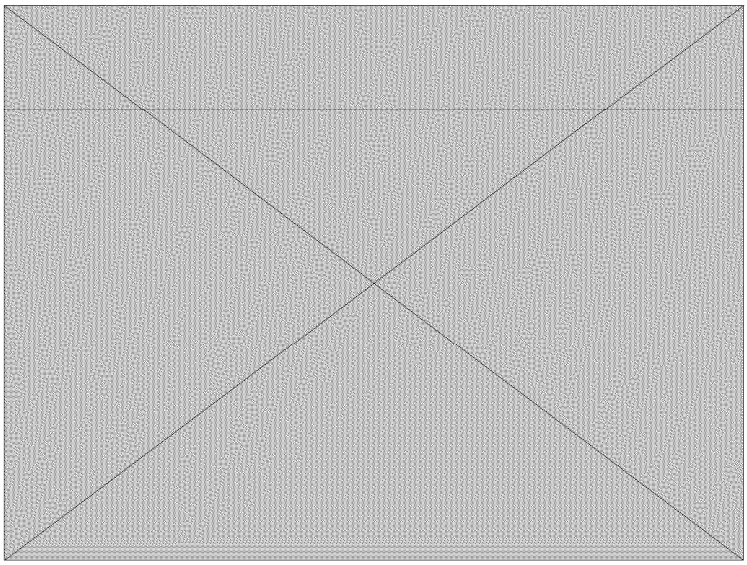
# EPA This Close to Admitting Kylie Jenner Was Right About Chemtrails

By Jessica Roy

The U.S. Environmental Protection Agency announced today that the greenhouse gases emitted from aircrafts could pose a health risk to humans. Soooo ... Kylie Jenner was right?

Now that the EPA has established their danger, aircraft emissions will begin to be regulated under the Clean Air Act, with airlines forced to comply with global carbon-dioxide-emissions standards.

Just to be clear, this doesn't mean "chemtrails" are poisoning crops or controlling the weather, but it does mean aircraft emissions aren't that great for us or the environment. Sadly, despite Kylie Jenner's attempt at raising awareness, we still do not know who is responsible.



(for reference)

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 11:02 AM

**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura; Abrams, Dan
**Subject:** RE: Aircraft Emissions Standards Clips 6/10

**Seeking Alpha:**

http://seekingalpha.com/news/2571925-epa-takes-step-toward-regulation-of-greenhouse-gas-emissions-by-aircraft

# EPA takes step toward regulation of greenhouse gas emissions by aircraft

Jun 10 2015, 10:30 ET | By: Carl Surran, SA News Editor

The EPA says greenhouse gases from aircraft endanger human health, a finding that begins a process to regulate greenhouse gas emissions from the aviation industry, the latest sector to be regulated under the Clean Air Act after cars, trucks and power plants.The endangerment finding allows the EPA to implement domestically a global carbon dioxide emissions standard being developed by the International Civil Aviation Organization; the airline industry favors a global standard over individual national standards since airlines operate all over the world and want to avoid a patchwork of rules and measures.GEVO, which has been working on renewable fuels for airplanes, is +3.5% today and +27% so far this month in anticipation of the EPA findings.Potential related stocks: AAL, UAL, SAVE, DAL, ALK, HA, SKYW, LUV, JBLU, VA

**From:** Kowalski, Kennedy
**Sent:** Wednesday, June 10, 2015 10:48 AM
**To:** DeLuca, Isabel; Hengst, Benjamin; Purchia, Liz; Harrison, Melissa; Millett, John; Birgfeld, Erin; Grundler, Christopher; Mylan, Christopher; Reynolds, Thomas; StClair, Christie; Allen, Laura
**Subject:** Aircraft Emissions Standards Clips 6/10

**Wall Street Journal:**

http://www.wsj.com/articles/obama-administration-to-take-aim-at-airline-emissions-1433946834

# Obama Administration to Take Aim at Airline Emissions

EPA to conclude aircraft carbon emissions contribute to climate change

WASHINGTON—The U.S. Environmental Protection Agency is set to issue on Wednesday a scientific finding concluding that carbon emissions from airlines contribute to climate change, according to a person familiar with the news, a move that will set off a yearslong effort to clamp down on airline emissions.

The finding lays the foundation for the agency to use rules being drafted by the International Civil Aviation Organization, a branch of the United Nations, as a template for domestic carbon regulations.

Aviation today represents about 2% of total global carbon emissions and airline operations generally improve efficiency by roughly 1.5% each year, according to aircraft and engine manufacturers. However, global air travel grows at roughly 5% each year, doubling every two decades, according to Boeing Co., outpacing improvements in the industry's carbon footprint.

The aviation industry has set a goal of achieving carbon-neutral growth by 2020 and aims to halve its 2005-level emissions by 2050, with a significant move toward the use of biofuels.

Wednesday's announcement is the latest in a string of actions by the Obama administration to address climate change. The agency is on a path to issue a suite of final regulations in August cutting carbon emissions from U.S. power plants, including those operating today and those not yet built and significantly modified.

These rules, which are facing an onslaught of congressional and legal scrutiny, represent the cornerstone of President Barack Obama's climate agenda. The power-plant sector accounts for about one-third of total U.S. carbon emissions, according to the EPA.

The move was prompted by a lawsuit brought by environmentalists in 2010 urging the government to regulate aircraft carbon emissions.

The EPA isn't expected to announce Wednesday a specific timetable for proposing the rules. Most of the heavy regulatory lifting will likely fall to Mr. Obama's successor, with rules drafted by the ICAO not expected to be completed until late 2016, according to an industry official.

Still undecided is whether ICAO's rules would regulate the emissions of previously certified aircraft or only apply to all-new aircraft certified after a certain date. Industry and environmental activists say doing the former would have significant implications for the existing fleet of more than 20,000 jetliners.

All the major manufacturers in the U.S., Europe, Canada and Brazil are currently developing all-new models or updated models with new engines that significantly reduce fuel consumption as much as 20% per seat over today's comparably sized jets.

Airline economics, as opposed to environmental concerns, have been the primary driver behind lower fuel consumption, operators' single biggest variable cost when flying an aircraft. Aircraft manufacturers globally cannot compete for the attention of cost-conscious airlines without prioritizing fuel savings.

The U.S. is seeking to strike a delicate industrial and diplomatic balance by favoring a global approach to aviation emissions.

China threatened to cancel plans to buy as many as 45 jetliners from Airbus Group SE after the proposed implementation of the European Union's Emissions Trading Scheme that would have roped in airlines transiting through, but not landing in, European airspace. The

European Union in October 2013 suspended the ETS requirements for flights to and from non-European countries.

Write to Jon Ostrower at jon.ostrower@wsj.com and Amy Harder at amy.harder@wsj.com

Kennedy Kowalski

Intern, Office of Public Affairs

United States Environmental Protection Agency

Office Phone: (202) 564-8302

**To:** Audette, Lucie[audette.lucie@epa.gov]; Charmley, William[charmley.william@epa.gov]; Birnbaum, Rona[Birnbaum.Rona@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Wed 4/22/2015 1:55:04 PM
**Subject:** RE: Draft Note From Chris to Janet on aircraft package

Looks good to me. I might make just a few minor tweaks here and there, which I will do later. Unless I hear by the end of the day from Bill suggesting another plan, I'll check in with Chris to see how he wants to get this to Janet. Either way we will get it to Janet today.

Thanks

Ben

**From:** Audette, Lucie
**Sent:** Wednesday, April 22, 2015 9:44 AM
**To:** Hengst, Benjamin; Charmley, William; Birnbaum, Rona
**Cc:** Samulski, Michael; Jantarasami, Lesley
**Subject:** Draft Note From Chris to Janet on aircraft package

All, below is the considerably shorter draft note to send to Janet. Let me know if this hits the mark. Our goal was to send this to her today. Ben, I assume you will work with Chris to get this out?

---

Janet,

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Samulski, Michael
**Sent:** Thur 10/22/2015 4:43:49 PM
**Subject:** EPA staff markup of draft US position paper to ICAO on CO2 standard
CAEP 10 WP XX US CO2 Stringency_v2 20 October+EPA.docx

Bill,

One of the next steps from last week's White House meeting was to prepare a draft US position paper and **share it with IPC by the end of this week**.

Attached is FAA's draft of this paper, with EPA staff (Bryan, Lucie, Mike) comments in track changes. Our comments are fairly minor as the draft paper is consistent with the position paper used in the IPC meeting. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

I will bring down a paper copy and put it on your chair.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Audette, Lucie[audette.lucie@epa.gov]; Birnbaum, Rona[Birnbaum.Rona@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Jantarasami, Lesley
**Sent:** Tue 4/21/2015 5:33:55 PM
**Subject:** RE: Draft Memo to Janet- Re Key Aircraft Issues Raised by OMB and Our Proposed Responses
Draft Memo to Janet McCabe - Key OMB Issues and OAR Responses_OAP.docx

Hi Lucie,

Here are comments and additions from OAP. We'd like to get a revised version back as soon as you can so that we can share with Paul/Sarah.

Thanks,

Lesley

Lesley Jantarasami

U.S. EPA, Climate Change Division

jantarasami.lesley@epa.gov

(202)-343-9929

**From:** Audette, Lucie
**Sent:** Tuesday, April 21, 2015 9:09 AM
**To:** Birnbaum, Rona; Jantarasami, Lesley; Hengst, Benjamin; Thrift, Mike
**Cc:** Samulski, Michael; Manning, Bryan; Charmley, William
**Subject:** Draft Memo to Janet- Re Key Aircraft Issues Raised by OMB and Our Proposed Responses

Please provide me your comments and I will revise. My understanding is that we wanted to get

this to Janet Wednesday. Thanks everyone

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Passavant, Glenn[passavant.glenn@epa.gov]
**From:** Audette, Lucie
**Sent:** Mon 8/25/2014 3:04:29 PM
**Subject:** REVISED: Info Paper for ICAO/CAEP SG14 meeting
CAEPSG 20142 IP xx US GHG Endangerment_ANPR 8-19-14.docx

Bill, Here is the two page paper we are hoping to submit to ICAO later this week.

-----Original Message-----
From: Manning, Bryan
Sent: Tuesday, August 19, 2014 5:48 PM
To: Leggett, Cullen; Audette, Lucie; Passavant, Glenn; Samulski, Michael
Cc: Yen, David; Maeroff, Bruce
Subject: REVISED: Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

Hello,

As you may know, Michael Horowitz did not have any further comments beyond those from OAP (see below). Thus, attached please find the revised and latest version of the endang/ANPR information paper for the Sept CAEP Steering Group meeting (which incorporates all of OAP's comments). It is now ready to be sent to FAA (Ralph, Lourdes, Laszlo, and Pat Moran) for review -- WHEN we receive Janet's okay. Then, FAA sends it to the Steering Group.

Thank you,

Bryan

-----Original Message-----
From: Horowitz, Michael
Sent: Tuesday, August 19, 2014 5:09 PM
To: Manning, Bryan
Cc: Audette, Lucie; Leggett, Cullen
Subject: RE: Draft Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

I don't have any comments. **Ex. 5 - Deliberative Process**

Michael Horowitz
EPA Office of General Counsel - ARLO
(202) 564-5583

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From: Manning, Bryan
Sent: Tuesday, August 19, 2014 4:36 PM
To: Horowitz, Michael
Cc: Audette, Lucie; Leggett, Cullen
Subject: FW: Draft Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

Hello Michael,

I left you a similar voice mail. As you may recall, Glenn Passavant sent the below email at 8:57 this morning, and subsequently OAP provided the attached comments on the information paper we plan to send to the ICAO/CAEP Steering Group meeting in September (if we get the okay from Janet McCabe). The purpose of the information paper is to notify CAEP of our plans to issue a proposed aircraft GHG endangerment finding/ANPR. If at all possible, could you provide any comments you may have on this attached paper as soon as you can -- added to OAP's comments? We would ask Mike Thrift, but he is not available until September. The paper deadline is August 29, and we need to give FAA a chance to

review the paper before this deadline.

Thank you,

Bryan

Bryan Manning
U.S. EPA Office of Transportation and Air Quality Large Marine and Aviation Center
2000 Traverwood Drive
Ann Arbor, MI 48105
(ph) 734-214-4832 (fax) 734-214-4816
manning.bryan@epa.gov

From: Passavant, Glenn
Sent: Tuesday, August 19, 2014 2:58 PM
To: Manning, Bryan
Subject: FW: Draft Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

Glenn W. Passavant
US EPA/ASD
Ann Arbor, MI 48105
734-214-4408(office)
517-902-7565(cell)

From: Jantarasami, Lesley
Sent: Tuesday, August 19, 2014 2:45 PM
To: Passavant, Glenn; Birnbaum, Rona; Horowitz, Michael; Thrift, Mike; Audette, Lucie; DeAngelo, Ben
Subject: RE: Draft Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

Hi everyone,

Thanks for the opportunity to comment – we (Rona, Ben and I) have some edits in the attached. Please let us know if you have any questions.

Best,

Lesley

Lesley Jantarasami
U.S. EPA, Climate Change Division
jantarasami.lesley@epa.gov<mailto:jantarasami.lesley@epa.gov>
(202)-343-9929

From: Passavant, Glenn
Sent: Tuesday, August 19, 2014 8:57 AM
To: Birnbaum, Rona; Jantarasami, Lesley; Horowitz, Michael; Thrift, Mike
Subject: FW: Draft Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

Folks

Attached is draft of an Information Paper we hope to provide for next month's CAEP meeting. It addresses our next steps on the CO2 endangerment effort and for the most part reflects language in the reg agenda abstract. It would likely go to CAEP before labor day.

At this point we do not have Janet McKay's clearance, but wanted to get your input assuming we will get her okay.

Glenn W. Passavant
US EPA/ASD
Ann Arbor, MI 48105
734-214-4408(office)
517-902-7565(cell)

From: Manning, Bryan
Sent: Monday, August 18, 2014 5:37 PM
To: Leggett, Cullen; Audette, Lucie; Passavant, Glenn; Samulski, Michael; Maeroff, Bruce; Yen, David
Subject: Draft Info Paper for ICAO/CAEP SG14 meeting (Endang/ANPR GHG)

Hello,

In case we need to send the draft information paper (for the CAEP Sept Steering Group meeting) on endang/ANPR GHG to FAA after I leave for vacation, attached please find the latest version. Of course, this depends on getting the okay from Janet to send the info paper to the Steering Group meeting (which Bill is trying to obtain). Note, FAA's Lourdes Maurice indicated today on a call that information papers are not circulated to IGIA. We just need FAA's review (Lourdes, Ralph, Laszlo, and Pat Moran) before it is sent to the CAEP Steering Group.

Thank you,

Bryan
P.S. I will be on vacation from Aug 20 through Aug 28.

Bryan Manning
U.S. EPA Office of Transportation and Air Quality Large Marine and Aviation Center
2000 Traverwood Drive
Ann Arbor, MI 48105
(ph) 734-214-4832 (fax) 734-214-4816
manning.bryan@epa.gov<mailto:manning.bryan@epa.gov>

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Sutton, Tia[sutton.tia@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Charmley, William[charmley.william@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 7/9/2015 7:28:24 PM
**Subject:** Draft Janet Notes/Talking Points for call with FAA's Rich Swayze (July 13)
Notes for Call with Rich Swayze 7-9-15.docx
FAA-EPA CO2 Standard briefing_8July2015_FAAclean.docx

Hello Ben,

Attached please find draft notes/talking points for Janet's call with FAA's Rich Swayze on Monday, July 13. On page 2 there is a message to you to flag that based on the Utech/Duke call later today, we may want to add something to this section of the document (Main EPA Messages section). From my perspective, these draft notes/talking points are ready to go to Chris for review. Let me know if you have any questions or comments.

In addition, I have attached the latest version of the WH briefing, which includes FAA's recent minor edits. Janet's notes/talking points include a sentence that says the WH briefing is attached.

As a friendly reminder, I and the rest of the aviation team will be out of the office tomorrow. If you need to reach me, my cell phone number is Ex. 6 - Personal Privacy

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 6/10/2015 2:09:50 PM
**Subject:** Chris's questions from last night on aircraft

Ben,

Below are draft responses to the additional question that Chris sent out late last night. We are still working on the questions from this morning. I did not include Chris on this email and will leave it to you on how to get back to him.

Mike

**Ex. 5 - Deliberative Process**

*Note that we have a related Q&As already in the packet:*

**Ex. 5 - Deliberative Process**

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

The two Q/A's he seems to be referring to are copied below. On the first one, we ran this by FAA and they concur. On the second one, this language is consistent with text in the ANPR, which was cleared by FAA in the interagency review

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

-----Original Message-----

From: Grundler, Christopher

Sent: Wednesday, June 10, 2015 1:40 AM

To: Hengst, Benjamin; Birgfeld, Erin; Charmley, William; Samulski, Michael

Subject: New tough aircraft Q

Q: What happens if ICAO fails to adopt a standard, or adopts a weak one?

**Ex. 5 - Deliberative Process**

Christopher Grundler, Director

Office of Transportation and Air Quality U.S. EPA

202-564-1682 (DC)

734-214-4207 (Ann Arbor)

**To:** Audette, Lucie[audette.lucie@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 10/14/2015 11:41:35 AM
**Subject:** RE: Draft Talking Points for Janet
Aircraft CO2 talking points 10 14 15.docx

Lucie,

Can you have a look at the attached this morning? These are the talking points that we told Janet we would prepare in advance of tomorrow's meeting.

Thanks,

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Charmley, William
**Sent:** Wednesday, October 14, 2015 6:53 AM
**To:** Samulski, Michael
**Cc:** Manning, Bryan; Leggett, Cullen; Audette, Lucie

**Subject:** RE: Draft Talking Points for Janet

Mike

**Ex. 5 - Deliberative Process**

That it. I would like Lucie to review as well, and of course Ben and Chris. I won't be able to spend any meaningful time on this between now and Thursday, but I will be trying to look at emails when I can.

Good luck on Thursday.

**From:** Samulski, Michael
**Sent:** Tuesday, October 13, 2015 3:00 PM
**To:** Charmley, William
**Cc:** Manning, Bryan; Leggett, Cullen

**Subject:** Draft Talking Points for Janet

Bill,

Here are the draft talking points for Gina. I'm copying them below as well, in the hope that you can read them that way on your phone. We will plan on sending this to Ben in the morning.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

## Key Messages

**Ex. 5 - Deliberative Process**

Ex. 5 - Deliberative Process

## Additional Talking Points

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]; Charmley, William[charmley.william@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 7/9/2015 5:03:28 PM
**Subject:** FW: FAA edits
FAA-EPA CO2 Standard briefing_8July2015_FAAredline.docx

Hello Ben,

**Ex. 5 - Deliberative Process**

Also, I mentioned to FAA that Chris may have comments on this same section of the briefing (and maybe other parts of the briefing). They appreciated the heads up, and said that we still have time through COB Monday to work through any final comments/revisions from us on the briefing (the plan is to send briefing to White House by COB on Monday, July 13).

Let me know if you have any questions.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Thursday, July 09, 2015 12:13 PM
**To:** Manning, Bryan
**Subject:** FAA edits

See attached…

Best Regards,

**Ralph Iovinelli**

Manager, Emissions Division (AEE-300)

Office of Environment and Energy

Federal Aviation Administration

800 Independence Ave., SW

Washington, DC 20591

+1-202-267-3566 office

**Ex. 6 - Personal Privacy**

ralph.iovinelli@faa.gov

**To:** Stewart, Lori[Stewart.Lori@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Grundler, Christopher
**Sent:** Tue 2/16/2016 8:33:56 PM
**Subject:** Re: for prospective shout out re ICAO

Yes pls add John.

And add Mike Thrift and Dave Orlin from OGC

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

On Feb 16, 2016, at 3:31 PM, Stewart, Lori <Stewart.Lori@epa.gov> wrote:

2 quick questions. John Kinsey was on Mike Samulski's appreciation email but not on this list – just want to be sure he shouldn't be included. And is there anyone in OGC who should be included? Thanks.

**From:** Grundler, Christopher
**Sent:** Tuesday, February 16, 2016 10:59 AM
**To:** Stewart, Lori <Stewart.Lori@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** for prospective shout out re ICAO

Here you go

**From:** Charmley, William
**Sent:** Tuesday, February 16, 2016 8:35 AM
**To:** OAR-OTAQ-ASD <OAROTAQASD@epa.gov>
**Cc:** Grundler, Christopher <grundler.christopher@epa.gov>
**Subject:** ASD takes Montreal by storm!

Dear all,

Last week in Montreal, Canada something amazing happened, and I want all of you to know about it.

The International Civil Aviation Organization (ICAO)'s Committee on Aviation Environmental Protection (CAEP) agreed to the first ever international CO2 standards for aircraft. Leading the way for the world was the United States, who was represented by EPA and the Federal Aviation Administration. Our very own Mike Samulski and Bryan Manning represented EPA.

This decision by CAEP to establish CO2 standards is a significant accomplishment, and the work by the dedicated ASD staff was central to the final agreement. Over the past 6 years ASD made important contributions to the underlying science and decision making process used by this United Nations sanctioned organization. At CAEP nearly every nation is represented by their transportation and/or aircraft industry. Environmental protection is not a priority for most of these nations – growing their airline industry and domestic manufacturing industry is the priority.

I would like to thank all of the members of our aircraft team for their hard work and dedication to this project:

Mike Samulski

Bryan Manning

Cullen Leggett

David Yen

John Mueller

Bob Giannelli

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Matt Spears (Matt spend 2010/2011 helping to get this project started)

The ASD aircraft team developed a strategy of embedding themselves into each of the 3 major working groups assigned to develop these standards. They became expert in all of the major analytical tools and modeling systems which allowed them to argue the points based on the merits of the data. And, for the first time in the 30+ year history of CAEP, US EPA developed unique data and analysis which had to be considered by CAEP. In the past, all data on technology performance and costs had only come from the industry. This was just one of many firsts that became a reality because of the EPA teams involvement – including the first ever standards by CAEP that will apply to the future production of existing designs of aircraft, not just newly designed aircraft.

Below is an opinion from the Editorial Board of the New York Times which summarizes the decision by CAEP and puts it into perspective. This is a huge first step, which we will be building on over the next 2 years as we work to adopt new CO2 standards for aircraft under our authority in the Clean Air Act through a notice-and-comment pubic rulemaking.

I will not be in the office this week to talk to them in person – but for those of you who are please take a minute to congratulate our colleagues on this important accomplishment.

Thanks

Bill

http://www.nytimes.com/2016/02/14/opinion/jets-will-no-longer-get-a-free-ride-on-carbon-emissions.html?smprod=nytcore-iphone&smid=nytcore-iphone-share

**Editorial**

**Jets Will No Longer Get a Free Ride on Carbon Emissions**

By THE EDITORIAL BOARD

FEB. 13, 2016

It has been almost 50 years since the federal government began setting standards for automobile emissions. It is also about a half-century since the introduction of wide-body jets set off a runaway expansion of the aviation industry. About 3.8 billion people are expected to fly this year, 50 times as many as 50 years ago — making planes the fastest-growing source of carbon dioxide emissions, although they have faced none of the limits set on cars or trucks. That is, until last week, when the International Civil Aviation Organization, a United Nations agency, finally proposed the first binding limits on aircraft emissions.

This is a welcome development, even if it has left many environmental groups disappointed. They have argued, not unreasonably, that the agency set the bar far too low. Existing planes wouldn't have to improve their efficiency, and aircraft under development would need do no more than meet the emissions goals set by manufacturers. Automakers in the United States, by contrast, must nearly double their fuel economy by 2025.

But planes are not cars; they take far longer to develop and are less adaptable to the sorts of electric or hybrid power sources that are reshaping the auto industry. That's not to say it can't happen — the budget carrier easyJet announced plans this month to test the use of a hybrid system when an aircraft is taxiing.

For now, however, what is important is that an industry that accounts for almost 2 percent of global carbon dioxide emissions — about the same as Germany — and that is projected

to double the number of passengers and flights by 2030 will finally join other major sources of greenhouse gas pollution that are subject to international emissions controls.

The proposed standards will at the least prevent airlines from backsliding on emissions as tens of thousands of large new aircraft enter service. The standards would require a 4 percent reduction in fuel consumption from 2015 levels for planes delivered in 2028 and beyond. And there are limits based on the size of the aircraft for planes already in production that are to be delivered after 2023.

The history of pollution controls has shown that the first step, however modest, is often the most important in raising confidence and creating momentum toward greater change. In this case, the timing is important, since the clock is running out on the Obama administration.

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**To:** Charmley, William[charmley.william@epa.gov]
**From:** Samulski, Michael
**Sent:** Mon 12/1/2014 8:49:19 PM
**Subject:** FW: Contact information for Rich Swayze's Office at FAA
FAA-EPA CO2 Standard briefing_Nov2014_draft 11 26 14.docx

Bill,

I was actually going to ask Ben the same thing (on the question of a pre-brief). My expectation is that this first meeting will not be controversial, but rather building the relationship for future meetings.

We've been working with FAA on a common background document for both Janet and for Rich Swayze. The current draft is attached.

In addition to the background document, we plan to pull together a 1-pager with giving an overview on FAA's thinking, planned US position, and some talking points for Janet.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Hengst, Benjamin
**Sent:** Monday, December 01, 2014 3:28 PM
**To:** Samulski, Michael
**Cc:** Charmley, William
**Subject:** Re: Contact information for Rich Swayze's Office at FAA

Just got scheduled one minute ago. Thursday the 18th at 10 am. Scheduled to take place here at EPA. Carl, Lourdes, and Rich are invited on the invite. Do you guys think we will need a pre-brief with Janet, or can we do it via email?

**From:** Samulski, Michael

**Sent:** Monday, December 1, 2014 11:41 AM

**To:** Hengst, Benjamin

**Cc:** Charmley, William

**Subject:** RE: Contact information for Rich Swayze's Office at FAA

Ben,

Do you know if this meeting was ever set up? According to Lourdes (we had a call with FAA last Wednesday), a request came in to FAA from Janet's office for Dec 16th, but FAA had a conflict and countered with Dec 17th or 18th.

Also, you had asked me who FAA planned to have in the room. Lourdes said she expected it would be her and Richard Swayze on their end.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Hengst, Benjamin
**Sent:** Thursday, November 20, 2014 6:26 PM
**To:** Charmley, William; Samulski, Michael
**Subject:** FW: Contact information for Rich Swayze's Office at FAA

FYI

**From:** Hengst, Benjamin
**Sent:** Thursday, November 20, 2014 6:25 PM
**To:** Lori Stewart; Atkinson, Emily
**Cc:** Knapp, Kristien; Grundler, Christopher; Stewart, Gwen
**Subject:** RE: Contact information for Rich Swayze's Office at FAA

+ Gwen

**From:** Hengst, Benjamin
**Sent:** Thursday, November 20, 2014 6:25 PM
**To:** Lori Stewart; Atkinson, Emily

**Cc:** Knapp, Kristien; Grundler, Christopher
**Subject:** Contact information for Rich Swayze's Office at FAA

Emily, Lori:

This is what I mentioned to you both today. The plan would be for Janet to schedule a meeting with Richard Swayze at FAA; his assistant's email and phone are below. They are expecting the request for a meeting – Lourdes at FAA has been in touch with them. For now, the only participant from OTAQ would be Chris.

I think the next step on this is to clear it with Janet and then move forward with scheduling the meeting. I know that Chris is not in DC the week of 12/8, but other than that I'm not entirely sure so I've copied Gwen here.

Please let me know if you have any questions. Thanks, Ben

**From:** Samulski, Michael
**Sent:** Monday, November 17, 2014 8:37 AM
**To:** Hengst, Benjamin; Charmley, William
**Cc:** Manning, Bryan
**Subject:** Contact information for Rich Swayze's Office at FAA

One of my takeaways from our briefings with Janet was to get contact information for her office to use to set up a meeting with her counterpart at FAA in December. The purpose is for this to be an initial discussion on the US position at ICAO/CAEP and the Aircraft Finding/ANPRM package. Her counterpart's name is Richard Swayze and Janet's office should contact:

Natasha Dandridge

staff assistant

202-267-3927

Natasha.Dandridge@faa.gov

In terms of timing, there are a three members calls in December and January to make decisions on the analytical work, including down-selecting the number of stringency options. These are listed below. If I travel to FAA HQ in Washington D.C., Lourdes Maurice (the US CAEP member) has offered that I can join her on the Dec 17 and Jan 16 calls. (ICAO will allow advisors to be in the room with the members for these 2 calls).

- 17 December 2014 (8am-noon Eastern) – First members and observers conference call. The intent of the call is to preview the initial results and ask clarifying questions.
- 16 January 2015 (8am-noon Eastern) – Second members and observers conference call. Input from both members and observers will be provided on the initial results.
- 21 January 2015 (8am-noon Eastern) – Members Only call with a view to make decisions on the prioritization of the analytical work, including down-selection of stringency options.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Grundler, Christopher[grundler.christopher@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Wed 7/8/2015 3:41:47 PM
**Subject:** ICAO documents for your review
FAA-EPA CO2 Standard briefing_7July2015_clean.docx
Janet TPs for July 9 Utech_Duke Meeting v2.docx

Chris—I'm attaching two documents:

1. Talking points for you/Janet/me to use on the call with Utech/Duke tomorrow. I've left some points out of this that we will cover verbally, but this provides the basics.

2. The briefing that FAA/EPA staff have come up with. As I mentioned, it's on the long side, but I think it covers the issues well. I've mentioned to the team that EPA and FAA will need a strategy on how/who to give the briefing. We may want to send this ahead to the WH staff, and then in the meeting just cover high points.

We will need to send the talkers to Janet's office by 4pm tonight.

Thanks,

Ben

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 10/13/2015 7:00:27 PM
**Subject:** Draft Talking Points for Janet
Aircraft CO2 talking points.docx

Bill,

Here are the draft talking points for Gina. I'm copying them below as well, in the hope that you can read them that way on your phone. We will plan on sending this to Ben in the morning.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

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1 (734) 214-4532

samulski.michael@epa.gov

**********

## Key Messages

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

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**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Sutton, Tia[sutton.tia@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Charmley, William[charmley.william@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Wed 7/8/2015 12:31:26 PM
**Subject:** WH briefing (ICAO CO2 standard)
FAA-EPA CO2 Standard briefing_7July2015_clean.docx

Hello Ben,

Attached is the White House Briefing (ICAO CO2 standard) worked out between FAA and EPA staff. It is now ready for Chris' review.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Stewart, Gwen[Stewart.Gwen@epa.gov]
**Cc:** Sutton, Tia[sutton.tia@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 10/6/2015 2:15:19 PM
**Subject:** RE: Aircraft Meeting with Gina- DOT Secretary Fox
administrator's form request - 10-5-15.docx

Gwen, Ben is already in the loop on this. I've attached the draft Administrator meeting request. Please let me know what else I should do to help expedite this. Thank you

**From:** Hengst, Benjamin
**Sent:** Monday, October 05, 2015 10:05 PM
**To:** Audette, Lucie
**Cc:** Sutton, Tia; Samulski, Michael
**Subject:** Re: Aircraft Meeting with Gina- DOT Secretary Fox

Hi Lucie,

I think I may have misunderstood one element of this. I am reaching out to start alerting DOT folks that we will need a Foxx/Gina meeting. I am waiting to hear back in that -- the person I work with in the secretary's office has been out but I will see her tomorrow.

With respect to setting up a Gina meeting, ASD just needs to fill out a form and send it to Gwen (cc me) and we will work it up the chain here. That form is on the OTAQ intranet (forms and policies, I think).

At this point, given the schedule you are talking about we may need to jump start this a bit. Perhaps we can jump on the phone with Mike tomorrow (and maybe Bill?) to discuss?

Ben

On Oct 5, 2015, at 10:30 AM, Audette, Lucie <audette.lucie@epa.gov> wrote:

Hi Ben, Checking in on these meetings. Bill stopped by just now asking about the status of setting up the Gina Aircraft ICAO Decision meeting (as a precursor to the Secty Fox-Administrator meeting on this topic) and the Janet prebrief. There was a WH staff level meeting (Kevin Welch) with Bill, Mike and Lourdes late last week. They are wanting to have decision-making meeting with WH by mid-October. Seem pretty ambitious. Can you let us know how this is moving along? Thanks. Lucie

**From:** Audette, Lucie
**Sent:** Monday, September 28, 2015 10:35 AM
**To:** Hengst, Benjamin
**Cc:** Samulski, Michael
**Subject:** Aircraft Meeting with Gina- DOT Secretary Fox

Ben, Bill asked that I work with you to get a meeting on Gina's schedule regarding the U.S. position on final ICAO standards in the mid to late October timeframe. My understanding is that Janet spoke with her last week and she indicated that she definitely wanted to weigh in and have a meeting with Secretary Fox before the US position is finalized.

So Gina prebrief meeting before the Fox-Gina meeting?

Please advise how I should proceed? Do you get the meeting set up on Gina calendar as well as the necessary briefings with Chris/Janet leading up to this?

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Giannelli, Bob
**Sent:** Tue 2/16/2016 2:25:34 PM
**Subject:** RE: ASD takes Montreal by storm!

Hi Bill,

Thanks for the accolades!

I've mainly been on the PM side of things. But if you are being inclusive, John Kinsey from RTP has played a major part in this aircraft work as well.

Thanks for your note!!!

Bob

**From:** Charmley, William
**Sent:** Tuesday, February 16, 2016 8:35 AM
**To:** OAR-OTAQ-ASD <OAROTAQASD@epa.gov>
**Cc:** Grundler, Christopher <grundler.christopher@epa.gov>
**Subject:** ASD takes Montreal by storm!

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I would like to thank all of the members of our aircraft team for their hard work and dedication to this project:

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Thanks

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FEB. 13, 2016

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This is a welcome development, even if it has left many environmental groups disappointed. They have argued, not unreasonably, that the agency set the bar far too low. Existing planes wouldn't have to improve their efficiency, and aircraft under development would need do no more than meet the emissions goals set by manufacturers. Automakers in the United States, by contrast, must nearly double their fuel economy by 2025.

But planes are not cars; they take far longer to develop and are less adaptable to the sorts of electric or hybrid power sources that are reshaping the auto industry. That's not to say it can't happen — the budget carrier easyJet announced plans this month to test the use of a hybrid system when an aircraft is taxiing.

For now, however, what is important is that an industry that accounts for almost 2 percent of global carbon dioxide emissions — about the same as Germany — and that is projected to double the number of passengers and flights by 2030 will finally join other major sources of greenhouse gas pollution that are subject to international emissions controls.

The proposed standards will at the least prevent airlines from backsliding on emissions as tens of thousands of large new aircraft enter service. The standards would require a 4 percent reduction in fuel consumption from 2015 levels for planes delivered in 2028 and beyond. And there are limits based on the size of the aircraft for planes already in production that are to be delivered after 2023.

The history of pollution controls has shown that the first step, however modest, is often the most

important in raising confidence and creating momentum toward greater change. In this case, the timing is important, since the clock is running out on the Obama administration.

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**To:** OTAQ Materials[OTAQMaterials@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]; Iffland, JoNell[Iffland.JoNell@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Mueller, John[mueller.john@epa.gov]; Yen, David[Yen.David@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]
**From:** Samulski, Michael
**Sent:** Mon 12/14/2015 8:49:06 PM
**Subject:** Briefing materials meeting with Chris on Aircraft CO2 Standards
Chris Briefing Next Steps Possible CAEP Outcomes 12-14-15.docx

Here are the materials for tomorrow morning's meeting.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

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http://www.nytimes.com/2016/02/14/opinion/jets-will-no-longer-get-a-free-ride-on-carbon-emissions.html?smprod=nytcore-iphone&smid=nytcore-iphone-share

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The proposed standards will at the least prevent airlines from backsliding on emissions as tens of thousands of large new aircraft enter service. The standards would require a 4 percent reduction in fuel consumption from 2015 levels for planes delivered in 2028 and beyond. And there are limits based on the size of the aircraft for planes already in production that are to be delivered after 2023.

The history of pollution controls has shown that the first step, however modest, is often the most important in raising confidence and creating momentum toward greater change. In this case, the timing is important, since the clock is running out on the Obama administration.

The United States accounts for half of all carbon dioxide emissions from planes, and limiting aviation emissions has been high on President Obama's environmental agenda. But the international agreement took more than six years to negotiate, and it still needs approval from the group's larger council and then its full assembly, followed by laws or regulations in each of the 36 member states. Mr. Obama has the authority to set the standards. That is about all he can hope to achieve on this front in his remaining months, and if it happens, it will be no mean feat.

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Argyropoulos, Paul[Argyropoulos.Paul@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Simon, Karl[Simon.Karl@epa.gov]; Stewart, Gwen[Stewart.Gwen@epa.gov]
**From:** Grundler, Christopher
**Sent:** Thur 2/13/2014 1:09:47 PM
**Subject:** Re: NGO Briefing on ICAO Aviation efforts for Chris Grundler

Gwen--pls followup with Pam for a March date

---

**From:** Charmley, William
**Sent:** Thursday, February 13, 2014 8:06:51 AM
**To:** Grundler, Christopher
**Cc:** Argyropoulos, Paul; Hengst, Benjamin; Samulski, Michael; Simon, Karl; Stewart, Gwen
**Subject:** Re: NGO Briefing on ICAO Aviation efforts for Chris Grundler

I meant to say no reason we CAN'T have this meeting in March.

---

**From:** Charmley, William
**Sent:** Wednesday, February 12, 2014 5:08:59 PM
**To:** Grundler, Christopher
**Cc:** Argyropoulos, Paul; Hengst, Benjamin; Samulski, Michael; Simon, Karl; Stewart, Gwen
**Subject:** FW: NGO Briefing on ICAO Aviation efforts for Chris Grundler

Chris (and Gwen)

See Mikes note below on EDF.

Based on what Mike said, I don't see any reason why we can ask to have this meeting in March.

Thanks

Bill

**From:** Samulski, Michael
**Sent:** Wednesday, February 12, 2014 4:59 PM
**To:** Charmley, William
**Cc:** Manning, Bryan
**Subject:** RE: NGO Briefing on ICAO Aviation efforts for Chris Grundler

Bill,

I met briefly with Pam Campos when I was in Denver for training a little over a year ago. Her interest was in the aircraft MBMs and in consideration of water vapor as a GHG.

EDF has not been active in the CO2 (or PM) standards work at ICAO.

I guess it is up to Chris if he wants EDF's read-out on the MBM work at ICAO. Maurice LeFranc is the current lead on this from EPA.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Charmley, William
**Sent:** Wednesday, February 12, 2014 4:44 PM
**To:** Samulski, Michael; Manning, Bryan
**Subject:** FW: NGO Briefing on ICAO Aviation efforts for Chris Grundler

Bryan and Mike – do you have any suggestions on this?

Is it okay if we meet with these folks in March?

**From:** Stewart, Gwen
**Sent:** Wednesday, February 12, 2014 3:23 PM
**To:** Grundler, Christopher
**Cc:** Charmley, William; Simon, Karl; Argyropoulos, Paul; Hengst, Benjamin
**Subject:** FW: NGO Briefing on ICAO Aviation efforts for Chris Grundler

NEW INVITATION:

Unfortunately, is Chris is unavailable to accommodate the below invitation. Perhaps we can try to accommodate a March 2014 date?

Please provide your suggestions/comments/opinions.

Thank you

**From:** Pamela Campos [mailto:pcampos@edf.org]
**Sent:** Wednesday, February 12, 2014 3:15 PM
**To:** Stewart, Gwen
**Subject:** NGO Briefing on ICAO Aviation efforts for Chris Grundler

Hi Gwen,

At the MSTRS meeting last fall, Chris and I spoke about setting up a briefing on the developments at ICAO on establishing a global market-based measure for aviation emissions. A number of events have taken place since then, and I'm writing to see if Chris might be available for a briefing next week. I'll be in DC, as will my colleague Annie Petsonk.

Annie and I are both available on Wednesday, Feb. 19 before noon ET, and Thursday, Feb. 20 between 9:30 and 2pm. I know Chris' schedule is packed – if neither of those times work, perhaps you could suggest some alternatives in March?

Thanks so much for your help,

Pam

Pamela Campos
Attorney
Environmental Defense Fund
2060 Broadway, Suite 300
Boulder, CO 80302
**T** 303-447-7216
**C** 720-205-2366
**F** 303-440-8053
AIM: palbacampos

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**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]
**From:** Samulski, Michael
**Sent:** Wed 2/12/2014 9:58:52 PM
**Subject:** RE: NGO Briefing on ICAO Aviation efforts for Chris Grundler

Bill,

I met briefly with Pam Campos when I was in Denver for training a little over a year ago. Her interest was in the aircraft MBMs and in consideration of water vapor as a GHG.

EDF has not been active in the CO2 (or PM) standards work at ICAO.

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Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

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**Sent:** Wednesday, February 12, 2014 4:44 PM
**To:** Samulski, Michael; Manning, Bryan
**Subject:** FW: NGO Briefing on ICAO Aviation efforts for Chris Grundler

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**From:** Stewart, Gwen
**Sent:** Wednesday, February 12, 2014 3:23 PM
**To:** Grundler, Christopher
**Cc:** Charmley, William; Simon, Karl; Argyropoulos, Paul; Hengst, Benjamin
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Pamela Campos
Attorney
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**F** 303-440-8053
AIM: palbacampos

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employee or agent responsible for delivering it to the intended recipient, you are hereby notified that any examination, use, dissemination, distribution, or copying of this communication or any part thereof is strictly prohibited. If you have received this communication in error, please immediately notify the sendor by telephone or reply email and destroy this communication. Thank you.

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**To:** Charmley, William[charmley.william@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Audette, Lucie
**Sent:** Mon 8/18/2014 7:03:21 PM
**Subject:** Proposal to Release Info that EPA has Started Work on a Proposed Aircraft GHG Endangerment Rulemaking at Upcoming ICAO Meeting

Bill,

Pasted in below is a slightly revised 1 pager that Chris forwarded to Janet on July 11 requesting permission to release a brief information paper in conjunction with the September ICAO meeting. This would communicate that EPA was beginning work on a proposed aircraft endangerment finding. We have also developed a draft desk statement and Internal Q & As.

I've updated and highlighted in red below a few bullets of the July 11 document that Chris had forwarded to Janet Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process We are fast running of time to submit the paper to ICAO for the September meeting and hope that Chris can reconnect with Janet on the importance of our releasing this information just prior to the at the ICAO Steering Group meeting. The deadline for submitting to ICAO is August 29.

