ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51, 52, 60, 70 and 71

[EPA–HQ–OAR–2015–0355; FRL–9951–79–OAR]

RIN 2060–AS62

Revisions to the Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas (GHG) Permitting Regulations and Establishment of a Significant Emissions Rate (SER) for GHG Emissions Under the PSD Program

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to revise provisions applicable to greenhouse gases (GHG) in the EPA's Prevention of Significant Deterioration (PSD) and title V permitting regulations. This action is in response to the June 23, 2014, U.S. Supreme Court's decision in *Utility Air Regulatory Group (UARG)* v. *EPA* and the April 10, 2015, Amended Judgment by the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) in *Coalition for Responsible Regulation* v. *EPA*. The proposed PSD and title V revisions involve changes to several regulatory definitions in the PSD and title V regulations, revisions to the PSD provisions on GHG Plantwide Applicability Limitations (PALs), and revisions to other provisions necessary to ensure that neither the PSD nor title V rules require a source to obtain a permit solely because the source emits or has the potential to emit (PTE) GHGs above the applicable thresholds. In addition, the EPA is also proposing a significant emissions rate (SER) for GHGs under the PSD program that would establish an appropriate threshold level below which Best Available Control Technology (BACT) is not required for a source's GHG emissions.

DATES: Comments must be received on or before December 2, 2016.

If anyone contacts us requesting to speak at a public hearing by October 13, 2016, we will hold a public hearing. Additional information about the hearing would be published in a subsequent **Federal Register** notice.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–HQ–OAR–2015–0355, at *http://www.regulations.gov*. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *Regulations.gov*. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (*i.e.*, on the Web, Cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit *http://www2.epa.gov/dockets/commenting-epa-dockets*.

FOR FURTHER INFORMATION CONTACT: Questions concerning this proposed rule should be addressed to Ms. Carrie Wheeler, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Policy Division, (C504–01), Research Triangle Park, NC 27711, telephone number (919) 541–9771, email at *wheeler.carrie@epa.gov*.

To request a public hearing or information pertaining to a public hearing on this proposal, contact Ms. Pamela Long, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Air Quality Policy Division, (C504–01), Research Triangle Park, NC 27711; telephone number (919) 541–0641; fax number (919) 541–5509; email at: *long.pam@epa.gov* (preferred method of contact).

SUPPLEMENTARY INFORMATION: Throughout this document wherever "we," "us," or "our" is used, we mean the EPA.

The information in this **SUPPLEMENTARY INFORMATION** section of this preamble is organized as follows:

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I. General Information

A. To whom does this action apply?

This proposal potentially affects owners and operators of sources in all industry groups, such as the owners and operators of proposed new and modified major stationary sources. The majority of potentially affected categories and entities include:

Industry group	NAICS [a]
Mining	21.
Utilities (electric, natural gas, other systems)	2211, 2212, 2213.
Manufacturing (food, beverages, tobacco, textiles, leather)	311, 312, 313, 314, 315, 316.
Wood product, paper manufacturing	321, 322.
Petroleum and coal products manufacturing	32411, 32412, 32419.
Chemical manufacturing	3251, 3252, 3253, 3254, 3255, 3256, 3259.
Rubber product manufacturing	3261, 3262.
Miscellaneous chemical products	32552, 32592, 32591, 325182, 32551.
Nonmetallic mineral product manufacturing	3271, 3272, 3273, 3274, 3279.
Primary and fabricated metal manufacturing	3311, 3312, 3313, 3314, 3315, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329.
Machinery manufacturing	3331, 3332, 3333, 3334, 3335, 3336, 3339.
Computer and electronic products manufacturing	3341, 3342, 3343, 3344, 3345, 4446.
Electrical equipment, appliance, and component manufacturing	3351, 3352, 3353, 3359.
Transportation equipment manufacturing	3361, 3362, 3363, 3364, 3365, 3366, 3366, 3369.
Furniture and related product manufacturing	3371, 3372, 3379.
Miscellaneous manufacturing	3391, 3399.
Waste management and remediation	5622, 5629.

[a] North American Industry Classification System.

Potentially affected entities also include state, local and tribal permitting authorities [1] responsible for implementing the PSD and title V permitting programs.

As noted, the potentially affected entities could be in any industry group. Thus, the earlier table is not intended to be exhaustive, but rather provides a guide for readers regarding likely affected entities. The EPA believes this table lists the most typical types of affected entities. Other types of entities not listed in the table could also be regulated. To determine if an entity is regulated by this action, the applicability criteria found in the PSD and title V regulations (and which are briefly described in Sections III.A and B of this preamble) should be consulted.

B. Where To Get a Copy of This Document and Other Related Information

In addition to being available in the docket, an electronic copy of this proposal notice will also be available on the World Wide Web. Following signature by the EPA Administrator, a copy of this notice will be posted in the regulations section of our New Source Review (NSR) Web site, under Regulatory Actions, at *http://www.epa.gov/nsr/nsr-regulatory-actions* and the title V Web site, under Current Regulations and Regulatory Actions, at *http://www.epa.gov/title-v-operating-permits/current-regulations-and-regulatory-actions.* A "track changes" version of the full regulatory text that incorporates and shows the full context of the changes in this proposed action is also available in the docket for this rulemaking. In addition to the proposal and regulatory text documents, other relevant documents are located in the docket, including technical support documents referenced in this preamble.