Internal,

Deliberative, Do not cite or quote

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

**From:** Charmley, William
**Sent:** Friday, July 11, 2014 5:06 PM
**To:** Audette, Lucie; Samulski, Michael; Manning, Bryan
**Subject:** Fw: One-Pager on Aircraft CO2 Issue

Bill Charmley, US EPA
Assessment and Standards Division
Office of Transportation and Air Quality
Ann Arbor, Michigan
Desk ph = 734-214-4466
Mobile ph = 734-545-0333
Email = charmley.william@epa.gov

**From:** Grundler, Christopher <grundler.christopher@epa.gov>

**Sent:** Friday, July 11, 2014 4:19 PM

**To:** McCabe, Janet

**Cc:** Dunham, Sarah; Charmley, William

**Subject:** One-Pager on Aircraft CO2 Issue

Janet—Attached is a one-pager on the rationale for announcing our schedule for an aircraft endangerment finding proposal and ANPR, for future conversations you may have. It is taken from the recent OTAQ-OAP briefing you received recently

**To:** StClair, Christie[StClair.Christie@epa.gov]; Allen, Laura[Allen.Laura@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Georges, Thomas
**Sent:** Tue 2/9/2016 4:30:09 PM
**Subject:** ICAO Clips 2/9 (Nature Magazine)

**Nature Magazine (Through Scientific American)**

http://www.scientificamerican.com/article/u-n-agency-proposes-greenhouse-gas-standard-for-aircraft/

**U.N. Agency Proposes Greenhouse-Gas Standard for Aircraft**

*Plan aims to decrease carbon dioxide produced by new airplanes*

By Jeff Tollefson, Nature magazine on February 9, 2016

A United Nations panel has proposed the first global greenhouse-gas emissions standard for aircraft.

The draft rule, released by the International Civil Aviation Organization (ICAO) on 8 February, applies to most commercial and business aircraft, including designs already in production. It would require minimal changes to aviation design over the next 12 years, and many environmentalists say that the proposal is inadequate to combat climate change.

The plan—which would take full effect in 2028—could decrease fuel consumption in new aircraft at cruising speed by an average of 4% compared to the current level, according to the International Council on Clean Transportation (ICCT), a non-profit research group based in Washington DC. The ICAO is expected to adopt the $CO_2$ standard later this year.

Many environmental groups found the UN panel's action wanting. ”We think that this is just woefully insufficient,” says Vera Pardee, an attorney with the Center for Biological Diversity in Oakland, California. She calls the requirements for new aircraft weak, and notes that the plan would not require any changes to aircraft that are already flying. “ICAO is not proposing to do anything about the existing fleet, and it could,” she says.

Daniel Rutherford, programme director for marine and aviation at the ICCT in San Francisco, agrees that the ICAO could have been much more aggressive. An ICCT study released in December found that manufacturers could reduce fuel consumption in new aircraft by 24% in 2024 and 40% in 2034 in a cost-effective manner. These efficiency gains would come from improvements in engine technologies and aerodynamics as well as reductions in aircraft weight.

Nonetheless, Rutherford says, the new ICAO standard is a step forward. “These standards do tend to matter over time as you update them and make them more stringent,” he adds.

Looking ahead

The ICAO process was designed to plug a gap in the United Nations climate agreement signed in Paris in December. That agreement did not address growing emissions from international aviationor shipping, which together account for more than 3% of humanity's carbon dioxide output. In addition to the $CO_2$ standard, ICAO is working on a market-based offset mechanism that would levy a fee on international flights to pay for emissions reductions in other sectors.

In the meantime, individual countries are free to implement more stringent standards for aircraft emissions, and environmentalists are gearing up for a fight. For instance, lawsuits from environmental groups helped to push the US Environmental Protection Agency (EPA) to begin developing its own greenhouse-gas standards for aircraft.

Although the EPA has said it is waiting to see what the ICAO's final rule looks like, Pardee notes that the United States did push for a stricter standard when the UN panel met this week in Montreal. That could be a sign that the US agency will pursue regulations that are tougher than the ICAO plan. If the EPA fails to do so, environmentalists could sue the agency once again.

Meanwhile, the ICAO is also developing a market-based offset mechanism to cap international aviation emissions by raising money to reduce emissions in other sectors, beginning in 2021. The discussions build on the European Union's decision in 2012 to include domestic aviation emissions in its Emissions Trading Scheme. The EU plan initially included international flights, too, but bloc officials backed off to give ICAO time to develop its own offset scheme.

International aviation produced more than 492 million tonnes of carbon dioxide in 2014—making its output larger than that of the United Kingdom. And that number is projected to skyrocket in coming years, with more than 56,000 new aircraft projected to hit the skies by 2040, according to the Environmental Defense Fund (EDF), an environmental group based in New York. EDF calculates that carbon dioxide emissions from air travel and transport could increase by a factor of three or four over that period.

With that in mind, EDF attorney Annie Petsonk argues that the ICAO's proposed emissions standard sets an important precedent—and could create momentum for the panel's nascent market-based emissions measure, which could achieve larger reductions in greenhouse-gas output.

"It's going to be a tough negotiation, but the global spotlight is now on ICAO to deliver," Petsonk says.

---

Tom Georges

Intern, Office of the Press Secretary

US Environmental Protection Agency

Phone: 202-564-2938

Schedule: 9am-5pm – M, T, R, F

**To:** Audette, Lucie[audette.lucie@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 2/8/2016 9:16:57 PM
**Subject:** FW: ICAO QA- from EPA (with attachment this time)
ICAO CO2 Standard Q and A_2-8-16 110 pm-ASD+OGC+BM.docx

Sorry, I forgot the attachment for the below minor change. See attached.

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Manning, Bryan
**Sent:** Monday, February 08, 2016 4:14 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Charmley, William <charmley.william@epa.gov>
**Subject:** RE: ICAO QA- from EPA

Lucie,

# Ex. 5 - Deliberative Process

Thanks,

Bryan

Bryan Manning

U.S. EPA  Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Audette, Lucie
**Sent:** Monday, February 08, 2016 2:53 PM
**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Charmley, William <charmley.william@epa.gov>
**Subject:** RE: ICAO QA- from EPA

Erin, Here are the revisions we discussed as well as Mike Thrift's (OGC) comment—all in track changes. I'm at my desk to discuss if needed. Thanks!

**From:** Birgfeld, Erin
**Sent:** Monday, February 08, 2016 2:30 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>
**Subject:** FW: ICAO QA- from EPA

Here is my suggested edit to the first Q.. edit as necessary.

Thanks!

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

**From:** Millett, John
**Sent:** Friday, February 05, 2016 10:35 AM
**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** StClair, Christie <StClair.Christie@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Bryan, David <Bryan.David@epa.gov>
**Subject:** RE: ICAO QA- from EPA

RLSO reflecting Janet McCabe's review and comments –

**From:** Birgfeld, Erin
**Sent:** Thursday, February 04, 2016 2:15 PM
**To:** Millett, John <Millett.John@epa.gov>
**Cc:** StClair, Christie <StClair.Christie@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Bryan, David <Bryan.David@epa.gov>
**Subject:** FW: ICAO QA- from EPA

HI all,

This is the doc that Laura sent to the WH last night. She is having a call with them tonight at 5 and will get details on their roll out plans.

Stay tuned and thanks for everyone's help on this.

Best,

Erin

**From:** Allen, Laura
**Sent:** Thursday, February 04, 2016 11:03 AM
**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** FW: ICAO QA- from EPA

**From:** Allen, Laura
**Sent:** Wednesday, February 03, 2016 5:49 PM
**To:** 'Benenati, Frank' <Ex. 6 - Personal Privacy
**Subject:** ICAO QA- from EPA

Hey- here's the ICAO QA that I mentioned a few days ago. Let me know if you'd like to chat about strategy for Monday.

Thanks,

Laura Allen

Deputy Press Secretary
Office of the Administrator
U.S. Environmental Protection Agency

Email: Allen.Laura@epa.gov

Office: 202-564-1175

Mobile: 202-731-3005

Please consider the environment before printing this email.

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; DeAngelo, Ben[DeAngelo.Ben@epa.gov]; Birnbaum, Rona[Birnbaum.Rona@epa.gov]
**Cc:** Charmley, William[charmley.william@epa.gov]
**From:** Sutton, Tia
**Sent:** Mon 6/8/2015 6:54:25 PM
**Subject:** RE: Revised Aircraft Preamble
Aircraft GHG- Response to Administrator comments 6-8-15.docx

Done- revised file is attached.

**From:** Hengst, Benjamin
**Sent:** Monday, June 08, 2015 2:45 PM
**To:** Samulski, Michael; Audette, Lucie; Jantarasami, Lesley; Sutton, Tia; Orlin, David; Thrift, Mike; Williams, Melina; DeAngelo, Ben; Birnbaum, Rona
**Cc:** Charmley, William
**Subject:** RE: Revised Aircraft Preamble

This looks good to me.

Tia – would you mind inserting this language into the current draft? Once you do that, either Chris or I will send it down to Janet.

**From:** Samulski, Michael
**Sent:** Monday, June 08, 2015 1:47 PM
**To:** Hengst, Benjamin; Audette, Lucie; Jantarasami, Lesley; Sutton, Tia; Orlin, David; Thrift, Mike; Williams, Melina; DeAngelo, Ben; Birnbaum, Rona
**Cc:** Charmley, William
**Subject:** RE: Revised Aircraft Preamble

Ben,

Our little team (Cullen, Bryan, Lucie, and me) just worked on redrafting this sentence for clarity. Here is the revised language:

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Hengst, Benjamin
**Sent:** Monday, June 08, 2015 11:43 AM
**To:** Audette, Lucie; Jantarasami, Lesley; Sutton, Tia; Samulski, Michael; Orlin, David; Thrift, Mike; Williams, Melina; DeAngelo, Ben; Birnbaum, Rona
**Cc:** Charmley, William
**Subject:** RE: Revised Aircraft Preamble

All—just reading through the document again. One question:

Lucie's version has this (p 182; I've added the highlighting)

Ex. 5 - Deliberative Process

Mike Thrift's version says this:

Ex. 5 - Deliberative Process

The Lucie version has a typo that we can fix, but my question is on the text. My read of this would be to go with Mike's text. It seems to make more sense to me, and is consistent with what we heard from the Administrator. However, I'd like to hear from the OTAQ team on this as I'm probably missing something.

Thanks, Ben

**From:** Audette, Lucie
**Sent:** Friday, June 05, 2015 5:50 PM
**To:** Jantarasami, Lesley; Sutton, Tia; Samulski, Michael; Orlin, David; Thrift, Mike; Williams, Melina; DeAngelo, Ben; Birnbaum, Rona
**Cc:** Charmley, William; Hengst, Benjamin
**Subject:** Revised Aircraft Preamble

Tia, Attached is the slightly revised preamble which reflects a change to one of the sentences we had previously included Plus I've now highlighted/ provided comment bubbles for all these changes. Thanks for your help on this1 Lucie

**From:** Jantarasami, Lesley
**Sent:** Friday, June 05, 2015 5:19 PM
**To:** Sutton, Tia; Audette, Lucie; Samulski, Michael; Orlin, David; Thrift, Mike; Williams, Melina; DeAngelo, Ben; Birnbaum, Rona
**Cc:** Charmley, William; Hengst, Benjamin
**Subject:** RE: For Review: Revised Aircraft Preamble

Tia- the attached is all yours. Lucie has incorporated Mike S, Bill Charmley, and Mike Thrift comments on all the OTAQ issues. I have revised the OAP responses.

Let us know how they are received by Janet/others, and if additional edits are required.

Thanks,

Lesley

**From:** Sutton, Tia
**Sent:** Friday, June 05, 2015 4:08 PM
**To:** Audette, Lucie; Samulski, Michael; Orlin, David; Thrift, Mike; Williams, Melina; Jantarasami, Lesley; DeAngelo, Ben; Birnbaum, Rona
**Cc:** Charmley, William; Hengst, Benjamin
**Subject:** RE: For Review: Revised Aircraft Preamble

+ OAP

I just spoke with Kristien about the comment on p. 65, after she spoke directly with Gina. Unfortunately, Gina wasn't quite sure what the exact words there were, either! But she said not to get hung up on that – what her comment there was supposed to be getting at was that she liked the highlighted language on p. 65, and she wanted something of that nature in the summary on p. 2. Something more on the lines of "among many other factors" or "a consideration of all the

factors" (or even the "totality of circumstances" language that's on p. 65), instead of "Thus". The Administrator only had p. 65 in front of her, but she actually remembered that she didn't like the word "Thus" from p. 2.

I know OTAQ and OAP have already made edits to the document, but maybe as others review, you can take this info into account to help with your review/editing.

**From:** Audette, Lucie
**Sent:** Friday, June 05, 2015 3:12 PM
**To:** Samulski, Michael; Orlin, David; Thrift, Mike; Williams, Melina
**Cc:** Charmley, William; Hengst, Benjamin; Sutton, Tia
**Subject:** For Review: Revised Aircraft Preamble

Attached are the changes hat we have crafted in response to the Administrator/ AA comments. Our responses in the comment bubbles are highlighted in yellow. We'd appreciate your review soon as you can get to it. Thanks. Lucie

**To:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Charmley, William[charmley.william@epa.gov]
**From:** Audette, Lucie
**Sent:** Mon 2/8/2016 7:53:24 PM
**Subject:** RE: ICAO QA- from EPA
ICAO CO2 Standard Q and A_2-8-16 110 pm-ASD+OGC.docx

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**Subject:** FW: ICAO QA- from EPA

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**Subject:** RE: ICAO QA- from EPA

RLSO reflecting Janet McCabe's review and comments –

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**To:** Millett, John <Millett.John@epa.gov>
**Cc:** StClair, Christie <StClair.Christie@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Bryan, David <Bryan.David@epa.gov>
**Subject:** FW: ICAO QA- from EPA

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Erin

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**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** FW: ICAO QA- from EPA

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**Sent:** Wednesday, February 03, 2016 5:49 PM
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**Subject:** ICAO QA- from EPA

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Thanks,

Laura Allen

Deputy Press Secretary
Office of the Administrator
U.S. Environmental Protection Agency

Email: Allen.Laura@epa.gov

Office: 202-564-1175

**Ex. 6 - Personal Privacy**

Please consider the environment before printing this email.

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Samulski, Michael
**Sent:** Fri 12/11/2015 1:49:47 PM
**Subject:** Draft materials for 12/15 Briefing with Chris on Aircraft CO2
Chris Briefing Next Steps Possible CAEP Outcomes Draft 12-11-15.docx

Bill,

Attached are draft materials, for your review, to use for next Tuesday's briefing with Chris on aircraft CO2.

Also, I wanted to let you know that the Europeans submitted a paper to ICAO with their views, which are better than we expected. France, whose member had been expressing opposition to InP standards, is signed on to the paper. Their views are:

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** McCabe, Janet[McCabe.Janet@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]; Charmley, William[charmley.william@epa.gov]
**Cc:** Millett, John[Millett.John@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Purchia, Liz[Purchia.Liz@epa.gov]
**From:** Allen, Laura
**Sent:** Mon 2/8/2016 6:31:51 PM
**Subject:** FW: ICAO Q and A: For Review Before 3 PM
ICAO CO2 Standard Q and A_2-8-16 110 pm.docx

Hi folks- if you have edits to this version of the QA, please feel free to send them to me before 3pm. I will combine and send back to Candace. Thanks!

-----Original Message-----
From: Vahlsing, Candace M. EOP/WHO Ex. 6 - Personal Privacy
Sent: Monday, February 08, 2016 1:10 PM
To: Ex. 6 - Personal Privacy Charmley, William <charmley.william@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; 'Rich.Swayze@faa.gov' <Rich.Swayze@faa.gov>; 'carl.burleson@faa.gov' <carl.burleson@faa.gov>; 'Lourdes.Maurice@faa.gov' <Lourdes.Maurice@faa.gov>; McCabe, Janet <McCabe.Janet@epa.gov>; Duke, Rick EOP/CEQ Ex. 6 - Personal Privacy >; Bodnar, Paul N. EOP/NSC < Ex. 6 - Personal Privacy >; Utech, Dan G. EOP/WHO Ex. 6 - Personal Privacy Grundler, Christopher <grundler.christopher@epa.gov>; 'Ralph.Iovinelli@faa.gov' <Ralph.Iovinelli@faa.gov>; Benenati, Frank J. EOP/WHO Ex. 6 - Personal Privacy Reynolds, Thomas H. EOP/WHO Ex. 6 - Personal Privacy v>; Wall, Alex B. EOP/WHO Ex. 6 - Personal Privacy Welsh, Kevin W. EOP/NSC Ex. 6 - Personal Privacy Allen, Laura <Allen.Laura@epa.gov>; Jenny.Rosenberg@faa.gov; alison.duquette@faa.gov; Zaidi, Ali A. EOP/OMB Ex. 6 - Personal Privacy
Subject: ICAO Q and A: For Review Before 3 PM

Updated Q and A here. The White House press call is set for 5 pm this evening. Please send your input before 3 pm.

Thank you.

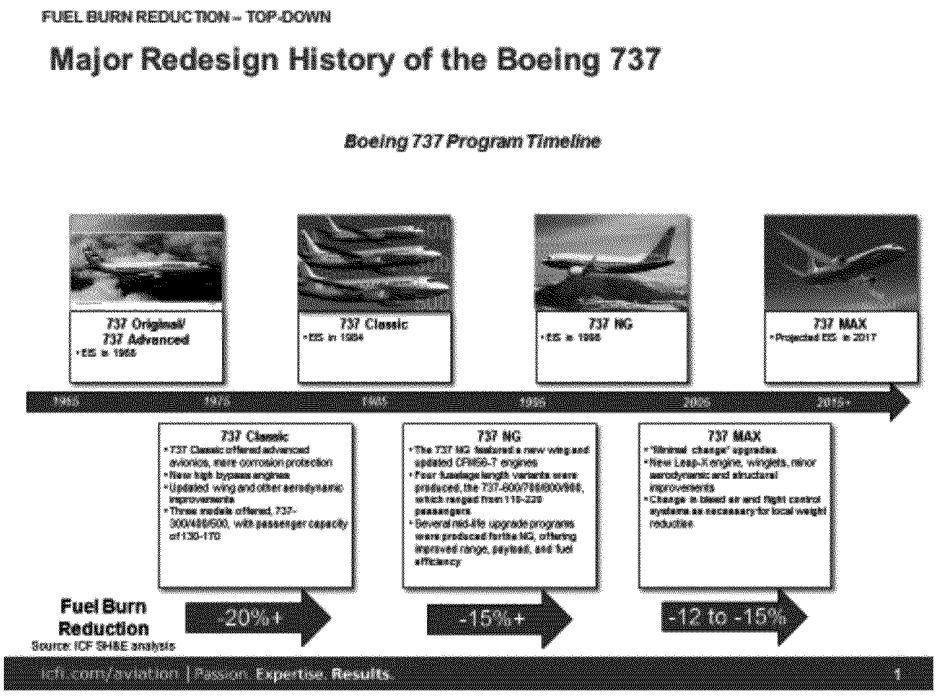
Go team!

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Audette, Lucie[audette.lucie@epa.gov]; Yen, David[Yen.David@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 6/30/2015 8:58:34 PM
**Subject:** Revised WH Briefing - ICAO Aircraft CO2 Standard (PLEASE REVIEW)
FAA-EPA CO2 Standard briefing_ 30 June 2015_epa.docx

Hello Bill,

Attached please find our attempt to revise the draft White House briefing that FAA provided us (ICAO CO2 standard). Any feedback you can provide would be helpful, since you may have a better understanding on how Lourdes may react to our suggested revisions (based on your call last Friday). Note, most of the FAA text is still in this version of the briefing. Let us know if you have any comments.

In addition, do you think it would be useful to add the below history/timeline of the 737 slide to an appendix for the briefing? We think we could utilize this slide to help describe what would not be covered by a CO2 standard that only covers new types.



Thank you,

Bryan

Bryan Manning

U.S. EPA  Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

Nancy N Young

# OFFICE OF INFORMATION AND REGULATORY AFFAIRS

## Regulatory Planning and Analysis

February 18, 2016

# Regulatory Planning and Analysis

- Executive Order 12866: Regulatory Planning and Review
  - Regulatory philosophy and principles
  - Regulatory planning process
  - Centralized review of agency rulemaking by OIRA
- OMB Circulate A-4: Regulatory Analysis
  - Assess costs and benefits to maximize net benefits to society
  - Promote economic efficiency by regulating only where markets fail
  - Increase the transparency of the regulatory system
- EO 13563: Improving Regulation and Regulatory Review
  - Reaffirms principles of EO 12866
  - Promotes agency retrospective analysis of rules
  - Harmonize, simplify, and coordinate rules to reduce public burden

# Key Elements of a Regulatory Analysis

- The Need for Federal Regulatory Action
  - Demonstrate market failure
    - Externality
    - Market power
    - Inadequate or asymmetric information
  - Showing federal regulation is best solution
- Alternative Regulatory Approaches
  - Analyze different degrees of stringency and timing; different compliance options
  - Consider flexibilities (market-based, performance-base, small entity, etc.)

# What are Key Elements of a Regulatory Analysis (cont.)

- Evaluation of benefits and costs
  - Scope and timeline of the analysis
  - Quantifying and monetizing benefits and costs
    - Private versus social benefits
    - Social cost of carbon
  - Qualitative discussion
- Baseline characterization
  - Clearly identify the baseline
  - Consider evolution of the market

# What are the Key Elements of a Regulatory Analysis

- Discount Rates
  - When benefits and costs are separated in time all future benefits and costs must be discounted
  - Circular A-4 specifies two separate discount rates to use for this purpose:
    - 3 percent - reflects time-related tradeoffs in personal consumption
    - 7 percent - reflects the opportunity cost of displaced private capital investment

# References

- OMB Circular A-4
  http://www.whitehouse.gov/sites/default/files/omb/assets/regulatory_matters_pdf/a-4.pdf

- Executive Order 12866
  http://www.whitehouse.gov/OMB/inforeg/eo12866.pdf

- Executive Order 13563 --
  http://www.whitehouse.gov/sites/default/files/omb/inforeg/eo12866/eo13563_01182011.pdf

- Social Cost of Carbon
- https://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf

- Office of Information and Regulatory Affairs
  https://www.whitehouse.gov/omb/oira

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Iffland, JoNell[Iffland.JoNell@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Mon 2/8/2016 5:49:45 PM
**Subject:** ICAO Standard Off the Record Interviews for tomorrow
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v5 2-5 +OAP .docx

Hi Bill,

Attached is the Q and A document that our press office will be using when answering questions tomorrow. Janet and OAP have reviewed. The press office folks remain concerned about being with talking to reporters about our EPA process. Specifically, that the international community is adopting these standards before EPA has finalized our endangerment finding. Does that mean that EPA will simply rubber stamp the international standards?

Is Lucie the best person speak to this issue authoritatively in a way that would be understandable to press? I think she's be great but want to check with you.

Thanks,

Erin

Erin Birgfeld

Communications Director

Office of Transportation and Air Quality

U.S. EPA

202-564-6741 (work)

**Ex. 6 - Personal Privacy**

Work Schedule: 9-5:30 daily; Flexiplace every Thursday (call Ex. 6 - Personal Privacy to reach me on Thursdays).

**To:** OAR Briefings[OAR_Briefings@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Sutton, Tia
**Sent:** Fri 6/26/2015 5:48:41 PM
**Subject:** Materials for Monday, 6/29 (11:45) meeting with Janet on Aircraft
Janet McCabe Briefing ICAO CO2 Standard SG15 Mtg 6-29-15.pptx

Hi all,

Attached are materials for Janet's 11:45am briefing on Monday, June 29th on Aircraft (ICAO $CO_2$ Standard).

Thank you,

Tia

**To:** Young, Nancy[NYoung@airlines.org]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]
**From:** Charmley, William
**Sent:** Tue 2/24/2015 4:32:28 PM
**Subject:** Draft agenda for today's meeting between Airlines for America and EPA

Dear Nancy,

I am looking forward to meeting with you and your colleagues this afternoon. Sorry it is so cold here in Michigan.

My secretary provided to me this morning a copy of the proposed Agenda you provided for our discussion today. Overall I think this looks fine, with the exception of item #3.

In your organization's request for a meeting with our Office Director from early January I understood that the purpose of today's meeting is to discuss EPA's efforts to develop a proposed endangerment finding for GHG emissions from aircraft and EPA's plans for publishing an Advanced Notice of Proposed Rulemaking that will accompany the proposed endangerment finding. We are prepared today to hear from Airlines for America on those topics and to provide a high level overview of the purpose of the proposed endangerment finding and the ANPRM.

We are not prepared today to engage in a dialog on item #3 regarding the ICAO CO2 Standard Work. Because the proposed endangerment finding and the ANPRM are EPA work products we did not coordinated today's meeting with our colleagues at FAA. However, the topic of the ICAO CO2 standard development process is clearly an area where EPA and FAA are working together at ICAO, and I think it would be most appropriate to postpone that discussion to a future meeting where EPA and FAA could here your organization's messages on those topics together.

We can discuss this further at the beginning of todays meeting.

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

-

**Draft Agenda**

-

1. Introductions

2. Overview of A4A Airline Approach to Addressing Aviation Greenhouse Gas Emissions

3. Discussion Regarding the ICAO CO2 Standard Work

a. New Type and In Production Aircraft Issues

b. Cost Effectiveness Analysis Issues

c. Post-Standard Communication – The Role and Effectiveness of the Standard

4. Discussion Regarding EPA Preparation to Adopt the Future CO2 Standard into U.S. Law

a. Cause or Contribute/Endangerment Finding

b. Potential ANPR on the Standard

5. Conclusion/Sum Up

**From:** Charmley, William
**Location:** WJC-N 5400 + Ex. 6 - Personal Privacy Particpant Code: Ex. 6 - Personal Privacy
**Importance:** Normal
**Subject:** FW: Conf. Call with Boeing / EPA re: WH Meeting (Confirmed)
**Start Date/Time:** Tue 1/5/2016 6:00:00 PM
**End Date/Time:** Tue 1/5/2016 6:30:00 PM
Meeting on Aircraft GHG Standards with Boeing 0n Jan. 5 - 1:00pm
Boeing Analysis of Production Impacts of USG ICAO Position dec212015.pdf

-----Original Appointment-----
**From:** McCabe, Janet
**Sent:** Monday, January 04, 2016 11:15 AM
**To:** McCabe, Janet; Pagano, Peter A; Grundler, Christopher; Hengst, Benjamin; Charmley, William
**Subject:** Conf. Call with Boeing / EPA re: WH Meeting (Confirmed)
**When:** Tuesday, January 05, 2016 1:00 PM-1:30 PM (UTC-05:00) Eastern Time (US & Canada).
**Where:** WJC-N 5400 + Ex. 6 - Personal Privacy Particpant Code: Ex. 6 - Personal Privacy

**To:** McCabe, Janet; Grundler, Chris; Hengst, Ben; Charmley, Bill
**Outside Attendees (by phone):** Peter A. Pagano

**To:** Charmley, William[charmley.william@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Manning, Bryan
**Sent:** Fri 1/8/2016 1:42:44 PM
**Subject:** RE: Slides & Info for Boeing mtg: per Bill's request

Okay, Bill. We will be ready to use this version.

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Charmley, William
**Sent:** Friday, January 08, 2016 8:42 AM
**To:** Samulski, Michael <samulski.michael@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Subject:** RE: Slides & Info for Boeing mtg: per Bill's request

Mike and Byran –

Thanks for doing this.

I would like to use this version, via a projector screen for the meeting.

Can one of you make sure that is possible?

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:** Samulski, Michael
**Sent:** Friday, January 08, 2016 7:48 AM
**To:** Charmley, William
**Cc:** Manning, Bryan
**Subject:** FW: Slides & Info for Boeing mtg: per Bill's request

Bill,

Here are the materials you requested to have available for the Boeing meeting.

Ex. 5 - Deliberative Process

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Manning, Bryan
**Sent:** Thursday, January 07, 2016 8:56 PM
**To:** Samulski, Michael; Yen, David; Leggett, Cullen; Audette, Lucie
**Cc:** Maeroff, Bruce
**Subject:** Slides & Info for Boeing mtg: per Bill's request (PLEASE REVIEW)

Hello,

In the first attachment, please find PPT slides for the Boeing meeting, as Bill requested. Let me know if you have any comments.

# Ex. 5 - Deliberative Process

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]
**From:** Samulski, Michael
**Sent:** Fri 1/8/2016 12:48:07 PM
**Subject:** FW: Slides & Info for Boeing mtg: per Bill's request
Slides for Boeing mtg Jan 8 2016.pptx
Hybrid Options.xlsx
Fleet Effect.pptx
Definition Technical Feasibility CO2 Standard.docx
bjm010616_BoeingSummary.xlsx

Bill,

Here are the materials you requested to have available for the Boeing meeting.

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Manning, Bryan
**Sent:** Thursday, January 07, 2016 8:56 PM
**To:** Samulski, Michael; Yen, David; Leggett, Cullen; Audette, Lucie
**Cc:** Maeroff, Bruce
**Subject:** Slides & Info for Boeing mtg: per Bill's request (PLEASE REVIEW)

Hello,

In the first attachment, please find PPT slides for the Boeing meeting, as Bill requested. Let me know if you have any comments.

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Thanks,

Bryan

Bryan Manning

U.S. EPA  Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Charmley, William
**Sent:** Fri 1/8/2016 1:41:48 PM
**Subject:** RE: Slides & Info for Boeing mtg: per Bill's request
Slides for Boeing mtg Jan 8 2016, v2.pptx

Mike and Byran –

Thanks for doing this.

I would like to use this version, via a projector screen for the meeting.

Can one of you make sure that is possible?

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:** Samulski, Michael
**Sent:** Friday, January 08, 2016 7:48 AM
**To:** Charmley, William
**Cc:** Manning, Bryan
**Subject:** FW: Slides & Info for Boeing mtg: per Bill's request

Bill,

Here are the materials you requested to have available for the Boeing meeting.

**Ex. 5 - Deliberative Process**

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Manning, Bryan
**Sent:** Thursday, January 07, 2016 8:56 PM
**To:** Samulski, Michael; Yen, David; Leggett, Cullen; Audette, Lucie
**Cc:** Maeroff, Bruce

**Subject:** Slides & Info for Boeing mtg: per Bill's request (PLEASE REVIEW)

Hello,

In the first attachment, please find PPT slides for the Boeing meeting, as Bill requested. Let me know if you have any comments.

**Ex. 5 - Deliberative Process**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** McCabe, Janet
**Location:** WJC-N 5400 + Ex. 6 - Personal Privacy Particpant Code Ex. 6 - Personal Privacy
**Importance:** Normal
**Subject:** Conf. Call with Boeing / EPA re: WH Meeting (Confirmed)
**Start Date/Time:** Tue 1/5/2016 6:00:00 PM
**End Date/Time:** Tue 1/5/2016 6:30:00 PM
Meeting on Aircraft GHG Standards with Boeing 0n Jan. 5 - 1:00pm
Boeing Analysis of Production Impacts of USG ICAO Position dec212015.pdf

**To:** McCabe, Janet; Grundler, Chris; Hengst, Ben; Charmley, Bill
**Outside Attendees (by phone):** Peter A. Pagano
Meeting on Aircraft GHG Standards with Boeing 0n Jan. 5 - 1:00pm Boeing Analysis of Production Impacts of USG ICAO Position dec212015.pdf

**From:** Atkinson, Emily
**Location:** WJC-N 5400 + Ex. 6 - Personal Privacy Particpant Code: Ex. 6 - Personal Privacy
**Importance:** Normal
**Subject:** Conf. Call with Boeing / EPA re: WH Meeting (Confirmed)
**Start Date/Time:** Tue 1/5/2016 6:00:00 PM
**End Date/Time:** Tue 1/5/2016 6:30:00 PM
Meeting on Aircraft GHG Standards with Boeing 0n Jan. 5 - 1:00pm
Boeing Analysis of Production Impacts of USG ICAO Position dec212015.pdf

**To:** McCabe, Janet; Grundler, Chris; Hengst, Ben; Charmley, Bill
**Outside Attendees (by phone):** Peter A. Pagano

**To:** Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Sargeant, Kathryn[sargeant.kathryn@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]; Hoyer, Marion[hoyer.marion@epa.gov]
**From:** Charmley, William
**Sent:** Fri 2/12/2016 6:02:00 PM
**Subject:** Meeting with OIRA, FAA, and others regarding analytical approaches for quantifying costs and benefits from aircraft CO2 standards

Dear Mike, Bryan and Ken,

**Ex. 5 - Deliberative Process**

This meeting has been set up for Thursday, Feb 18 from 11 am – 12:30pm at OIRA in D.C.

# Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Thanks

Bill

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Friday, January 29, 2016 5:43 PM
**To:** Candace_M_Vahlsing@ Ex. 6 - Personal Privacy
Lourdes.Maurice@faa.gov; Samulski, Michael; Manning, Bryan; McCabe, Janet;
Dan_G._Utech Ex. 6 - Personal Privacy; Richard_Duke Ex. 6 - Personal Privacy; Ali_A_Zaidi Ex. 6 - Personal Privacy
PBodnar Ex. 6 - Personal Privacy Hengst, Benjamin; Charmley, William; LeFranc, Maurice;
Rich.Swayze@faa.gov; carl.burleson@faa.gov; shoshana.lew@dot.gov; Atkinson, Emily;
Chad_S_Whiteman Ex. 6 - Personal Privacy
**Cc:** Shara_Z_Mohtadi Ex. 6 - Personal Privacy Arthur.Rypinski@dot.gov;
Ex. 6 - Personal Privacy Laszlo.Windhoffer@faa.gov;
maryalice.locke@faa.gov; curtis.holsclaw@faa.gov
**Subject:** Int'l Aircraft CO2 Emissions Standard to US Domestic Regulation

Dear All,

First, please pass this invitation to those I missed.

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

Best Regards,

**Ralph Iovinelli**

Manager, Emissions Division (AEE-300)

Office of Environment and Energy

Federal Aviation Administration

800 Independence Ave., SW

Washington, DC 20591

+1-202-267-3566 office

+1-202-288-6372 mobile

ralph.iovinelli@faa.gov

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Tim Cheung
**Sent:** Thur 2/11/2016 8:22:19 PM
**Subject:** aircraft GHGs

Hey Ben,

Hope you're staying warm.

Do you have a few minutes to chat about aircraft GHGs today or tomorrow? I have some general questions about the CO2 metric and ICAO's announcement earlier this week about the status of the standard.

Best,

Tim

--

Timothy T. Cheung

Vice President, Research Analyst

ClearView Energy Partners, LLC

209 Constitution Avenue, NE

Washington, DC 20002

(202) 580-9123 (mobile)

(202) 506-5744 (office)

(202) 747-1967 (fax)

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Sutton, Tia
**Sent:** Tue 1/9/2018 10:14:01 PM
**Subject:** FW: Biomass summary document update
Biomass Summary12-12-17 Draft_v2.docx

**From:** Simon, Karl
**Sent:** Tuesday, January 09, 2018 3:29 PM
**To:** Lie, Sharyn <Lie.Sharyn@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Subject:** FW: Biomass summary document update

Here is the last document I have seen on the issue. Thanks to the lucky person that gets to sit in on this meeting.

**From:** Steller, John
**Sent:** Wednesday, December 13, 2017 10:13 AM
**To:** Gunning, Paul <Gunning.Paul@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Greenglass, Nora <Greenglass.Nora@epa.gov>; Kocchi, Suzanne <Kocchi.Suzanne@epa.gov>; Irving, Bill <Irving.Bill@epa.gov>; Fawcett, Allen <Fawcett.Allen@epa.gov>; Simon, Karl <Simon.Karl@epa.gov>; Koerber, Mike <Koerber.Mike@epa.gov>; Cole, Jefferson <Cole.Jefferson@epa.gov>
**Subject:** Biomass summary document update

Hi All,

In preparation for upcoming biomass meetings with Bill Wehrum, we are updating the biomass one-pager that was crafted over the summer. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

feedback.

Thanks,

John

**John Steller**

Geologist

U.S. Environmental Protection Agency

Office of Atmospheric Programs

Steller.John@epa.gov

202-343-9319

**To:** Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**From:** Mylan, Christopher
**Sent:** Tue 4/5/2016 8:10:02 PM
**Subject:** RE: Aircraft GHG Inquiry

Thanks, all. I'll clarify with the Admin. comms staff that she was indeed referring to the additional ICAO negotiations underway and provide our general response.

**From:** Samulski, Michael
**Sent:** Tuesday, April 05, 2016 3:43 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Audette, Lucie
**Sent:** Tuesday, April 05, 2016 3:11 PM
**To:** Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

**From:** Mylan, Christopher
**Sent:** Tuesday, April 05, 2016 3:08 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

Thank you,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

Phone: (202) 564-7411

**From:** Audette, Lucie
**Sent:** Tuesday, April 05, 2016 3:01 PM
**To:** Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

**From:** Mylan, Christopher
**Sent:** Tuesday, April 05, 2016 2:52 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** Aircraft GHG Inquiry

Hello All,

# Ex. 5 - Deliberative Process

Inquiry:

I saw Politico Pro reporting that EPA was considering operational efficiency in its airline GHG emissions rule. Can you confirm that? What does this mean for the timeline of the rule? Are you setting aside setting up a CO2 standard? Does this align with ICAO efforts or is it separate?

Thanks,

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U.S. Environmental Protection Agency

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**To:** Audette, Lucie[audette.lucie@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 4/5/2016 7:43:03 PM
**Subject:** RE: Aircraft GHG Inquiry

# Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Audette, Lucie
**Sent:** Tuesday, April 05, 2016 3:11 PM
**To:** Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

Ex. 5 - Deliberative Process

**From:** Mylan, Christopher
**Sent:** Tuesday, April 05, 2016 3:08 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

Ex. 5 - Deliberative Process

Thank you,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

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**Sent:** Tuesday, April 05, 2016 3:01 PM
**To:** Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

**From:** Mylan, Christopher
**Sent:** Tuesday, April 05, 2016 2:52 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Inquiry:

I saw Politico Pro reporting that EPA was considering operational efficiency in its airline GHG emissions rule. Can you confirm that? What does this mean for the timeline of the rule? Are you setting aside setting up a CO2 standard? Does this align with ICAO efforts or is it separate?

Thanks,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

Phone: (202) 564-7411

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**Cc:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]
**From:** Audette, Lucie
**Sent:** Mon 7/25/2016 12:47:56 PM
**Subject:** RE: Aircraft materials
ICAO Agreement White House Fact Sheet.docx
Q & A_ICAO CO2 Standard 2-8-2016- final.docx

All, Attached are the materials from the CAEP Final Agreement in February: The White House Fact Sheet and the Q & A Document.

**From:** Hengst, Benjamin
**Sent:** Sunday, July 24, 2016 9:05 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Subject:** Fw: Aircraft materials

Lucie and team: see Janet's note below. Can you or Erin please circulate the materials we had in February when the ICAO agreement was announced? Just send it to the folks on this email and we can distribute it more broadly. If I have time I'll try to do that tonight. thanks, Ben

---

**From:** McCabe, Janet
**Sent:** Sunday, July 24, 2016 8:55 PM
**To:** Hengst, Benjamin
**Cc:** Millett, John; Grundler, Christopher; Conger, Nick
**Subject:** Re: Aircraft materials

Thanks. **Ex. 5 - Deliberative Process**

**Ex. 5 - Deliberative Process**

Sent from my iPhone

On Jul 24, 2016, at 8:52 PM, Hengst, Benjamin <Hengst.Benjamin@epa.gov> wrote:

+ Nick

We'll make the changes

On the Q/A about the reg agenda -- yes, it comes out in the fall (typically late Oct/early Nov)

Thanks,

Ben

---

**From:** McCabe, Janet
**Sent:** Saturday, July 23, 2016 2:34:56 PM
**To:** Millett, John; Grundler, Christopher; Hengst, Benjamin
**Subject:** Aircraft materials

**Ex. 5 - Deliberative Process**

Sent from my iPhone

**To:** Mylan, Christopher[Mylan.Christopher@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 4/5/2016 7:11:29 PM
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

**From:** Mylan, Christopher
**Sent:** Tuesday, April 05, 2016 3:08 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

Hello All,

**Ex. 5 - Deliberative Process**

Thank you,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

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**Sent:** Tuesday, April 05, 2016 3:01 PM
**To:** Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

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**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** Aircraft GHG Inquiry

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Inquiry:

I saw Politico Pro reporting that EPA was considering operational efficiency in its airline GHG emissions rule. Can you confirm that? What does this mean for the timeline of the rule? Are you setting aside setting up a CO2 standard? Does this align with ICAO efforts or is it separate?

Thanks,

Christopher Mylan

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Office of Transportation and Air Quality

U.S. Environmental Protection Agency

Phone: (202) 564-7411

**To:** Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**From:** Mylan, Christopher
**Sent:** Tue 4/5/2016 7:08:04 PM
**Subject:** RE: Aircraft GHG Inquiry

Hello All,

**Ex. 5 - Deliberative Process**

Thank you,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

Phone: (202) 564-7411

**From:** Audette, Lucie
**Sent:** Tuesday, April 05, 2016 3:01 PM
**To:** Mylan, Christopher <Mylan.Christopher@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Subject:** RE: Aircraft GHG Inquiry

Ex. 5 - Deliberative Process

**From:** Mylan, Christopher
**Sent:** Tuesday, April 05, 2016 2:52 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
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Ex. 5 - Deliberative Process

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Thanks,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

Phone: (202) 564-7411

# FACT SHEET: U.S. Leadership in Securing First-Ever Global Carbon Emissions Standards for Commercial Airplanes

*International Civil Aviation Organization sets carbon standards for commercial airplanes that will reduce carbon pollution and save on fuel costs*

Today in Montreal, the U.S. and 22 other countries reached agreement on the first-ever global carbon standards for commercial aircraft. When fully implemented, the standards are expected to reduce carbon emissions more than 650 million tons between 2020 and 2040, equivalent to removing over 140 million cars from the road for a year. These technology standards, agreed to at the International Civil Aviation Organization (ICAO), a specialized agency of the United Nations with 191 member countries, will apply to aircraft manufacturers once formally adopted by the ICAO Council.

Today's announcement follows closely on the heels of the Paris Climate Agreement reached last December and demonstrates the international community's continued commitment to take action on climate change and to put in place policies that reduce harmful carbon pollution. Globally, commercial aircraft emit 11 percent of carbon emissions from transportation. Without additional action, emissions from the aviation sector are projected to grow by nearly 50 percent. That is why, for more than five years, the United States has played a leadership role in developing these standards.

The aircraft standards agreed to today are part of a comprehensive approach by the United States and other ICAO countries to reduce carbon emissions from aviation through technology development, air traffic improvements, alternative fuels, and market mechanisms. The agreement on carbon emission standards is the first of two important opportunities this year to reduce carbon emissions from aviation. The second opportunity is reaching an ICAO agreement on a market-based approach to ensure carbon-neutral growth in the global aviation industry after 2020, which has the potential to offset several gigatons of carbon through 2035. Today's agreement is an important signal that the international community is well-positioned to rise to the challenge of implementing a global market-based approach to reduce aviation emissions later this year.

## KEY FEATURES OF THE COMMERCIAL AIRLINE CARBON STANDARDS

The standards announced today will apply to new aircraft designs and, in a first for any type of ICAO standards for aircraft, will also apply to aircraft types currently in production.

The standards for new and in-production commercial airplanes will promote fuel efficiency improvements, with commensurate carbon pollution reductions of more than 650 million tons between 2020 and 2040. This standards address commercial airplanes that are responsible for more than 92 percent of aviation emissions. In the negotiations, ICAO members were considering a range of stringency options (SO) from 1 – 10. The standards announced today were finalized in the upper end of the range for large aircraft at SO8.5 and SO7.

Recognizing that aircraft technology and fuel efficiency will continue to improve over time, ICAO will complete a review of state-of-the art aircraft technology and projected improvements before 2019, to inform further tightening of the standard to keep pace with aircraft fuel-efficient technology improvements.

## TODAY'S AGREEMENT BUILDS ON A ROBUST SET OF ACTIONS TAKEN BY THE U.S. TO REDUCE GLOBAL CARBON EMISSIONS

**Paris Climate Agreement:** After years of hard work, and thanks to principled American leadership, more than 190 countries came together to adopt the most ambitious climate change agreement in history. The Paris Agreement establishes a long-term, durable global framework to set the world on a course reduce global greenhouse gas emissions, ensuring we can leave the planet a better place for our children and grandchildren.

**Montreal Protocol Amendment**: Along with Canada and Mexico, the United States proposed an amendment to the Montreal Protocol to phase down production and consumption of hydrofluorocarbons (HFCs), potent greenhouse gases. At the Meeting of the Parties to the Montreal Protocol in November, Parties agreed to work together on an amendment in 2016. Phasing out these substances could avoid up to 0.5°C of warming by the end of the century.

**Mission Innovation:** Last year, President Obama joined other world leaders to launch Mission Innovation, a landmark commitment to accelerate public and private global clean energy innovation, and dramatically expand the new technologies that will define a clean, affordable, and reliable global power mix. Twenty countries representing around 80 percent of the global clean energy research and development (R&D) funding base committed to double their R&D investments over five years. Today, the President announced the next steps to advance the U.S. commitment, laying out a detailed budget proposal that includes increases in aviation-related clean energy R&D.

**American Business Act on Climate Pledge:** 154 companies have signed the White House's American Business Act on Climate Pledge. These companies have operations in all 50 states, employ nearly 11 million people, represent more than $4.2 trillion in annual revenue, and have a combined market capitalization of over $7 trillion. Among the 154 signers are JetBlue Airways Corporation and two aerospace manufacturers, GE and United Technologies.

**Commitment to Reduce Financing for Coal**: The United States fostered a commitment by more than 30 countries of the Organization for Economic Cooperation and Development (OECD) to dramatically reduce financing for coal-fired power plants overseas.

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Moran, Robin[moran.robin@epa.gov]
**Cc:** Sutton, Tia[sutton.tia@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Wed 5/18/2016 2:46:25 PM
**Subject:** FW: Update for the White House
OAR WH Slides.pptx

Hi Robin and Ben,

Gina will be briefing the president on key EPA actions and we need 2 bullet points on MTE updates. Thoughts on what to include here?

I need something for COB.

Thanks!

-Erin

**From:** McMichael, Nate
**Sent:** Tuesday, May 17, 2016 4:05 PM
**To:** Krieger, Jackie <Krieger.Jackie@epa.gov>; VonDemHagen, Rebecca <VonDemHagen.Rebecca@epa.gov>; Noonan, Jenny <Noonan.Jenny@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Millett, John <Millett.John@epa.gov>; Drinkard, Andrea <Drinkard.Andrea@epa.gov>
**Subject:** RE: Update for the White House

Hi Everyone -

Here is my first cut at this slide deck. Please let me know if there is anything that should be added/deleted. Also, feel free to add details on the notes section.

# Ex. 5 - Deliberative Process

Thank you,

-Nate

**From:** McMichael, Nate
**Sent:** Monday, May 16, 2016 3:53 PM
**To:** Krieger, Jackie <Krieger.Jackie@epa.gov>; VonDemHagen, Rebecca <VonDemHagen.Rebecca@epa.gov>; Jenny Noonan (Noonan.Jenny@epa.gov) <Noonan.Jenny@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** John Millett <Millett.John@epa.gov>
**Subject:** FW: Update for the White House

Hi Everyone - FYI on the request below. I plan to dig through some materials that John flagged for me and will send a first draft to you to review and fill in any blanks by the end of the day tomorrow. My goal will be to get a draft to Janet on Wednesday or Thursday. Joel has agreed to develop the adaptation piece.

Please let me know if you have any suggestions.

Thank you!

-Nate

**From:** Millett, John

**Sent:** Wednesday, May 11, 2016 8:07 AM
**To:** McMichael, Nate <McMichael.Nate@epa.gov>
**Subject:** Fwd: Update for the White House

Hi Nate -- here's something to get rolling on next week!

John Millett

202.510.1822

Begin forwarded message:

**From:** "Stewart, Lori" <Stewart.Lori@epa.gov>
**Date:** May 11, 2016 at 7:03:46 AM EDT
**To:** "McCabe, Janet" <McCabe.Janet@epa.gov>
**Cc:** "Millett, John" <Millett.John@epa.gov>, "Goffman, Joseph" <Goffman.Joseph@epa.gov>, "Scheraga, Joel" <Scheraga.Joel@epa.gov>
**Subject: Re: Update for the White House**

Will do

Sent from my iPhone

On May 10, 2016, at 11:14 PM, McCabe, Janet <McCabe.Janet@epa.gov> wrote:

John, Lori, Joel—see the note below and the request to help put together slides for the Administrator to use in a meeting with the President to talk about EPA's ongoing work. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

How does that sound for starters?

**From:** McCabe, Janet
**Sent:** Tuesday, May 10, 2016 11:09 PM
**To:** Fritz, Matthew <Fritz.Matthew@epa.gov>; Beauvais, Joel <Beauvais.Joel@epa.gov>; Meiburg, Stan <Meiburg.Stan@epa.gov>; Garbow, Avi <Garbow.Avi@epa.gov>; Vaught, Laura <Vaught.Laura@epa.gov>; Goffman, Joseph <Goffman.Joseph@epa.gov>; Nishida, Jane <Nishida.Jane@epa.gov>; Burke, Thomas <Burke.Thomas@epa.gov>; Dunkin, Ann <Dunkin.Ann@epa.gov>; Bloom, David <Bloom.David@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>
**Cc:** Purchia, Liz <Purchia.Liz@epa.gov>; Herckis, Arian <Herckis.Arian@epa.gov>; Pieh, Luseni <Pieh.Luseni@epa.gov>; Morales, Esther <Morales.Esther@epa.gov>
**Subject:** RE: Update for the White House

Matt and all—OAR can certainly work on these slides. I'll cc John Millet and Lori Stewart in addition to Joe to help get the work going. And we can reach out to Joel Scheraga for a slide on adaptation activities.

Would you want to include mention of VW?

**From:** Fritz, Matthew
**Sent:** Tuesday, May 10, 2016 4:20 PM
**To:** McCabe, Janet <McCabe.Janet@epa.gov>; Beauvais, Joel <Beauvais.Joel@epa.gov>; Meiburg, Stan <Meiburg.Stan@epa.gov>; Garbow, Avi <Garbow.Avi@epa.gov>; Vaught, Laura <Vaught.Laura@epa.gov>; Goffman, Joseph <Goffman.Joseph@epa.gov>; Nishida, Jane <Nishida.Jane@epa.gov>; Burke, Thomas <Burke.Thomas@epa.gov>; Dunkin, Ann <Dunkin.Ann@epa.gov>; Bloom, David <Bloom.David@epa.gov>; Giles-AA, Cynthia <Giles-AA.Cynthia@epa.gov>
**Cc:** Purchia, Liz <Purchia.Liz@epa.gov>; Herckis, Arian <Herckis.Arian@epa.gov>; Pieh, Luseni <Pieh.Luseni@epa.gov>; Morales, Esther <Morales.Esther@epa.gov>; Fritz, Matthew <Fritz.Matthew@epa.gov>
**Subject:** Update for the White House

Good afternoon everyone,

I want to bring you all in on the ground floor of a great opportunity: sometime in the next couple of weeks the Administrator will be invited over to the White House to update the President and key members of his team on developments at EPA. The Administrator and others participated in such a session about 18 months ago. This time around, however, it will focus on some major topic areas and programs the agency is working to finalize as well the work underway to institutionalize initiatives geared toward helping EPA fulfill its mission.

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

So, the items above are not an exhaustive list but we also will not have a great deal of time to present this information to the President and exchange in a discussion around some of these items.

My asks:

Please take a look at the entire package of items:

Let us (folks on the "CC" line) know if you have any recommendations on framing this presentation;

Help with content to populate the potential slides – visual representations would be awesome – we would be happy to work with folks like John M., Travis, etc. to help put this together; and

Share any other thoughts you may have on this approach – items we missed, areas to place emphasis, etc.

Timing: we will need to pull together a draft of this presentation by the next week.

I thank you, in advance, for helping us with this assignment. Sometimes it really pays off to get in on the ground floor – sometimes it doesn't.

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Stewart, Gwen
**Sent:** Tue 10/6/2015 4:41:47 PM
**Subject:** FW: NEW MEETING REQUEST FORM

FYI - The request has been sent.

Gwen Stewart

Office of Transportation and Air Quality

202 564-1682 – Telephone

202 564-1686 – Fax Number

Stewart.gwen@epa.gov

**From:** Atkinson, Emily
**Sent:** Tuesday, October 06, 2015 11:04 AM
**To:** Stewart, Gwen
**Subject:** RE: NEW MEETING REQUEST FORM

I have just now sent this down to the 3rd floor for scheduling.

Emily Atkinson
Staff Assistant

Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5406B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

**From:** Stewart, Gwen

**Sent:** Tuesday, October 06, 2015 10:59 AM
**To:** Atkinson, Emily
**Subject:** RE: NEW MEETING REQUEST FORM

Sorry – thank you

Gwen Stewart

Office of Transportation and Air Quality

202 564-1682 – Telephone

202 564-1686 – Fax Number

Stewart.gwen@epa.gov

**From:** Atkinson, Emily
**Sent:** Tuesday, October 06, 2015 10:50 AM
**To:** Stewart, Gwen
**Subject:** RE: NEW MEETING REQUEST FORM

Please send the meeting request as an attachment.

**From:** Stewart, Gwen
**Sent:** Tuesday, October 06, 2015 10:49 AM
**To:** Atkinson, Emily; Browne, Cynthia
**Subject:** NEW MEETING REQUEST FORM

***Internal Meeting/Briefing Request Form for Administrator Gina McCarthy***

Today's Date: October 5, 2015

Requesting Office: OAR - OTAQ

Title of the Meeting: Finalizing US Position: ICAO– Aircraft GHG Standards

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Possible dates for the meeting: Request Meeting for the Week of October 12, 2015.

Is the meeting urgent and if so, why?: Yes. Final US position must be developed by late October. Ex. 5 - Deliberative Process

Requested Time Length: 1 hour

EPA Staff (Required):

Chris Grundler, Bill Charmley, Ben Hengst, Michael Samulski, Bryan Manning (OAR/OTAQ)

EPA Staff (Optional):

Gwen Stewart, Jonell Iffland (OAR/OTAQ)

External Participants: None

Teleconference Required?: Yes

Video Conference Required?: Yes – Ex. 5 - Deliberative Process

Gwen Stewart

Office of Transportation and Air Quality

202 564-1682 – Telephone

202 564-1686 – Fax Number

Stewart.gwen@epa.gov

**To:** Niebling, William[Niebling.William@epa.gov]; Harnett, Bill[Harnett.Bill@epa.gov]; Gunning, Paul[Gunning.Paul@epa.gov]; Krieger, Jackie[Krieger.Jackie@epa.gov]; Evarts, Dale[Evarts.Dale@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Shoaff, John[Shoaff.John@epa.gov]
**Cc:** LeFranc, Maurice[LeFranc.Maurice@epa.gov]; Goffman, Joseph[Goffman.Joseph@epa.gov]; Cyran, Carissa[Cyran.Carissa@epa.gov]
**From:** Blubaugh, Jim
**Sent:** Tue 11/10/2015 6:29:50 PM
**Subject:** RE: Canada climate and energy coordination
Transportation Collaboration paper for WH 11_2015.docx

William,

I have attached info describing OTAQ's work at ICAO, the ongoing transportation program collaboration and VW collaboration with Canada.

Thanks,

Jim

Jim Blubaugh, Director

International Programs

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

(202) 564-5403

**From:** Niebling, William
**Sent:** Monday, November 09, 2015 2:44 PM

**To:** Harnett, Bill <Harnett.Bill@epa.gov>; Gunning, Paul <Gunning.Paul@epa.gov>; Krieger, Jackie <Krieger.Jackie@epa.gov>; Evarts, Dale <Evarts.Dale@epa.gov>; Blubaugh, Jim <Blubaugh.Jim@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Tsirigotis, Peter <Tsirigotis.Peter@epa.gov>; Shoaff, John <Shoaff.John@epa.gov>
**Cc:** LeFranc, Maurice <LeFranc.Maurice@epa.gov>; Goffman, Joseph <Goffman.Joseph@epa.gov>; Cyran, Carissa <Cyran.Carissa@epa.gov>
**Subject:** FW: Canada climate and energy coordination

Hi folks – I'm trying to get more information from Mark about deadline, agenda, anything, but in the meantime wanted to get you started as whatever deadline we get will be sooner than we wish.

# Ex. 5 - Deliberative Process

Unfortunately, I don't know the timing yet, but I think it is reasonably likely that we'll be asked to get this to the third floor sometime tomorrow, so assume a short fuse. I will update you as I learn more.

Thanks!

-Wm.

**From:** Kasman, Mark
**Sent:** Monday, November 09, 2015 2:14 PM
**To:** Niebling, William <Niebling.William@epa.gov>

**Subject:** FW: Canada climate and energy coordination

# Ex. 5 - Deliberative Process

Thanks, Mark

Mark S. Kasman

Director

Office of Regional and Bilateral Affairs

Office of International and Tribal Affairs

U.S. Environmental Protection Agency

1300 Pennsylvania Avenue, N.W. (2650R)

Washington, D.C. 20460

202-564-2024

**From:** Nishida, Jane
**Sent:** Monday, November 09, 2015 12:28 PM
**To:** Kasman, Mark <Kasman.Mark@epa.gov>
**Subject:** FW: Canada climate and energy coordination

Can you coordinate with OAR/William to develop EPA's briefing paper, thanks.

**From:** Adm13McCarthy, Gina
**Sent:** Monday, November 09, 2015 12:19 PM
**To:** Nishida, Jane <Nishida.Jane@epa.gov>
**Subject:** Fwd: Canada climate and energy coordination

Jane we will need to scramble a bit in this. Sorry.

Sent from my iPhone

Begin forwarded message:

**From:** "Deese, Brian C. EOP/WHO" Ex. 6 - Personal Privacy
**Date:** November 9, 2015 at 6:49:06 AM CST
**To:** "'Adm13McCarthy.Gina@epa.gov'" <Adm13McCarthy.Gina@epa.gov>, "'monizej@hq.doe.gov'" <monizej@hq.doe.gov>, "'SternTD@state.gov'" <SternTD@state.gov>, "'FinerJJ@state.gov'" <FinerJJ@state.gov>, "'HigginbottomHA@state.gov'" <HigginbottomHA@state.gov>, "Duke, Rick EOP/CEQ" Ex. 6 - Personal Privacy, "Utech, Dan G. EOP/WHO" Ex. 6 - Personal Privacy, "Atkinson, Caroline M. EOP/WHO" Ex. 6 - Personal Privacy
**Cc:** "Rosenbaum, Amy D. EOP/WHO" Ex. 6 - Personal Privacy, "Bodnar, Paul N. EOP/NSC" Ex. 6 - Personal Privacy, "Hornung, Daniel Z. EOP/WHO" Ex. 6 - Personal Privacy, "Haines, Avril D. EOP/NSC" Ex. 6 - Personal Privacy "Hoover, Zealan T. EOP/WHO" Ex. 6 - Personal Privacy
**Subject: Canada climate and energy coordination**

Folks:

Ex. 5 - Deliberative Process

Thanks, Brian

**To:** Stewart, Gwen[Stewart.Gwen@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Sutton, Tia[sutton.tia@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 10/6/2015 2:46:29 PM
**Subject:** RE: Aircraft Meeting with Gina- DOT Secretary Fox
administrator's form request - 10-5-15.docx

Here you go.

**From:** Stewart, Gwen
**Sent:** Tuesday, October 06, 2015 10:46 AM
**To:** Hengst, Benjamin; Audette, Lucie
**Cc:** Sutton, Tia
**Subject:** RE: Aircraft Meeting with Gina- DOT Secretary Fox

Good Morning:

I do not have the attachment of the Administrator's Meeting Request form.

Thank you

Gwen Stewart

Office of Transportation and Air Quality

202 564-1682 – Telephone

202 564-1686 – Fax Number

Stewart.gwen@epa.gov

**From:** Hengst, Benjamin
**Sent:** Tuesday, October 06, 2015 10:31 AM

**To:** Audette, Lucie
**Cc:** Stewart, Gwen; Sutton, Tia
**Subject:** Re: Aircraft Meeting with Gina- DOT Secretary Fox

Looks good. Gwen if you have not done so pls send to Emily.

On Oct 6, 2015, at 10:15 AM, Audette, Lucie <audette.lucie@epa.gov> wrote:

Gwen, Ben is already in the loop on this. I've attached the draft Administrator meeting request. Please let me know what else I should do to help expedite this. Thank you

**From:** Hengst, Benjamin
**Sent:** Monday, October 05, 2015 10:05 PM
**To:** Audette, Lucie
**Cc:** Sutton, Tia; Samulski, Michael
**Subject:** Re: Aircraft Meeting with Gina- DOT Secretary Fox

Hi Lucie,

I think I may have misunderstood one element of this. I am reaching out to start alerting DOT folks that we will need a Foxx/Gina meeting. I am waiting to hear back in that -- the person I work with in the secretary's office has been out but I will see her tomorrow.

With respect to setting up a Gina meeting, ASD just needs to fill out a form and send it to Gwen (cc me) and we will work it up the chain here. That form is on the OTAQ intranet (forms and policies, I think).

At this point, given the schedule you are talking about we may need to jump start this a bit. Perhaps we can jump on the phone with Mike tomorrow (and maybe Bill?) to discuss?

Ben

On Oct 5, 2015, at 10:30 AM, Audette, Lucie <audette.lucie@epa.gov> wrote:

**Ex. 5 - Deliberative Process**

**From:** Audette, Lucie
**Sent:** Monday, September 28, 2015 10:35 AM
**To:** Hengst, Benjamin
**Cc:** Samulski, Michael
**Subject:** Aircraft Meeting with Gina- DOT Secretary Fox

**Ex. 5 - Deliberative Process**

Please advise how I should proceed? Do you get the meeting set up on Gina calendar as well as the necessary briefings with Chris/Janet leading up to this?

<administrator's form request - 10-5-15.docx>

**To:** Blubaugh, Jim[Blubaugh.Jim@epa.gov]; Charmley, William[charmley.william@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 11/10/2015 5:12:34 PM
**Subject:** RE: ICAO + Canada
Aviation CO2 standards key messages draft 11 10 15.docx

Here is an updated set of talking points which includes Bill's comments. Also, I added a "Goal" statement along the lines of the message Jim wanted to add.

The areas where I made edits are highlighted in yellow.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Blubaugh, Jim
**Sent:** Tuesday, November 10, 2015 11:09 AM
**To:** Samulski, Michael; Charmley, William
**Cc:** Manning, Bryan; Audette, Lucie; Leggett, Cullen
**Subject:** RE: ICAO + Canada

Thanks Mike. I can add this to the paper I'm creating and wait a little for Bill to weigh in. One

Ex. 5 - Deliberative Process

Jim

**From:** Samulski, Michael
**Sent:** Tuesday, November 10, 2015 10:32 AM
**To:** Blubaugh, Jim <Blubaugh.Jim@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Charmley, William <charmley.william@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: ICAO + Canada

Jim,

Here is my current draft, which has not yet been reviewed. I left a paper copy with JoNell to give to Bill when he gets out of his 10:00 meeting.

I will get you any updates before 2:00.

Mike

Ex. 5 - Deliberative Process

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Blubaugh, Jim
**Sent:** Tuesday, November 10, 2015 10:24 AM
**To:** Samulski, Michael; Hengst, Benjamin; Charmley, William
**Cc:** Manning, Bryan
**Subject:** RE: ICAO + Canada

Thanks Mike. I just heard from OAR and it looks like they want this material by 2 PM today. Can you quickly pull a half pager together on our work with Canada here and send it to me? I will combine it with a little info on our ongoing transportation collaboration as well as VW. Sorry for the quick turnaround…

Jim

**From:** Samulski, Michael
**Sent:** Tuesday, November 10, 2015 7:33 AM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Charmley, William <charmley.william@epa.gov>
**Cc:** Blubaugh, Jim <Blubaugh.Jim@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Subject:** RE: ICAO + Canada

This sounds great! We will pull together a 1-pager and get it to Bill today.

Unless you have any objection, I had planned to reach out to Richard Holt as well (Richard is

my contact at Environment Canada).

So you are aware: We received some minor comments from the White House IPC group yesterday on the CO2 paper. These came from Kevin Welsh (NSC) and Candace Vahlsing (OMB) who we and FAA spoke with last night. The comments were mostly editorial and were helpful.

Clean and redline copies are attached.

**Ex. 5 - Deliberative Process**

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Hengst, Benjamin
**Sent:** Monday, November 09, 2015 8:50 PM
**To:** Samulski, Michael
**Cc:** Charmley, William; Blubaugh, Jim

**Subject:** ICAO + Canada

Mike,

With the new government in Canada, it looks like there will be a few opportunities to discuss the ICAO position with their new team over the next few weeks. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Bill may have additional thoughts, but I wanted to pass on what I could for now.

thanks,

Ben

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Tim Cheung
**Sent:** Tue 3/8/2016 2:35:46 PM
**Subject:** RE: aircraft GHGs

Thanks, Ben, much appreciated.

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Tuesday, March 8, 2016 9:35 AM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

Hey Tim—yes, I did pass them along. I'm trying to see what I can pass back to you right now. Sorry for the delay. Ben

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Tuesday, March 08, 2016 9:32 AM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Hi Ben,

Hope you had a nice weekend and good start to this week.

Any chance you were able to pass these along to anyone?

Thanks,

Tim

**From:** Tim Cheung
**Sent:** Thursday, February 18, 2016 5:17 PM
**To:** Ben Hengst (Hengst.Benjamin@epa.gov) <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Hi Ben,

Here are questions I have about ICAO's CO2 standard.

- **CO2 Metric**

o Has ICAO publicly released the exact formula? I've only seen a formula in EPA's ANOPR from last year.

o I understand the metric is proportional to (1 / SAR) / (RGF ^ 0.24), and there is a scaling factor related to MTOM. What is the relationship between MTOM and the metric?

o What's the purpose of the 0.24 exponent?

- **CO2 Standard:**

o What is the standard? Is the standard going to represent some fixed number, or a percentage reduction vs. a baseline?

o It seems like there are three relevant variables: SAR, RGF and MTOM. Is one of these variables an independent variable that will determine what the metric ought to be, and then

manufacturers need to adjust the other variables to meet it? I'm trying to find an analogue to the foot print with respect to motor vehicle CAFE standards.

- **Actual emissions**

o How, if at all, would someone translate the standard into actual emissions?

Thanks for your help.

Have a great weekend,

Tim

**From:** Tim Cheung
**Sent:** Thursday, February 18, 2016 4:10 PM
**To:** 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Cool thanks, talk then

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 4:06 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

How about 4:30 today. Just give me a call

**From:** Tim Cheung [mailto:Tim@cvenergy.com]

**Sent:** Thursday, February 18, 2016 3:51 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

No worries.

Are you free now? Otherwise, how's next week looking for you? Monday 3 p.m.? I'm open to other times/days.

Hope all is well.

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 3:46 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

Tim—sorry I didn't get back to you on this. If you still want to chat, let me know

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 11, 2016 3:22 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** aircraft GHGs

Hey Ben,

Hope you're staying warm.

Do you have a few minutes to chat about aircraft GHGs today or tomorrow? I have some general

questions about the CO2 metric and ICAO's announcement earlier this week about the status of the standard.

Best,

Tim

--

Timothy T. Cheung

Vice President, Research Analyst

ClearView Energy Partners, LLC

209 Constitution Avenue, NE

Washington, DC 20002

(202) 580-9123 (mobile)

(202) 506-5744 (office)

(202) 747-1967 (fax)

**To:** Allen, Laura[Allen.Laura@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]; StClair, Christie[StClair.Christie@epa.gov]; Millett, John[Millett.John@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Wed 2/3/2016 9:49:13 PM
**Subject:** ICAO comms materials
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v3 441 PM .docx

Hi Laura,

Here are the comms materials for the ICAO CO2 standards. Let us know if you have questions or would like to walk through these with us.

Thanks,

Erin

Erin Birgfeld

Communications Director

Office of Transportation and Air Quality

U.S. EPA

202-564-6741 (work)

202-255-4434 (cell)

Work Schedule: 9-5:30 daily; Flexiplace every Thursday (call 202-255-4434 to reach me on Thursdays).

**To:** Audette, Lucie[audette.lucie@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Burch, Julia[Burch.Julia@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Sutton, Tia
**Sent:** Mon 10/30/2017 7:51:56 PM
**Subject:** RE: talking point for aircraft CO2 standard

Thanks, all! And I'm adding Erin to the e-chain here, as she currently has the pen on the talking points for Lee's presentation.

**From:** Audette, Lucie
**Sent:** Monday, October 30, 2017 2:54 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Burch, Julia <Burch.Julia@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** RE: talking point for aircraft CO2 standard

I like yours much better. Thanks. Lucie

**From:** Hengst, Benjamin
**Sent:** Monday, October 30, 2017 2:21 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Burch, Julia <Burch.Julia@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** RE: talking point for aircraft CO2 standard

**Ex. 5 - Deliberative Process**

See what you think:

Ex. 5 - Deliberative Process

**From:** Audette, Lucie
**Sent:** Monday, October 30, 2017 2:01 PM
**To:** Burch, Julia <Burch.Julia@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** talking point for aircraft CO2 standard

Tia, in Julia's absence I wonder if you could help us locate an "approved bullet or 2 about status of our aircraft CO2 effort. Lee Cook is making a presentation at Ozone Transport Commission shortly and we've been asked to provide an update on status of the aircraft rulemaking. Is there anything that has been previously approved in this Administration we could use? Otherwise, below is a very short bullet I've crafted. Are you comfortable with this? Thanks much. Lucie

- **Aircraft $CO_2$ emissions standards**

Ex. 5 - Deliberative Process

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Burch, Julia[Burch.Julia@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]
**Cc:** Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Audette, Lucie
**Sent:** Mon 10/30/2017 6:53:47 PM
**Subject:** RE: talking point for aircraft CO2 standard

I like yours much better. Thanks. Lucie

**From:** Hengst, Benjamin
**Sent:** Monday, October 30, 2017 2:21 PM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Burch, Julia <Burch.Julia@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** RE: talking point for aircraft CO2 standard

**Ex. 5 - Deliberative Process**

See what you think:

**Ex. 5 - Deliberative Process**

**From:** Audette, Lucie
**Sent:** Monday, October 30, 2017 2:01 PM
**To:** Burch, Julia <Burch.Julia@epa.gov>; Sutton, Tia <sutton.tia@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>

**Subject:** talking point for aircraft CO2 standard

Tia, in Julia's absence I wonder if you could help us locate an "approved bullet or 2 about status of our aircraft CO2 effort. Lee Cook is making a presentation at Ozone Transport Commission shortly and we've been asked to provide an update on status of the aircraft rulemaking. Is there anything that has been previously approved in this Administration we could use? Otherwise, below is a very short bullet I've crafted. Are you comfortable with this? Thanks much. Lucie

- **Aircraft $CO_2$ emissions standards**

**Ex. 5 - Deliberative Process**

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Millett, John[Millett.John@epa.gov]
**From:** Audette, Lucie
**Sent:** Wed 2/3/2016 9:12:43 PM
**Subject:** RE: iCAO TPs and Q and A's
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v2 BM + LCA-ebv2 BH+LCABM2 .docx

Ben and Erin, Bryan and I have reviewed and made some suggested language changes especially with regard to the MBM Q & As at the end. We were trying to create more plain English language. OAP has a staff person that Tia knows who has worked with Maurice on the MBMS. Bryan can't recall her name but believes Tia knows her. She might be a good person to review the MBM language.

-----Original Message-----
From: Hengst, Benjamin
Sent: Wednesday, February 03, 2016 3:28 PM
To: Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
Cc: Millett, John <Millett.John@epa.gov>
Subject: RE: iCAO TPs and Q and A's

A few edits and thoughts, and one request. Most of my edits are just to simplify concepts and language.

Thanks
Ben

-----Original Message-----
From: Birgfeld, Erin
Sent: Wednesday, February 03, 2016 3:15 PM
To: Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
Cc: Millett, John <Millett.John@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: FW: iCAO TPs and Q and A's
Importance: High

HI Lucie and Bryan,

Attached are some edits that try to take into account Ben and Millett's input. Can you take a look and let me know if you have edits. For the new Q and A's I adapted language from the fact sheet. You will want to take a closer look at the MBM Q's. I may have gone too far there.

I owe these to Laura today so a quick review would be great.

Thanks,
Erin

-----Original Message-----
From: Hengst, Benjamin
Sent: Wednesday, February 03, 2016 2:14 PM
To: Millett, John <Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
Subject: RE: iCAO TPs and Q and A's

These overall look fine to me. John's suggestions look good.

I think the two MBM questions need work: not everyone will know what a "gap filler" is!! Can you or Lucie

try to refine those answers a bit, to make them more plain English?

-----Original Message-----
From: Millett, John
Sent: Wednesday, February 03, 2016 11:06 AM
To: Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Cc: StClair, Christie <StClair.Christie@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
Subject: RE: iCAO TPs and Q and A's

Thanks, Erin -- quick reaction first . . .

**Ex. 5 - Deliberative Process**

I'll pass along minor redline stuff later today . . .

-----Original Message-----
From: Birgfeld, Erin
Sent: Wednesday, February 03, 2016 9:43 AM
To: Millett, John <Millett.John@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Cc: StClair, Christie <StClair.Christie@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
Subject: iCAO TPs and Q and A's

Hi Laura, Millett, and Ben,

Here are the ICAO materials we discussed yesterday including top level TPs and expected q and a's.

I'm sending for concurrent review from you all since time is short. Thanks to Lucie, Bryan and team for helping pull this together!

-erin

Sent from my iPhone

>
>

**To:** Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Millett, John[Millett.John@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Wed 2/3/2016 8:14:49 PM
**Subject:** FW: iCAO TPs and Q and A's
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v2 BM + LCA-ebv2 .docx

HI Lucie and Bryan,

Attached are some edits that try to take into account Ben and Millett's input. Can you take a look and let me know if you have edits. For the new Q and A's I adapted language from the fact sheet. You will want to take a closer look at the MBM Q's. I may have gone too far there.

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To: Millett, John <Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
Subject: RE: iCAO TPs and Q and A's

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To: Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Cc: StClair, Christie <StClair.Christie@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
Subject: RE: iCAO TPs and Q and A's

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To: Millett, John <Millett.John@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Cc: StClair, Christie <StClair.Christie@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
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I'm sending for concurrent review from you all since time is short. Thanks to Lucie, Bryan and team for helping pull this together!

-erin

Sent from my iPhone

>
>

**To:** Mylan, Christopher[Mylan.Christopher@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; DeLuca, Isabel[DeLuca.Isabel@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Nayem, Tasfia[Nayem.Tasfia@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Millett, John
**Sent:** Fri 7/8/2016 2:23:11 PM
**Subject:** Re: Aircraft Rollout Materials

Hi all -- unfortunately, I don't have access to a computer to input changes and recirculate materials. But before these can go to Janet at 2pm, the press release and the fact sheet both need paragraphs that talk about ICAO and domestic next steps/process, and as a follow on, FAA's role.

These paragraphs from the q/a are at an ok level for the release, but may need more detail in the FS:

**Ex. 5 - Deliberative Process**

Assuming no objection, Chris Mylan, would you mind plugging these into the PR, and at least place holders for this info in the fact sheet, and recirculate to the group?

Thanks!

John Millett
Ex. 6 - Personal Privacy

On Jul 7, 2016, at 6:09 PM, Mylan, Christopher <Mylan.Christopher@epa.gov> wrote:

Hi John and Ben,

We've incorporated John and our collective team's edits and believe these are now ready for the next level of review. A point to note, OGC is having heartburn in taking out some of the CAA section language in the materials, but we want to be conscientious of the audience (especially for the PR) – we tried to strike a balance in the fact sheet. As always, that language will be present in the rule itself, and we can direct folks there (or pull from) if questions arise.

Attached are the updated press release, Q&As, web text, and fact sheet.

Please let us know if you have edits or questions and who should pass these materials where moving forward!

Thank you,

Christopher Mylan

Communications Specialist

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

Phone: (202) 564-7411

<Roll Out_QAs_aircraft final findings_7 7 16.docx>

<Aircraft web text_final findings 7 7 16.docx>

<Aircraft End Press Release_7 7 16+ mkw.docx>

<Aircraft End Fact Sheet_7 7 16.docx>

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 3/17/2015 6:55:59 PM
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

No. We shared a copy of this report with FAA when we shared the ANPR for review.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Hengst, Benjamin
**Sent:** Tuesday, March 17, 2015 2:44 PM
**To:** Manning, Bryan
**Cc:** Samulski, Michael
**Subject:** Re: EPA Aircraft GHG/EF - supplemental document

FAA won't be surprised, right?

On Mar 17, 2015, at 1:21 PM, Manning, Bryan <manning.bryan@epa.gov> wrote:

Hello Ben,

As you may recall, last Friday you asked for this attached ICF report (according to OMB's request) -- "ICF, *CO2 Analysis of CO2-Reducing Technologies for Aircraft*, Final Report, EPA Contract Number EP-C-12-011." This report was referenced in footnote 237 of the draft aircraft GHG endangerment/ANPR. ICF completed the revisions to the report today (as described below). It is ready to go to OMB. Sorry for the delay. Let me know if you have any questions.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Hengst, Benjamin
**Sent:** Friday, March 13, 2015 4:35 PM
**To:** Manning, Bryan; Samulski, Michael; Audette, Lucie; Leggett, Cullen
**Cc:** Sutton, Tia; Orlin, David
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

Yes—we can wait until you are ready

**From:** Manning, Bryan
**Sent:** Friday, March 13, 2015 4:29 PM
**To:** Hengst, Benjamin; Samulski, Michael; Audette, Lucie; Leggett, Cullen
**Cc:** Sutton, Tia; Orlin, David
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

Thank you for the message, Ben. As you may know, footnote 237 states the following: "ICF, *CO2 Analysis of CO2-Reducing Technologies for Aircraft*, Final Report, EPA Contract Number EP-C-12-011, page 32 [INSERT FINAL DATE]." We shared this draft report with FAA. Based on FAA comments in regard to limitations in sharing information on the ICAO process, the contractor (ICF) is currently revising this report. This revised version of the report is expected to be completed on Monday or Tuesday. Can we hold off until then before we send this to OMB (especially given FAA's concerns about sharing some of the ICAO information)?

Thanks again,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Hengst, Benjamin
**Sent:** Friday, March 13, 2015 4:11 PM
**To:** Samulski, Michael; Manning, Bryan; Audette, Lucie; Leggett, Cullen

**Cc:** Sutton, Tia; Orlin, David
**Subject:** FW: EPA Aircraft GHG/EF - supplemental document

Can you guys send this to me and Tia so we can forward to OMB?

**From:** Whiteman, Chad [mailto:Chad_S_Whiteman@omb.eop.gov]
**Sent:** Friday, March 13, 2015 3:53 PM
**To:** Sutton, Tia; Hengst, Benjamin
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

Would you folks please provide the ICR study referenced in footnote 237? Thanks, Chad

<ICF_CO2 Analysis of CO2-Reducing Technologies for Aircraft_March 17 2015.docx>

**To:** Millett, John[Millett.John@epa.gov]; Allen, Laura[Allen.Laura@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** StClair, Christie[StClair.Christie@epa.gov]; Valentine, Julia[Valentine.Julia@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Wed 2/3/2016 2:43:19 PM
**Subject:** iCAO TPs and Q and A's
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v2 BM + LCA-eb .docx

Hi Laura, Millett, and Ben,

Here are the ICAO materials we discussed yesterday including top level TPs and expected q and a's.

I'm sending for concurrent review from you all since time is short. Thanks to Lucie, Bryan and team for helping pull this together!

-erin

Sent from my iPhone

>
>

**To:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 2/2/2016 10:26:28 PM
**Subject:** RE: ICAO TPs and key messages
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v2 BM + LCA .docx

Hi Erin, Bryan and I have addressed your questions/comments and revised various portions of this document. See what you think. Lucie

Please call my cell if you wish to discuss this evening. Cell: Ex. 6 - Personal Privacy

**From:** Birgfeld, Erin
**Sent:** Tuesday, February 02, 2016 3:12 PM
**To:** Audcttc, Lucic <audcttc.lucic@cpa.gov>; Manning, Bryan <manning.bryan@cpa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
**Subject:** ICAO TPs and key messages

Hi Lucie,

Here is the doc that I pulled together that includes some high level key messages (not very refined) that could be used at announcement along with what I think are the most relevant Q and A's.

If you can review and add information where possible I'd appreciate it. One thing that is missing throughoug is discussion of the market based mechanisms. Millett says that Janet is very aware and interested in that aspect. Is that something you guys can provide or is that an OAP question?

Ben let me know if you think I've forgotten anything on Key messages or key questions.

Thanks,

Erin

Erin Birgfeld

Communications Director

Office of Transportation and Air Quality

U.S. EPA

202-564-6741 (work)

Ex. 6 - Personal Privacy

Work Schedule: 9-5:30 daily; Flexiplace every Thursday (call Ex. 6 - Personal Privacy to reach me on Thursdays).

**To:** Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Tue 2/2/2016 8:11:42 PM
**Subject:** ICAO TPs and key messages
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v2.docx

Hi Lucie,

Here is the doc that I pulled together that includes some high level key messages (not very refined) that could be used at announcement along with what I think are the most relevant Q and A's.

If you can review and add information where possible I'd appreciate it. One thing that is missing throughoug is discussion of the market based mechanisms. Millett says that Janet is very aware and interested in that aspect. Is that something you guys can provide or is that an OAP question?

Ben let me know if you think I've forgotten anything on Key messages or key questions.

Thanks,

Erin

Erin Birgfeld

Communications Director

Office of Transportation and Air Quality

U.S. EPA

202-564-6741 (work)

Ex. 6 - Personal Privacy

Work Schedule: 9-5:30 daily; Flexiplace every Thursday (call Ex. 6 - Personal Privacy to reach me on Thursdays).

**To:** Audette, Lucie[audette.lucie@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Mylan, Christopher[Mylan.Christopher@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Tue 5/19/2015 12:50:00 AM
**Subject:** Edits to Q and A
Roll Out -Aviation Endagerment-NPRM 5-15_rlso for Luciedocx.docx

Hi Lucie,

I made some edits to the Q and A on a few questions which I have marked for your review. Can you take a look and edit for accuracy as necessary?

Thank you!

-Erin

Erin Birgfeld

Communications Director

Office of Transportation and Air Quality

U.S. EPA

202-564-6741 (work)

**Ex. 6 - Personal Privacy**

**To:** Samulski, Michael[samulski.michael@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Iffland, JoNell
**Sent:** Mon 2/23/2015 6:14:52 PM
**Subject:** FW: Confirming EPA meeting for tomorrow
removed.txt
A4A-EPA Meeting on CO2 Standard Draft Agenda 2-24-15.docx

Ben

Are you going to be by video or phone?

Thanks,

JoNell L. Iffland

Assessment and Standards Division

U.S. Environmental Protection Agency

Direct ph. 734-214-4454

e-mail: iffland.jonell@epa.gov

**From:** Young, Nancy [mailto:NYoung@airlines.org]
**Sent:** Monday, February 23, 2015 10:39 AM
**To:** Iffland, JoNell
**Subject:** RE: Confirming EPA meeting for tomorrow

Hi JoNell. The letter we sent requesting the meeting explained what we wanted to discuss, but I have reflected that in a draft agenda, which I have attached.

The attendees on our side will be:

•□□□□□□□□ Nancy Young, Vice President, Environmental Affairs, Airlines for America (A4A)

•□□□□□□□□ Tim Pohle, Senior Managing Director, Environmental Affairs, A4A

•□□□□□□□□ Dave Anvid, Delta Air Lines

•□□□□□□□□ David Jensen, FedEx

•□□□□□□□□ Angela Foster-Rice, United Airlines

I understand that Mill Charmley & Mike Samulski will participate in the meeting for EPA. Will there be other EPA attendees?

Thank you, Nancy

Nancy N. Young

Vice President, Environmental Affairs

**Airlines for America**

**We Connect the World**

1301 Pennsylvania Ave, NW, Suite 1100

Washington, DC 20004

Phone: (202) 626-4207

email: nyoung@airlines.org

**From:** Iffland, JoNell [mailto:Iffland.JoNell@epa.gov]
**Sent:** Monday, February 23, 2015 9:50 AM
**To:** Young, Nancy
**Subject:** Confirming EPA meeting for tomorrow

Good morning Nancy:

I am confirming the meeting for tomorrow. Can you send me the final list of participants and an agenda?

Thanks,

JoNell L. Iffland

Assessment and Standards Division

U.S. Environmental Protection Agency

Direct ph. 734-214-4454

e-mail: iffland.jonell@epa.gov

**To:** Allen, Laura[Allen.Laura@epa.gov]
**Cc:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Birgfeld, Erin
**Sent:** Tue 2/2/2016 3:45:27 PM
**Subject:** FW: Q & As
CAEP Feb 2016 aircraft CO2 standards backgroun and Q As version1.docx

Hi Laura,

Here are updated Q and A's. I'm on a call but will follow up at 11 with you.

-Erin

**From:** Audette, Lucie
**Sent:** Tuesday, February 02, 2016 10:06 AM
**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>
**Subject:** Q & As

Erin, We reviewed and revised the background and Q & As. Please see attached. Lucie

**From:** Birgfeld, Erin
**Sent:** Tuesday, February 02, 2016 9:39 AM
**To:** Audette, Lucie <audette.lucie@epa.gov>
**Subject:** Fwd: draft WH Press Release for CAEP CO2 Standards

Hi lucie,

I dropped the ball here I should have sent you something last night. I'll send a draft for you review at 10ish. Can you edit and send back quickly?

Thanks in advance.

Sent from my iPhone

Begin forwarded message:

**From:** "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>
**Date:** February 2, 2016 at 9:22:19 AM EST
**To:** "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>
**Cc:** "Allen, Laura" <Allen.Laura@epa.gov>
**Subject: FW: draft WH Press Release for CAEP CO2 Standards**

Erin—let's make this a priority. I know you asked for the updated Qs by today but please confirm with Lucie and team that we are on schedule. Even if they are draft I'd like to get something passed along

**From:** Allen, Laura
**Sent:** Tuesday, February 02, 2016 9:15 AM
**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** Re: draft WH Press Release for CAEP CO2 Standards

Thanks- do you have the QAs? Or are those still being worked on?

On Feb 2, 2016, at 8:38 AM, Birgfeld, Erin <Birgfeld.Erin@epa.gov> wrote:

Laura,

Here is the draft or that folks put together that assumes a positive result.

This should be helpful for the noon meeting.

-Erin

Sent from my iPhone

Begin forwarded message:

**From:** "Audette, Lucie" <audette.lucie@epa.gov>
**Date:** January 28, 2016 at 5:16:17 PM EST
**To:** "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>
**Cc:** "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>
**Subject: draft WH Press Release for CAEP CO2 Standards**

Erin, Here is the draft press release we crafted a few weeks ago.

<News Release for CAEP 2016 CO2 standards success January 28.docx>

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Tim Cheung
**Sent:** Thur 2/18/2016 10:17:01 PM
**Subject:** RE: aircraft GHGs

Hi Ben,

Here are questions I have about ICAO's CO2 standard.

- **CO2 Metric**

o Has ICAO publicly released the exact formula? I've only seen a formula in EPA's ANOPR from last year.

o I understand the metric is proportional to (1 / SAR) / (RGF ^ 0.24), and there is a scaling factor related to MTOM. What is the relationship between MTOM and the metric?

o What's the purpose of the 0.24 exponent?

- **CO2 Standard:**

o What is the standard? Is the standard going to represent some fixed number, or a percentage reduction vs. a baseline?

o It seems like there are three relevant variables: SAR, RGF and MTOM. Is one of these variables an independent variable that will determine what the metric ought to be, and then manufacturers need to adjust the other variables to meet it? I'm trying to find an analogue to the foot print with respect to motor vehicle CAFE standards.

- **Actual emissions**

o How, if at all, would someone translate the standard into actual emissions?

Thanks for your help.

Have a great weekend,

Tim

**From:** Tim Cheung
**Sent:** Thursday, February 18, 2016 4:10 PM
**To:** 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Cool thanks, talk then

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 4:06 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

How about 4:30 today. Just give me a call

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 18, 2016 3:51 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

No worries.

Are you free now? Otherwise, how's next week looking for you? Monday 3 p.m.? I'm open to other times/days.

Hope all is well.

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 3:46 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

Tim—sorry I didn't get back to you on this. If you still want to chat, let me know

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 11, 2016 3:22 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** aircraft GHGs

Hey Ben,

Hope you're staying warm.

Do you have a few minutes to chat about aircraft GHGs today or tomorrow? I have some general questions about the CO2 metric and ICAO's announcement earlier this week about the status of the standard.

Best,

Tim

--

Timothy T. Cheung

Vice President, Research Analyst

ClearView Energy Partners, LLC

209 Constitution Avenue, NE

Washington, DC 20002

(202) 580-9123 (mobile)

(202) 506-5744 (office)

(202) 747-1967 (fax)

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 2/2/2016 3:07:01 PM
**Subject:** FW: Q & As
CAEP Feb 2016_aircraft CO2 standards backgroun_and Q_As version1.docx

Forgot to include you when I sent to Erin just now.

**From:** Audette, Lucie
**Sent:** Tuesday, February 02, 2016 10:06 AM
**To:** Birgfeld, Erin <Birgfeld.Erin@epa.gov>
**Cc:** Manning, Bryan <manning.bryan@epa.gov>
**Subject:** Q & As

Erin, We reviewed and revised the background and Q & As. Please see attached. Lucie

**From:** Birgfeld, Erin
**Sent:** Tuesday, February 02, 2016 9:39 AM
**To:** Audette, Lucie <audette.lucie@epa.gov>
**Subject:** Fwd: draft WH Press Release for CAEP CO2 Standards

Hi lucie,

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Thanks in advance.

Sent from my iPhone

Begin forwarded message:

**From:** "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>
**Date:** February 2, 2016 at 9:22:19 AM EST

**To:** "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>
**Cc:** "Allen, Laura" <Allen.Laura@epa.gov>
**Subject: FW: draft WH Press Release for CAEP CO2 Standards**

Erin—let's make this a priority. I know you asked for the updated Qs by today but please confirm with Lucie and team that we are on schedule. Even if they are draft I'd like to get something passed along

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**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** Re: draft WH Press Release for CAEP CO2 Standards

Thanks- do you have the QAs? Or are those still being worked on?

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Laura,

Here is the draft or that folks put together that assumes a positive result.

This should be helpful for the noon meeting.

-Erin

Sent from my iPhone

Begin forwarded message:

**From:** "Audette, Lucie" <audette.lucie@epa.gov>
**Date:** January 28, 2016 at 5:16:17 PM EST
**To:** "Birgfeld, Erin" <Birgfeld.Erin@epa.gov>
**Cc:** "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>
**Subject: draft WH Press Release for CAEP CO2 Standards**

Erin, Here is the draft press release we crafted a few weeks ago.

<News Release for CAEP 2016 CO2 standards success January 28.docx>

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Tim Cheung
**Sent:** Thur 2/18/2016 8:50:47 PM
**Subject:** RE: aircraft GHGs

No worries.

Are you free now? Otherwise, how's next week looking for you? Monday 3 p.m.? I'm open to other times/days.

Hope all is well.

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 3:46 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

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**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 11, 2016 3:22 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** aircraft GHGs

Hey Ben,

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Do you have a few minutes to chat about aircraft GHGs today or tomorrow? I have some general questions about the CO2 metric and ICAO's announcement earlier this week about the status of

the standard.

Best,

Tim

--

Timothy T. Cheung

Vice President, Research Analyst

ClearView Energy Partners, LLC

209 Constitution Avenue, NE

Washington, DC 20002

Ex. 6 - Personal Privacy

(202) 506-5744 (office)

(202) 747-1967 (fax)

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Audette, Lucie
**Sent:** Fri 3/13/2015 7:35:52 PM
**Subject:** Aircraft Q & As
Draft_Q & A v. 3_13_2015 .docx

Here is the list of questions that we had previously drafted as part of releasing the ICAO issue paper. I've attached the actual Q & A document but thought just having the Questions listed would be helpful to generate additional questions. Just add your new Qs to this list and email me back. Thanks, Lucie

•□□□□□□□□ What is EPA be announcing?

•□□□□□□□□ What is the timing for the proposed and final aircraft endangerment rule?

•□□□□□□□□ Why is EPA undertaking an aircraft endangerment finding at this time?

•□□□□□□□□ Why is EPA developing an Advanced Notice of Proposed Rulemaking (ANPRM)?

•□□□□□□□□ What are we doing at ICAO?

•□□□□□□□□ What type of aircraft will be included this Endangerment Finding for Aircraft?

•□□□□□□□□ Won't domestic regulation of GHG emissions put the United States Aircraft Industry at a competitive disadvantage?

•□□□□□□□□ What is FAA's position on this?

•□□□□□□□□ What role does FAA play in setting U.S. aircraft emission standards?

•□□□□□□□□ What is the U.S. aviation industries position on potential international CO2 standards? Domestic CO2 standards?

•□□□□□□□□ How much does the aviation sector contribute to U.S. GHG emissions? To global CO2 inventories?

**To:** Blubaugh, Jim[Blubaugh.Jim@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Manning, Bryan
**Sent:** Fri 1/29/2016 3:28:20 PM
**Subject:** One-pager, etc.
FAAproposal - EC proposal_2016-01-28b.docx
COP 21 Talking Points_12 2 15 + lca comments+BM.docx

Hello Jim,

Attached please find the one pager that Bill was referring to. This is a preliminary counter proposal to the EU proposal. FAA drafted it up, but we were okay with it (as well as Janet).

In regard to the Canadian Prime Minister's visit, we were asked to put together talking points a few weeks ago (as part of a broader package of talking points). See the second attachment – aircraft talking points start on page 5. I do not have much additional information on the Prime Minister's visit (other than this request for talking points).

Let me know if you have any other questions.

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Samulski, Michael
**Sent:** Thursday, January 28, 2016 3:12 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>
**Subject:** attachment

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** DeAngelo, Ben
**Sent:** Fri 1/16/2015 5:52:50 PM
**Subject:** RE: Call/meeting with Todd on ICAO this afternoon
Update for State_011615 BJD.docx

Ben, Lesley, some suggestions, see what you think.

**From:** Jantarasami, Lesley
**Sent:** Friday, January 16, 2015 12:21 PM
**To:** Hengst, Benjamin; DeAngelo, Ben
**Subject:** RE: Call/meeting with Todd on ICAO this afternoon

Ben & Ben – any edits to these bullets?

Lesley

**From:** Hengst, Benjamin
**Sent:** Friday, January 16, 2015 11:52 AM
**To:** Jantarasami, Lesley; LeFranc, Maurice; DeAngelo, Ben
**Subject:** RE: Call/meeting with Todd on ICAO this afternoon

Maurice—I'm now scheduled to go to a briefing with the Administrator at 3:30.

If this gets too awkward, I think you can tell State that given that we only had a few days' notice, we couldn't get the right folks available, but that we'd be happy to do a briefing for him later. Let us know what you think.

**From:** Jantarasami, Lesley
**Sent:** Friday, January 16, 2015 11:48 AM
**To:** LeFranc, Maurice; DeAngelo, Ben; Hengst, Benjamin

**Subject:** RE: Call/meeting with Todd on ICAO this afternoon

Hello Maurice,

Unfortunately both Ben D and I will be traveling at 3:30 (could call in from the train, but probably not optimal), and Ben H will be in a meeting with the Administrator. Other folks that might be available are probably not the right folks to give an update to State. As an alternative, would you feel comfortable participating on the call if we gave you a backgrounder/talking points? Or we could simply email them a 1 or 2 page backgrounder/status update. What do you think is the best approach?

Thanks,

Lesley

Lesley Jantarasami

U.S. EPA, Climate Change Division

jantarasami.lesley@epa.gov

(202)-343-9929

**From:** LeFranc, Maurice
**Sent:** Friday, January 16, 2015 10:27 AM
**To:** DeAngelo, Ben; Hengst, Benjamin; Jantarasami, Lesley
**Subject:** Call/meeting with Todd on ICAO this afternoon

Good morning. Todd has been leading the interagency effort on the ICAO market-based measures work. He has a meeting/call with this interagency team (mainly State and FAA) this afternoon at 3:30-4:30.

His staff has asked for a brief update on EPA's aircraft CO2 standard (and therefore endangerment work). It would be fine to just call in to the meeting and give a brief update – or attend in person.

Can the three of you figure out what we need and who can cover this? I'll send the meeting information once I know who is covering. Here is the call in information: Ex. 6 - Personal Privacy
Ex. 6 - Personal Privacy

Thank you.

**To:** Sutton, Tia[sutton.tia@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Iffland, JoNell[Iffland.JoNell@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; OTAQ Materials[OTAQMaterials@epa.gov]; Charmley, William[charmley.william@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]
**From:** Manning, Bryan
**Sent:** Fri 6/26/2015 5:19:04 PM
**Subject:** Materials for Monday (11:45) meeting with Janet on Aircraft
Janet McCabe Briefing ICAO CO2 Standard SG15 Mtg 6-29-15.pptx

Hello,

Attached are the materials for our Monday, June 29 (at 11:45) briefing with Janet on Aircraft (ICAO CO2 Standard). These materials are ready to go to OAR. Let us know if you have any questions.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Atkinson, Emily
**Location:** WJC-N 5400
**Importance:** High
**Subject:** Canceled: Meet with Boeing re: Aircraft GHG Standards (Confirmed)
**Start Date/Time:** Thur 1/7/2016 2:30:00 PM
**End Date/Time:** Thur 1/7/2016 3:00:00 PM
RE: Meeting Request on Aircraft GHG Standards
Confirmed 1/7/16 at 9:30am Meeting Request on Aircraft GHG Standards
RE: Confirmed 1/7/16 at 9:30am Meeting Request on Aircraft GHG Standards

**To:** Janet McCabe, Chris Grundler, Bill Charmley, Ben Hengst, Bryan Manning, and Mike Samulski
**Outside Attendees (in person):** Peter Pagano, Julie Felgar, Sean Newsum and Dan Allyn

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Samulski, Michael
**Sent:** Thur 10/22/2015 1:34:52 PM
**Subject:** FW: Draft U.S. Position Paper
CAEP 10 WP XX US CO2 Stringency_v2 20 October - LM 21 Oct.docx

Ben,

Here is a draft US position paper from FAA. Bryan, Lucie and I are currently reviewing.

The deadline in the "Next Steps" document from the IPC was to have a draft to them on Friday.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Lourdes.Maurice@faa.gov [mailto:Lourdes.Maurice@faa.gov]
**Sent:** Wednesday, October 21, 2015 5:49 PM
**To:** Ralph.Iovinelli@faa.gov; Samulski, Michael
**Subject:** RE: Draft U.S. Position Paper

Ralph – Here are some small tweaks to the paper I think we have too much filler material and need to be crisper to save space – I started deleting some things and we can do more when we have EPA edits. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

I hope we can get comments from EPA by tomorrow so we can turn around and send to IPC on Friday.

Cheers Lourdes

**From:** Iovinelli, Ralph (FAA)
**Sent:** Tuesday, October 20, 2015 8:53 PM
**To:** Mike Samulski (samulski.michael@epa.gov); Maurice, Lourdes (FAA)
**Subject:** Draft U.S. Position Paper

Lourdes and Mike,

Attached for your review and comment is the U.S. position paper for the CO2 standard. It is a bit over the 4-page limit, but has all of the elements that we agreed to... As we are all painfully aware, this is due to the White House on Friday. Please provide your comments back at your earliest convenience.

Thanks,

Ralph

**To:** peter.a.pagano@boeing.com[peter.a.pagano@boeing.com]
**From:** Atkinson, Emily
**Sent:** Mon 12/21/2015 6:04:06 PM
**Subject:** Confirmed 1/7/16 at 9:30am Meeting Request on Aircraft GHG Standards

Hi Peter,

You are confirmed for a 30 minute meeting on Thursday, January 7, 2016 at 9:30am with Janet McCabe.

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 send me a list of participants in advance of the meeting and feel free to contact me should you need any additional information.

Emily

Emily Atkinson
Staff Assistant

Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5406B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850

Email: atkinson.emily@epa.gov

**From:** Atkinson, Emily
**Sent:** Monday, December 21, 2015 12:42 PM
**To:** peter.a.pagano@boeing.com
**Subject:** FW: Meeting Request on Aircraft GHG Standards

Hi Peter,

It looks like we could fit this in as a 30 minute meeting on Thursday, January 7, 2016 at 3:30pm. Let me know if this could work on your end.

Thank you.

Emily

Emily Atkinson
Staff Assistant

Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5406B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

**From:** Pagano, Peter A [mailto:peter.a.pagano@boeing.com]
**Sent:** Friday, December 18, 2015 4:59 PM
**To:** Atkinson, Emily <Atkinson.Emily@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** Meeting Request on Aircraft GHG Standards

Hi Emily,

Hope you are doing well. Hard to believe its almost the end of the year. I wanted to request that Boeing have an opportunity to meet with Janet in the New Year to share our views with her on the US Government's ICAO negotiating position for the GHG aircraft standard that will be the subject of the February meeting in Montreal. We have had discussions with her counterparts at FAA including Rich Swayze and we would just like 30 minutes to highlight our concerns and let her know firsthand the nature of our discussions with her counterparts. Some of our technical folks will be in DC the first week in January and we could possibly do it then on either the 5, 6, or 7th. You should know that we met with Bill Charmley and his folks on October 23 prior to the USG position coming out and also have time scheduled with him on January 8 as well. We also have time scheduled with FAA again that week too. Our goal is to make sure Janet is aware of these discussions so she is not surprised by any of these meetings and the issues we are raising. (Just to be clear, we still want to keep our appointment with OTAQ and that would be the opportunity to get into the details a bit more and make sure the program staff understand our views as well as what we see as our challenges and opportunities.) Please let me know if you need any additional information or have any questions on this request. Thanks in advance for your response.

All the best,

Peter A. Pagano

Director, Environment

The Boeing Company

703-414-6486

Email: peter.a.pagano@boeing.com

**To:** Atkinson, Emily[Atkinson.Emily@epa.gov]
**From:** Pagano, Peter A
**Sent:** Mon 12/21/2015 6:25:43 PM
**Subject:** RE: Confirmed 1/7/16 at 9:30am Meeting Request on Aircraft GHG Standards
Boeing Analysis of Production Impacts of USG ICAO Position dec212015.pdf

Thanks Emily,

In addition to me I will be accompanied by 3 colleagues from Boeing: Julie Felgar, Sean Newsum and Dan Allyn. Attached is the background document I mentioned. It is marked as CBI so please limit distribution accordingly. Please let me know if you have any questions or need more information.

Thanks again and all the best over the holidays.

Peter A. Pagano

Director, Environment

The Boeing Company

703-414-6486

Email: peter.a.pagano@boeing.com

**From:** Atkinson, Emily [mailto:Atkinson.Emily@epa.gov]
**Sent:** Monday, December 21, 2015 1:04 PM
**To:** Pagano, Peter A
**Subject:** Confirmed 1/7/16 at 9:30am Meeting Request on Aircraft GHG Standards

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Please send me a list of participants in advance of the meeting and feel free to contact me should you need any additional information.

Emily

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Staff Assistant

Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5406B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

**From:** Atkinson, Emily
**Sent:** Monday, December 21, 2015 12:42 PM
**To:** peter.a.pagano@boeing.com
**Subject:** FW: Meeting Request on Aircraft GHG Standards

Hi Peter,

It looks like we could fit this in as a 30 minute meeting on Thursday, January 7, 2016 at 3:30pm. Let me know if this could work on your end.

Thank you.

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Staff Assistant

Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5406B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

**From:** Pagano, Peter A [mailto:peter.a.pagano@boeing.com]
**Sent:** Friday, December 18, 2015 4:59 PM
**To:** Atkinson, Emily <Atkinson.Emily@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** Meeting Request on Aircraft GHG Standards

Hi Emily,

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raising. (Just to be clear, we still want to keep our appointment with OTAQ and that would be the opportunity to get into the details a bit more and make sure the program staff understand our views as well as what we see as our challenges and opportunities.) Please let me know if you need any additional information or have any questions on this request. Thanks in advance for your response.

All the best,

Peter A. Pagano

Director, Environment

The Boeing Company

703-414-6486

Email: peter.a.pagano@boeing.com

**To:** Atkinson, Emily[Atkinson.Emily@epa.gov]; Charmley, William[charmley.william@epa.gov]; Grundler, Christopher[grundler.christopher@epa.gov]
**Cc:** Stewart, Lori[Stewart.Lori@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Mon 12/21/2015 5:29:02 PM
**Subject:** RE: Meeting Request on Aircraft GHG Standards

Hi Emily,

We recommend that Janet take this meeting. We had ideally hoped this could be after the 8th, but if Boeing's folks are in town we can do the dates suggested. OTAQ invitees would include: Chris, Bill, me, Bryan Manning, and Mike Samulski.

Thanks

Ben

**From:** Atkinson, Emily
**Sent:** Monday, December 21, 2015 11:15 AM
**To:** Charmley, William <charmley.william@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Grundler, Christopher <grundler.christopher@epa.gov>
**Cc:** Stewart, Lori <Stewart.Lori@epa.gov>
**Subject:** FW: Meeting Request on Aircraft GHG Standards

Hi Chris, Bill and Ben,

Please let me know if OTAQ recommends Janet take this meeting, delegate or decline.

Thank you!

Emily

Emily Atkinson
Staff Assistant

Immediate Office of the Acting Assistant Administrator
Office of Air and Radiation, USEPA
Room 5406B, 1200 Pennsylvania Avenue NW
Washington, DC 20460
Voice: 202-564-1850
Email: atkinson.emily@epa.gov

**From:** Pagano, Peter A [mailto:peter.a.pagano@boeing.com]
**Sent:** Friday, December 18, 2015 4:59 PM
**To:** Atkinson, Emily <Atkinson.Emily@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** Meeting Request on Aircraft GHG Standards

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All the best,

Peter A. Pagano

Director, Environment

The Boeing Company

703-414-6486

Email: peter.a.pagano@boeing.com

**To:** Tim Cheung[Tim@cvenergy.com]
**From:** Hengst, Benjamin
**Sent:** Tue 3/8/2016 2:34:37 PM
**Subject:** RE: aircraft GHGs

Hey Tim—yes, I did pass them along. I'm trying to see what I can pass back to you right now. Sorry for the delay. Ben

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Tuesday, March 08, 2016 9:32 AM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Hi Ben,

Hope you had a nice weekend and good start to this week.

Any chance you were able to pass these along to anyone?

Thanks,

Tim

**From:** Tim Cheung
**Sent:** Thursday, February 18, 2016 5:17 PM
**To:** Ben Hengst (Hengst.Benjamin@epa.gov) <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Hi Ben,

Here are questions I have about ICAO's CO2 standard.

- **CO2 Metric**

o Has ICAO publicly released the exact formula? I've only seen a formula in EPA's ANOPR from last year.

o I understand the metric is proportional to (1 / SAR) / (RGF ^ 0.24), and there is a scaling factor related to MTOM. What is the relationship between MTOM and the metric?

o What's the purpose of the 0.24 exponent?

- **CO2 Standard:**

o What is the standard? Is the standard going to represent some fixed number, or a percentage reduction vs. a baseline?

o It seems like there are three relevant variables: SAR, RGF and MTOM. Is one of these variables an independent variable that will determine what the metric ought to be, and then manufacturers need to adjust the other variables to meet it? I'm trying to find an analogue to the foot print with respect to motor vehicle CAFE standards.

- **Actual emissions**

o How, if at all, would someone translate the standard into actual emissions?

Thanks for your help.

Have a great weekend,

Tim

**From:** Tim Cheung
**Sent:** Thursday, February 18, 2016 4:10 PM
**To:** 'Hengst, Benjamin' <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

Cool thanks, talk then

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 4:06 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

How about 4:30 today. Just give me a call

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 18, 2016 3:51 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

No worries.

Are you free now? Otherwise, how's next week looking for you? Monday 3 p.m.? I'm open to

other times/days.

Hope all is well.

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 3:46 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

Tim—sorry I didn't get back to you on this. If you still want to chat, let me know

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 11, 2016 3:22 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** aircraft GHGs

Hey Ben,

Hope you're staying warm.

Do you have a few minutes to chat about aircraft GHGs today or tomorrow? I have some general questions about the CO2 metric and ICAO's announcement earlier this week about the status of the standard.

Best,

Tim

--

Timothy T. Cheung

Vice President, Research Analyst

ClearView Energy Partners, LLC

209 Constitution Avenue, NE

Washington, DC 20002

(202) 580-9123 (mobile)

(202) 506-5744 (office)

(202) 747-1967 (fax)

**To:** Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Mon 2/22/2016 2:07:17 PM
**Subject:** FW: aircraft GHGs

Mike, Bryan:

Time Cheung (below) is an analyst who I speak with regularly. He covers energy/env issues for a firm that gets quoted in the press from time to time. I try to maintain a dialogue with him because I have found that his having more accurate information is better than the alternative.

He's interested in the aircraft work, and called me the other day with questions that were too specific for me. Can you take a look at the questions below? I may need to have a quick phone call with you to discuss what of this is public, and what is not.

Thanks

Ben

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 18, 2016 5:17 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

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- What's the purpose of the 0.24 exponent?

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- What is the standard? Is the standard going to represent some fixed number, or a percentage reduction vs. a baseline?

- It seems like there are three relevant variables: SAR, RGF and MTOM. Is one of these variables an independent variable that will determine what the metric ought to be, and then manufacturers need to adjust the other variables to meet it? I'm trying to find an analogue to the foot print with respect to motor vehicle CAFE standards.

- **Actual emissions**

- How, if at all, would someone translate the standard into actual emissions?

Thanks for your help.

Have a great weekend,

Tim

**To:** Tim Cheung[Tim@cvenergy.com]
**From:** Hengst, Benjamin
**Sent:** Thur 2/18/2016 9:05:30 PM
**Subject:** RE: aircraft GHGs

How about 4:30 today. Just give me a call

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 18, 2016 3:51 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** RE: aircraft GHGs

No worries.

Are you free now? Otherwise, how's next week looking for you? Monday 3 p.m.? I'm open to other times/days.

Hope all is well.

**From:** Hengst, Benjamin [mailto:Hengst.Benjamin@epa.gov]
**Sent:** Thursday, February 18, 2016 3:46 PM
**To:** Tim Cheung <Tim@cvenergy.com>
**Subject:** RE: aircraft GHGs

Tim—sorry I didn't get back to you on this. If you still want to chat, let me know

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 11, 2016 3:22 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
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Hey Ben,

Hope you're staying warm.

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Tim

--

Timothy T. Cheung

Vice President, Research Analyst

ClearView Energy Partners, LLC

209 Constitution Avenue, NE

Washington, DC 20002

(202) 580-9123 (mobile)

(202) 506-5744 (office)

(202) 747-1967 (fax)

**To:** Tim Cheung[Tim@cvenergy.com]
**From:** Hengst, Benjamin
**Sent:** Thur 2/18/2016 8:46:07 PM
**Subject:** RE: aircraft GHGs

Tim—sorry I didn't get back to you on this. If you still want to chat, let me know

**From:** Tim Cheung [mailto:Tim@cvenergy.com]
**Sent:** Thursday, February 11, 2016 3:22 PM
**To:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** aircraft GHGs

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**To:** Charmley, William[charmley.william@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Tue 2/28/2017 1:57:37 PM
**Subject:** RE: icymi-- greenwire article on aircraft GHG stds

Thanks, Bill.

I'm supposed to have a quick chat with Pete Pagano on Friday. I think he's just checking in with all his contacts to convey his message on next steps, etc. I'll report back to you guys if there's anything worth noting.

**From:** Charmley, William
**Sent:** Tuesday, February 28, 2017 7:57 AM
**To:** Grundler, Christopher <grundler.christopher@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** Fwd: icymi-- greenwire article on aircraft GHG stds

This article is worth reading.

Sent from my iPhone

Begin forwarded message:

**From:** "Samulski, Michael" <samulski.michael@epa.gov>
**Date:** February 28, 2017 at 7:36:55 AM EST
**To:** "Charmley, William" <charmley.william@epa.gov>
**Cc:** "Manning, Bryan" <manning.bryan@epa.gov>
**Subject: FW: icymi-- greenwire article on aircraft GHG stds**

The below article speaks on industry and NGO support for aircraft CO2 standards and CORSIA.

**From:** Orlin, David
**Sent:** Monday, February 27, 2017 5:11 PM

**To:** Thrift, Mike <thrift.mike@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** icymi-- greenwire article on aircraft GHG stds

**To Woo Trump, Backers Pitch 'Business Case' For Global Aircraft GHG Deals**

February 27, 2017

Environmentalists and industry groups are urging EPA and the Department of Transportation (DOT) to craft rules to implement two international agreements reached last year curbing aircraft greenhouse gases (GHGs), pitching a "business case" for the deals and arguing that they are less controversial than carbon controls directed at other industries, such as the power sector.

However, it is largely undetermined how the new administration will proceed, particularly since participation in the agreements would require EPA to promulgate GHG standards for aircraft engines -- at a time when the Trump team is looking to roll back many Obama-era climate rules and potentially target the agency's authority to regulate in that space.

In addition, aircraft industry representatives have said legislation will be needed implement one of the deals, though there is debate with some environmentalists over whether this is necessary. If Congress does need to act, it may be difficult to find enough Republican support for any legislation given many GOP lawmakers' opposition to GHG controls.

The two agreements were adopted by the United States and nearly 190 countries under the International Civil Aviation Organization (ICAO) last year. The first, a certification standard -- known as the carbon dioxide standard -- covering new and in-production aircraft, was adopted in February.

The second, adopted in October, is a global market-based measure (MBM) limiting emissions from existing aircraft. That measure functions as an offset system, under which airlines would cap their GHG emissions at 2020 levels and purchase offsets to cover any

emissions from international flights beyond that level they are unable to reduce through other measures like fuel efficiency, technology improvements and sustainable alternative jet fuels.

The U.S. aircraft industry broadly views the two global policies as part of a larger strategy to address GHG emissions from the sector and to meet an overall industry-wide goal of carbon-neutral growth after 2020. The sector was heavily involved in the ICAO negotiations crafting both the CO2 standard and the MBM, and it strongly supports both outcomes.

And industry groups and other observers warn that if the United States declines to participate in the agreements -- particularly the CO2 standard -- it could carry risks, potentially limiting manufacturers' ability to sell their aircraft to other countries and restricting airlines' ability to fly internationally.

The Obama EPA initiated the process of adopting the CO2 standard into law, **finalizing a finding** that aircraft GHGs endanger public health and welfare -- which serves as a legal prerequisite to any regulation of the sector's emissions. In the finding, the agency said it would craft GHG limits that are “at least as stringent” as the global CO2 standard.

It remains an open question whether the Trump EPA, under the control of Scott Pruitt, will move forward with the standards, or whether the administration in general will adhere to the MBM deal. The Trump team has already pledged to roll back or weaken several of the Obama administration's GHG controls, including those for existing power plants and for light-duty vehicles.

**'Differently Situated'**

But supporters of the aircraft deals, including industry and environmentalists, are attempting to paint the aviation standards as noncontroversial, particularly given the strong support from industry and the global dynamic, thus decoupling the issue from the heated debate to come over whether and how EPA should regulate GHGs.

The decision in front of EPA to regulate GHGs from aircraft engines, by adopting into domestic law ICAO's CO2 standard, “is not a political statement. It is more of a business case” involving “industry certainty,” said Suzanne Murray, a former EPA Region 6 counsel who now works as an attorney for Haynes and Boone.

Speaking at a Feb. 22 conference hosted by the International Air Transport Association, Murray said she believes the aviation industry is “very differently situated” than other industries like the power sector in part because “you have recognition of the ICAO efforts in the U.S. Regulation."

She also noted the involvement of the DOT's Federal Aviation Administration (FAA), which is charged with implementing the CO2 certification standard EPA would set. Thus, if the Trump EPA declines to adopt ICAO's CO2 standard into domestic law, it could place the FAA, which has to have “some certainty and . . . clarity about what they're certifying to,” in a “precarious position,” Murray said.

DOT and FAA's involvement in implementing the standards could ultimately help them get across the regulatory finish line, should the Trump administration decide the issue falls in the realm of transportation policy and not environmental policy, Annie Petsonk of the Environmental Defense Fund (EDF) suggested.

“If the Department of Transportation has the lead” on these issues “as a policy matter within the administration, and if industry is saying, . . . 'This is our chance to get a set of regulations for ourselves that we think address the problem and we can live with economically,' then I think it has a chance to survive,” Petsonk said.

Although the Trump administration has not yet publicly addressed aircraft GHG policy or the ICAO agreements, advisers have suggested the Trump EPA could attempt to target the agency's 2009 GHG endangerment finding, which underpins EPA's climate regulations including the aircraft risk finding and any potential standards for that sector.

But Murray said she finds it “unlikely” that the Trump administration will ultimately target the underlying endangerment finding. Instead, she suggested the Trump EPA is more likely

"going to do an analysis of the endangerment finding and regulation of carbon industry-by-industry."

Such a scenario, she suggested, could benefit the aviation industry. Analysis of carbon regulation for a sector like the power industry, for example, "could be very different from the analysis you would do on regulation of carbon from the aviation industry where you have . . . already made some decisions about cost effectiveness, about technology, about how you want to participate in the global market," Murray said. She added: "I think that may weigh differently in the analysis of how this regulation may move forward."

**'Love Sonnet'**

Aircraft industry groups are also perfecting their pitch to the new administration in support of the ICAO deals.

Nancy Young of Airlines for America said if she were writing a "love sonnet" to the Trump administration to persuade it to pursue the ICAO deals, her message would "come back to technology, operations and infrastructure."

She described the MBM in particular as a "critical gap filler for our ability to do business internationally under a common set of goals," noting that message should speak to the administration's "business" and "America first" interests.

However, she cautioned that industry's "love sonnet" to the Trump administration "is a different story" if other countries do not adhere to the notion that the MBM is the sole international deal to limit existing aircraft GHGs -- which was a crucial request of industry during the negotiations.

Young criticized efforts like a proposed international aviation tax being floated in Sweden and the European Union's Emissions Trading System -- should it continue to cover intra-Europe flights after 2021 when the MBM takes hold -- noting industry's message to the Trump team is about the whole "package and the ability to do this right for business."

Young, as well as Murray, warned of a "worst-case scenario" if the Trump administration were to not move forward with GHG standards for aircraft engines.

Young noted that if the United States did not adopt the ICAO CO2 standard into law so that American manufacturers such as Boeing can ensure their aircraft are properly certified, "other countries could use the technique of, 'We won't let those aircraft into our air space because it's an air worthiness standard that it doesn't meet.'" That refers to a seldom-used provision under the Chicago Convention, the 1944 treaty establishing ICAO, that gives countries the ability to not allow another country's aircraft to enter their air space if that country is not complying with ICAO standards.

Such enforcement of the MBM, covering existing aircraft, is more complicated, however, because that measure applies to airlines and to countries, and functions as an offsetting program rather than a technology-based certification standard, making it more difficult to respond when parties are not "living up to the real deal" of the MBM.

Young said instead that enforcement of the MBM will "rely on the will of the states and the bilateral process for consultation to make sure that that happens right," adding that industry groups will also play a "persuasive role."

EDF's Petsonk also noted the importance of self-regulation by industry, arguing "that kind of culture will be crucial" to the MBM's implementation. She suggested another important aspect to enforcement of the aircraft GHG limits could be an "increasing consciousness among the flying public that this is an issue that must be dealt with." Petsonk noted "that is true not only for the customers flying in travel terms, but also in freight terms." The latter dynamic could also come into play as countries and localities committed to GHG reductions seek to import products with a low carbon impact.

California and several other national and subnational markets "want to know the carbon footprint of the products they are buying," Petsonk said, "and if [the products] are flown in, they want to know how the airline is dealing" with its GHG emissions. -- *Abby Smith* (asmith@iwpnews.com)

Related News | Mid Day E-mail | Transition 2016-2017 | Air | Climate Policy Watch |

**To:** Shaffer, Patricia[Shaffer.Patricia@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Mon 4/20/2015 3:35:08 PM
**Subject:** FW: Communications/Rollout re: aircraft package
agenda for coms meeting 4.201.15.docx
Aircraft endang + ANPR, Q&A v1.docx
ICAO Aviation GHG Announcement - Roll out - v8 - FINAL.docx

Please print out 5 copies of each. Thanks.

---

**From:** Hengst, Benjamin
**Sent:** Friday, April 17, 2015 3:17 PM
**To:** Birnbaum, Rona; Jantarasami, Lesley; DeAngelo, Ben; DeLuca, Isabel; Birgfeld, Erin; Christopher Mylan (Mylan.Christopher@epa.gov); Audette, Lucie; Samulski, Michael; Manning, Bryan
**Subject:** RE: Communications/Rollout re: aircraft package

Hi gang--

A few materials attached for Monday:

- Agenda
- Information paper coms plan from last September
- Draft Q&A

Thanks,
Ben

-----Original Appointment-----
**From:** Hengst, Benjamin
**Sent:** Monday, April 13, 2015 1:42 PM
**To:** Hengst, Benjamin; Birnbaum, Rona; Jantarasami, Lesley; DeAngelo, Ben; DeLuca, Isabel; Birgfeld, Erin; Christopher Mylan (Mylan.Christopher@epa.gov); Audette, Lucie; Samulski, Michael; Manning, Bryan
**Subject:** Communications/Rollout re: aircraft package
**When:** Monday, April 20, 2015 12:00 PM-12:45 PM (UTC-05:00) Eastern Time (US & Canada).
**Where:** DCRoomARN6524/DC-OAR-OTAQ-IO , callin 866-299-3188 code 202 564 1495

Sorry for taking the noon hour - schedules are tough…

**To:** Birgfeld, Erin[Birgfeld.Erin@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Millett, John[Millett.John@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Wed 2/3/2016 8:27:57 PM
**Subject:** RE: iCAO TPs and Q and A's
CAEP Feb 2016 aircraft CO2 TP and high level Q and A doc v2 BM + LCA-ebv2 BH .docx

A few edits and thoughts, and one request. Most of my edits are just to simplify concepts and language.

Thanks
Ben

-----Original Message-----
From: Birgfeld, Erin
Sent: Wednesday, February 03, 2016 3:15 PM
To: Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
Cc: Millett, John <Millett.John@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Subject: FW: iCAO TPs and Q and A's
Importance: High

HI Lucie and Bryan,

Attached are some edits that try to take into account Ben and Millett's input. Can you take a look and let me know if you have edits. For the new Q and A's I adapted language from the fact sheet. You will want to take a closer look at the MBM Q's. I may have gone too far there.

I owe these to Laura today so a quick review would be great.

Thanks,
Erin

-----Original Message-----
From: Hengst, Benjamin
Sent: Wednesday, February 03, 2016 2:14 PM
To: Millett, John <Millett.John@epa.gov>; Birgfeld, Erin <Birgfeld.Erin@epa.gov>
Subject: RE: iCAO TPs and Q and A's

These overall look fine to me. John's suggestions look good.

I think the two MBM questions need work: **Ex. 5 - Deliberative Process** Can you or Lucie try to refine those answers a bit, to make them more plain English?

-----Original Message-----
From: Millett, John
Sent: Wednesday, February 03, 2016 11:06 AM
To: Birgfeld, Erin <Birgfeld.Erin@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Cc: StClair, Christie <StClair.Christie@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
Subject: RE: iCAO TPs and Q and A's

Thanks, Erin -- quick reaction first . . .

# Ex. 5 - Deliberative Process

I'll pass along minor redline stuff later today . . .

-----Original Message-----
From: Birgfeld, Erin
Sent: Wednesday, February 03, 2016 9:43 AM
To: Millett, John <Millett.John@epa.gov>; Allen, Laura <Allen.Laura@epa.gov>; Hengst, Benjamin <Hengst.Benjamin@epa.gov>
Cc: StClair, Christie <StClair.Christie@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Mylan, Christopher <Mylan.Christopher@epa.gov>
Subject: iCAO TPs and Q and A's

Hi Laura, Millett, and Ben,

Here are the ICAO materials we discussed yesterday including top level TPs and expected q and a's.

I'm sending for concurrent review from you all since time is short. Thanks to Lucie, Bryan and team for helping pull this together!

-erin

Sent from my iPhone

>
>

**To:** Sutton, Tia[sutton.tia@epa.gov]; McCubbin, Courtney[McCubbin.Courtney@epa.gov]
**Cc:** Haley, Mike[Haley.Mike@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Wed 2/3/2016 8:10:38 PM
**Subject:** RE: Response Requested by COB Wednesday or Earlier: OMB Comments on - OAR ST Federal Vehicles and Fuels Standards and Certification - A few questions

**Ex. 5 - Deliberative Process**

**From:** Sutton, Tia
**Sent:** Wednesday, February 03, 2016 3:01 PM
**To:** McCubbin, Courtney <McCubbin.Courtney@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>; Haley, Mike <Haley.Mike@epa.gov>
**Subject:** RE: Response Requested by COB Wednesday or Earlier: OMB Comments on - OAR ST Federal Vehicles and Fuels Standards and Certification - A few questions

Hi Courtney,

**Ex. 5 - Deliberative Process**

**Ben**- jump in here if you think I've missed/mischaracterized any of this.

-Tia

**From:** McCubbin, Courtney
**Sent:** Wednesday, February 03, 2016 1:39 PM
**To:** Sutton, Tia <sutton.tia@epa.gov>
**Subject:** FW: Response Requested by COB Wednesday or Earlier: OMB Comments on - OAR ST Federal Vehicles and Fuels Standards and Certification - A few questions
**Importance:** High

Hi Tia,

I sent this request to Ines last night but I haven't heard anything yet. Mike H. was saying you may know if we have a date set for when the aircraft endangerment finding proposal goes to OIRA that we can include in our response, or if not some other language you may recommend.

Thank you!

Courtney

**From:** McCubbin, Courtney
**Sent:** Tuesday, February 02, 2016 5:52 PM
**To:** Storhok, Ines <storhok.ines@epa.gov>
**Cc:** Haley, Mike <haley.mike@epa.gov>
**Subject:** FW: Response Requested by COB Wednesday or Earlier: OMB Comments on - OAR ST Federal Vehicles and Fuels Standards and Certification - A few questions
**Importance:** High

Hi Ines,

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

We have a quick turn around on this, by COB tomorrow.

Thank you,

Courtney

**From:** Walters, Margaret
**Sent:** Tuesday, February 02, 2016 5:09 PM
**To:** Haley, Mike <Haley.Mike@epa.gov>; McCubbin, Courtney <McCubbin.Courtney@epa.gov>
**Cc:** LaRue, Steven <LaRue.Steven@epa.gov>
**Subject:** Response Requested by COB Wednesday or Earlier: OMB Comments on - OAR ST Federal Vehicles and Fuels Standards and Certification - A few questions

Ex. 5 - Deliberative Process

Margarct

**To:** Shaffer, Patricia[Shaffer.Patricia@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Mon 12/21/2015 2:44:02 PM
**Subject:** Fwd: For Chris Review - material for Janet McCabe on aircraft CO2 standards and the December 22 EPA/FAA/White House agencies conference call
Materials for Janet on Aircraft CO2, 12 176 15.docx
ATT00001.htm

Pls print the attachment for me. Thanks!

Begin forwarded message:

**From:** "Charmley, William" <charmley.william@epa.gov>
**Date:** December 17, 2015 at 10:00:19 AM EST
**To:** OTAQ Materials <OTAQMaterials@epa.gov>
**Cc:** "Hengst, Benjamin" <Hengst.Benjamin@epa.gov>, "Samulski, Michael" <samulski.michael@epa.gov>, "Manning, Bryan" <manning.bryan@epa.gov>, "Audette, Lucie" <audette.lucie@epa.gov>
**Subject: For Chris Review - material for Janet McCabe on aircraft CO2 standards and the December 22 EPA/FAA/White House agencies conference call**

Chris,

Attached is the material Mike and the team prepared for Janet. This could be accompanied by an email from you to follow-up on your discussion/email exchange with her earlier this week.

Dear Janet,

Attached is background material for you on the aircraft CO2 standards development. As I mentioned, there is a call with the White House agencies, FAA, and EPA next week on Tuesday that I would like you to participate in.

We need two things to occur in the near future:

**Ex. 5 - Deliberative Process**

Several of the EPA team will be on the call next week, including Bill Charmley, Mike Samulski, and Bryan Manning.

Thanks

Chris

**Cc:** Samulski, Michael[samulski.michael@epa.gov]
**To:** Manning, Bryan[manning.bryan@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Tue 3/17/2015 6:44:18 PM
**Subject:** Re: EPA Aircraft GHG/EF - supplemental document

FAA won't be surprised, right?

On Mar 17, 2015, at 1:21 PM, Manning, Bryan <manning.bryan@epa.gov> wrote:

Hello Ben,

As you may recall, last Friday you asked for this attached ICF report (according to OMB's request) -- "ICF, *CO2 Analysis of CO2-Reducing Technologies for Aircraft*, Final Report, EPA Contract Number EP-C-12-011." This report was referenced in footnote 237 of the draft aircraft GHG endangerment/ANPR. ICF completed the revisions to the report today (as described below). It is ready to go to OMB. Sorry for the delay. Let me know if you have any questions.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Hengst, Benjamin
**Sent:** Friday, March 13, 2015 4:35 PM
**To:** Manning, Bryan; Samulski, Michael; Audette, Lucie; Leggett, Cullen
**Cc:** Sutton, Tia; Orlin, David
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

Yes—we can wait until you are ready

**From:** Manning, Bryan
**Sent:** Friday, March 13, 2015 4:29 PM
**To:** Hengst, Benjamin; Samulski, Michael; Audette, Lucie; Leggett, Cullen
**Cc:** Sutton, Tia; Orlin, David
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

Thank you for the message, Ben. As you may know, footnote 237 states the following: "ICF, *CO2 Analysis of CO2-Reducing Technologies for Aircraft*, Final Report, EPA Contract Number EP-C-12-011, page 32 [INSERT FINAL DATE]." We shared this draft report with FAA. Based on FAA comments in regard to limitations in sharing information on the ICAO process, the contractor (ICF) is currently revising this report. This revised version of the report is expected to be completed on Monday or Tuesday. Can we hold off until then before we send this to OMB (especially given FAA's concerns about sharing some of the ICAO information)?

Thanks again,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Hengst, Benjamin
**Sent:** Friday, March 13, 2015 4:11 PM
**To:** Samulski, Michael; Manning, Bryan; Audette, Lucie; Leggett, Cullen
**Cc:** Sutton, Tia; Orlin, David
**Subject:** FW: EPA Aircraft GHG/EF - supplemental document

Can you guys send this to me and Tia so we can forward to OMB?

**From:** Whiteman, Chad [mailto:Chad_S_Whiteman@omb.eop.gov]
**Sent:** Friday, March 13, 2015 3:53 PM
**To:** Sutton, Tia; Hengst, Benjamin
**Subject:** RE: EPA Aircraft GHG/EF - supplemental document

Would you folks please provide the ICR study referenced in footnote 237? Thanks, Chad

<ICF_CO2 Analysis of CO2-Reducing Technologies for Aircraft_March 17 2015.docx>

**To:** Ketcham-Colwill, Jim[Ketcham-Colwill.Jim@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]; Birgfeld, Erin[Birgfeld.Erin@epa.gov]
**Cc:** Lemon, Mollie[Lemon.Mollie@epa.gov]; Drinkard, Andrea[Drinkard.Andrea@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Tue 6/2/2015 7:56:15 PM
**Subject:** RE: Janet's talking points for ECOS -- OARCOM vs OAP points on Endangerment/Aircraft

Please use Allison's version. Thanks

**From:** Ketcham-Colwill, Jim
**Sent:** Tuesday, June 02, 2015 3:49 PM
**To:** Sutton, Tia; Hengst, Benjamin; Birgfeld, Erin
**Cc:** Lemon, Mollie; Drinkard, Andrea
**Subject:** Janet's talking points for ECOS -- OARCOM vs OAP points on Endangerment/Aircraft

Erin/Tia/Ben,

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Jim Ketcham-Colwill

EPA Office of Air and Radiation

Office of Policy Analysis and Review

202-564-1676 (w)

Learn more about the Clean Air Act at http://www.epa.gov/air/caa

**From:** Lemon, Mollie
**Sent:** Tuesday, June 02, 2015 10:04 AM
**To:** Ketcham-Colwill, Jim
**Cc:** Krieger, Jackie; Friedman, Kristina
**Subject:** RE: ACTION ITEM: Request from Janet re upcoming ECOS call

Hi Jim – I've attached the talking points from OAP for Janet's ECOS call (on transport, the Guide to Action, and aircraft). For the transport points, you may want to check in w/ Andrea Drinkard later today or tomorrow before the call for the very latest version, as I was told that the transport talkers are "evolving" for Janet's speech at the Ozone Transport Commission on Thursday of this week. Please let me know if you have any other questions – thanks!

-Mollie

*Mollie Lemon*

*U.S. Environmental Protection Agency*

*Office of Atmospheric Programs*

*202.343.9859*

**From:** Krieger, Jackie
**Sent:** Friday, May 29, 2015 11:58 AM
**To:** Lemon, Mollie; Friedman, Kristina
**Subject:** FW: ACTION ITEM: Request from Janet re upcoming ECOS call

---

**From:** Ketcham-Colwill, Jim
**Sent:** 5/29/2015 11:30 AM
**To:** Koerber, Mike; Hengst, Benjamin; Cook, Leila; Cherepy, Andrea; Krieger, Jackie
**Cc:** Stewart, Lori; Drinkard, Andrea; Wortman, Eric; Sutton, Tia; Friedman, Kristina; DeMocker, Jim
**Subject:** ACTION ITEM: Request from Janet re upcoming ECOS call

Hi folks,

Janet has asked for program office input to assist her in a 15-minute update of the ECOS Air Committee on highlights of OAR's work on a June 3 conference call. She is requesting that staff provide brief bulleted updates on any developments over the past month that program offices believe are important for ECOS to know about. She does wants to include mention of the following topics, and any others you feel are important:

- Interstate transport

Ex. 5 - Deliberative Process

Thanks,

Jim

Jim Ketcham-Colwill

EPA Office of Air and Radiation

Office of Policy Analysis and Review

202-564-1676 (w)

Learn more about the Clean Air Act at http://www.epa.gov/air/caa

**To:** Ghanta, Venu[Ghanta.Venu@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Fri 2/28/2014 3:15:28 PM
**Subject:** RE: GHG Endangerment for Aircraft Engines

Ok. Sorry I'm being dense on this, but: do Chris and Bill know that this will be the mechanism by which this information will be made public? So we don't need to alert them again?

**From:** Ghanta, Venu
**Sent:** Friday, February 28, 2014 10:10 AM
**To:** Hengst, Benjamin
**Subject:** RE: GHG Endangerment for Aircraft Engines

**Ex. 5 - Deliberative Process**

**From:** Hengst, Benjamin
**Sent:** Friday, February 28, 2014 10:06 AM
**To:** Ghanta, Venu
**Subject:** RE: GHG Endangerment for Aircraft Engines

Do Chris and Bill Charmley know that this would be made public? If not, let me know, I'd like to make sure they know.

**From:** Ghanta, Venu
**Sent:** Friday, February 28, 2014 10:02 AM
**To:** Birgfeld, Erin; Mylan, Christopher
**Cc:** Hengst, Benjamin
**Subject:** GHG Endangerment for Aircraft Engines

Just a heads up. The GHG endangerment for aircraft proposal is currently being tiered, and would appear on EPA's website in about 6 weeks. It is unlikely that this action will be in the Spring 2014 Regulatory Agenda published by OMB, so our webpage will contain the only public mention of the rule.

This is an approximation of what will go public:

**Proposed Greenhouse Gas Endangerment and Cause or Contribute Findings Under CAA Section 231 for Aircraft Engines, and ANPRM on the International Process for Reducing Aircraft GHGs and Future Standards**

**RIN:**

# Ex. 5 - Deliberative Process

NPRM: Published in FR 05/2015 (projected)

**To:** Birnbaum, Rona[Birnbaum.Rona@epa.gov]; DeAngelo, Ben[DeAngelo.Ben@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** William Charmley (charmley.william@epa.gov)[charmley.william@epa.gov]; Gunning, Paul[Gunning.Paul@epa.gov]; Jutras, Nathaniel[Jutras.Nathaniel@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Thur 2/19/2015 10:21:43 PM
**Subject:** OMB aircraft briefing
Aircraft GHG endangerment, OMB Briefing 2.20.15 final.pptx

Hi All,

Here are the final slides. Only changes is on the final slides (added "CAEP" to "ICAO"; changed final rule to final endangerment rule).

I'm having copies printed for the meeting. Janet won't be going.

Getting there: for those walking over, let's meet at 9:25 at the post office entrance (on Penn Ave, across from Del Frisco's Grille).

Thanks

Ben

**To:** Sutton, Tia[sutton.tia@epa.gov]; Cook, Leila[cook.leila@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Fri 9/18/2015 6:31:55 PM
**Subject:** RE: OTAQ's regulatory agenda

No edits from me. Looks good.

**From:** Sutton, Tia
**Sent:** Friday, September 18, 2015 1:15 PM
**To:** Cook, Leila; Hengst, Benjamin
**Subject:** RE: OTAQ's regulatory agenda

Hi Lee,

Please see updated blurbs below – while not specifically in our actual Reg Agenda blurbs, I did

**Ex. 5 - Deliberative Process**

Thanks!

-Tia

**From:** Cook, Leila
**Sent:** Friday, September 18, 2015 10:28 AM
**To:** Sutton, Tia
**Cc:** Hengst, Benjamin
**Subject:** FW: OTAQ's regulatory agenda

Tia,

Once today's dust clears could you please update this list which I want to provide to NACAA in response to a request. I think the three items are still the same and maybe we should consider mentioning MTE and the RFS reset effort (not sure if this is discussed externally)?

Lee

- ***Aircraft Greenhouse Gas Proposed Endangerment Finding and Advance Notice of Proposed Rulemaking***

*(80 FR 37758, July 1, 2015)*

**Ex. 5 - Deliberative Process**

For more information, please see: http://www3.epa.gov/otaq/aviation.htm.

- ***Heavy-Duty Greenhouse Gas Phase 2 Proposed Rulemaking***

*(80 FR 40138, July 13, 2015)*

Ex. 5 - Deliberative Process

For more information, please see: http://www3.epa.gov/otaq/climate/regs-heavy-duty.htm.

- ***Renewable Fuel Volume Standards, 2014-2016 Proposed Rulemaking***

*(80 FR 33100, June 10, 2015)*

Ex. 5 - Deliberative Process

For more information, please see: http://www3.epa.gov/otaq/fuels/renewablefuels/regulations.htm.

- ***Midterm Evaluation of the 2022-2025 Light-duty Standards***

# Ex. 5 - Deliberative Process

**From:** Nancy Kruger [mailto:nkruger@4cleanair.org]
**Sent:** Tuesday, May 05, 2015 1:57 PM
**To:** Cook, Leila
**Subject:** Re: OTAQ's regulatory agenda

Thanks, tomorrow would be great.

---

Nancy Kruger

Deputy Director

National Association of Clean Air Agencies

444 North Capitol Street, NW

Suite 307

Washington, DC 20001

tel: (202) 624-7864

fax: (202) 624-7963

nkruger@4cleanair.org

www.4cleanair.org

On May 5, 2015, at 1:54 PM, "Cook, Leila" <cook.leila@epa.gov> wrote:

Of course. I should be able to send something tomorrow. In general we are working HD GHG phase 2, Mid-Term evaluation, RFS and aircraft.

Lee

**From:** Nancy Kruger [mailto:nkruger@4cleanair.org]
**Sent:** Tuesday, May 05, 2015 1:53 PM
**To:** Cook, Leila
**Subject:** Re: OTAQ's regulatory agenda

Hi Lee,

There's no background, really. My Mobile Sources and Fuels Committee Co-Chairs and I would like to get a lay of the land on OTAQ's work (and then continue to stay up to date) - what rules are in progress and what rules are coming up - so we can 1) be well informed and 2) design our work plan (what we should plan to engage in, what we should plan to monitor, etc.).

Thanks,

-Nancy

---

Nancy Kruger

Deputy Director

National Association of Clean Air Agencies

444 North Capitol Street, NW

Suite 307

Washington, DC 20001

tel: (202) 624-7864

fax: (202) 624-7963

nkruger@4cleanair.org

www.4cleanair.org

On May 5, 2015, at 1:05 PM, "Cook, Leila" <cook.leila@epa.gov> wrote:

Hi Nancy,

I need to check in with folks who are out yesterday and today. I expect to be back in touch tomorrow. Do you want to provide an additional background about what you are looking for?

Lee

**From:** Nancy Kruger [mailto:nkruger@4cleanair.org]
**Sent:** Monday, May 04, 2015 5:20 PM
**To:** Cook, Leila
**Subject:** OTAQ's regulatory agenda

Hi Lee,

Does OTAQ have a list of rulemakings in the works or upcoming, along with the schedule (or approximate schedule) for moving each forward?

Thanks.

-Nancy

---

Nancy Kruger

Deputy Director

National Association of Clean Air Agencies

444 North Capitol Street, NW

Suite 307

Washington, DC 20001

tel: (202) 624-7864

fax: (202) 624-7863

nkruger@4cleanair.org

www.4cleanair.org

**To:** Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Fri 6/27/2014 3:44:57 PM
**Subject:** RE: For Review: Revised slides in Early Guidance on Aircraft GHG
Early Guidance_Aircraft for Janet 062614 lca BH.pptx

Looks good. Added just a few tweaks (in red/strikeout) to slides 1 and 2, take 'em or leave 'em. See attached.

Also: Lucie, my two cents: I think it's worth adding the FAA slide from the other briefing into this one, in the appendix.

Assuming you guys had no comments on my draft email for Janet, so I'll send that along.

**From:** Samulski, Michael
**Sent:** Friday, June 27, 2014 11:31 AM
**To:** Audette, Lucie; Manning, Bryan; Hengst, Benjamin
**Subject:** RE: For Review: Revised slides in Early Guidance on Aircraft GHG

Thanks Lucie, this looks great.

My only comment is to remove "which will be made public by CAEP in 2014" from slide 13.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Audette, Lucie
**Sent:** Friday, June 27, 2014 10:52 AM
**To:** Samulski, Michael; Manning, Bryan; Hengst, Benjamin
**Subject:** For Review: Revised slides in Early Guidance on Aircraft GHG

I've made changes to the Cover and page 2. Plus added a new slide 13. Please update as needed. Thanks.

**To:** Shaffer, Patricia[Shaffer.Patricia@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Tue 6/24/2014 8:18:19 PM
**Subject:** FW: AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)
Early Guidance_Aircraft pre-brief to Sarah and Chris_062414.pptx

Can you please print one copy for me? thanks

**From:** Audette, Lucie
**Sent:** Tuesday, June 24, 2014 3:42 PM
**To:** Hengst, Benjamin
**Subject:** FW: AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)

**From:** Jantarasami, Lesley
**Sent:** Tuesday, June 24, 2014 3:18 PM
**To:** Manning, Bryan; DeAngelo, Ben; Schillo, Bruce
**Cc:** Audette, Lucie; Birnbaum, Rona; Samulski, Michael; Benner, Tim; Dutton, Steven; McDow, Stephen; Sarofim, Marcus; Leggett, Cullen; Yen, David; Maeroff, Bruce; Gordon, Jessica M; Wolverton, Ann; Thrift, Mike; Horowitz, Michael; Hockstad, Leif
**Subject:** RE: AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)

Thanks, Bryan. I've revised slide #11 to reflect this and other points in our discussion today. Please let me know what you think.

Lesley

**From:** Manning, Bryan
**Sent:** Tuesday, June 24, 2014 2:47 PM
**To:** Jantarasami, Lesley; DeAngelo, Ben; Schillo, Bruce
**Cc:** Audette, Lucie; Birnbaum, Rona; Samulski, Michael; Benner, Tim; Dutton, Steven; McDow, Stephen; Sarofim, Marcus; Leggett, Cullen; Yen, David; Maeroff, Bruce; Gordon, Jessica M; Wolverton, Ann; Thrift, Mike; Horowitz, Michael; Hockstad, Leif

**Subject:** RE: AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)

Hello Lesley,

# Ex. 5 - Deliberative Process

Let me know if you have any questions.

Thank you,

Bryan

Bryan Manning

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Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Jantarasami, Lesley
**Sent:** Monday, June 23, 2014 10:28 PM
**To:** DeAngelo, Ben; Schillo, Bruce
**Cc:** Audette, Lucie; Birnbaum, Rona; Samulski, Michael; Manning, Bryan; Benner, Tim; Dutton, Steven;

McDow, Stephen; Sarofim, Marcus; Leggett, Cullen; Yen, David; Maeroff, Bruce; Gordon, Jessica M; Wolverton, Ann; Thrift, Mike; Horowitz, Michael; Hockstad, Leif
**Subject:** RE: AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)

Hello everyone,

The invitations for the AAs and General Counsel to attend the Early Guidance meeting were sent this morning. Attached is the latest version of the draft briefing, reflecting our discussion from last week as well as some recent comments from Mike on the background slide (#3). Please send any comments or suggestions to me by noon on Thursday, June 26th if possible.

Thanks,

Lesley

---

**From:** DeAngelo, Ben
**Sent:** Friday, June 20, 2014 3:30 PM
**To:** Schillo, Bruce; Jantarasami, Lesley; Iffland, JoNell; Murphy, Tina
**Cc:** Audette, Lucie; Birnbaum, Rona; Samulski, Michael; Manning, Bryan; Benner, Tim; Dutton, Steven; McDow, Stephen; Sarofim, Marcus; Leggett, Cullen; Yen, David; Maeroff, Bruce; Gordon, Jessica M; Wolverton, Ann; Thrift, Mike
**Subject:** RE: AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)

Thank you Bruce for this note. We're now adding the AAs to the invitation. In the meantime please alert your AAs to the early guidance meeting on 6/30 if you haven't done so already.

-Ben

**Benjamin DeAngelo**

Senior Analyst for Climate Change

U.S. Environmental Protection Agency

Washington, DC

+1 202-343-9107 (office)

+1 202-341-2392 (cell)

deangelo.ben@epa.gov

---

**From:** Schillo, Bruce
**Sent:** Friday, June 20, 2014 1:25 PM
**To:** Jantarasami, Lesley; Iffland, JoNell; Murphy, Tina
**Cc:** Audette, Lucie; Birnbaum, Rona; Samulski, Michael; Manning, Bryan; DeAngelo, Ben; Benner, Tim; Dutton, Steven; McDow, Stephen; Sarofim, Marcus; Leggett, Cullen; Yen, David; Maeroff, Bruce; Gordon, Jessica M; Wolverton, Ann; Thrift, Mike
**Subject:** AAs invited to Early Guidance Meetings - GHG Endangerment Findings for Aircraft Engines (SAN 5773)

I was reviewing my calendar and noticed that no AAs (or any other level of management) from participating workgroup members has been invited to the Early Guidance meeting other than OAR. The General Counsel and the AAs for ORD and OP should be added to the invitation.

If the AA wishes to delegate attendance down to another level of management, that's fine. But the participating AAs should be invited to all Early Guidance and Option Selection meetings.

The meeting is currently scheduled for 6/30 at 4:00.

**Bruce Schillo** | Policy & Regulatory Analysis Division | Office of Policy | EPA

1200 Pennsylvania Avenue, NW | Mail Code 1803, WJC-N 3512-a | Washington, DC 20460
**202-564-6552** | 202-564-7322 (fax) | schillo.bruce@epa.gov

**To:** Scoville, Pat[Scoville.Pat@epa.gov]; Sutton, Tia[sutton.tia@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Thur 2/5/2015 3:50:33 AM
**Subject:** Re: draft aircraft action memo...
Draft Aircraft Action Memo AA to Administrator-1-13-2015_ps-tls BH.docx

My suggestions in the attached. thanks

---

**From:** Scoville, Pat
**Sent:** Wednesday, February 4, 2015 10:49 AM
**To:** Sutton, Tia; Hengst, Benjamin
**Subject:** RE: draft aircraft action memo...

Yes Tia, the 1101A gets in the action memo… Just spoke with Amy.. I'll put it back in…Ha I think it depends on who you talk to…

**From:** Sutton, Tia
**Sent:** Wednesday, February 04, 2015 10:21 AM
**To:** Scoville, Pat; Hengst, Benjamin
**Subject:** RE: draft aircraft action memo...

(Note- I took Lucie off this email so that we can just send her one doc with all of our edits after Ben is done reviewing.)

Ben- I made some additional edits/comments here. There were a few places where things just seemed to read kind of funny to me; take a look and see what you think.

**From:** Scoville, Pat
**Sent:** Wednesday, February 04, 2015 9:22 AM
**To:** Sutton, Tia; Audette, Lucie
**Cc:** Hengst, Benjamin
**Subject:** RE: draft aircraft action memo...

Ha…. may be I forgot to attach it…

**From:** Sutton, Tia
**Sent:** Wednesday, February 04, 2015 9:19 AM
**To:** Scoville, Pat; Audette, Lucie
**Cc:** Hengst, Benjamin
**Subject:** RE: draft aircraft action memo...

Hey Pat,

Can you resend the version you edited? I don't think it came through.

Thanks!

-Tia

**From:** Scoville, Pat
**Sent:** Wednesday, February 04, 2015 6:34 AM
**To:** Audette, Lucie
**Cc:** Hengst, Benjamin; Sutton, Tia
**Subject:** draft aircraft action memo...

Hey lucie, just a few minor edits…

Ben, Tia, if you have any edits. Please use this version… thanks

**To:** OAR Briefings[OAR_Briefings@epa.gov]
**Cc:** Shaffer, Patricia[Shaffer.Patricia@epa.gov]; Stewart, Gwen[Stewart.Gwen@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Wed 10/22/2014 6:11:10 PM
**Subject:** Fw: Briefing Materials for Janet on ICAO Progress (Oct 23 at 11:00)
McCabe Update on ICAO progress October 23.docx

Hi all, attached are materials for tomorrow's 11am. Thanks. Ben

[redacted]

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Wed 9/10/2014 1:16:49 AM
**Subject:** Fw: issue for a one-pager: EPA to consider addressing aircraft greenhouse gas emissions
Key Messages and Desk Statement FINAL 9-4-14.docx

[redacted]

Jon – attached is the ICAO aircraft GHG one pager. Let us know if you need anything else. Thanks.

**From:** Lubetsky, Jonathan
**Sent:** Monday, September 08, 2014 11:52 AM
**To:** Le, Madison
**Subject:** issue for a one-pager: EPA to consider addressing aircraft greenhouse gas emissions

Madison,

Janet would like a one-pager on the ICAO issue for her hearing prep. Do you think you can have folks pull something together by COB tomorrow?

Thank you and let me know if you have any questions.

**From:** POLITICO Pro Whiteboard [mailto:politicoemail@politicopro.com]
**Sent:** Thursday, September 04, 2014 2:06 PM
**To:** Niebling, William
**Subject:** EPA to consider addressing aircraft greenhouse gas emissions

9/4/14 2:05 PM EDT

EPA has decided on a timeline for determining whether to regulate greenhouse gas emissions from aircraft, according to a paper the agency posted on its website.

EPA will propose "endangerment" findings in late April 2015 and make final determinations in spring 2016, the agency said in the paper, which was already submitted to the United Nation's International Civil Aviation Organization.

The move follows a 2012 district court ruling that said the agency needed to make a decision on whether GHGs from aircraft cause or contribute to pollution that likely endangers human health and welfare. Greens had petitioned the agency on the matter in 2007.

Given the agency's previous "endangerment" findings on climate change pollution, it would be a reasonable to expect that the agency would make an endangerment finding for airlines. But whether that will be followed by actual greenhouse gas limits for airlines is unclear.

The agency has managed to get by without regulating greenhouse gas emissions in other situations, however, so the final outcome of an airline endangerment finding isn't set in stone. For example, an appeals court recently upheld the agency's decision to not regulate methane from coal mines, which the agency deemed on the lower end of its climate change to-do list, and said would "divert resources" from higher priority actions.

— *Erica Martinson*

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**To:** Beauvais, Joel[Beauvais.Joel@epa.gov]
**From:** Hengst, Benjamin
**Sent:** Thur 9/4/2014 3:44:06 PM
**Subject:** Fw: EPA Webpage is live (IP)
Key Messages and Desk Statement FINAL 9-4-14.docx

Fyi.

[redacted]

Hello again Lourdes and Ralph,

Thank you for notifying us that the IP was posted by ICAO/CAEP. The EPA website just went live. See http://www.epa.gov/otaq/aviation.htm.

Also, attached see a slightly revised document with the key messages and desk statement. Let us know if you have any questions.

We very much appreciate your coordination efforts on this IP and the web announcement.

Kind regards,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Thursday, September 04, 2014 10:38 AM
**To:** Lourdes.Maurice@faa.gov; Manning, Bryan
**Cc:** Samulski, Michael; DeAngelo, Ben; Jantarasami, Lesley; Mylan, Christopher; DeLuca, Isabel; Birnbaum, Rona; Birgfeld, Erin; Hengst, Benjamin; Audette, Lucie; Laszlo.Windhoffer@faa.gov
**Subject:** RE: PDF of Web page staging site (IP)

Hank and I reviewed the draft website language. With the correction of 'US Government' to 'United States', we are fine with it. Good to go!

Ralph

**From:** Maurice, Lourdes (FAA)
**Sent:** Thursday, September 04, 2014 10:31 AM
**To:** Manning, Bryan
**Cc:** Iovinelli, Ralph (FAA); Samulski, Michael; DeAngelo, Ben; Jantarasami, Lesley; Mylan, Christopher; DeLuca, Isabel; Birnbaum, Rona; Birgfeld, Erin; Hengst, Benjamin; Audette, Lucie; Windhoffer, Laszlo (FAA)
**Subject:** Re: PDF of Web page staging site (IP)

Exactly. Thx.

Sent from my iPad

On Sep 4, 2014, at 10:29 AM, "Manning, Bryan" <manning.bryan@epa.gov> wrote:

Thank you for the reply, Lourdes. Yes, we changed US Government to the United States in the first paragraph on the web page, but are you referring to US Government near the link for the information paper? If so, we can revise that to be consistent (good catch).

Thanks again,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Lourdes.Maurice@faa.gov [mailto:Lourdes.Maurice@faa.gov]
**Sent:** Thursday, September 04, 2014 10:26 AM
**To:** Manning, Bryan
**Cc:** Ralph.Iovinelli@faa.gov; Samulski, Michael; DeAngelo, Ben; Jantarasami, Lesley; Mylan, Christopher; DeLuca, Isabel; Birnbaum, Rona; Birgfeld, Erin; Hengst, Benjamin; Audette, Lucie; Laszlo.Windhoffer@faa.gov
**Subject:** Re: PDF of Web page staging site (IP)

Bryan. I am OK with US Government but I thought you guys preferred United States. Rest looks OK to me. Ralph can you pls double check and also ask Hank?

Cheers. Lourdes

Sent from my iPad

On Sep 4, 2014, at 10:19 AM, "Manning, Bryan" <manning.bryan@epa.gov> wrote:

Hello Lourdes and Ralph,

Attached is a PDF of our webpage staging site for the information paper. Unfortunately, we were not able to send you a file that would link you to the documents. Sorry about that.

As a friendly reminder, let us know when ICAO/CAEP posts the IP, and then we will go live with this webpage. We will send you an email notifying you when our website is live (with the web address).

Thank you,

Bryan

Bryan Manning

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manning.bryan@epa.gov

<Aircraft Greenhouse Gas Emissions_ staging webpage.pdf>

**To:** Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**Cc:** Sutton, Tia[sutton.tia@epa.gov]
**From:** Simon, Joseph
**Sent:** Thur 6/18/2015 7:55:10 PM
**Subject:** FW: EPA staff noticed a small amount of EPA reg text in strikeout did not get deleted in clean version, we recommend correcting in signature and Web versions and notify OMB after OMB verbal clearance
Preamble for Fed Reg.docx

**Joe Simon**

Senior Service America, Inc.

Supporting the USEPA through a Cooperative Agreement

under the Senior Environmental (SEE) Program

Assessment and Standards Division

Direct line 734-214-4835

Email: Simon.Joseph@epa.gov

**From:** Simon, Joseph
**Sent:** Thursday, June 18, 2015 3:53 PM
**To:** 'james.tamm@dot.gov'; Spears, Matthew
**Cc:** ryan.hagen@dot.gov; Analiese.Marchesseault@dot.gov; Moulis, Charles; Yanca, Catherine; Stout, Alan; Sutton, Tia; Scoville, Pat; Mylan, Christopher; Silverman, Steven
**Subject:** RE: EPA staff noticed a small amount of EPA reg text in strikeout did not get deleted in clean version, we recommend correcting in signature and Web versions and notify OMB after OMB verbal clearance
**Importance:** High

Here it is……..

**Joe Simon**

Senior Service America, Inc.

Supporting the USEPA through a Cooperative Agreement

under the Senior Environmental (SEE) Program

Assessment and Standards Division

Direct line 734-214-4835

Email: Simon.Joseph@epa.gov

**From:** james.tamm@dot.gov [mailto:james.tamm@dot.gov]
**Sent:** Thursday, June 18, 2015 3:50 PM
**To:** Spears, Matthew
**Cc:** ryan.hagen@dot.gov; Analiese.Marchesseault@dot.gov; Moulis, Charles; Yanca, Catherine; Simon, Joseph; Stout, Alan; Sutton, Tia
**Subject:** RE: EPA staff noticed a small amount of EPA reg text in strikeout did not get deleted in clean version, we recommend correcting in signature and Web versions and notify OMB after OMB verbal clearance

We are fine with the change. We want to start printing the Federal Register ASAP. Would you forward the updated version right away?

Thanks.

Jim

**From:** Spears, Matthew [mailto:spears.matthew@epa.gov]
**Sent:** Thursday, June 18, 2015 3:35 PM
**To:** Tamm, James (NHTSA)
**Cc:** Hagen, Ryan (NHTSA); Marchesseault, Analiese (NHTSA); Moulis, Charles; Yanca, Catherine; Simon, Joseph; Stout, Alan; Sutton, Tia
**Subject:** EPA staff noticed a small amount of EPA reg text in strikeout did not get deleted in clean version, we recommend correcting in signature and Web versions and notify OMB after OMB verbal clearance

Hi Jim,

I apologize for us not catching this earlier. EPA staff noticed a small amount of EPA reg text in strikeout did not get deleted in the clean version sent to OMB. It appears as duplicate text. To avoid any delays in OMB verbally clearing today, we recommend making the typographical correction in the signature and Web versions only and then notify OMB of the typographical correction only after we receive OMB verbal clearance.

Would that work for NHTSA? Thanks.

Regards,

Matthew Spears

Center Director, Heavy-Duty Diesel Standards

U.S. Environmental Protection Agency

2000 Traverwood Dr.

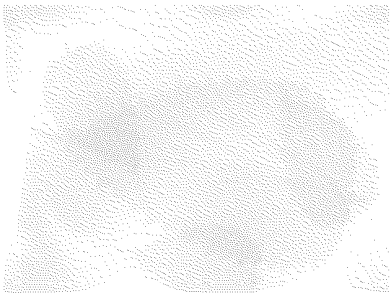
Ann Arbor, MI 48105

spears.matthew@epa.gov

w. 734-214-4921

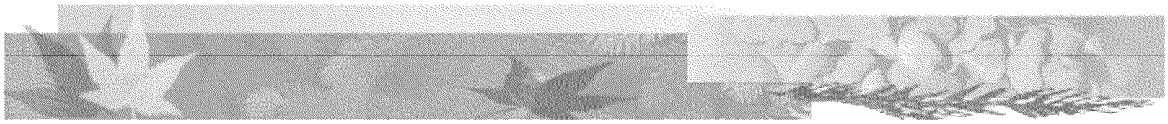
m. 734-276-7079

**To:** Scoville, Pat[Scoville.Pat@epa.gov]
**Cc:** Ghanta, Venu[Ghanta.Venu@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 2/11/2014 7:49:18 PM
**Subject:** RE: Joint endangerment Aircraft notice
Timing Aircraft GHG endangerment ANPR_1-23-14.pptx



In preparation for our meeting on Process I thought it would be helpful to share the latest briefing we gave to Chris on timing and approach for the Aircraft rulemaking.

**From:** Scoville, Pat
**Sent:** Tuesday, February 11, 2014 2:03 PM
**To:** DeAngelo, Ben; Audette, Lucie; Hengst, Benjamin; Ghanta, Venu
**Subject:** Joint endangerment Aircraft notice



Please let me know what time(s) and date(s) you will be available to have a conference call to discuss the processing of this rule. Thanks.


## Pat Scoville

Environmental Protection Specialist

Phone: 202- 564-1101

FAX 202-564-1686

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 2/26/2018 3:53:03 PM
**Subject:** Agenda: Aviation Team Mtg (Feb 26) in C35 at 2:00
Agenda team mtg 2-26-18.docx

Hello,

Attached please find the agenda for today's (Feb 26) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 2/20/2018 5:08:13 PM
**Subject:** Agenda: Aviation Team Mtg (Feb 20) in C35 at 2:00
Agenda team mtg 2-20-18.docx

Hello,

Attached please find the agenda for today's (Feb 20) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 2/13/2018 9:35:58 PM
**Subject:** Take away tasks: Aviation Team Mtg (Feb 13)
Agenda team mtg 2-13-18 take away tasks.docx

Hello,

Below/attached please find the take away tasks from today's (Feb 13) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 2/13/2018 5:11:03 PM
**Subject:** Agenda: Aviation Team Mtg (Feb 13) in N66 at 2:00
Agenda team mtg 2-13-18.docx

Hello,

Attached please find the agenda for today's (Feb 13) aviation team meeting at 2:00 in N66. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 2/6/2018 5:08:34 PM
**Subject:** Take away tasks: Aviation Team Mtg (Feb 5)
Agenda team mtg 2-5-18 take away tasks.docx

Hello,

Below/attached please find the take away tasks from Monday's (Feb 5) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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(ph) 734-214-4832 (fax) 734-214-4816

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**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 2/5/2018 6:03:19 PM
**Subject:** Agenda: Aviation Team Mtg (Feb 5) in C35 at 2:00
Agenda team mtg 2-5-18.docx

Hello,

Attached please find the agenda for today's (Feb 5) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 1/30/2018 5:10:41 PM
**Subject:** Take away tasks: Aviation Team Mtg (Jan 29)
Agenda team mtg 1-29-18 take away tasks.docx

Hello,

Below/attached please find the take away tasks from Monday's (Jan 29) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 1/29/2018 6:33:20 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 29) in C35 at 2:00
Agenda team mtg 1-29-18.docx

Hello,

Attached please find the agenda for today's (Jan 29) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 12/19/2017 9:55:02 PM
**Subject:** Take away tasks: Aviation Team Mtg (Dec 19)
Agenda team mtg 12-19-17 take away tasks.docx

Hello,

Below/attached please find the take away tasks from today's (Dec 19) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/18/2017 5:51:17 PM
**Subject:** Reschedule - Agenda: Aviation Team Mtg (Dec 19) in C147 at 1:00
Agenda team mtg 12-19-17.docx

Hello,

Sorry we needed to reschedule the team meeting for 1:00 tomorrow. Attached please find the agenda for tomorrow's (Dec 19) aviation team meeting at 1:00 in C147. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/18/2017 4:00:49 PM
**Subject:** Agenda: Aviation Team Mtg (Dec 18) in C35 at 2:00
Agenda team mtg 12-18-17.docx

Hello,

Attached please find the agenda for today's (Dec 18) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 12/12/2017 8:49:39 PM
**Subject:** Take away tasks: Aviation Team Mtg (Dec 11)
Agenda team mtg 12-11-17 take away tasks.docx

Hello,

Below/attached please find the take away tasks from today's (Dec 11) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 1/22/2018 10:32:29 PM
**Subject:** Take away tasks: Aviation Team Mtg (Jan 22)
Agenda team mtg 1-22-18 take away tasks.docx

Hello,

Below/attached please find the take away tasks from Monday's (Jan 22) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/11/2017 4:40:29 PM
**Subject:** Agenda: Aviation Team Mtg (Dec 11) in N95 at 1:00
Agenda team mtg 12-11-17.docx

Hello,

Attached please find the agenda for today's (Dec 11) aviation team meeting at 1:00 in N95. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 1/16/2018 5:13:53 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 16) in C35 at 2:00
Agenda team mtg 1-16-18.docx

Hello,

Attached please find the agenda for today's (Jan 16) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/4/2017 8:55:33 PM
**Subject:** Take away tasks: Aviation Team Mtg (Dec 4)
Agenda team mtg 12-4-17 take away tasks.docx

Hello,

Below/attached please find the take away tasks from today's (Dec 4) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/4/2017 6:48:44 PM
**Subject:** Agenda: Aviation Team Mtg (Dec 4) in C35 at 2:00
Agenda team mtg 12-4-17.docx

Hello,

Attached please find the agenda for today's (Dec 4) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Thur 1/11/2018 3:10:26 PM
**Subject:** Take away tasks: Aviation Team Mtg (Jan 8)
Agenda team mtg 1-8-18 take away tasks.docx

Hello,

Below/attached please find the take away tasks from Monday's (Jan 8) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 1/8/2018 5:41:18 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 8) in C35 at 2:00
Agenda team mtg 1-8-18.docx

Hello,

Happy New Year! Attached please find the agenda for today's (Jan 8) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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**From:** Manning, Bryan
**Sent:** Mon 11/27/2017 10:34:11 PM
**Subject:** Take away tasks: Aviation Team Mtg (Nov 27)
Agenda team mtg 11-27-17 take away tasks.docx

Hello,

Below/attached please find the take away tasks from today's (Nov 27) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 11/27/2017 5:22:00 PM
**Subject:** Agenda: Aviation Team Mtg (Nov 27) in C35 at 2:00
Agenda team mtg 11-27-17.docx

Hello,

Attached please find the agenda for today's (Nov 27) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 11/20/2017 4:47:07 PM
**Subject:** Agenda: Aviation Team Mtg (Nov 20) in C35 at 2:00
Agenda team mtg 11-20-17.docx

Hello,

Attached please find the agenda for today's (Nov 20) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Thur 11/2/2017 2:43:46 PM
**Subject:** Take away tasks: Aviation Team Mtg (Nov 1)
Agenda team mtg 11-1-17 take away tasks.docx

Hello,

Below/attached please find the take away tasks from yesterday's (Nov 1) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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**From:** Manning, Bryan
**Sent:** Wed 11/1/2017 3:05:03 PM
**Subject:** Agenda: Aviation Team Mtg (Nov 1) in N66 at 3:00
Agenda team mtg 11-1-17.docx

Hello,

Attached please find the agenda for today's (Nov 1) aviation team meeting at 3:00 in N66. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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**From:** Manning, Bryan
**Sent:** Mon 10/23/2017 3:37:53 PM
**Subject:** Agenda: Aviation Team Mtg (Oct 23) in C35 at 2:00
Agenda team mtg 10-23-17.docx

Hello,

Attached please find the agenda for today's (Oct 23) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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**From:** Manning, Bryan
**Sent:** Mon 3/21/2016 1:43:44 PM
**Subject:** Agenda: Aviation Team Mtg today at 10:00 (Rm C34)
Agenda team mtg 3-21-16.docx

Hello,

Attached please find the draft agenda for today's (March 21) aviation team meeting at 10:00 in C34. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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**From:** Manning, Bryan
**Sent:** Wed 2/24/2016 2:11:20 PM
**Subject:** Take Away Tasks: Aviation Team Mtg (please review)
Agenda team mtg 2-23-16 take away tasks.docx

Hello,

Attached please find the draft Take Away Tasks from yesterday's (Feb 23) aviation team meeting. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Aldridge, Michael[Aldridge.Michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 2/23/2016 6:42:00 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm N66)
Agenda team mtg 2-23-16.docx

Hello,

Attached please find the draft agenda for today's (Feb 23) aviation team meeting at 2:00 in N66. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 2/16/2016 9:05:39 PM
**Subject:** Take Away Tasks: Aviation Team Mtg today
Agenda team mtg 2-16-16 take away tasks.docx

Hello,

Attached please find the Take Away Tasks from today's (Feb 16) aviation team meeting. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 2/16/2016 6:51:13 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm C35)
Agenda team mtg 2-16-16.docx

Hello,

Attached please find the draft agenda for today's (Feb 16) aviation team meeting at 2:00 in C35. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 2/6/2017 10:34:42 PM
**Subject:** Take away tasks: Aviation Team Mtg (Feb 6)
Agenda team mtg 2-6-17 take away tasks.docx

.....
;;;;;
Hello,

Attached please find the weekly take away tasks from the Feb 6 aviation team meeting. See light blue highlighted text at the bottom of page 1/top of page 2 in the attachment – or below for your convenience. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Wed 3/1/2017 8:38:02 PM
**Subject:** Take away tasks: Aviation Team Mtg (Feb 27)
Agenda team mtg 2-27-17 take away tasks.docx

Hello,

Attached please find the weekly take away tasks from the Feb 27 aviation team meeting. See light blue highlighted text at the bottom of page 1 in the attachment – or below for your convenience. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 2/13/2017 10:55:53 PM
**Subject:** Take away tasks: Aviation Team Mtg (Feb 13)
Agenda team mtg 2-13-17 take away tasks.docx

Hello,

Attached please find the weekly take away tasks from the Feb 13 aviation team meeting. See light blue highlighted text at the bottom of page 1 in the attachment – or below for your convenience. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 1/31/2017 2:20:46 PM
**Subject:** Take away tasks: Aviation Team Mtg (Jan 30)
Agenda team mtg 1-30-17 take away tasks.docx

Hello,

Attached please find the weekly take away tasks from the Jan 30 aviation team meeting. See light blue highlighted text at the bottom of page 1 in the attachment – or below for your convenience. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 1/23/2017 9:58:38 PM
**Subject:** Take away tasks: Aviation Team Mtg (Jan 23)
Agenda team mtg 1-23-17 take away tasks.docx

Hello,

Attached please find the weekly take away tasks from the Jan 23 aviation team meeting. See light blue highlighted text at the bottom of page 1 in the attachment – or below for your convenience. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 1/23/2017 6:40:26 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 23) in C35 at 3:00
Agenda team mtg 1-23-17.docx

Hello,

Attached please find the agenda for today's (Jan 23) aviation team meeting at 3:00 in C35. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week, but since Bob and Jeff are not able to make today's meeting, we only have 5 minutes scheduled for PM.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Wed 1/18/2017 6:31:58 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 18) in N95 at 2:00
Agenda team mtg 1-18-17.docx

Hello,

Attached please find the agenda for today's (Jan 18) aviation team meeting at 2:00 in N95. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 1/10/2017 8:56:53 PM
**Subject:** Take away tasks: Aviation Team Mtg (Jan 9)
Agenda team mtg 1-9-17 take away tasks.docx

Hello,

Attached please find the take away tasks from the Jan 9 aviation team meeting. See light blue highlighted text at the bottom of page 1. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 1/9/2017 5:33:27 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 9) in N66 at 3:00
Agenda team mtg 1-9-17.docx

Hello,

Attached please find the agenda for today's (Jan 9) aviation team meeting at 3:00 in N66. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/19/2016 9:14:55 PM
**Subject:** Take Away Tasks: Aviation Team Mtg (Dec 19)
Agenda team mtg 12-19-16 take away tasks.docx

Hello,

Attached please find the take away tasks from today's (Dec 19) aviation team meeting. See the light blue highlights at the bottom of page 1 for these tasks. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 12/19/2016 6:44:57 PM
**Subject:** Agenda: Aviation Team Mtg (Dec 19) in N66 at 2:00
Agenda team mtg 12-19-16.docx

Hello,

Attached please find the agenda for today's (Dec 19) aviation team meeting at 2:00 in N66. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week. Sorry for the late notice.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Wed 12/14/2016 3:52:25 PM
**Subject:** Agenda: Aviation Team Mtg (Dec 14) in N66 at 11:00
Agenda team mtg 12-14-16.docx

Hello,

Attached please find the agenda for today's (Dec 14) aviation team meeting at 11:00 in N66. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week. Also, at the bottom of page 2, see the two agenda items for our FAA call tomorrow at 10:00.

Sorry for the late notice.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Thur 12/1/2016 8:04:16 PM
**Subject:** Take Away Tasks: Aviation Team Mtg (Nov 28)
Agenda team mtg 11-28-16 take away tasks.docx

Hello,

Attached please find the take away tasks from the Nov 28 aviation team meeting. See top of 2nd page -- light blue highlighted items. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 11/28/2016 6:18:43 PM
**Subject:** Agenda: Aviation Team Mtg (Nov 28) in C35 at 3:00
Agenda team mtg 11-28-16.docx

Hello,

Attached please find the agenda for today's (Nov 28) aviation team meeting at 3:00 in C35. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week. Also, at the bottom of page 2, see the two agenda items for our FAA call today at 2:00.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 11/21/2016 5:06:22 PM
**Subject:** Agenda: Aviation Team Mtg (Nov 21) in N66 at 2:00
Agenda team mtg 11-21-16.docx

Hello,

Attached please find the agenda for today's (Nov 21) aviation team meeting at 2:00 in N66. Let me know if you have anything to add. Note, as the agenda indicates, we will discuss PM prior to discussing CO2 this week.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 11/8/2016 10:12:17 PM
**Subject:** Take Away Tasks: Nov 7 Aviation Team Mtg
Agenda team mtg 11-7-16 take away tasks.docx

Hello,

Attached please find the take away tasks from the Nov 7 team meeting. See light blue highlighted text that starts at the very bottom of page 1. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 11/1/2016 9:30:49 PM
**Subject:** Take away Tasks: Aviation Team Mtg (Nov 1)
Agenda team mtg 11-1-16 take away tasks.docx

Hello,

Attached please find the take away tasks from today's (Nov 1) aviation team meeting. See the top of the second page for these take away tasks – highlighted in light blue. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Tue 11/1/2016 4:47:21 PM
**Subject:** Agenda: Aviation Team Mtg (Nov 1) in C126
Agenda team mtg 11-1-16.docx

Hello,

Attached please find the agenda for today's (Nov 1) aviation team meeting at 1:00 in C126. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**From:** Manning, Bryan
**Sent:** Mon 10/17/2016 5:53:34 PM
**Subject:** Agenda: Aviation Team Mtg (Oct 17)
Agenda team mtg 10-17-16.docx

Hello,

Attached please find the agenda for today's (Oct 17) aviation team meeting at 3:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Agnew, Scott[Agnew.Scott@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 10/4/2016 3:56:51 PM
**Subject:** Take away tasks: Aviation Team Mtg (Oct 3)
Agenda team mtg 10-3-16 take away tasks.docx

Hello,

Attached please find the take away tasks from yesterday's (Oct 3) aviation team meeting. See the top of page 2.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Agnew, Scott[Agnew.Scott@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 10/3/2016 4:47:39 PM
**Subject:** Agenda: Aviation Team Mtg (Oct 3)
Agenda team mtg 10-3-16.docx

Hello,

Attached please find the agenda for today's (Oct 3) aviation team meeting at 3:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

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**From:** Manning, Bryan
**Sent:** Mon 7/18/2016 9:41:23 PM
**Subject:** Take away tasks: Aviation Team Mtg (July 18)
Agenda team mtg 7-18-16 take away tasks.docx

Hello,

Attached please find the take away tasks (page 2) from today's (July 18) aviation team meeting. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

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**From:** Manning, Bryan
**Sent:** Mon 6/27/2016 8:29:55 PM
**Subject:** Take away tasks: Aviation Team Mtg (June 27)
Agenda team mtg 6-27-16 take away tasks.docx

Hello,

Attached please find the updated take away tasks from today's (June 27) aviation team meeting. See the redline/strikeout text on page 2. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**From:** Manning, Bryan
**Sent:** Mon 6/27/2016 5:54:52 PM
**Subject:** Agenda: Aviation Team Mtg (June 27)
Agenda team mtg 6-27-16.docx

Hello,

Attached please find the agenda for today's (June 27) aviation team meeting at 2:00. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

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Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Aldridge, Michael[Aldridge.Michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Agnew, Scott[Agnew.Scott@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 6/6/2016 5:47:17 PM
**Subject:** Agenda: Aviation Team Mtg (June 6)
Agenda team mtg 6-6-16.docx

Hello,

Attached please find the agenda for today's (June 6) aviation team meeting. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

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**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Aldridge, Michael[Aldridge.Michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Agnew, Scott[Agnew.Scott@epa.gov]
**From:** Manning, Bryan
**Sent:** Wed 6/1/2016 6:53:12 PM
**Subject:** Take Away Tasks: Aviation Team Mtg (May 31)
Agenda team mtg 5-31-16 take away tasks.docx

Hello,

Attached please find the updated take away tasks from yesterday's (May 31) aviation team meeting. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Aldridge, Michael[Aldridge.Michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 5/23/2016 9:06:40 PM
**Subject:** Take away tasks: Aviation Team Mtg today
Agenda team mtg 5-23-16 take away tasks.docx

Hello,

Attached please find the take away tasks from today's (May 23) aviation team meeting (see bottom of 1st page and entire 2nd page). Let me know if you have any comments.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

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**From:** Manning, Bryan
**Sent:** Mon 5/23/2016 5:55:20 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm N66)
Agenda team mtg 5-23-16.docx

Hello,

Attached please find the draft agenda for today's (May 23) aviation team meeting at 2:00 in N66. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

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2000 Traverwood Drive

Ann Arbor, MI 48105

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**From:** Manning, Bryan
**Sent:** Mon 5/9/2016 4:57:47 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm N66)
Agenda team mtg 5-9-16.docx

Hello,

Attached please find the draft agenda for today's (May 9) aviation team meeting at 2:00 in N66. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

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Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

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**From:** Manning, Bryan
**Sent:** Mon 4/25/2016 4:42:33 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm N66)
Agenda team mtg 4-25-16.docx

Hello,

Attached please find the draft agenda for today's (April 25) aviation team meeting at 2:00 in N66. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

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(ph) 734-214-4832 (fax) 734-214-4816

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**From:** Manning, Bryan
**Sent:** Mon 4/11/2016 4:31:23 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm N66)
Agenda team mtg 4-11-16.docx

Hello,

Attached please find the draft agenda for today's (April 11) aviation team meeting at 2:00 in N66. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Aldridge, Michael[Aldridge.Michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 3/28/2016 5:29:26 PM
**Subject:** Agenda: Aviation Team Mtg today at 2:00 (Rm N66)
Agenda team mtg 3-28-16.docx

Hello,

Attached please find the draft agenda for today's (March 28) aviation team meeting at 2:00 in N66. Let me know if you have anything to add to the agenda.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

# A G E N D A

Aviation Team Meeting at 2:00 – 3:00

(Room C35) – Ex. 5 - Deliberative Process

| Item | Lead | Time |
|---|---|---|
| 1. **Agenda Review & Changes** | **Bruce** | **1 minute** |
| 2. **ICR for nvPM std (Renewal/Amendment); FR notice signed Oct 5** | **Cullen** | **0 minutes** |
| 3. **PMTG** | **Bryan/Bob/Jeff** | **20 minutes** |

Ex. 5 - Deliberative Process

| | | |
|---|---|---|
| 4. **FAA/EPA calls (next call 10/19 at 2:00 in C34)** | **Mike/Bryan** | **1 minute** |
| 5. **Inventory** | **David/Bryan** | **5 minutes** |

- Resolve differences between 2015 TAF and AEDT baselines with FAA
- David/Cullen drafted schedule for analysis
- Draft technical report of inventory (for peer review) now expected to be completed in February 2018
- Peer review of inventory technical report now w/RTI (as part of review of ICF CO2 report); follow-on WA in process

6. Ex. 5 - Deliberative Process

| | | |
|---|---|---|
| 7. **CTG (Volume II/III ahg's); Vol III call 10/17at 9:30 in N125** | **John/Cullen** | **1 minute** |
| 8. **TGTG (Oct 16-20 IE Panel Review Session #2, Berlin, Germany)** | **All** | **1 minute** |
| 9. **WG3; WG3-7 papers due COB Oct 27** | **Cullen** | **2 minutes** |
| 10. **MDG/FESG/MF3** | **David/Cullen** | **2 minutes** |
| 11. **Aero 2050 Symposium/Webcast; Oct 12 8:30-5:00 White Castle** | **Bruce** | **2 minutes** |
| 12. **Any Other Business** | **All** | **1 minute** |
| | **Total** | **48 minutes** |

**10/2/17 Weekly Take Away Tasks:**

(A) PM: continue to work with SAE for publication of losses AIR (in 28-day ballot of SAE Council); Bob

(B) PM: potentially draft revised concerns on losses for PMTG7 (discuss in PMTG calls next month); Cullen/Bryan/John

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

**Longer-Term Take Away Tasks**:

(A) PM: Losses ARP (essentially a user guide) to be balloted —aim for March 2018; David/Bob

(B) PM: Ensure that EPA has access to data gathered from any nvPM testing (particularly, OEM representative engine testing) funded or co-funded by EPA; all

(C) PM: Don Hagen's new losses calculation (ratio) to simplify things, ensure revised calculation in losses AIR is included in Annex 16, Volume II amendments and ETM; Bob/Michael/Cullen/John

(D) Inventory: Be aware of inventory contribution changes based on new EPA GHG & Sinks report, WRI/CAIT data, IEA data; Bryan

(E) Inventory: Compare 2010 AEDT raw data for GHG & Sinks report & (compare with David's model); David

**FAA/EPA Bi-Weekly Calls – Agenda Items**

(A) Aircraft CO2 rulemaking (inventory work, etc.)

(B) nvPM ICR update

(C) WG3-7/PMTG7

(D) CAEP8 NOx production cut-off & further NOx stringency for CAEP12 cycle

# AGENDA

Aviation Team Meeting at 2:00 – 3:00

(Room C35) – Ex. 5 - Deliberative Process

| Item | Lead | Time |
|---|---|---|
| 1. **Agenda Review & Changes** | **Bruce** | **1 minute** |
| 2. **ICR for nvPM std (Renewal/Amendment); FR notice signed Oct 5** | **Cullen** | **0 minutes** |
| 3. **PMTG** | **Bryan/Bob/Jeff** | **20 minutes** |

- Ex. 5 - Deliberative Process

| | | |
|---|---|---|
| 4. **FAA/EPA calls (next call 10/19 at 2:00 in C34)** | **Mike/Bryan** | **1 minute** |
| 5. **Inventory** | **David/Bryan** | **5 minutes** |

- Resolve differences between 2015 TAF and AEDT baselines with FAA
- Working on gathering data to develop retirement curve (Bruce helping via Fleet Analyzer data)
- David/Cullen drafted schedule for analysis
- Draft technical report of inventory (for peer review) expected to be completed in Feb 2018 (2015 baseline, 2015 forecast based on TAF, our own fleet evolution, etc.)
- Peer review of inventory technical report now w/RTI (as part of review of ICF CO2 report); follow-on WA in process

6. Ex. 5 - Deliberative Process

| | | |
|---|---|---|
| 7. **CTG (Volume II/III ahg's); Vol III call 10/17 at 9:30 in N125** | **John/Cullen** | **1 minute** |
| 8. **TGTG (Oct 16-20 IE Panel Review Session #2, Berlin, Germany)** | **All** | **1 minute** |
| 9. **WG3; WG3-7 papers due COB Oct 27** | **Cullen** | **2 minutes** |
| 10. **MDG/FESG/MF3** | **David/Cullen** | **2 minutes** |
| 11. **Aero 2050 Symposium/Webcast; Oct 12 8:30-5:00 White Castle** | **Bruce** | **2 minutes** |
| 12. **Any Other Business** | **All** | **1 minute** |
| | **Total** | **48 minutes** |

**10/10/17 Weekly Take Away Tasks:**

(A) PM: potentially draft revised concerns on losses for PMTG7 (discuss in PMTG calls next month); Cullen/Bryan/John

(B) PM: Provide examples from other sectors of correcting for losses by PMTG7 (e.g., European PM protocol, losses in NVFEL diesel test cells), provide comments to Bob soon; Bob/Jeff/Cullen/John/Bryan

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

**Longer-Term Take Away Tasks**:

(A) PM: Losses ARP (essentially a user guide) to be balloted —aim for March 2018; David/Bob

(B) PM: Ensure that EPA has access to data gathered from any nvPM testing (particularly, OEM representative engine testing) funded or co-funded by EPA; all

(C) PM: Don Hagen's new losses calculation (ratio) to simplify things, ensure revised calculation in losses AIR is included in Annex 16, Volume II amendments and ETM; Bob/Michael/Cullen/John

(D) Inventory: Be aware of inventory contribution changes based on new EPA GHG & Sinks report, WRI/CAIT data, IEA data; Bryan

(E) Inventory: Compare 2010 AEDT raw data for GHG & Sinks report & (compare with David's model); David

**FAA/EPA Bi-Weekly Calls – Agenda Items**

(A) Aircraft CO2 rulemaking (inventory work, etc.)

(B) nvPM ICR update

(C) WG3-7/PMTG7

(D) CAEP8 NOx production cut-off & further NOx stringency for CAEP12 cycle

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**From:** Manning, Bryan
**Sent:** Mon 1/22/2018 5:09:42 PM
**Subject:** Agenda: Aviation Team Mtg (Jan 22) in C35 at 2:00
Agenda team mtg 1-22-18.docx

Hello,

Attached please find the agenda for today's (Jan 22) aviation team meeting at 2:00 in C35. Let me know if you have anything to add.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]
**From:** Manning, Bryan
**Sent:** Wed 8/10/2016 8:27:06 PM
**Subject:** FW: NRC report on Low Carbon Aviation--Report and briefing
Low Carbon Aircraft Propulsion--A Report of the National Academies 2016.pdf

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Burch, Julia
**Sent:** Wednesday, August 10, 2016 2:47 PM
**To:** Samulski, Michael <samulski.michael@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Cc:** Sutton, Tia <sutton.tia@epa.gov>
**Subject:** FW: NRC report on Low Carbon Aviation--Report and briefing

Hello Aircraft folks,

Attached is a PDF of the NAS's new report on low carbon aircraft propulsion. You can also buy or download the report here http://www.nap.edu/23490.

Thanks!

Regards,

Julia Burch

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

202-564-0961

**From:** Angleman, Alan [mailto:AAnglema@nas.edu]
**Sent:** Wednesday, August 10, 2016 11:33 AM
**To:** Burch, Julia <Burch.Julia@epa.gov>
**Cc:** Hengst, Benjamin <Hengst.Benjamin@epa.gov>
**Subject:** NRC report on Low Carbon Aviation--Report and briefing

Julia:

**Ex. 5 - Deliberative Process**

In the meantime, attached is a pdf of the published version.

All the best,

Alan

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Alan Angleman, Study Director
National Academies of Sciences, Engineering, and Medicine
(formerly known as the National Research Council)
Phone: (757) 636-4625 (c) / Fax: (202) 334-3701
E-mail: aangleman@nas.edu / www.national-academies.org/aseb
><> ><> ><> ><> ><> ><> ><> ><> ><> ><> ><> ><> ><>

**From:** Sutton, Tia [mailto:sutton.tia@epa.gov]
**Sent:** Wednesday, August 10, 2016 11:22 AM
**To:** Angleman, Alan
**Subject:** Automatic reply: NRC report on Low Carbon Aviation--Report and briefing

I will be out of the office from August 1, 2016 through August 26, 2016, and will not have access to email. If you need assistance during this time, please contact Julia Burch (burch.julia@epa.gov) or Ben Hengst (hengst.benjamin@epa.gov). Thank you.

**From:** Angleman, Alan
**Sent:** Wednesday, August 10, 2016 11:21 AM
**To:** 'sutton.tia@epa.gov'
**Subject:** NRC report on Low Carbon Aviation--Report and briefing

Tia:

We will be mailing out published copies of our report on Low Carbon Aircraft Propulsion in the next few days.

I'll send you 3 copies for yourself and others at the EPA. I wish I could send you more, but we have limited copies available and there is wide interest in the report. In the meantime, attached is a pdf of the published version.

Alan

**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]; Wolfe, Philip[wolfe.philip@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 11/20/2017 9:47:25 PM
**Subject:** Take away tasks: Aviation Team Mtg (Nov 20)
Agenda team mtg 11-20-17 take away tasks.docx

Hello,

Below/attached please find the take away tasks from today's (Nov 20) aviation team meeting. Let me know if you have anything to add.

**Ex. 5 - Deliberative Process**

****DRAFT-DELIBERATIVE MATERIAL- INTERNAL-DO NOT CITE OR QUOTE****

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]
**From:** Samulski, Michael
**Sent:** Fri 9/9/2016 2:08:57 PM
**Subject:** RE: Updated CO2 (and PM) briefing for Chris (with attachment)
Rulemaking Analyses for Aircraft CO2 Standard Rule - v2.pptx

**From:** Samulski, Michael
**Sent:** Friday, September 09, 2016 10:08 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Yen, David <Yen.David@epa.gov>; Mueller, John <mueller.john@epa.gov>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>
**Subject:** RE: Updated CO2 (and PM) briefing for Chris

Here is an updated briefing that incorporates Bryan's and Lucie's comments. I will send this to Bill.

JoNell resent Gwen our meeting request earlier this week, but I have not yet heard back.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Manning, Bryan
**Sent:** Thursday, September 08, 2016 1:07 PM
**To:** Samulski, Michael <samulski.michael@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Yen, David <Yen.David@epa.gov>; Mueller, John <mueller.john@epa.gov>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>
**Subject:** RE: Updated CO2 (and PM) briefing for Chris

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Let me know if you have any questions.

Thanks again,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Samulski, Michael
**Sent:** Thursday, September 08, 2016 11:32 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Yen, David <Yen.David@epa.gov>; Mueller, John <mueller.john@epa.gov>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>
**Subject:** Updated CO2 (and PM) briefing for Chris

I requested that our cancelled meeting with Chris from August 15 be rescheduled for next week.

**Ex. 5 - Deliberative Process**

Let me know if you have any comments.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]
**From:** Samulski, Michael
**Sent:** Thur 9/8/2016 3:32:08 PM
**Subject:** Updated CO2 (and PM) briefing for Chris
Rulemaking Analyses for Aircraft CO2 Standard Rule - v2.pptx

I requested that our cancelled meeting with Chris from August 15 be rescheduled for next week.

**Ex. 5 - Deliberative Process**

Let me know if you have any comments.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Mueller, John[mueller.john@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]
**Cc:** Iffland, JoNell[Iffland.JoNell@epa.gov]; Gonzalez, Gail[Gonzalez.Gail@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 3/1/2016 1:30:32 PM
**Subject:** Materials for today's briefing with Bill
Bill Briefing_Implementing Aircraft CO2_PM std 3-1-16.docx

Here are the materials for today's meeting, with the most recent version of the timelines attached. Thanks for your input on this.

Cullen is also working on Gantt charts to better show the timelines. We'll send those around later.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Thrift, Mike[thrift.mike@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]
**Cc:** Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Yen, David[Yen.David@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Samulski, Michael
**Sent:** Fri 2/26/2016 7:25:23 PM
**Subject:** Draft materials for Tuesday's briefing with Bill on implementation of CO2 and PM standards for aircraft.
Draft Bill Briefing_Implementing Aircraft CO2 & PM std 2-26-16.docx

Mike and Ken,

Attached is a draft briefing for Bill which Bryan pulled together (along with my edits). We are seeking to answer the following four questions on implementing aircraft standards domestically:

**Ex. 5 - Deliberative Process**

Cullen is currently developing a detailed schedule and will work with Lucie on Monday towards having a draft to share with Bill.

I would appreciate your review of this briefing.

**Ex. 5 - Deliberative Process**

Thanks,

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Samulski, Michael[samulski.michael@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 2/25/2016 9:24:53 PM
**Subject:** Draft Briefing for Bill (Please Review): Implementing Aircraft CO2 and PM Stds Domestically
Bill Briefing_Implementing Aircraft CO2 & PM std 2-25-16.docx

Hello Mike and Lucie,

Attached please find a draft briefing for Bill on Implementing the Aircraft CO2 and PM Standards Domestically (currently scheduled for March 1 at 1:00 pm). Let me know if you have any comments. Also, I am going to schedule a time tomorrow for us to go over this briefing (so we a chance to discuss it together).

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 12/1/2015 1:10:40 PM
**Subject:** FW: final edits to WP59 US CO2 Position paper
CAEP 10 WP 59 US CO2 Stringency_final v4.docx

See below/attached. Thanks. Bryan

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Monday, November 30, 2015 6:01 PM
**To:** Samulski, Michael <samulski.michael@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Subject:** final edits to WP59 US CO2 Position paper

Hi Mike and Bryan,

Per our discussions with the White House, attached are the final edits to the WP59 US CO2 Position paper, which still barely makes the 4-page limit. The edits are:

**Ex. 5 - Deliberative Process**

Thanks,

Ralph

**To:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 11/24/2015 2:56:51 PM
**Subject:** FW: OP RLSO comments on FAA information paper (CBA)
CAEP.10.IP.Agenda Item.05.en_GLOBAL-20151109_OP.docx

Hello Mike,

See the below/attached comments from OP on the global IP (and reference to US IP) on the cost-benefit analysis. These are redline/strikeout edits. We should talk about these edits after the 10:00 call. Note, Kate Shouse of OAP is still adding a few items to these comments. Also, Lesley and Marcus still need to add text for the non-CO2 items. In addition, Ken Davidson needs to add revisions for his health benefit items.

Thanks,

Bryan

**From:** Shouse, Kate
**Sent:** Tuesday, November 24, 2015 9:34 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>
**Subject:** FW: OP RLSO comments on FAA information paper

**From:** Kopits, Elizabeth
**Sent:** Monday, November 23, 2015 3:04 PM
**To:** Davidson, Ken <Davidson.Ken@epa.gov>
**Cc:** Shouse, Kate <Shouse.Kate@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Simon, Nathalie <Simon.Nathalie@epa.gov>; Rennert, Kevin <Rennert.Kevin@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Vaught, Laura <Vaught.Laura@epa.gov>
**Subject:** OP RLSO comments on FAA information paper

Hi Ken,

# Ex. 5 - Deliberative Process

I hope this helps. Please let us know if you would like to discuss anything by phone before transmitting to FAA.

Thanks,

Elizabeth

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Friday, November 20, 2015 1:39 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; dedoussi@mit.edu; byutko@mit.edu; Laszlo.Windhoffer@faa.gov; maryalice.locke@faa.gov; James.Hileman@faa.gov; morrisab@mit.edu; pwolfe@mit.edu; aashok@mit.edu; rjhans@mit.edu; Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>; Rennert, Kevin <Rennert.Kevin@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Yen, David <Yen.David@epa.gov>; Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>
**Subject:** RE: Summary of Yesterday's Call: EPA & FAA/MIT cost-benefit analysis (two draft US info papers for CAEP/10)

Thanks for the summary, Bryan, and thanks to all for working these items. Please see some minor edits highlighted below. These seem like manageable items to complete. We would be remiss to not mention the timeline we are working with… All action items below need to be

resolved by Monday, 30 November (acknowledging there is a US holiday next week). Adhering to this timeline would allow less than a week to make final touches and successfully enter into the ICAO submittal process by the drop dead date of Monday, 7 December. Please let me know if you have questions.

Best Regards,

**Ralph Iovinelli**

Manager, Emissions Division (AEE-300)

Office of Environment and Energy

Federal Aviation Administration

800 Independence Ave., SW

Washington, DC 20591

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+1-202-288-6372 mobile

ralph.iovinelli@faa.gov

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Friday, November 20, 2015 12:48 PM
**To:** dedoussi@mit.edu; Yutko, Brian (AEDT); Windhoffer, Laszlo (FAA); Iovinelli, Ralph (FAA); Locke, Maryalice (FAA); Hileman, James (FAA); morrisab@mit.edu; pwolfe@mit.edu; aashok@mit.edu; rjhans; Sarofim, Marcus; Jantarasami, Lesley; Davidson, Ken; Samulski, Michael; McGartland, Al; Rennert, Kevin; Marten, Alex; Griffiths, Charles; Wolverton, Ann; Shouse, Kate; Leggett, Cullen; Yen, David; Kopits, Elizabeth
**Subject:** Summary of Yesterday's Call: EPA & FAA/MIT cost-benefit analysis (two draft US info papers for CAEP/10)

Hello Laszlo, Jim, and Maryalice,

We appreciate everyone's time on the call yesterday. We thought it would be helpful to draft a summary (and/or action items) of yesterday's EPA & FAA/MIT call on the cost-benefit analysis. We think it will assist in keeping us all on the same page in regard to next steps, etc. See below. Let us know if we missed anything or mis-characterized something in the summary.

**********Summary**********

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

**********End of Summary**********

Let us know if you have any questions.

Thank you,

Bryan

P.S. Thank you Maryalice for already taking care of one of the action items, and emailing OAP and OP staff the CAEP paper(s) on the cost-effectiveness analysis.

Bryan Manning

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2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Manning, Bryan[manning.bryan@epa.gov]; Kopits, Elizabeth[Kopits.Elizabeth@epa.gov]
**Cc:** Sarofim, Marcus[Sarofim.Marcus@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; McGartland, Al[McGartland.Al@epa.gov]; Rennert, Kevin[Rennert.Kevin@epa.gov]; Marten, Alex[Marten.Alex@epa.gov]; Wolverton, Ann[Wolverton.Ann@epa.gov]; Shouse, Kate[Shouse.Kate@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Griffiths, Charles
**Sent:** Wed 11/18/2015 10:22:33 PM
**Subject:** RE: Comments on FAA/MIT cost-benefit analysis
2015 11 18 Technical comments on FAA CO2 informational CBA (cg ek).docx
2015 11 18 Technical comments on FAA CO2 informational CBA (clean).docx

Hi Bryan:

Thanks for the revised version and thank you for keeping as much of the cost section and other concerns as you did. We appreciate you attentiveness to our concerns. I have added a request for a separate limitations section. It may be duplicative of some of the things you included, but it would be good to see if they will add this section.

I have attached document with track changes so that you can see where we made additions. I have also included a clean version so that we can all read it completely. I didn't edit the Sharepoint document, but I can do so tomorrow.

Charles

**********

Charles Griffiths
National Center for Environmental Economics
Room 4334B, WJC West, Mail Code 1809T
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
Phone: 202/566-2288 Fax: 202/566-2338
Email: griffiths.charles@epamail.epa.gov

**********

**From:** Manning, Bryan
**Sent:** Wednesday, November 18, 2015 4:05 PM
**To:** Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>
**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>; Rennert, Kevin <Rennert.Kevin@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Yen, David <Yen.David@epa.gov>
**Subject:** Comments on FAA/MIT cost-benefit analysis

Hello Elizabeth,

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Kopits, Elizabeth
**Sent:** Tuesday, November 17, 2015 3:10 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>; Rennert, Kevin <Rennert.Kevin@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>
**Subject:** RE: Comments on FAA/MIT cost-benefit analysis

Hi Bryan,

In the interest of time, attached is the current version of NCEE/OAP comments and recommendations. This does not yet reflect feedback from Al or other OP management.

Thanks,

Elizabeth

**From:** Manning, Bryan
**Sent:** Tuesday, November 17, 2015 1:20 PM

**To:** Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>
**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** Comments on FAA/MIT cost-benefit analysis

Hello Elizabeth, Kate, and Lesley,

It was good to talk with you all on the call a few minutes ago. First, after the call, Mike and I had a quick conversation with Bill, and we were thinking that staff at OTAQ, OAP, and OP/NCEE may need to chat prior to sending comments to FAA on COB Wednesday. Thus, Bill suggested that we ask you all to now send us any comments you currently have. Then, we can get a sense of whether we may need a staff call (prior to sending comments to FAA) – to make sure we are all on the same page. If we need a staff call, I will try find a time on everyone's Outlook Calendar for a call later today or tomorrow.

Second, for the call with FAA (after we send them comments) on Thursday afternoon or Friday morning, could you indicate when you are not available during this Thursday/Friday time period? Then, we will suggest times to FAA for the call. Let me know if you have any questions.

Thank you,

Bryan

Bryan Manning

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Kopits, Elizabeth
**Sent:** Monday, November 16, 2015 6:46 PM
**To:** Shouse, Kate <Shouse.Kate@epa.gov>
**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Subject:** Re: draft 2 pager on FAA analysis

Ex. 5 - Deliberative Process

Thanks.

Sent from my iPhone

On Nov 16, 2015, at 4:32 PM, "Shouse, Kate" <Shouse.Kate@epa.gov> wrote:

Ex. 5 - Deliberative Process

**From:** Wolverton, Ann

**Sent:** Monday, November 16, 2015 1:50 PM
**To:** Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

Attached are my comments on the two FAA information papers. I can also post them on the share drive for folks to add to/edit as they wish.

I will be out on Thursday and Friday this week, so let me know if you have any questions before then.

Ann

**From:** Kopits, Elizabeth
**Sent:** Thursday, November 12, 2015 3:07 PM
**To:** Wolverton, Ann <Wolverton.Ann@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

**Ex. 5 - Deliberative Process**

**From:** Wolverton, Ann
**Sent:** Thursday, November 12, 2015 1:48 PM
**To:** Marten, Alex <Marten.Alex@epa.gov>; Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>

**Subject:** RE: draft 2 pager on FAA analysis

I kind of agree with Alex point. Also the acronym is incorrect. It is the APMT – I model, not the ADMT – I model.

**From:** Marten, Alex
**Sent:** Thursday, November 12, 2015 1:45 PM
**To:** Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

**Ex. 5 - Deliberative Process**

--

Alex L. Marten
phone: (202) 566-2301
email: marten.alex@epa.gov

**From:** Kopits, Elizabeth
**Sent:** Thursday, November 12, 2015 1:38 PM
**To:** Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>

**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

Thanks, Alex. Very helpful. I have adopted most, but not all, of your edits. Let me know if you have any significant concerns. I will print copies in a couple minutes. Thanks!

**From:** Marten, Alex
**Sent:** Thursday, November 12, 2015 1:09 PM
**To:** Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

My suggestions are attached.

It would be very helpful at the beginning, possibly after the overview section, to specify at least verbally the decisions that need to be made. This would help provide context and focus for the rest of the discussion.

--

Alex L. Marten
phone: (202) 566-2301
email: marten.alex@epa.gov

**From:** Kopits, Elizabeth
**Sent:** Thursday, November 12, 2015 12:40 PM
**To:** Griffiths, Charles <Griffiths.Charles@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

No problem, but I pulled a lot from the notes you sent around the other day, so thank you! I figured we could also bring along your 2007-June 2015 timeline in case it seems she would like more background.

Elizabeth

**From:** Griffiths, Charles
**Sent:** Thursday, November 12, 2015 12:27 PM
**To:** Kopits, Elizabeth <Kopits.Elizabeth@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** RE: draft 2 pager on FAA analysis

This looks sufficient for our needs. Thanks for putting it together, Elizabeth.

Charles

**From:** Kopits, Elizabeth
**Sent:** Thursday, November 12, 2015 9:19 AM
**To:** Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>
**Cc:** Newbold, Steve <Newbold.Steve@epa.gov>
**Subject:** draft 2 pager on FAA analysis

Hi All,

Here is a draft 2-pager for the NCEE discussion with Laura this afternoon. All comments welcome – on format, missing items, mischaracterizations – keeping in mind that shorter is probably better for this initial discussion. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

(Everyone else – please chime in if you came away with a different impression of our Tuesday conversation.)

Happy to try to find a time to meet to discuss if that would be helpful too!

Thanks,
Elizabeth

<Comments on BCA of CO2 Stringency Options for CAEP Meeting.docx>

**To:** Kopits, Elizabeth[Kopits.Elizabeth@epa.gov]
**Cc:** Sarofim, Marcus[Sarofim.Marcus@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; McGartland, Al[McGartland.Al@epa.gov]; Rennert, Kevin[Rennert.Kevin@epa.gov]; Marten, Alex[Marten.Alex@epa.gov]; Griffiths, Charles[Griffiths.Charles@epa.gov]; Wolverton, Ann[Wolverton.Ann@epa.gov]; Shouse, Kate[Shouse.Kate@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Wed 11/18/2015 9:04:55 PM
**Subject:** Comments on FAA/MIT cost-benefit analysis
2015 11 17 Technical comments on FAA CO2 informational CBA.docx

Hello Elizabeth,

Based on our discussions earlier today, attached please find our revisions to the technical comments you sent out yesterday. Also, Ken Davidson added a bullet in the last section on the US CBA, which replaces one of the bullets. Hopefully, you still have time to add your draft insert for the limitations section. Also, this document is on the SharePoint file that Lesley Jantarasami created. If you can, add things via the SharePoint file. If not, that is okay.

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Kopits, Elizabeth
**Sent:** Tuesday, November 17, 2015 3:10 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; McGartland, Al <McGartland.Al@epa.gov>; Rennert, Kevin <Rennert.Kevin@epa.gov>; Marten, Alex <Marten.Alex@epa.gov>; Griffiths, Charles <Griffiths.Charles@epa.gov>; Wolverton, Ann <Wolverton.Ann@epa.gov>; Shouse, Kate <Shouse.Kate@epa.gov>
**Subject:** RE: Comments on FAA/MIT cost-benefit analysis

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**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
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**Cc:** Sarofim, Marcus <Sarofim.Marcus@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Davidson, Ken <Davidson.Ken@epa.gov>; Manning, Bryan

<manning.bryan@epa.gov>
**Subject:** Re: draft 2 pager on FAA analysis

# Ex. 5 - Deliberative Process

And FWIW, I've started adding some comments to the global paper in Sharepoint but will likely update them as I get further through the document.

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Attached are my comments on the two FAA information papers. I can also post them on the share drive for folks to add to/edit as they wish.

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**Ex. 5 - Deliberative Process**

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# Ex. 5 - Deliberative Process

--

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phone: (202) 566-2301
email: marten.alex@epa.gov

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phone: (202) 566-2301
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**Subject:** RE: draft 2 pager on FAA analysis

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**Al** – our bottom line staff level recommendation on the GHG monetization issue is to 1) use

Ex. 5 - Deliberative Process

(Everyone else – please chime in if you came away with a different impression of our Tuesday conversation.)

Happy to try to find a time to meet to discuss if that would be helpful too!

Thanks,
Elizabeth

Ex. 5 - Deliberative Process

**To:** Yen, David[Yen.David@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 11/17/2015 8:20:56 PM
**Subject:** FW: OP Comments on FAA/MIT cost-benefit analysis
2015 11 17 Technical comments on FAA CO2 informational CBA.docx

Bryan Manning

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**Subject:** Re: draft 2 pager on FAA analysis

What ann sent are draft notes but not op's full set of comments and should not be circulated as such .

Thanks.

Sent from my iPhone

On Nov 16, 2015, at 4:32 PM, "Shouse, Kate" <Shouse.Kate@epa.gov> wrote:

**Ex. 5 - Deliberative Process**

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**Ex. 5 - Deliberative Process**

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Thanks,
Elizabeth

**Redacted**

**To:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**Cc:** Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]
**From:** Yen, David
**Sent:** Thur 10/1/2015 11:30:43 AM
**Subject:** RE: My edits on FAA's draft CO2 position paper
FAA-OST Breifing-ICAO CO2 Standard_2015-09-28_final review draft - epa comments+BM+CL+DY.docx

Here are a few more edits and comments.

Thanks,

David

**From:** Leggett, Cullen
**Sent:** Wednesday, September 30, 2015 2:14 PM
**To:** Manning, Bryan; Samulski, Michael
**Cc:** Yen, David; Maeroff, Bruce; Mueller, John
**Subject:** RE: My edits on FAA's draft CO2 position paper

Here are some comments from me. I've made a couple of changes in one spot/comments and not carried them through the document.

**Ex. 5 - Deliberative Process**

Sorry if I've pushed a bit harder in spots than we have want to.

**From:** Manning, Bryan
**Sent:** Tuesday, September 29, 2015 2:58 PM
**To:** Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Leggett, Cullen <Leggett.Cullen@epa.gov>; Yen, David <Yen.David@epa.gov>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Mueller, John <mueller.john@epa.gov>
**Subject:** RE: My edits on FAA's draft CO2 position paper

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Thank you,

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**From:** Samulski, Michael
**Sent:** Tuesday, September 29, 2015 1:11 PM
**To:** Manning, Bryan
**Cc:** Leggett, Cullen; Yen, David; Maeroff, Bruce; Mueller, John
**Subject:** My edits on FAA's draft CO2 position paper

Bryan,

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Thanks,

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**To:** Samulski, Michael[samulski.michael@epa.gov]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]
**From:** Manning, Bryan
**Sent:** Tue 9/29/2015 6:58:16 PM
**Subject:** RE: My edits on FAA's draft CO2 position paper
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**From:** Samulski, Michael
**Sent:** Tue 9/29/2015 5:11:18 PM
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**To:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]
**From:** Samulski, Michael
**Sent:** Tue 12/8/2015 12:22:28 PM
**Subject:** FW: Follow up from 25 November Telecon
WP59-US Position on the ICAO Aeroplane CO2 Emissions Standard FAA and OIRA edits.docx

**From:** Vahlsing, Candace [ Ex. 6 - Personal Privacy
**Sent:** Monday, December 07, 2015 9:02 PM
**To:** 'Donald.Scata@faa.gov'; Lourdes.Maurice@faa.gov; Welsh, Kevin
**Cc:** curtis.holsclaw@faa.gov; Ralph.Iovinelli@faa.gov; Samulski, Michael
**Subject:** RE: Follow up from 25 November Telecon

Thanks Don. Please submit this revised version which includes a few very small edits from OIRA. Thanks to Ralph for chatting so late this evening. Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

**From:** Donald.Scata@faa.gov [mailto:Donald.Scata@faa.gov]
**Sent:** Monday, December 07, 2015 5:12 PM
**To:** Vahlsing, Candace; Lourdes.Maurice@faa.gov; Welsh, Kevin
**Cc:** curtis.holsclaw@faa.gov; Ralph.Iovinelli@faa.gov; samulski.michael@epa.gov
**Subject:** RE: Follow up from 25 November Telecon

Greetings All -

Please find attached an update to WP59- which is a slight revision made for consistency with other edits where the CBA was not cited as critical to US position.

Cheers,

Don

---

Donald S. Scata Jr.
Office of Environment & Energy

Federal Aviation Administration
202.267.3281 (w)

202.441.5568 (c)

**From:** Vahlsing, Candace [ **Ex. 6 - Personal Privacy**
**Sent:** Monday, December 07, 2015 9:01 AM
**To:** Scata, Donald (FAA); Maurice, Lourdes (FAA); Welsh, Kevin
**Cc:** Holsclaw, Curtis (FAA); Iovinelli, Ralph (FAA); 'samulski.michael@epa.gov'
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thanks don!

**From**: Donald.Scata@faa.gov [mailto:Donald.Scata@faa.gov]
**Sent**: Monday, December 07, 2015 07:53 AM
**To**: Lourdes.Maurice@faa.gov <Lourdes.Maurice@faa.gov>; Welsh, Kevin
**Cc**: Vahlsing, Candace; curtis.holsclaw@faa.gov <curtis.holsclaw@faa.gov>; Ralph.Iovinelli@faa.gov <Ralph.Iovinelli@faa.gov>; samulski.michael@epa.gov <samulski.michael@epa.gov>
**Subject**: RE: Follow up from 25 November Telecon

Greetings all –

Please find attached the requested papers that were sent to ICAO on Friday.

Cheers,

Don

---

Donald S. Scata Jr.
Office of Environment & Energy

Federal Aviation Administration
202.267.3281 (w)

202.441.5568 (c)

**From:** Maurice, Lourdes (FAA)
**Sent:** Saturday, December 05, 2015 12:42 PM
**To:** Welsh, Kevin
**Cc:** Vahlsing, Candace; Holsclaw, Curtis (FAA); Scata, Donald (FAA); Iovinelli, Ralph (FAA); samulski.michael@epa.gov
**Subject:** Re: Follow up from 25 November Telecon

Hi Kevin. Yes we sent the papers up. Don will send the papers you requested on Monday. Including the IPs on CBA.

**Ex. 5 - Deliberative Process**

Ex. 5 - Deliberative Process

Cheers. Lourdes

Sent from my iPhone

On Dec 5, 2015, at 10:02 AM, Welsh, Kevin Ex. 6 - Personal Privacy > wrote:

> Thanks Lourdes, and sorry for the delay in responding. I assume the US papers were submitted yesterday. Can you send what went to the secretariat? Including any mbm/gmtf papers?

Ex. 5 - Deliberative Process

**From**: Lourdes.Maurice@faa.gov [mailto:Lourdes.Maurice@faa.gov]
**Sent**: Thursday, December 03, 2015 04:52 PM
**To**: Vahlsing, Candace; Welsh, Kevin
**Cc**: curtis.holsclaw@faa.gov <curtis.holsclaw@faa.gov>; Donald.Scata@faa.gov <Donald.Scata@faa.gov>; Ralph.Iovinelli@faa.gov <Ralph.Iovinelli@faa.gov>; samulski.michael@epa.gov <samulski.michael@epa.gov>
**Subject**: Follow up from 25 November Telecon

Hi Candace and Kevin

Ex. 5 - Deliberative Process

You asked for my opinion on flexibilities/landing zones.

These are my views

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

Cheers Lourdes

**To:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Samulski, Michael
**Sent:** Mon 12/7/2015 3:06:16 PM
**Subject:** FW: Got a sec this morning to chat?
CAEP 10 WP59_US ICAO Aeroplane CO2 Emissions StandardFINAL+OIRAedits.docx

These edits look okay to me. **Ex. 5 - Deliberative Process**
**Ex. 5 - Deliberative Process**

Ralph is asking for a call with the 3 of us. I'd like to call him this morning.

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Monday, December 07, 2015 9:33 AM
**To:** Samulski, Michael; Manning, Bryan
**Subject:** Got a sec this morning to chat?
**Importance:** High

Mike/Bryan,

# Ex. 5 - Deliberative Process

Best Regards,

**Ralph Iovinelli**

Manager, Emissions Division (AEE-300)

Office of Environment and Energy

Federal Aviation Administration

800 Independence Ave., SW

Washington, DC 20591

+1-202-267-3566 office

+1-202-288-6372 mobile

ralph.iovinelli@faa.gov

**To:** Yen, David[Yen.David@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 12/7/2015 2:37:02 PM
**Subject:** FW: Got a sec this morning to chat?
CAEP 10 WP59_US ICAO Aeroplane CO2 Emissions StandardFINAL+OIRAedits.docx

FYI, see below/attached. Thanks. Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Ralph.Iovinelli@faa.gov [mailto:Ralph.Iovinelli@faa.gov]
**Sent:** Monday, December 07, 2015 9:33 AM
**To:** Samulski, Michael <samulski.michael@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Subject:** Got a sec this morning to chat?
**Importance:** High

Mike/Bryan,

**Ex. 5 - Deliberative Process**

**Ex. 5 - Deliberative Process**

I'd like to get on the phone with you to discuss and finalize.

Best Regards,

**Ralph Iovinelli**

Manager, Emissions Division (AEE-300)

Office of Environment and Energy

Federal Aviation Administration

800 Independence Ave., SW

Washington, DC 20591

+1-202-267-3566 office

+1-202-288-6372 mobile

ralph.iovinelli@faa.gov

**To:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Mueller, John[mueller.john@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]
**From:** Samulski, Michael
**Sent:** Mon 12/7/2015 1:24:08 PM
**Subject:** FW: Follow up from 25 November Telecon
WP59-US Position on the ICAO Aeroplane CO2 Emissions Standard.docx
WP64-US Views on the Development of a GMBM Proposal.docx
IP24-Global Cost Benefit Analysis of the ICAO CO2 Standard Stringency Options.docx
IP26-Update on US Aircraft GHG Rulemaking Process.docx
IP23-United States-only Cost Benefit Analysis of the ICAO CO2 Standard Stringency Options.docx

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Donald.Scata@faa.gov [mailto:Donald.Scata@faa.gov]
**Sent:** Monday, December 07, 2015 7:54 AM
**To:** Lourdes.Maurice@faa.gov; Kevin_W_Welsh[Ex. 6 - Personal Privacy]
**Cc:** Candace_M_Vahlsing[Ex. 6 - Personal Privacy] curtis.holsclaw@faa.gov; Ralph.Iovinelli@faa.gov; Samulski, Michael
**Subject:** RE: Follow up from 25 November Telecon

Greetings all –

Please find attached the requested papers that were sent to ICAO on Friday.

Cheers,

Don

---

Donald S. Scata Jr.
Office of Environment & Energy

Federal Aviation Administration
202.267.3281 (w)

202.441.5568 (c)

**To:** HUSSE, Olivier[olivier.husse@airbus.com]; Eric.Upton@gulfstream.com[Eric.Upton@gulfstream.com]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**Cc:** SAGUES, Camille[camille.sagues@airbus.com]; SMIT, Hans[hans.smit@airbus.com]
**From:** Allyn, Daniel M
**Sent:** Tue 9/1/2015 3:32:43 PM
**Subject:** RE: CO2DB Call. 1 September, 2015. 9:30 EDT/15:30 CEST
ICAO Aircraft CO2 Emissions Databank Introduction Text - v7 27Aug2015 redline_DA.docx

Just one small change in the last sentence of the "Background – CO2" section.

***Dan Allyn***
Boeing Commercial Airplanes
Aircraft Emissions
Office Phone: 425-237-2939
**Ex. 6 - Personal Privacy**
daniel.m.allyn@boeing.com

**From:** HUSSE, Olivier [mailto:olivier.husse@airbus.com]
**Sent:** Tuesday, September 01, 2015 2:03 AM
**To:** Eric.Upton@gulfstream.com; leggett.cullen@epa.gov
**Cc:** SAGUES, Camille; SMIT, Hans; Allyn, Daniel M
**Subject:** RE: CO2DB Call. 1 September, 2015. 9:30 EDT/15:30 CEST

Eric, Cullen,

Some proposed simplifications in the edited text.

Cheers

**From:** Eric.Upton@gulfstream.com [mailto:Eric.Upton@gulfstream.com]
**Sent:** 31 August 2015 10:00 PM
**To:** arnaud.bonnet@embraer.com.br; SAGUES, Camille; daniel.m.allyn@boeing.com; david.anvid@delta.com; david.lye@aero.bombardier.com; domingo.sepulveda@pw.utc.com;

erika.herms@easa.europa.eu; Eric.Upton@gulfstream.com; SMIT, Hans; jean-luc.kittery@aviation-civile.gouv.fr; krisha.nobrega@embraer.com.br; Laszlo.Windhoffer@faa.gov; maryalice.locke@faa.gov; mike.garrison@boeing.com; Maeroff.Bruce@epa.gov; manning.bryan@epa.gov; NDickson@icao.int; HUSSE, Olivier; paul.peeters1000@gmail.com; Ralph.Iovinelli@faa.gov; Roger.Worth@dft.gsi.gov.uk; stephen.arrowsmith@easa.europa.eu; samulski.michael@epa.gov; werner.hoermann@easa.europa.eu; xiaojunyoung@hotmail.com; Yen.David@epa.gov; tsuboi-k2wc@mlit.go.jp
**Subject:** CO2DB Call. 1 September, 2015. 9:30 EDT/15:30 CEST

Hello Colleagues,

It has been a long while since our last CO2DB call, and quite a lot has happened, much of it unexpected.

We've put together an agenda to run over this week and hopefully put us in good shape for the next call and work after that.

We have attached copies of the new CO2DB options spreadsheet and the revised introductory text. The spreadsheet is a fairly radical reorganization of the same material we've been working on, and the introductory text has only changed a bit to reflect some corrections and some changes from SG.

Agenda:

1) Welcome and attendance
2) Review since Belfast
    a) Three positions coming out of WG3 in Belfast
    b) Request to SG for a downselect
    c) SG gives the DB a new name... the ICAO $CO_2$ Certification Database
    d) SG does not downselect -- timeline does not demand it
3) Since SG
    a) New spreadsheet: CO2DB options
    b) Revised introductory text
4) Next Steps
    a) Call on 29 Sept.
    b) WG3 Meeting in October
    c) Report to CAEP/10 in February
5) AoB

We will happily be able to use the normal FAA $CO_2$ line that Laszlo has offered.

We look forward to a useful, productive call.

-Eric and Cullen

**Ex. 6 - Personal Privacy**

# Ex. 6 - Personal Privacy

Eric Upton, PhD
Environmental/Performance Specialist
Gulfstream Aerospace Corporation
Eric.Upton@gulfstream.com
ph: 912-395-8458
fax: 912-965-8850

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**To:** Eric.Upton@gulfstream.com[Eric.Upton@gulfstream.com]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**Cc:** SAGUES, Camille[camille.sagues@airbus.com]; SMIT, Hans[hans.smit@airbus.com]; ICCAIA / Boeing - Allyn Daniel M (daniel.m.allyn@boeing.com)[daniel.m.allyn@boeing.com]
**From:** HUSSE, Olivier
**Sent:** Tue 9/1/2015 9:02:46 AM
**Subject:** RE: CO2DB Call. 1 September, 2015. 9:30 EDT/15:30 CEST
ICAO Aircraft CO2 Emissions Databank Introduction Text - v7 27Aug2015 redline+oh.docx

Eric, Cullen,

Some proposed simplifications in the edited text.

Cheers

**From:** Eric.Upton@gulfstream.com [mailto:Eric.Upton@gulfstream.com]
**Sent:** 31 August 2015 10:00 PM
**To:** arnaud.bonnet@embraer.com.br; SAGUES, Camille; daniel.m.allyn@boeing.com; david.anvid@delta.com; david.lye@aero.bombardier.com; domingo.sepulveda@pw.utc.com; erika.herms@easa.europa.eu; Eric.Upton@gulfstream.com; SMIT, Hans; jean-luc.kittery@aviation-civile.gouv.fr; krisha.nobrega@embraer.com.br; Laszlo.Windhoffer@faa.gov; maryalice.locke@faa.gov; mike.garrison@boeing.com; Maeroff.Bruce@epa.gov; manning.bryan@epa.gov; NDickson@icao.int; HUSSE, Olivier; paul.peeters1000@gmail.com; Ralph.Iovinelli@faa.gov; Roger.Worth@dft.gsi.gov.uk; stephen.arrowsmith@easa.europa.eu; samulski.michael@epa.gov; werner.hoermann@easa.europa.eu; xiaojunyoung@hotmail.com; Yen.David@epa.gov; tsuboi-k2wc@mlit.go.jp
**Subject:** CO2DB Call. 1 September, 2015. 9:30 EDT/15:30 CEST

Hello Colleagues,

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a) New spreadsheet: CO2DB options
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4) Next Steps
a) Call on 29 Sept.
b) WG3 Meeting in October
c) Report to CAEP/10 in February

5) AoB

We will happily be able to use the normal FAA $CO_2$ line that Laszlo has offered.

We look forward to a useful, productive call.

-Eric and Cullen

**Telecon and Webex information (usual WG3 webex/telecon line):**
*Toll-free dial-in number (U.S. and Canada):* Ex. 6 - Personal Privacy
*International dial-in number:* Ex. 6 - Personal Privacy
*Passcode:* Ex. 6 - Personal Privacy
*Webex access:* Ex. 6 - Personal Privacy *and, when requested on this website, use the above toll-free number as the meeting number and the passcode as the code.*

Eric Upton, PhD
Environmental/Performance Specialist
Gulfstream Aerospace Corporation
Eric.Upton@gulfstream.com
ph: 912-395-8458
fax: 912-965-8850

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**To:** Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Eric.Upton@gulfstream.com
**Sent:** Mon 8/31/2015 6:04:56 PM
**Subject:** CO2DB Call. 1 September, 2015. 9:30 EDT
CO2DB Options v1 - Aug 25.xlsx
ICAO Aircraft CO2 Emissions Databank Introduction Text - v7 27Aug2015 redline.docx

Hi Cullen,

I thought this went to you last week, but that was when IT was reinstalling Lotus Notes... oops...

I'll send it to everyone in a little while...

Let me know what you think if you have a few minutes...

-Eric

Hello Colleagues,

It has been a long while since our last CO2DB call, and quite a lot has happened, much of it unexpected.

We've put together an agenda to run over this week and hopefully put us in good shape for the next call and work after that.

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    a) Three positions coming out of Belfast
    b) Request to SG for a downselect
    c) SG gives the DB a new name... the ICAO $CO_2$ Certification Database
    d) SG does not downselect -- timeline does not demand it
3) Since SG
    a) New spreadsheet: CO2DB options
    b) Revised introductory text
4) Next Steps
    a) Call on 29 Sept.
    b) WG3 Meeting in October
    c) Report to CAEP/10 in February
5) AoB

We will happily be able to use the normal FAA CO2 line that Laszlo has offered.

We look forward to a useful, productive call.

-Eric and Cullen

**Telecon and Webex information (usual WG3 webex/telecon line)**:
*Toll-free dial-in number (U.S. and Canada):* Ex. 6 - Personal Privacy
*International dial-in number:* Ex. 6 - Personal Privacy
*Passcode:* Ex. 6 - Personal Privacy

*Webex access:* **Ex. 6 - Personal Privacy** *and, when requested on this website, use the above toll-free number as the meeting number and the passcode as the code.*

Eric Upton, PhD
Environmental/Performance Specialist
Gulfstream Aerospace Corporation
Eric.Upton@gulfstream.com
ph: 912-395-8458
fax: 912-965-8850

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**To:** Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Eric.Upton@gulfstream.com
**Sent:** Thur 8/27/2015 5:44:27 PM
**Subject:** Introduction updates
ICAO Aircraft CO2 Emissions Databank Introduction Text - v7 27Aug2015 redline.docx

Hi Cullen,

Here's an updated copy of the introduction.

I changed all of the name references to the correct name (and then accepted those changes to avoid a silly number of tracked changes).

**Ex. 5 - Deliberative Process**

Finally, I made a few sporadic changes that looked good after not having really looked at this in a while...

Anyway, if you think it's good, I'll send it out tomorrow with the new spreadsheet.

I guess we'll need an agenda...

Regards,

Eric Upton, PhD
Environmental/Performance Specialist
Gulfstream Aerospace Corporation
Eric.Upton@gulfstream.com
ph: 912-395-8458
fax: 912-965-8850

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**Cc:** Stephen Arrowsmith[stephen.arrowsmith@easa.europa.eu]
**To:** Eric Upton[eric.upton@gulfstream.com]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Paul Peeters (Gmail)
**Sent:** Wed 4/22/2015 7:52:27 PM
**Subject:** CO2db intro text
ICAO Aircraft CO2 Emissions Databank Introduction Text - v3+mjg+pp + SA + PP.docx

Dear Eric, Cullen,

**Ex. 5 - Deliberative Process**

Best regards,

Paul Peeters
(associate professor sustainable transport&tourism of CSTT, NHTV Breda University of Applied Sciences)

**Ex. 6 - Personal Privacy**

**To:** Manning, Bryan[manning.bryan@epa.gov]; Mueller, John[mueller.john@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Yen, David
**Sent:** Thur 3/26/2015 12:50:01 PM
**Subject:** FW: CO2Db Call 4
ICAO Aircraft CO2 Emissions Databank Introduction Text - v2 - clean +MJG+PP+DY.docx

I just added a comment and a minor edit to Paul's version. Please add yours if any before sending it to the wider group.

Thanks,

David

**From:** Paul Peeters ( Ex. 6 - Personal Privacy
**Sent:** Thursday, March 26, 2015 5:47 AM
**To:** Leggett, Cullen; Eric Upton
**Cc:** Anvid, David H; Mike Garrison; Ralph Lovinelli; Roger Worth; Stephen Arrowsmith; Laszlo Windhoffer; NDickson@icao.int; Manning, Bryan; Samulski, Michael; Yen, David; Maeroff, Bruce; xiaojunyoung( Ex. 6 - Personal Privacy maryalice.locke@faa.gov; CAMILLE.SAGUES@airbus.com; Hans.Smit@airbus.com; olivier.husse@airbus.com; domingo.sepulveda@pw.utc.com; Allyn, Daniel M; david.lye@aero.bombardier.com; werner.hoermann@easa.europa.eu; jean-luc.kittery@aviation-civile.gouv.fr; erika.herms@easa.europa.eu; krisha.nobrega@embraer.com.br; tpohle@airlines.org; roetgert@iata.org; Mueller, John
**Subject:** Re: CO2Db Call 4

Dear Cullen, Eric, all,

Please find attached some edits and suggestions from ICSA. One main suggestion would be to Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

With best regards,

Paul Peeters

(associate professor sustainable transport&tourism of CSTT, NHTV Breda University of Applied Sciences)

**Ex. 6 - Personal Privacy**

On 24 Mar 2015, at 3:17, Garrison, Mike <mike.garrison@boeing.com> wrote:

See comments and suggested edits.

**From:** Leggett, Cullen [mailto:Leggett.Cullen@epa.gov]
**Sent:** Monday, March 23, 2015 6:50 PM
**To:** Anvid, David H; Ralph.Iovinelli@faa.gov; Roger.Worth@dft.gsi.gov.uk; stephen.arrowsmith@easa.europa.eu; Laszlo.Windhoffer@faa.gov; NDickson@icao.int; paul.peeters Ex. 6 - Personal Privacy Manning, Bryan; Samulski, Michael; Yen, David; Maeroff, Bruce; xiaojunyoung Ex. 6 - Personal Privacy maryalice.locke@faa.gov; CAMILLE.SAGUES@airbus.com; Hans.Smit@airbus.com; olivier.husse@airbus.com; domingo.sepulveda@pw.utc.com; Allyn, Daniel M; Garrison, Mike; david.lye@aero.bombardier.com; werner.hoermann@easa.europa.eu; jean-luc.kittery@aviation-civile.gouv.fr; erika.herms@easa.europa.eu; krisha.nobrega@embraer.com.br; tpohle@airlines.org; roetgert@iata.org; Mueller, John
**Cc:** Eric.Upton@gulfstream.com
**Subject:** CO2Db Call 4

Colleagues,

Below is an agenda for tomorrow's CO2Db Call. I've attached the notes from Call 3, and a first

draft of an introduction text for the database.

**Ex. 5 - Deliberative Process**

USA Toll-Free: Ex. 6 - Personal Privacy

International: Ex. 6 - Personal Privacy

ACCESS CODE: Ex. 6 - Personal Privacy

<ICAO Aircraft CO2 Emissions Databank Introduction Text - v2 - clean +MJG.docx>

**To:** Mueller, John[mueller.john@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 5/18/2017 8:29:05 PM
**Subject:** Annex 16, Vol III Green Edition - IGIA review
6.57-AX16-Volume III-Adoption of First Edition-ASSIGN.doc
6.57-AX16-Volume III-Adoption of First Edition-EFOD Form-ASSIGN.doc
SL 17-50-AX16-Vol III-Adoptin of First Edition.pdf

Hi, Attached please find the green edition of Annex 16, Volume III (CO2 standards). We need to provide comments, if any, by June 21.

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** 9-AWA-API-IGIA@faa.gov [mailto:9-AWA-API-IGIA@faa.gov]
**Sent:** Thursday, May 18, 2017 4:06 PM
**To:** adrienne.vanek@faa.gov; donald.scata@faa.gov; victoria.m.williams@faa.gov
**Cc:** ed.ctr.firth@faa.gov; JRooney@Comtechllc.com; victoria.m.williams@faa.gov; ed.ctr.firth@faa.gov; Carmen.Breiding@faa.gov; brandon.leblanc@faa.gov; Leah.Moebius@faa.gov; stacey.herishen-smith@faa.gov; Walklet-TigheM@state.gov; 9-aot-decm-prod@faa.gov; ed.ctr.firth@faa.gov; cassandra.jordan@faa.gov; victoria.m.williams@faa.gov; daniel.vaca@faa.gov; ed.ctr.firth@faa.gov; raymond.swider@osd.mil; sydney.e.tutein@us.army.mil; michael.givens@faa.gov; usaf.pentagon.af-a3-5.mbx.af-igia-workflow@mail.mil; jcasey@airlines.org; Alexis.Haakensen@trade.gov; keh@asri.aero; pdoell@naca.cc; craig.spence@aopa.org;

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**Subject:** Action for AEE1, : From ICAO Montreal - Annex 16 (Environmental Protection) - Assignment of Agency to ICAO Letter Regarding Adoption of the First Edition of Anne 16, Volume III

The attached letter is assigned to AEE1, for response by November 01, 2017

# Ex. 5 - Deliberative Process

*For more information, contact us:*
Federal Aviation Administration
Interagency Group on International Aviation (IGIA)
9-AWA-API-IGIA@faa.gov

Fax: (202) 267-5499

Victoria M. Williams
Principal Staff Officer
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**To:** Bonnefoy, Philippe [USA][bonnefoy_philippe@bah.com]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Shouse, Kate[Shouse.Kate@epa.gov]; Zawacki, Margaret[zawacki.margaret@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]; Sarofim, Marcus[Sarofim.Marcus@epa.gov]; Hight, Cate[Hight.Cate@epa.gov]; Fawcett, Allen[Fawcett.Allen@epa.gov]
**From:** Yen, David
**Sent:** Wed 5/10/2017 4:22:16 PM
**Subject:** RE: MDG/FESG CBA Meeting/Call - Notes and Documents
20170323_CBA Tool Documentation_v2_EPA.xlsx

Hi Philippe,

**Ex. 5 - Deliberative Process**

I will be on vacation next Monday and not able to attend the CBA Task Group call. Please contact Cullen if you have any questions about our updates.

Thanks,

David

**From:** Bonnefoy, Philippe [USA] [mailto:bonnefoy_philippe@bah.com]
**Sent:** Tuesday, April 18, 2017 5:13 AM
**To:** Yen, David <Yen.David@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** FW: MDG/FESG CBA Meeting/Call - Notes and Documents

Cullen, David,

**Ex. 5 - Deliberative Process**

Let me know if you have any questions or need any additional information,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

**Ex. 6 - Personal Privacy**

bonnefoy_philippe@bah.com

**From:** Bonnefoy, Philippe [USA]
**Sent:** Tuesday, April 18, 2017 3:45 AM
**To:** daniel.m.allyn@boeing.com; Sathya.Balasubramanian.CTR@dot.gov; ivan.de-lepinay@easa.europa.eu; gareth.Horton@ricardo-aea.com; uj@janicke.de; Mikael.LABY@airbus.com; d.s.lee@mmu.ac.uk; leggett.cullen@epa.gov; L.Lim@mmu.ac.uk; maryalice.locke@faa.gov; paul.madden@rolls-royce.com; McConnachie, Dominic [USA] <McConnachie_Dominic@bah.com>; b.owen@mmu.ac.uk; David.Pace@dot.gov; tpohle@airlines.org; Jonathan.Saks@dft.gsi.gov.uk; VWSACS@engr.psu.edu; yen.david@epa.gov; zap@nau.edu.ua; S.Balasubramania.CTR@dot.gov; roger.schaufele@faa.gov; mark.a.augustyniewicz@boeing.com; james.hileman@faa.gov; aa681@mit.edu; Akshat Agarwal <akshat.agarwala93@gmail.com>; wolfe.philip@epa.gov; Daniel Jacob <Daniel.Jacob@faa.gov>; Fabio.Grandi@faa.gov; Emilia Suomalainen <emilia.suomalainen@env-isa.com>
**Subject:** MDG/FESG CBA Meeting/Call - Notes and Documents

Dear CBA Group Members,

Ex. 5 - Deliberative Process

Let me know if you have any questions or need additional information,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

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Boston, MA 02109

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**Ex. 6 - Personal Privacy**

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**To:** Giannelli, Bob[Giannelli.Bob@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Mueller, John[mueller.john@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Yen, David[Yen.David@epa.gov]; Stevens, JeffreyA[Stevens.JeffreyA@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 10/17/2016 4:32:39 PM
**Subject:** Agenda: FAA bi-weekly call (PLEASE REVIEW)

Hello,

Below are suggested agenda items for the FAA bi-weekly call today at 2:00. Let me know if you have anything to add. Note, Mike will not be able to make this call today (something came up just this morning).

**Ex. 5 - Deliberative Process**

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

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manning.bryan@epa.gov

**To:** Samulski, Michael[samulski.michael@epa.gov]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Yen, David[Yen.David@epa.gov]; Giannelli, Bob[Giannelli.Bob@epa.gov]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 10/3/2016 3:27:10 PM
**Subject:** Agenda items for FAA call today

Hi Mike,

Below are suggested agenda items for the FAA biweekly call today. Any comments? If you are okay with these agenda items, can you send them to Ralph before the call?

**Ex. 5 - Deliberative Process**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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sylvie.mallet@tc.gc.ca[sylvie.mallet@tc.gc.ca]; SMarchand@unfccc.int[SMarchand@unfccc.int];
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willem.franken@easa.europa.eu[willem.franken@easa.europa.eu]; Xoh@aci.aero[Xoh@aci.aero]; i-yamada@aeif.or.jp[i-yamada@aeif.or.jp]; yongchang.li@ae.gatech.edu[yongchang.li@ae.gatech.edu]; yuriy.medved[Ex. 6 - Personal Privacy]
**Cc:** Gregg.Fleming@dot.gov[Gregg.Fleming@dot.gov]
**From:** Gregg.Fleming@dot.gov
**Sent:** Tue 11/3/2015 9:20:16 PM
**Subject:** MDG-Only Call
CAEP10-WP_xxx_Coordination_11_3_15.docx
CAEP10-WP_xxx_Feasibility Analysis_11_3_15.docx
CAEP10-WP_xxx_MDG Progress Report_11_3_15.docx
CAEP10-WP_xxx_Model and Database Evaluation_11_3_15.docx
CAEP10-WP_xxx_Draft Noise Trends Results_11_3_15.pptx
CAEP10-IP_xxx_Model and Databse Evaluation_11_3_15.doc

Folks –

Immediately following the CO2-related call, we'll have an MDG-only call which will focus on the status of the non-CO2, MDG-centric papers.

The list of MDG-centric papers are as follows (current status of most are attached):

| | | | |
|---|---|---|---|
| MDG | WP - Coordination (Joint with all WGs) | ALL | 4 pages (body only)<br>**All new text |
| | WP - MDG Work Programme Overview | 2 | 4 pages (body only)<br>**All new text |
| | WP - CO2 Standard Analysis (Joint with FESG) | 5 | 4 pages (body only)<br>**All new text |
| | WP - Noise Trends | 1 | 4 pages (body only)<br>**All new text |
| | WP - Local Air Quality Trends | 1 | 4 pages (body only) |

| | | | |
|---|---|---|---|
| | | | **All new text |
| | WP - CO2 and Fuel Burn Trends | 1 | 4 pages (body only)<br>**All new text |
| | WP - ICAO Doc 9911 Update | 2 | 4 pages (body only)<br>**All new text |
| | WP - Feasibility of Climate Change Goals | 1 | 4 pages (body only)<br>**All new text |
| | WP - ICORAS Evaluation Report | 2 | 4 pages (body only)<br>**All new text |
| | WP- Model Evaluation Report | 2 | 4 pages (body only)<br>**All new text |
| | IP-Model Evaluation | 2 | English only |

For this call, we'll use the following number:

Ex. 6 - Personal Privacy

Best,

Gregg and Urs

**From:** maryalice.locke@faa.gov [mailto:maryalice.locke@faa.gov]
**Sent:** Tuesday, November 03, 2015 9:00 AM
**To:** Fleming, Gregg G (VOLPE) <Gregg.Fleming@dot.gov>; Adrienne.Vanek@faa.gov; asoebagio@icao.int; 1983.korolkov@gmail.com; alexandre.filizola@anac.gov.br; amiraa.elsayed Ex. 6 - Personal Privacy; andi_ranreng Ex. 6 - Personal Privacy; andrea.macera@anac.gov.br; HardemanA@iata.org; andrew.chuang@boeing.com; Andrew.Gordon@airbus.com; mirzoyan@ciam.ru; aude.malige@aviation-civile.gouv.fr; bengt-olov@nace.se; B.Owen@mmu.ac.uk; bill.hemmings@transportenvironment.org; RMPAero@frontier.com; robert.b.solaimani@boeing.com; caio.vianna@anac.gov.br; camille.sagues@airbus.com; catherine.marthe@bazl.admin.ch; charles.etter@gulfstream.com; chirag.menon@icfi.com; chris@limitedskies.com; Christopher.Dorbian@faa.gov; cristiano.villa@anac.gov.br; Leggett.Cullen@epamail.epa.gov; curtis.holsclaw@faa.gov; daniel.m.allyn@boeing.com; daniel.brown@honeywell.com; dan@theicct.org; daniel.hiltbrunner@bazl.admin.ch; darren.rhodes@caa.co.uk; David.Carruthers@cerc.co.uk; david.w.forsyth@boeing.com <boeing> <david.w.forsyth@boeing.com>; dmjensen@fedex.com; D.S.Lee@mmu.ac.uk; david.lye@aero.bombardier.com; david.marsh@eurocontrol.int; Pace, David (VOLPE) <David.Pace@dot.gov>; Yen.David@epa.gov; dick.bergmans@nlr.nl; rmarchi@aci-na.org; domingo.sepulveda@pw.utc.com; McConnachie_Dominic@bah.com; dominique.collin@snecma.fr; dongwook.lim@ae.gatech.edu; Donald.Scata@faa.gov; donna.perera@infrastructure.gov.au; edward.weston@caa.co.uk; ecotti@nbaa.org; emanuel.fleuti@zurich-airport.com; emilia.suomalainen@env-isa.com; Boeker, Eric (VOLPE) <Eric.Boeker@dot.gov>; Eric.Upton@gulfstream.com; Fabio.Grandi@faa.gov; fabrice.valentin@airbus.com; flynvanewijk@qantas.com.au; Frank.Wetzel@uba.de; gareth.Horton@ricardo-aea.com; George.Georgiou@aero.bombardier.com; gmcdonald@icfi.com; gresiak@icao.int; hazel.peace@ricardo-aea.com; h-hashimoto@center.aeif.or.jp; aviamarket@gosniiga.ru; mymanikam@yahoo.com; ivan.de-lepinay@easa.europa.eu; Wishart, Jacob (VOLPE) <Jacob.Wishart@dot.gov>; jean-michel.boiteux@snecma.fr; jermanto Ex. 6 - Personal Privacy; Jia.Yu@utas.utc.com; johan.skjal@trafi.fi; Jonathan.Saks@dft.gsi.gov.uk; jon.hart@Rolls-Royce.com; Jorge.Silveira@anac.gov.br; joseph.zelina@ge.com; Julie.Marks@faa.gov; perovicj@iata.org; julien.lepoutre@aviation-civile.gouv.fr; kai.bauer@easa.europa.eu; karin@theicct.org; kazhank Ex. 6 - Personal Privacy synyka Ex. 6 - Personal Privacy; kpreston@aci-na.org; Kevin.Goddard@airbus.com; Kevin.Welsh@faa.gov;

kevin.guittet@aviation-civile.gouv.fr; krisha.nobrega@embraer.com.br; Lewis, Kristin (VOLPE) <Kristin.Lewis@dot.gov>; laurence.gray@pw.utc.com; Laszlo.Windhoffer@faa.gov; laurent.box@eurocontrol.int; laurent.cavadini@eurocontrol.int; Lourdes.Maurice@faa.gov; xnma@cauc.edu.cn; marc.mounier@gva.ch; margaretta.rozetta@gmail.com; marie.hankanen@transportstyrelsen.se; mark.a.augustyniewicz@boeing.com; mark.huising@aero.bombardier.com; mark.jackson@cerc.co.uk; Mark.Thompson@dft.gsi.gov.uk; maryalice.locke@faa.gov; m-sugawara@center.aeif.or.jp; adamm@iata.org; michelle.kirby@ae.gatech.edu; Mikael.LABY@airbus.com; mkartyshev@yandex.ru; mrashwan@egyptair.com; muni.majjigi@ae.ge.com; CMustapha@icao.int; nyoung@airlines.org; nandi_w[redacted]; nicolas@env-isa.com; oa_kartyshev@mail.ru; zap@nau.edu.ua; olivier.husse@airbus.com; olivier.penanhoat@snecma.fr; Pascal.Genevieve@aero.bombardier.com; paul.madden@rolls-royce.com; paul.peeters[redacted]; zimm.peter@icfi.com; bonnefoy_philippe@bah.com; pierre.lempereur@airbus.com; rachid.tiroual[redacted]; rakhmat.komara@dephub.go.id; Ralf.Berghof@dlr.de; Ralph.Iovinelli@faa.gov; raul@inti.gob.ar; robby.lapointe@aero.bombardier.com; robin.deransy@eurocontrol.int; rodrigo.padilha@anac.gov.br; roger.schaufele@faa.gov; Roger.worth@dft.gsi.gov.uk; rudolph.dudebout@honeywell.com; Balasubramanian, Sathya CTR (VOLPE) <S.Balasubramania.CTR@dot.gov>; Scott.McKibbon@ec.gc.ca; sean.a.newsum@boeing.com; aeroacoustics@mktsagi.ru; shona.rosengren@infrastructure.gov.au; stephen.arrowsmith@easa.europa.eu; sylvie.mallet@tc.gc.ca; SMarchand@unfccc.int; tthrasher@icao.int; Thierry.NOWACZYK@airbus.com; TPohle@airlines.org; uj@janicke.de; urs.ziegler@bazl.admin.ch; willem.franken@easa.europa.eu; Xoh@aci.aero; i-yamada@aeif.or.jp; yongchang.li@ae.gatech.edu; yuriy.medved@gmail.com
**Subject:** 04-November MDG & FESG-STG call info

FYI:

04-NOV @ 9:30am EST (3:30pm CET)Joint MDG/FESG-STG call on CO2ma documentation

11:00am EST (5:00pm CET) MDG-only call

**Teleconference Line**

North America Toll-Free: [redacted]

International: [redacted]

ACCESS CODE: [redacted]

**Webinar**

Web Conference URL: Ex. 6 - Personal Privacy

Meeting Number(s): Ex. 6 - Personal Privacy

Access Code: Ex. 6 - Personal Privacy

Files to be circulated in separate transmission

Regards,

*Maryalice Locke*

Aviation Emissions Division, AEE-300

Office of Environment and Energy

U.S. Federal Aviation Administration

800 Independence Avenue SW, Washington DC 20591

Phone: 202-267-3495

Email: Maryalice.Locke@FAA.gov

==========

From: Locke, Maryalice (FAA)
Sent: Thursday, October 22, 2015 4:23 PM
Subject: CO2ma results with PATR sensitivity results

Attached is an update to the file circulated on Monday; this new file includes the Total Costs with PATR sensitivity results.

Regards,

*Maryalice Locke*

Aviation Emissions Division, AEE-300

Office of Environment and Energy

U.S. Federal Aviation Administration

800 Independence Avenue SW, Washington DC 20591

Phone: 202-267-3495

Email: Maryalice.Locke@FAA.gov

==========

From: Locke, Maryalice (FAA)

Sent: Wednesday, October 21, 2015 5:41 PM

Subject: CO2ma documentation for CAEP/10: ACTION

MDG and FESG-STG,

Attached is the draft joint WP for CAEP/10 regarding $CO_2$ main analysis (CO2ma) results. Note that the figures and much of the text are as provided to SG2015 in WP/18.

Comments on the attached WP, the data distributed Monday-19-October and the IP distributed Wednesday-14-October that are submitted by Monday-26-October will be included in the subsequent draft documentation.

Schedule for further development of the CO2ma documentation for CAEP/10 is as follows.

26-OCT: **Deadline** for submitting edits with track changes to draft CO2ma documentation for CAEP/10

02-NOV: Release revised IP and WP with consolidated comments

04-NOV: Joint MDG/FESG-STG call on CO2ma documentation at 9:30am EST (MDG-only call at 11am EST)

09-NOV: **Deadline** for submitting edits with track changes to draft CO2ma documentation for CAEP/10

16-NOV: Release revised IP and WP with consolidated comments

18-NOV: Joint MDG/FESG-STG call on CO2ma documentation at 10am EST

19-NOV: **Deadline** for submitting final edits with track changes to CO2ma documentation for CAEP/10

23-NOV: Deadline for submitting final IP and WP CO2ma documentation for CAEP/10

Regards,

***Maryalice Locke***

Aviation Emissions Division, AEE-300

Office of Environment and Energy

U.S. Federal Aviation Administration

800 Independence Avenue SW, Washington DC 20591

Phone: 202-267-3495

Email: Maryalice.Locke@FAA.gov

==========

From: Locke, Maryalice (FAA)

Sent: Monday, October 19, 2015 5:09 PM

Subject: CO2ma results

Per action from the recent MDG/FESG-STG meeting, attached are the APMT-E/AEDT model results for all cases and markets. The data in the attached file informs the draft CO2ma documentation for CAEP/10.

I'm behind on getting out the next set of draft CO2ma documentation; but, will issue as soon as possible.

Regards,

***Maryalice Locke***

Aviation Emissions Division, AEE-300

Office of Environment and Energy

U.S. Federal Aviation Administration

800 Independence Avenue SW, Washington DC 20591

Phone: 202-267-3495

Email: Maryalice.Locke@FAA.gov

==========

From: Locke, Maryalice (FAA)

Sent: Wednesday, October 14, 2015 9:12 PM

Subject: CO2ma documentation for CAEP/10: ACTION

MDG and FESG-STG,

An initial call was held on Wednesday-14-October to review progress on CO2ma documentation for CAEP/10.

Participants on the call included the following: Artur Mirzoyan, Bengt-Olov Näs, Bob Peterson, Catherine Marthe, Chris Eyers, Cristiano Villa, Cullen Leggett, Dan Allyn, David Pace, David Yen, Eli Cotti, Fabio Grandi, Gareth Horton, Gregg Fleming, Ivan DeLepinay, Anastasia (Karin) Kharina, Kévin GUITTET, Krisha Nobrega de Lima, Maryalice Locke, Michel Adam, Pascal Genevieve , Paul Madden, Sathya Balasubramanian, Sylvie Mallet, and Yury Medvedev.

Schedule for further developing CO2ma documentation for CAEP/10 is as follows.

14-OCT: Joint MDG/FESG-STG call on CO2ma documentation for CAEP/10 and release of draft IP for review.

19-OCT: Release revised IP with completed appendices –and– target for releasing draft WP for review

26-OCT: **Deadline** for submitting edits with track changes to draft CO2ma documentation for CAEP/10

02-NOV: Release revised IP and WP with consolidated comments

04-NOV: Joint MDG/FESG-STG call on CO2ma documentation at 9:30am EST (MDG-only call at 11am

EST)

09-NOV: **Deadline** for submitting edits with track changes to draft CO2ma documentation for CAEP/10

16-NOV: Release revised IP and WP with consolidated comments

18-NOV: Joint MDG/FESG-STG call on CO2ma documentation at 10am EST

19-NOV: **Deadline** for submitting final edits with track changes to CO2ma documentation for CAEP/10

23-NOV: Deadline for submitting final IP and WP CO2ma documentation for CAEP/10

NOTE that the draft IP is currently 5.5 megabytes and that four appendices are still to be revised.

Regards,

***Maryalice Locke***

Aviation Emissions Division, AEE-300

Office of Environment and Energy

U.S. Federal Aviation Administration

800 Independence Avenue SW, Washington DC 20591

Phone: 202-267-3495

Email: Maryalice.Locke@FAA.gov

**To:** Zawacki, Margaret[zawacki.margaret@epa.gov]; Shouse, Kate[Shouse.Kate@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]; Sarofim, Marcus[Sarofim.Marcus@epa.gov]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Wolfe, Philip[wolfe.philip@epa.gov]; Lindsey, Leah[lindsey.leah@epa.gov]; Gerring, Holly[gerring.holly@epa.gov]
**From:** Yen, David
**Sent:** Thur 4/27/2017 6:39:10 PM
**Subject:** FW: MDG/FESG CBA Meeting/Call - Notes and Documents
20170323_CBA Tool Documentation_v2.xlsx

Hi Molly, Kate, Ken and Marcus,

**Ex. 5 - Deliberative Process**

Best regards,

David

**From:** Bonnefoy, Philippe [USA] [mailto:bonnefoy_philippe@bah.com]
**Sent:** Tuesday, April 18, 2017 5:13 AM
**To:** Yen, David <Yen.David@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** FW: MDG/FESG CBA Meeting/Call - Notes and Documents

Cullen, David,

**Ex. 5 - Deliberative Process**

Let me know if you have any questions or need any additional information,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

Mobile: (617) 513 9211

bonnefoy_philippe@bah.com

**From:** Bonnefoy, Philippe [USA]
**Sent:** Tuesday, April 18, 2017 3:45 AM
**To:** daniel.m.allyn@boeing.com; Sathya.Balasubramanian.CTR@dot.gov; ivan.de-lepinay@easa.europa.eu; gareth.Horton@ricardo-aea.com; uj@janicke.de; Mikael.LABY@airbus.com; d.s.lee@mmu.ac.uk; leggett.cullen@epa.gov; L.Lim@mmu.ac.uk; maryalice.locke@faa.gov; paul.madden@rolls-royce.com; McConnachie, Dominic [USA] <McConnachie_Dominic@bah.com>; b.owen@mmu.ac.uk; David.Pace@dot.gov; tpohle@airlines.org; Jonathan.Saks@dft.gsi.gov.uk; VWSACS@engr.psu.edu; yen.david@epa.gov; zap@nau.edu.ua; S.Balasubramania.CTR@dot.gov; roger.schaufele@faa.gov; mark.a.augustyniewicz@boeing.com; james.hileman@faa.gov; aa681@mit.edu; Akshat Agarwal <akshat.agarwala[Ex. 6 - Personal Privacy]>; wolfe.philip@epa.gov; Daniel Jacob <Daniel.Jacob@faa.gov>; Fabio.Grandi@faa.gov; Emilia Suomalainen <emilia.suomalainen@env-isa.com>
**Subject:** MDG/FESG CBA Meeting/Call - Notes and Documents

Dear CBA Group Members,

# Ex. 5 - Deliberative Process

Let me know if you have any questions or need additional information,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

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bonnefoy_philippe@bah.com

**To:** Yen, David[Yen.David@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Bonnefoy, Philippe [USA]
**Sent:** Tue 4/18/2017 9:12:38 AM
**Subject:** FW: MDG/FESG CBA Meeting/Call - Notes and Documents
20170323_CBA Tool Documentation_v2.xlsx

Cullen, David,

**Ex. 5 - Deliberative Process**

Let me know if you have any questions or need any additional information,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

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50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

Mobile: (617) 513 9211

bonnefoy_philippe@bah.com

**From:** Bonnefoy, Philippe [USA]
**Sent:** Tuesday, April 18, 2017 3:45 AM
**To:** daniel.m.allyn@boeing.com; Sathya.Balasubramanian.CTR@dot.gov; ivan.de-lepinay@easa.europa.eu; gareth.Horton@ricardo-aea.com; uj@janicke.de; Mikael.LABY@airbus.com; d.s.lee@mmu.ac.uk; leggett.cullen@epa.gov; L.Lim@mmu.ac.uk;

maryalice.locke@faa.gov; paul.madden@rolls-royce.com; McConnachie, Dominic [USA] <McConnachie_Dominic@bah.com>; b.owen@mmu.ac.uk; David.Pace@dot.gov; tpohle@airlines.org; Jonathan.Saks@dft.gsi.gov.uk; VWSACS@engr.psu.edu; yen.david@epa.gov; zap@nau.edu.ua; S.Balasubramania.CTR@dot.gov; roger.schaufele@faa.gov; mark.a.augustyniewicz@boeing.com; james.hileman@faa.gov; aa681@mit.edu; Akshat Agarwal <akshat.agarwala93@gmail.com>; wolfe.philip@epa.gov; Daniel Jacob <Daniel.Jacob@faa.gov>; Fabio.Grandi@faa.gov; Emilia Suomalainen <emilia.suomalainen@env-isa.com>
**Subject:** MDG/FESG CBA Meeting/Call - Notes and Documents

Dear CBA Group Members,

**Ex. 5 - Deliberative Process**

Let me know if you have any questions or need additional information,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

Mobile: (617) 513 9211

bonnefoy_philippe@bah.com

**To:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]
**Cc:** Giannelli, Bob[Giannelli.Bob@epa.gov]
**From:** Yen, David
**Sent:** Fri 9/9/2016 3:30:14 AM
**Subject:** RE: Line Loss Correction for MDG Analysis
IP03_CAEP11_FESG-MDG02_APMT-Impacts-CBA.pdf
IP05_CAEP11_FESG-MDG02_CBA Tools Used in EPA Analyses.pdf
WP13_CAEP11_FESG-MDG02_WP13_CBA Group Updates.pdf

Hi Bryan,

# Ex. 5 - Deliberative Process

Best,

David

**From:** Manning, Bryan
**Sent:** Thursday, September 08, 2016 8:58 AM
**To:** Yen, David <Yen.David@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Giannelli, Bob <Giannelli.Bob@epa.gov>
**Subject:** RE: Line Loss Correction for MDG Analysis

David,

Ex. 5 - Deliberative Process

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Yen, David
**Sent:** Wednesday, September 07, 2016 1:35 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Giannelli, Bob <Giannelli.Bob@epa.gov>
**Subject:** Re: Line Loss Correction for MDG Analysis

Ex. 5 - Deliberative Process

Best,

David

---

**From:** Manning, Bryan
**Sent:** Wednesday, September 7, 2016 12:49:24 PM
**To:** Yen, David; Leggett, Cullen; Samulski, Michael
**Cc:** Giannelli, Bob
**Subject:** RE: Line Loss Correction for MDG Analysis

David,

**Ex. 5 - Deliberative Process**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Yen, David
**Sent:** Wednesday, September 07, 2016 12:16 PM
**To:** Leggett, Cullen <Leggett.Cullen@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>
**Subject:** Line Loss Correction for MDG Analysis

Today we are discussing nvPM modeling methods. The current paper (WP06) assumes the EIs for PM mass and number will be line loss corrected coming to MDG. But Paul Madden challenged that as undecided yet. Daniel explained that for inventories it has to be line loss corrected but for stringency and cost effectiveness analyses, it may be either way, in other word the matter (line loss correction or not) is yet undecided in WG3. Is this true? Please advise.

Thanks,

David

**To:** Manning, Bryan[manning.bryan@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Shouse, Kate[Shouse.Kate@epa.gov]; Zawacki, Margaret[zawacki.margaret@epa.gov]; Davidson, Ken[Davidson.Ken@epa.gov]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Yen, David
**Sent:** Mon 8/29/2016 5:37:23 PM
**Subject:** FW: MDG/FESG CBA: Paper for MDG/FESG#2 meeting
20160824_CAEP11_MDG-FESG_#2_WPxx_CBA_DRAFT_v3.0.docx

# Ex. 5 - Deliberative Process

Thanks,

David

**From:** Bonnefoy, Philippe [USA] [mailto:bonnefoy_philippe@bah.com]
**Sent:** Wednesday, August 24, 2016 4:27 PM
**To:** daniel.m.allyn@boeing.com; Sathya.Balasubramanian.CTR@dot.gov; ivan.de-lepinay@easa.europa.eu; gareth.Horton@ricardo-aea.com; uj@janicke.de; Mikael.LABY@airbus.com; d.s.lee@mmu.ac.uk; Leggett, Cullen <Leggett.Cullen@epa.gov>; L.Lim@mmu.ac.uk; maryalice.locke@faa.gov; paul.madden@rolls-royce.com; McConnachie, Dominic [USA] <McConnachie_Dominic@bah.com>; b.owen@mmu.ac.uk; David.Pace@dot.gov; tpohle@airlines.org; Jonathan.Saks@dft.gsi.gov.uk; VWSACS@engr.psu.edu; Yen, David <Yen.David@epa.gov>; zap@nau.edu.ua; S.Balasubramania.CTR@dot.gov; roger.schaufele@faa.gov; mark.a.augustyniewicz@boeing.com; james.hileman@faa.gov
**Subject:** MDG/FESG CBA: Paper for MDG/FESG#2 meeting

CBA Group Members,

Thank you for reviewing our paper for the MDG/FESG#2 meeting. I have received a number of edits including (some) last minute input that was integrated -to the extent possible- in the version attached.

Ex. 5 - Deliberative Process

Let me know if you have any questions,

Best regards,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

Ex. 6 - Personal Privacy

bonnefoy_philippe@bah.com

**From:** Bonnefoy, Philippe [USA]
**Sent:** Monday, August 15, 2016 10:45 AM
**To:** daniel.m.allyn@boeing.com; Sathya.Balasubramanian.CTR@dot.gov; ivan.de-lepinay@easa.europa.eu; gareth.Horton@ricardo-aea.com; uj@janicke.de; Mikael.LABY@airbus.com; d.s.lee@mmu.ac.uk; leggett.cullen@epa.gov; L.Lim@mmu.ac.uk; maryalice.locke@faa.gov; paul.madden@rolls-royce.com; McConnachie, Dominic [USA] <McConnachie_Dominic@bah.com>; b.owen@mmu.ac.uk; David.Pace@dot.gov; tpohle@airlines.org; Jonathan.Saks@dft.gsi.gov.uk; VWSACS@engr.psu.edu; yen.david@epa.gov; zap@nau.edu.ua; S.Balasubramania.CTR@dot.gov; roger.schaufele@faa.gov; mark.a.augustyniewicz@boeing.com; james.hileman@faa.gov
**Subject:** RE: MDG/FESG CBA Meeting/Call #4: Background Material

CBA Group Members,

# Ex. 5 - Deliberative Process

Best regards,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

Mobile: (617) 513 9211

bonnefoy_philippe@bah.com

**From:** Bonnefoy, Philippe [USA]
**Sent:** Friday, August 12, 2016 2:20 PM
**To:** daniel.m.allyn@boeing.com; Sathya.Balasubramanian.CTR@dot.gov; ivan.de-lepinay@easa.europa.eu; gareth.Horton@ricardo-aea.com; uj@janicke.de; Mikael.LABY@airbus.com; d.s.lee@mmu.ac.uk; leggett.cullen@epa.gov; L.Lim@mmu.ac.uk; maryalice.locke@faa.gov; paul.madden@rolls-royce.com; McConnachie, Dominic [USA] <McConnachie_Dominic@bah.com>; b.owen@mmu.ac.uk; David.Pace@dot.gov; tpohle@airlines.org; Jonathan.Saks@dft.gsi.gov.uk; VWSACS@engr.psu.edu; yen.david@epa.gov; zap@nau.edu.ua; S.Balasubramania.CTR@dot.gov; roger.schaufele@faa.gov; mark.a.augustyniewicz@boeing.com; james.hileman@faa.gov
**Subject:** MDG/FESG CBA Meeting/Call #4: Background Material

Dear CBA Members,

In preparation for our next CBA group call on August 15th, below is the proposed agenda. In

addition, attached are;

**Ex. 5 - Deliberative Process**

Please reach out to me if you would like to share and present addition material during our next call.

Below is a reminder of the teleconference and webex information;

**MDG/FESG CBA Meeting/Call #4**
Monday, August 15, 2016
8:30 am | Eastern Daylight Time (New York, GMT-04:00) | 2 hrs

Add to Calendar

When it's time, start your meeting.

**Join by phone**
Call-in toll-free number: Ex. 6 - Personal Privacy
Call-in number: Ex. 6 - Personal Privacy
Show global numbers
Conference Code: Ex. 6 - Personal Privacy

Will look forward to the meeting,

Best wishes,

Philippe

**Philippe A. Bonnefoy, Ph.D.**

**Booz | Allen | Hamilton**

50 Milk Street, 20th Floor

Boston, MA 02109

Office: (617) 428 4437

Ex. 6 - Personal Privacy

bonnefoy_philippe@bah.com

**To:** Samulski, Michael[samulski.michael@epa.gov]
**Cc:** Leggett, Cullen[Leggett.Cullen@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 6/23/2016 6:31:18 PM
**Subject:** RE: Do we need to check in with Bill on FAA's comment for date on CO2 standard NPRM in findings

# Ex. 5 - Deliberative Process

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Samulski, Michael
**Sent:** Thursday, June 23, 2016 2:24 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Do we need to check in with Bill on FAA's comment for date on CO2 standard NPRM in findings

# Ex. 5 - Deliberative Process

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

**********

**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 2:21 PM
**To:** Samulski, Michael <samulski.michael@epa.gov>
**Cc:** Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Do we need to check in with Bill on FAA's comment for date on CO2 standard NPRM in findings

**Ex. 5 - Deliberative Process**

Thanks again,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Samulski, Michael
**Sent:** Thursday, June 23, 2016 2:18 PM
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**Cc:** Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Do we need to check in with Bill on FAA's comment for date on CO2 standard NPRM in findings

# Ex. 5 - Deliberative Process

Mike

**********

Michael Samulski

U.S. Environmental Protection Agency

Office of Transportation and Air Quality

Director, Large Marine and Aircraft Center

1 (734) 214-4532

samulski.michael@epa.gov

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**Cc:** Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** Do we need to check in with Bill on FAA's comment for date on CO2 standard NPRM in findings

Mike,

**Ex. 5 - Deliberative Process**

Thanks,

Bryan

**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 2:06 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

**Ex. 5 - Attorney Client**

Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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manning.bryan@epa.gov

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Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

**From:** Jantarasami, Lesley
**Sent:** Thursday, June 23, 2016 6:22 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi all,

Ex. 5 - Deliberative Process

Lesley

**From:** Thrift, Mike
**Sent:** Wednesday, June 22, 2016 3:40 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

# Ex. 5 - Attorney Client

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**Sent:** Wednesday, June 22, 2016 12:07 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>

Ex. 5 - Deliberative Process

Thanks, Rona

**From:** Whiteman, Chad Ex. 6 - Personal Privacy
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Friday, June 17, 2016 12:01 PM

**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

**Ex. 5 - Deliberative Process**

d

Chad

**From:** Whiteman, Chad
**Sent:** Wednesday, June 15, 2016 4:06 AM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

**Ex. 5 - Deliberative Process**

Let me know if you have any questions.

Thanks,

Chad

**To:** Thrift, Mike[thrift.mike@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]
**Cc:** Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Manning, Bryan
**Sent:** Wed 6/22/2016 6:48:00 PM
**Subject:** OMB is sending another FAA comment to us (timing of CO2 standards rule)

Hello Mike and Melina,

**Ex. 5 - Attorney Client**

# Ex. 5 - Attorney Client

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**To:** Leggett, Cullen[Leggett.Cullen@epa.gov]
**Cc:** Dickson Neil[ndickson@icao.int]
**From:** Артур Мирзоян
**Sent:** Mon 5/16/2016 7:42:28 PM
**Subject:** Re: Draft CO2 Standard Exemption Proposals - WG3 review...
CAEP11_WG3-2_WPXX_RF_Exememptions Tables.pdf

Dear Cullen,

d

**Ex. 5 - Deliberative Process**

Thank you for cooperation,

Best regards,
Artur

16.05.2016, 22:05, "Leggett, Cullen" <leggett.cullen@epa.gov>:

Arthur,

**Ex. 5 - Deliberative Process**

Best regards,

Cullen

**From:** Artur Mirzoyan [mailto:mirzoyan@ciam.ru]
**Sent:** Wednesday, May 11, 2016 7:29 AM
**To:** Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** Re: Draft CO2 Standard Exemption Proposals - WG3 review...

Dear Cullen,

**Ex. 5 - Deliberative Process**

Ex. 5 - Deliberative Process

Best regards,
Artur

Artur,

Ex. 5 - Deliberative Process

Best Regards,
Cullen Leggett
+1 (734) 214-4514
US Environmental Protection Agency

**From:** Dickson, Neil [mailto:NDickson@icao.int]
**Sent:** Friday, April 29, 2016 5:42 PM
**To:** emanuel.fleuti@zurich-airport.com; jscavuzzi@aci.aero; Inger.sturm@cph.dk; ricardo.dupont@anac.gov.br; Marcelo.saito@anac.gov.br; wendy.bailey@tc.gc.ca; david.bilcock( tc.gc.ca; yves.cousineau@tc.gc.ca; Greg.Smallwood@nrc-cnrc.gc.ca; Ex. 6 - Personal Privacy Ex. 6 - Personal Privacy stephen.arrowsmith@easa.europa.eu; ivan.de-lepinay@easa.europa.eu; chris@ limitedskies.com; willem.franken@easa.europa.eu; Erika.herms@easa.europa.eu; werner.hoermann@easa.europa.eu; guy.readman@easa.europa.eu; jonathan.gilad@aviation-civile.gouv.fr; jean-luc.kittery@aviation-civile.gouv.fr; jerome.sarda@aviation-civile.gouv.fr; Martin.Plohr@dlr.de; martin.schaefer@bmvi.bund.de; Frank.Wetzel@uba.de; david.anvid@ delta.com; HardemanA@iata.org; tpohle@airlines.org; RoetgerT@iata.org; daltherr@ aerioncorp.com; Ecotti@NBAA.org; charles.etter@gulfstream.com; Dickson, Neil <NDickson@ icao.int>; arif_fajari@dephub.go.id; denise.ahrens@rolls-royce.com; daniel.m.allyn@ boeing.com; frank.bachman@ge.com; steven.l.baughcum@boeing.com; MBeauregard@AIA C.ca; arnaud.bonnet@embraer.com.br; daniel.carnelly@airbus.com; dominique.collin@ snecma.fr; francis.couillard@safran.fr; guillaume.dehestru@dassault-aviation.com; WCDolejsi@ cessna.textron.com; Jim Dow <Jdow@iccaia.org>; rudolph.dudebout@honeywell.com; Galotti, Vincent <Vgalotti.iccaia@gmail.com>; Mike.garrison@boeing.com; sebastien.harquel@ embraer.com.br; mhinderberger@aerioncorp.com; james.hoke@pw.utc.com; DDHornbaker@ txtav.com; mark.huising@aero.bombardier.com; Olivier.husse@airbus.com; mark.johnson3@ rolls-royce.com; keisuke_nakahama@mitsubishiaircraft.com; david.lye@aero.bombardier.com; paul.madden@rolls-royce.com; muni.majjigi@ge.com; jrmatisheck@aerioncorp.com; kian.mccaldon@pwc.ca; randal.mckinney@pw.utc.com; yoann.mery@snecma.fr; john.morgenstern@lmco.com; hideki_moriai@mhi.co.jp; kevin.morris@adsgroup.org.uk; matthew.r.muehlhausen@boeing.com; krisha.nobrega@embraer.com.br; olivier.penanhoat@ snecma.fr; Thierry.Percheron@dassault-aviation.com; rmpaero@frontier.com; charles.renard@ airbus.com; leslie.riegle@aia-aerospace.org; tim.roesler@liberty.rolls-royce.com; CAMILLE.SA GUES@airbus.com; domingo.Sepulveda@pw.utc.com; simon.smith@rolls-royce.com; frederic.soum@airbus.com; cheikhdjiby.sow@snecma.fr; sturdza@aerioncorp.com; Eric.Upton@ gulfstream.com; yuji_yamamoto@mhi.co.jp; joseph.zelina@ge.com; bill.hemmings@

transportenvironment.org; karin@theicct.org; Ex. 6 - Personal Privacy Dan@theicct.org; kartikadinakartika@gmail.com; fuji@chofu.jaxa.jp; matsukawa-h2fg@mlit.go.jp; h-hashimoto@aeif.or.jp; michael.lunter@minienm.nl; yuriy.medved@gmail.com; mirzoyan@ciam.ru; sipatov@avid.ru; Volkov@ciam.ru; vincent_ng@caas.gov.sg; archillapv@inta.es; arturo.benito@upm.es; aiglesias@mfom.es; thobias.log@transportstyrelsen.se; marie.hankanen@transportstyrelsen.se; Theo.Rindlisbacher@bazl.admin.ch; Ex. 6 - Personal Privacy gursu.tasar@tai.com.tr; chemmotology@ukr.net; V.Deniskov@antonov.kiev.ua; progress@ivchenko-progress.com; 03503@ivchenko-progress.com; Zainal.abidin@emirates.com; s.christie@mmu.ac.uk; hayley.gowen@bis.gsi.gov.uk; d.s.lee@mmu.ac.uk; b.owen@mmu.ac.uk; tom.whitedft.gsi.gov.uk; bonnefoy_philippe@bah.com; rebecca.cointin@faa.gov; nicole.didyk@faa.gov; John.Fisher@faa.gov; Gregg.Fleming@dot.gov; Giannelli, Bob <Giannelli.Bob@epa.gov>; warren.gillette@faa.gov; James.Hileman@faa.gov; curtis.holsclaw@faa.gov; Ralph.Iovinelli@faa.gov; daniel.jacob@faa.gov; Leggett, Cullen <Leggett.Cullen@epa.gov>; maryalice.locke@faa.gov; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; julie.marks@faa.gov; lourdes.maurice@faa.gov; McConnachie_Dominic@bah.com; rick@aerodyne.com; Mueller, John <mueller.john@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; donald.scata@faa.gov; Stevens, JeffreyA <Stevens.JeffreyA@epa.gov>; Adrienne.Vanek@faa.gov; laszlo.windhoffer@faa.gov; Yen, David <Yen.David@epa.gov>
**Subject:** Draft CO2 Standard Exemption Proposals - WG3 review...

Dear WG3,

# Ex. 5 - Deliberative Process

Best regards,

Neil

**Dr Neil Dickson**
Environmental Officer
International Civil Aviation Organization (ICAO)
Air Transport Bureau

tel: +1 514-954-8219 (x6042)
mobile: +1 514-812-0737
email: NDickson@icao.int

*Consider the environment before printing this e-mail*

--
*С уважением,*
*Artur*

mailto:mirzoyan@ciam.ru

**To:** Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Audette, Lucie[audette.lucie@epa.gov]; Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Jantarasami, Lesley
**Sent:** Thur 6/23/2016 9:56:28 PM
**Subject:** RE: Could you add Response to FAA comment - OMB pass back (to SharePoint)

No problem, so the final couple sentences of that paragraph would read:

**Ex. 5 - Deliberative Process**

Correct?

Lesley

**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 5:25 PM
**To:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Cc:** Audette, Lucie <audette.lucie@epa.gov>; Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** Could you add Response to FAA comment - OMB pass back (to SharePoint)

Lesley,

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Thanks,

Bryan

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**To:** Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

# Ex. 5 - Attorney Client

Thanks again,

Bryan

Bryan Manning

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Large Marine and Aviation Center

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Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 3:19 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Attorney Client**

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**Sent:** Thursday, June 23, 2016 12:11 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
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Mike,

**Ex. 5 - Attorney Client**

# Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

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Ann Arbor, MI 48105

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manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 2:10 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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Ex. 5 - Attorney Client

Lesley

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**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

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**Sent:** Wednesday, June 22, 2016 12:07 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** FW: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

Do any of those times work better for you?

Ex. 5 - Attorney Client

Thanks, Rona

**From:** Whiteman, Chad Ex. 6 - Personal Privacy
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

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Ex. 5 - Deliberative Process

Chad

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**Sent:** Friday, June 17, 2016 12:01 PM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

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**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

**Ex. 5 - Deliberative Process**

Thanks,

Chad

---

[1] 80 FR 37758 (July 1, 2015).

**To:** Thrift, Mike[thrift.mike@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Birnbaum, Rona[Birnbaum.Rona@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Schillo, Bruce[Schillo.Bruce@epa.gov]
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**From:** Manning, Bryan
**Sent:** Thur 6/23/2016 9:20:56 PM
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

# Ex. 5 - Attorney Client

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**Sent:** Thursday, June 23, 2016 5:14 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
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Hi Bryan,

Ex. 5 - Attorney Client

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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Ex. 5 - Deliberative Process

Thanks, Rona

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Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Friday, June 17, 2016 12:01 PM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Wednesday, June 15, 2016 4:06 AM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Let me know if you have any questions.

Thanks,

Chad

**To:** Thrift, Mike[thrift.mike@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Birnbaum, Rona[Birnbaum.Rona@epa.gov]; Williams, Melina[Williams.Melina@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]; Schillo, Bruce[Schillo.Bruce@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 6/23/2016 7:23:35 PM
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

# Ex. 5 - Deliberative Process

Thanks again,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 3:19 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM

(2060-AS31)

Ex. 5 - Attorney Client

**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 12:11 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

We just checked with management here, and they had the below suggested text (for inserting in body of text) to partially address FAA's comment.

Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

# Ex. 5 - Attorney Client

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**Sent:** Thursday, June 23, 2016 11:06 AM
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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

# Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 1:11 PM
**To:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM

(2060-AS31)

Ex. 5 - Deliberative Process

**From:** Jantarasami, Lesley
**Sent:** Thursday, June 23, 2016 6:22 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi all,

Ex. 5 - Attorney Client

Lesley

**From:** Thrift, Mike
**Sent:** Wednesday, June 22, 2016 3:40 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

# Ex. 5 - Attorney Client

**From:** Birnbaum, Rona
**Sent:** Wednesday, June 22, 2016 12:07 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** FW: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Deliberative Process**

Thanks, Rona

**From:** Whiteman, Chad **Ex. 6 - Personal Privacy**
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

**Ex. 5 - Deliberative Process**

Chad

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**Ex. 5 - Deliberative Process**

Chad

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**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Deliberative Process**

Thanks,

Chad

**To:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Mueller, John[mueller.john@epa.gov]; Yen, David[Yen.David@epa.gov]
**From:** Manning, Bryan
**Sent:** Thur 2/1/2018 1:18:43 PM
**Subject:** FW: OGC Comments - Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)
P03_Summary 12-13-17+mt+mkw+do.docx

Hi,

**Ex. 5 - Deliberative Process**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Wednesday, January 31, 2018 6:38 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>

**Subject:** FW: Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)

Ex. 5 - Attorney Client

**From:** Orlin, David
**Sent:** Friday, January 19, 2018 10:27 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>
**Subject:** RE: Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

David Orlin

U.S. EPA, Office of General Counsel

(202) 564-1222

**From:** Thrift, Mike
**Sent:** Wednesday, January 17, 2018 6:48 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Orlin, David <Orlin.David@epa.gov>
**Subject:** RE: Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)

Ex. 5 - Attorney Client

**From:** Williams, Melina
**Sent:** Wednesday, January 17, 2018 3:37 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Orlin, David <Orlin.David@epa.gov>
**Subject:** RE: Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**From:** Thrift, Mike
**Sent:** Tuesday, January 16, 2018 8:04 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Orlin, David <Orlin.David@epa.gov>
**Subject:** RE: Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

**From:** Williams, Melina
**Sent:** Tuesday, January 16, 2018 3:54 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Orlin, David <Orlin.David@epa.gov>
**Subject:** RE: Draft Section of Preamble: aircraft CO2 std NPRM (summary of endangerment finding)

Ex. 5 - Attorney Client

Happy to talk further as this progresses,

Melina

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**To:** Zawacki, Margaret[zawacki.margaret@epa.gov]
**Cc:** Davidson, Ken[Davidson.Ken@epa.gov]; Michaels, Harvey[Michaels.Harvey@epa.gov]; Roberts, Sarah[Roberts.Sarah@epa.gov]; Parsons, Christy[Parsons.Christy@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]
**From:** Yen, David
**Sent:** Mon 3/21/2016 7:46:56 PM
**Subject:** RE: additional questions about aircraft emissions
CAEP.10.IP.023.5.en.pdf
CAEP.10.IP.024.5.en.pdf

# Ex. 5 - Deliberative Process

David Yen

Assessment and Standards Division

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

2000 Tarverwood Drive

Ann Arbor, MI 48105

Office phone: (734)214-4103

Email: yen.david@epa.gov

David

**From:** Zawacki, Margaret
**Sent:** Monday, March 21, 2016 2:13 PM
**To:** Yen, David <Yen.David@epa.gov>
**Cc:** Davidson, Ken <Davidson.Ken@epa.gov>; Michaels, Harvey <Michaels.Harvey@epa.gov>; Roberts, Sarah <Roberts.Sarah@epa.gov>; Parsons, Christy <Parsons.Christy@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Leggett, Cullen

<Leggett.Cullen@epa.gov>
**Subject:** FW: additional questions about aircraft emissions

Ex. 5 - Deliberative Process

**From:** Yen, David
**Sent:** Monday, March 21, 2016 2:09 PM
**To:** Zawacki, Margaret <zawacki.margaret@epa.gov>
**Subject:** RE: additional questions about aircraft emissions

Hi Molly,

Ex. 5 - Deliberative Process

Talk to you soon.

Best,

David

**From:** Zawacki, Margaret
**Sent:** Thursday, March 17, 2016 6:54 AM
**To:** Yen, David <Yen.David@epa.gov>
**Cc:** Davidson, Ken <Davidson.Ken@epa.gov>
**Subject:** RE: additional questions about aircraft emissions

Hi David,

Ex. 5 - Deliberative Process

Molly

**From:** Yen, David
**Sent:** Wednesday, March 16, 2016 10:31 AM
**To:** Zawacki, Margaret <zawacki.margaret@epa.gov>
**Subject:** RE: additional questions about aircraft emissions

Hi Molly

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

Best regards,

David Yen

Assessment and Standards Division

Office of Transportation and Air Quality

U.S. Environmental Protection Agency

2000 Tarverwood Drive

Ann Arbor, MI 48105

Office phone: (734)214-4103

Email: yen.david@epa.gov

**From:** Zawacki, Margaret
**Sent:** Monday, March 14, 2016 3:35 PM
**To:** Yen, David <Yen.David@epa.gov>
**Subject:** additional questions about aircraft emissions

Hi David,

Ex. 5 - Deliberative Process

Hope this is helpful! Let me know if you have questions - Molly

Molly Zawacki

US EPA Office of Transportation and Air Quality
Assessment and Standards Division
2000 Traverwood Drive
Ann Arbor, MI 48105
Phone: 734.214.4472

Available:

Mondays and Wednesdays 8:30 to 5

Tuesdays and Thursdays 6 to 2:30

**To:** Williams, Melina[Williams.Melina@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**From:** Audette, Lucie
**Sent:** Thur 7/7/2016 3:46:46 PM
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

OK that's fine.

**From:** Williams, Melina
**Sent:** Thursday, July 07, 2016 11:46 AM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

**Ex. 5 - Attorney Client**

Thanks,

Melina

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

The contents of this e-mail and any attachments to it may contain deliberative-process, attorney-client, attorney work product, or otherwise privileged material. Do not distribute outside of EPA or DOJ.

**From:** Audette, Lucie
**Sent:** Thursday, July 07, 2016 11:21 AM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

**Ex. 5 - Attorney Client**

**From:** Williams, Melina
**Sent:** Thursday, July 07, 2016 11:16 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Hi all,

**Ex. 5 - Attorney Client**

Ex. 5 - Attorney Client

Thanks,

Melina

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**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 5:21 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Ex. 5 - Attorney Client

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 5:14 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

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**From:** Williams, Melina
**Sent:** Thursday, June 23, 2016 2:09 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona

<Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Hi Bryan,

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** One last question on response to FAA dates comment (comment bubble response)

Mike,

# Ex. 5 - Attorney Client

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

# Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

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manning.bryan@epa.gov

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**Sent:** Thursday, June 23, 2016 1:11 PM
**To:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

**From:** Jantarasami, Lesley
**Sent:** Thursday, June 23, 2016 6:22 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi all,

Ex. 5 - Attorney Client

Lesley

**From:** Thrift, Mike
**Sent:** Wednesday, June 22, 2016 3:40 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

# Ex. 5 - Attorney Client

**From:** Birnbaum, Rona
**Sent:** Wednesday, June 22, 2016 12:07 PM

**To:** Williams, Melina <Williams.Melina@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** FW: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Attorney Client**

Thanks, Rona

**From:** Whiteman, Chad **Ex. 6 - Personal Privacy**
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Deliberative Process**

Chad

**From:** Whiteman, Chad
**Sent:** Friday, June 17, 2016 12:01 PM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Deliberative Process**

Chad

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**Sent:** Wednesday, June 15, 2016 4:06 AM
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**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

**Ex. 5 - Deliberative Process**

Let me know if you have any questions.

Thanks,

Chad

**To:** Audette, Lucie[audette.lucie@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**From:** Williams, Melina
**Sent:** Thur 7/7/2016 3:45:39 PM
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

**Ex. 5 - Attorney Client**

If you want to leave it in, then I think the text should read something like:

**Ex. 5 - Attorney Client**

Thanks,

Melina

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**From:** Audette, Lucie
**Sent:** Thursday, July 07, 2016 11:21 AM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>

**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Ex. 5 - Attorney Client

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Hi all,

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

Thanks,

Melina

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Okay, Melina and Mike. Your suggestions are helpful. We will use your revised comment bubble response.

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
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Hi Bryan,

**Ex. 5 - Attorney Client**

Ex. 5 - Attorney Client

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** One last question on response to FAA dates comment (comment bubble response)

Mike,

For the comment bubble response (for this FAA comment on dates), would the below response work?

Ex. 5 - Attorney Client

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

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**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

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(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike

**Sent:** Thursday, June 23, 2016 2:10 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
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**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

**Ex. 5 - Attorney Client**

Thank you,

Bryan

Bryan Manning

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2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 1:11 PM
**To:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

# Ex. 5 - Attorney Client

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**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi all,

Ex. 5 - Attorney Client

Lesley

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**Sent:** Wednesday, June 22, 2016 3:40 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

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**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** FW: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

Thanks, Rona

**From:** Whiteman, Chad [Ex. 6 - Personal Privacy
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Friday, June 17, 2016 12:01 PM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

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**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Let me know if you have any questions.

Thanks,

Chad

**To:** Manning, Bryan[manning.bryan@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**From:** Audette, Lucie
**Sent:** Tue 5/24/2016 2:08:26 PM
**Subject:** RE: Adding docket number to commenter name (Aircraft CERT)
1.5.1 RTC version 2.doc
1.5.1 RTC draft .doc

Hi Everyone, Attached are the versions of RTC 1.5.1 that illustrate how the 2 different approaches we discussed yesterday.

**From:** Manning, Bryan
**Sent:** Tuesday, May 24, 2016 9:45 AM
**To:** Audette, Lucie <audette.lucie@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** Adding docket number to commenter name (Aircraft CERT)

**Ex. 5 - Deliberative Process**

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Tuesday, May 24, 2016 9:40 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Molly Teague <Molly_Teague@abtassoc.com>; Matt Malachowski <Matt_Malachowski@abtassoc.com>
**Subject:** RE: section 1.5.1 Reformatted (Aircraft CERT)

Hi Chris and Bryan,

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Thanks,

David

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Monday, May 23, 2016 5:35 PM
**To:** Brunner, Christine
**Cc:** David Cooley; Barbara J. Bauer; Molly Teague
**Subject:** FW: section 1.5.1 Reformatted (Aircraft CERT)

Hello,

Attached is an example of RTC response, which includes a summary of comments and list of commenter. I understand that the exported document from Aircraft CERT will by default include the list of commenters (up front) in each section – as shown in the attachment. However, the exported document will not (by default) include the comment letter number (or docket document number), with the commenter name up front as also shown in the attachment. Is this correct?

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Audette, Lucie
**Sent:** Monday, May 23, 2016 5:11 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** section 1.5.1 Reformatted

# Ex. 5 - Deliberative Process

This message may contain privileged and confidential information intended solely for the addressee. Please do not read, disseminate or copy it unless you are the intended recipient. If this message has been received in error, we kindly ask that you notify the sender immediately by return email and delete all copies of the message from your

system.

**To:** Williams, Melina[Williams.Melina@epa.gov]; Manning, Bryan[manning.bryan@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**From:** Audette, Lucie
**Sent:** Thur 7/7/2016 3:20:56 PM
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Orlin, David <Orlin.David@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
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Hi all,

**Ex. 5 - Attorney Client**

Thanks,

Melina

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Okay, Melina and Mike. Your suggestions are helpful. We will use your revised comment bubble response.

Thanks,

Bryan

Bryan Manning

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Hi Bryan,

**Ex. 5 - Attorney Client**

Ex. 5 - Attorney Client

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Mike,

Ex. 5 - Attorney Client

Thanks,

Bryan

Bryan Manning

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**From:** Thrift, Mike

**Sent:** Thursday, June 23, 2016 2:10 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Attorney Client**

**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 11:06 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

**Ex. 5 - Attorney Client**

Thank you,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 1:11 PM
**To:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Attorney Client**

**From:** Jantarasami, Lesley
**Sent:** Thursday, June 23, 2016 6:22 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>

**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi all,

Ex. 5 - Attorney Client

Lesley

**From:** Thrift, Mike
**Sent:** Wednesday, June 22, 2016 3:40 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

**From:** Birnbaum, Rona
**Sent:** Wednesday, June 22, 2016 12:07 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** FW: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

Ex. 5 - Attorney Client

Thanks, Rona

**From:** Whiteman, Chad [Ex. 6 - Personal Privacy]
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Friday, June 17, 2016 12:01 PM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Wednesday, June 15, 2016 4:06 AM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Let me know if you have any questions.

Thanks,

Chad

**To:** Manning, Bryan[manning.bryan@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**Cc:** Samulski, Michael[samulski.michael@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Orlin, David[Orlin.David@epa.gov]; Thrift, Mike[thrift.mike@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]
**From:** Williams, Melina
**Sent:** Thur 7/7/2016 3:15:42 PM
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Hi all,

**Ex. 5 - Attorney Client**

Thanks,

Melina

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

The contents of this e-mail and any attachments to it may contain deliberative-process, attorney-client, attorney work product, or otherwise privileged material. Do not distribute outside of EPA or DOJ.

**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 5:21 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

**Ex. 5 - Attorney Client**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** Thrift, Mike
**Sent:** Thursday, June 23, 2016 5:14 PM
**To:** Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen

<Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Ex. 5 - Attorney Client

**From:** Williams, Melina
**Sent:** Thursday, June 23, 2016 2:09 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: One last question on response to FAA dates comment (comment bubble response)

Hi Bryan,

Ex. 5 - Attorney Client

Melina Williams | US EPA | Office of General Counsel | Air and Radiation Law Office | Mail Code 2344A | phone: (202) 564-3406 | fax: (202) 564-5603

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**From:** Manning, Bryan
**Sent:** Thursday, June 23, 2016 4:42 PM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** One last question on response to FAA dates comment (comment bubble response)

Mike,

**Ex. 5 - Attorney Client**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

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**Sent:** Thursday, June 23, 2016 3:19 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Mike,

**Ex. 5 - Attorney Client**

Ex. 5 - Attorney Client

Thank you,

Bryan

Bryan Manning

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**Cc:** Samulski, Michael <samulski.michael@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>
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manning.bryan@epa.gov

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**Sent:** Thursday, June 23, 2016 1:11 PM
**To:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

**Ex. 5 - Attorney Client**

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**Sent:** Thursday, June 23, 2016 6:22 AM
**To:** Thrift, Mike <thrift.mike@epa.gov>; Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi all,

**Ex. 5 - Attorney Client**

Lesley

**From:** Thrift, Mike
**Sent:** Wednesday, June 22, 2016 3:40 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>; Williams, Melina <Williams.Melina@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

# Ex. 5 - Attorney Client

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**To:** Williams, Melina <Williams.Melina@epa.gov>; Thrift, Mike <thrift.mike@epa.gov>; Manning, Bryan <manning.bryan@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>; Schillo, Bruce <Schillo.Bruce@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** FW: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Ex. 5 - Attorney Client

Thanks, Rona

**From:** Whiteman, Chad Ex. 6 - Personal Privacy
**Sent:** Wednesday, June 22, 2016 12:41 PM
**To:** Birnbaum, Rona <Birnbaum.Rona@epa.gov>

**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Friday, June 17, 2016 12:01 PM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** 'Jantarasami, Lesley' <Jantarasami.Lesley@epa.gov>
**Subject:** RE: EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

Chad

**From:** Whiteman, Chad
**Sent:** Wednesday, June 15, 2016 4:06 AM
**To:** 'Birnbaum, Rona' <Birnbaum.Rona@epa.gov>
**Cc:** Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>
**Subject:** EO 12866 Comments on EPA Endangerment/Cause Contribute Findings FRM (2060-AS31)

Hi Rona,

Ex. 5 - Deliberative Process

# Ex. 5 - Deliberative Process

Let me know if you have any questions.

Thanks,

Chad

**To:** Manning, Bryan[manning.bryan@epa.gov]; Brunner, Christine[brunner.christine@epa.gov]
**Cc:** Molly Teague[Molly_Teague@abtassoc.com]; Barbara J. Bauer[Barbara_Bauer@abtassoc.com]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** David Cooley
**Sent:** Mon 5/23/2016 8:18:43 PM
**Subject:** RE: Exported RTC document - questions (Aircraft CERT)

I'm available now until 5pm. Feel free to call the number below.

Thanks,

David

--------**David Cooley**

**Senior Analyst** | Environment and Natural Resources | **Abt Associates**

5001 South Miami Boulevard, Suite 210, Durham, NC 27703

T: 919-294-7793 | F: 617-386-7613

www.abtassociates.com

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Monday, May 23, 2016 4:18 PM
**To:** David Cooley; Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie
**Subject:** Exported RTC document - questions (Aircraft CERT)

Hello David,

Are you available for a quick call today?

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Monday, May 23, 2016 1:37 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

Hi Chris and Bryan,

Thanks for this. This is helpful.

David

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Monday, May 23, 2016 1:36 PM
**To:** David Cooley; Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie
**Subject:** RE: Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

# Ex. 5 - Deliberative Process

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Monday, May 23, 2016 1:16 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

Hi Chris and Bryan,

We have completed most of the comment moves, but we have a couple of questions on some of them:

**Ex. 5 - Deliberative Process**

Feel free to give me a call if it's easier to discuss this by phone.

Thanks,

David

--------**David Cooley**

**Senior Analyst** | Environment and Natural Resources | **Abt Associates**

5001 South Miami Boulevard, Suite 210, Durham, NC 27703

T: 919-294-7793 | F: 617-386-7613

www.abtassociates.com

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Friday, May 20, 2016 4:41 PM
**To:** Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie; David Cooley
**Subject:** Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

Hello,

For the new subsections, which were added to CERT yesterday, I have finished making the comment move requests to populate these subsections.

Thanks,

Bryan

P.S. To confirm, the new subsections are highlighted in yellow below.

# Ex. 5 - Deliberative Process

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Thursday, May 19, 2016 4:41 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette,

Lucie <audette.lucie@epa.gov>
**Subject:** RE: New subsections for sections 1.4.2 and 1.4.3 - Aircraft CERT site

Hi Chris and Bryan,

Ex. 5 - Deliberative Process

Thanks,

David

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Thursday, May 19, 2016 3:57 PM
**To:** Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; David Cooley; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie
**Subject:** New subsections for sections 1.4.2 and 1.4.3 - Aircraft CERT site

Hello,

Ex. 5 - Deliberative Process

Ex. 5 - Deliberative Process

Thanks,

Bryan

Ex. 5 - Deliberative Process

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

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Ann Arbor, MI 48105

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manning.bryan@epa.gov

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**To:** Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Subject:** RE: Are you available for a call this morning

Hi Chris and Bryan,

I'm available to talk now, if that works for you. Feel free to call the number below. Or let me know a time that works better for you.

Thanks,

David

--------**David Cooley**

**Senior Analyst** | Environment and Natural Resources | **Abt Associates**

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**To:** David Cooley
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Brunner, Christine
**Subject:** Are you available for a call this morning

Hello David,

Are you available for a call this morning? I have a question about Aircraft CERT, and Chris is not in the office.

Thanks,

Bryan

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Wednesday, May 18, 2016 3:14 PM
**To:** Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>
**Subject:** RE: Request to add 2 Comments contained in Docket and not in Abt's CERT document

Hi Chris,

Ex. 5 - Deliberative Process

Thanks,

David

**From:** Maeroff, Bruce [mailto:Maeroff.Bruce@epa.gov]
**Sent:** Wednesday, May 18, 2016 2:38 PM
**To:** Brunner, Christine
**Cc:** David Cooley; Molly Teague; Manning, Bryan
**Subject:** Request to add 2 Comments contained in Docket and not in Abt's CERT document

Hi Chris,

Ex. 5 - Deliberative Process

Bruce Maeroff

Senior Service America, Inc.

Supporting the U.S. EPA through a Cooperative

Agreement under the SEE Program,

Assessment and Standards Division,

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105 U.S.A.

Cube N130

ph (734) 214-4404  fax (734) 214-4816

maeroff.bruce@epa.gov

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**To:** David Cooley[David_Cooley@abtassoc.com]; Brunner, Christine[brunner.christine@epa.gov]
**Cc:** Molly Teague[Molly_Teague@abtassoc.com]; Barbara J. Bauer[Barbara_Bauer@abtassoc.com]; Maeroff, Bruce[Maeroff.Bruce@epa.gov]; Jantarasami, Lesley[Jantarasami.Lesley@epa.gov]; Leggett, Cullen[Leggett.Cullen@epa.gov]; Audette, Lucie[audette.lucie@epa.gov]
**From:** Manning, Bryan
**Sent:** Mon 5/23/2016 8:17:44 PM
**Subject:** Exported RTC document - questions (Aircraft CERT)

Hello David,

Are you available for a quick call today?

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Monday, May 23, 2016 1:37 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer

<Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

Hi Chris and Bryan,

Thanks for this. This is helpful.

David

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Monday, May 23, 2016 1:36 PM
**To:** David Cooley; Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie
**Subject:** RE: Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

**Ex. 5 - Deliberative Process**

Thanks,

Bryan

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Monday, May 23, 2016 1:16 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

Hi Chris and Bryan,

**Ex. 5 - Deliberative Process**

# Ex. 5 - Deliberative Process

Feel free to give me a call if it's easier to discuss this by phone.

Thanks,

David

--------**David Cooley**

**Senior Analyst** | Environment and Natural Resources | **Abt Associates**

5001 South Miami Boulevard, Suite 210, Durham, NC 27703

T: 919-294-7793 | F: 617-386-7613

www.abtassociates.com

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Friday, May 20, 2016 4:41 PM
**To:** Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie; David Cooley
**Subject:** Completed Move Requests: New Subsections for 1.4.2 and 1.4.3 - Aircraft CERT

Hello,

Ex. 5 - Deliberative Process

Thanks,

Bryan

P.S. To confirm, the new subsections are highlighted in yellow below.

Ex. 5 - Deliberative Process

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Thursday, May 19, 2016 4:41 PM
**To:** Manning, Bryan <manning.bryan@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Leggett, Cullen <Leggett.Cullen@epa.gov>; Audette, Lucie <audette.lucie@epa.gov>
**Subject:** RE: New subsections for sections 1.4.2 and 1.4.3 - Aircraft CERT site

Hi Chris and Bryan,

**Ex. 5 - Deliberative Process**

Thanks,

David

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Thursday, May 19, 2016 3:57 PM
**To:** Brunner, Christine
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; David Cooley; Jantarasami, Lesley; Leggett, Cullen; Audette, Lucie
**Subject:** New subsections for sections 1.4.2 and 1.4.3 - Aircraft CERT site

Hello,

Ex. 5 - Deliberative Process

Thanks,

Bryan

**Ex. 5 - Deliberative Process**

Bryan Manning

U.S. EPA Office of Transportation and Air Quality

Large Marine and Aviation Center

2000 Traverwood Drive

Ann Arbor, MI 48105

(ph) 734-214-4832 (fax) 734-214-4816

manning.bryan@epa.gov

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Thursday, May 19, 2016 11:11 AM
**To:** Manning, Bryan <manning.bryan@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>; Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Subject:** RE: Are you available for a call this morning

Hi Chris and Bryan,

I'm available to talk now, if that works for you. Feel free to call the number below. Or let me know a time that works better for you.

Thanks,

David

--------**David Cooley**

**Senior Analyst** | Environment and Natural Resources | **Abt Associates**

5001 South Miami Boulevard, Suite 210, Durham, NC 27703

T: 919-294-7793 | F: 617-386-7613

www.abtassociates.com

**From:** Manning, Bryan [mailto:manning.bryan@epa.gov]
**Sent:** Thursday, May 19, 2016 11:06 AM
**To:** David Cooley
**Cc:** Molly Teague; Barbara J. Bauer; Maeroff, Bruce; Brunner, Christine
**Subject:** Are you available for a call this morning

Hello David,

Are you available for a call this morning? I have a question about Aircraft CERT, and Chris is not in the office.

Thanks,

Bryan

**From:** David Cooley [mailto:David_Cooley@abtassoc.com]
**Sent:** Wednesday, May 18, 2016 3:14 PM
**To:** Maeroff, Bruce <Maeroff.Bruce@epa.gov>; Brunner, Christine <brunner.christine@epa.gov>
**Cc:** Molly Teague <Molly_Teague@abtassoc.com>; Manning, Bryan <manning.bryan@epa.gov>; Jantarasami, Lesley <Jantarasami.Lesley@epa.gov>; Barbara J. Bauer <Barbara_Bauer@abtassoc.com>
**Subject:** RE: Request to add 2 Comments contained in Docket and not in Abt's CERT document

Hi Chris,

**Ex. 5 - Deliberative Process**

Thanks,

David

**From:** Maeroff, Bruce [mailto:Maeroff.Bruce@epa.gov]
**Sent:** Wednesday, May 18, 2016 2:38 PM
**To:** Brunner, Christine
**Cc:** David Cooley; Molly Teague; Manning, Bryan
**Subject:** Request to add 2 Comments contained in Docket and not in Abt's CERT document

Hi Chris,

# Ex. 5 - Deliberative Process

Bruce Maeroff

Senior Service America, Inc.

Supporting the U.S. EPA through a Cooperative

Agreement under the SEE Program,

Assessment and Standards Division,

Large Marine and Aviation Center

2000 Traverwood Drive

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