C. What acronyms, abbreviations and units are used in this preamble?

APA Administrative Procedures Act
AQRV[s] Air Quality Related Value[s]
BACT Best Available Control Technology
CAA or Act Clean Air Act
CCS Carbon Capture and Sequestration
CFR Code of Federal Regulations
CH_4 Methane
CO Carbon Monoxide
CO_2 Carbon Dioxide
CO_2e Carbon Dioxide Equivalent
D.C. Circuit United States Court of Appeals for the District of Columbia Circuit
EGU Electric Generating Unit
EIA Economic Impact Analysis
EPA U.S. Environmental Protection Agency
FIP Federal Implementation Plan
FR Federal Register
GHG[s] Greenhouse Gas[es]
GHGRP Greenhouse Gas Reporting Program
GWP Global Warming Potential
HP Horsepower
HFC[s] Hydrofluorocarbons
IC Internal Combustion
ICR Information Collection Request
LAER Lowest Achievable Emission Rate
LDAR Leak Detection and Repair
LDVR Light-Duty Vehicle Rule
NAAQS National Ambient Air Quality Standard
NESHAP National Emission Standard for Hazardous Air Pollutants
NHTSA National Highway Transportation Safety Administration
NO_X Nitrogen Oxides
NO_2 Nitrogen Dioxide
NSPS New Source Performance Standard
NSR New Source Review
OMB Office of Management and Budget
PAL[s] Plantwide Applicability Limitation[s]
PFC[s] Perfluorocarbons
PM Particulate Matter
PSD Prevention of Significant Deterioration
PTE Potential To Emit
RACT Reasonably Available Control Technology
SER Significant Emissions Rate
SF_6 Sulfur Hexafluoride
SIP State Implementation Plan
SO_2 Sulfur Dioxide
TCEQ Texas Commission on Environmental Quality
TIP Tribal Implementation Plan
Tpy Tons Per Year
UARG Utility Air Regulatory Group
UMRA Unfunded Mandates Reform Act
VOC Volatile Organic Compound

II. Overview of the Proposed Rule

The EPA is proposing revisions to the provisions applicable to GHGs in its PSD and title V permitting regulations in order to conform those regulations with the U.S. Supreme Court's decision in *UARG* v. *EPA,* 134 S.Ct. 2427 (2014), and the April 10, 2015, Amended Judgment by the D.C. Circuit in *Coalition for Responsible Regulation* v. *EPA,* Nos. 09–1322, 10–073, 10–1092 and 10–1167 (D.C. Cir. April 10, 2015) (Amended Judgment). Some of these provisions were promulgated as part of

[1] Under the PSD regulations, the entities that implement the program are referred to as "reviewing authorities," while under the title V program the implementing entities are referred to as "permitting authorities." For simplicity, in this preamble we refer to both as "permitting authorities."

the June 3, 2010, regulation titled "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule" [2] (hereinafter "Tailoring Rule"). The D.C. Circuit Amended Judgment ordered that: (1) The regulations under review be vacated to the extent they require a stationary source to obtain a PSD or title V permit solely because the source emits or has the potential to emit GHG above the applicable thresholds and (2) that the EPA consider whether any further revisions to its regulations are appropriate in light of *UARG* v. *EPA* and, if so, that it undertake to make such revisions. The proposed revisions to the PSD and title V GHG permitting regulations include changes to certain regulatory definitions and the PSD PAL provisions applicable to GHGs. In addition, we are proposing to establish a SER for GHGs [3] under the PSD air permitting program to establish an appropriate threshold level below which BACT review is not required for GHG emissions from a source that is required to obtain a PSD permit.

The EPA published an initial set of revisions in light of the *UARG* v. *EPA* decision and the D.C. Circuit's Amended Judgment on August 19, 2015.[4] These revisions removed entire sections and paragraphs that were readily severable from other provisions in the PSD and title V regulations and specifically identified in the D.C. Circuit's Amended Judgment. These removed provisions required a stationary source to obtain a PSD permit solely on the basis of the source's GHG emissions and required that the EPA study and consider further phasing-in the PSD and title V permitting requirements at lower GHG emissions thresholds. Because of the nature of the D.C. Circuit's Amended Judgment, these earlier revisions were ministerial in nature and exempt from notice-and-comment rulemaking procedures under the "good cause" exception of the Administrative Procedure Act (APA).

In this action, the EPA is proposing a second set of regulatory revisions that we believe are necessary to fully implement the *UARG* decision and D.C. Circuit Amended Judgment and further revisions that are appropriate in light of *UARG*. The revisions proposed in this action were not included in the August 19, 2015, rule because the revisions proposed in this action amend, rather than completely remove, text that remains pertinent to the PSD and title V programs as a whole and their continued application to GHGs. As a result, these revisions are not ministerial in nature and not exempt from notice-and-comment rulemaking procedures under the "good cause" exception of the APA. Therefore, this action gives the public an opportunity to comment on how the EPA proposes to revise other parts of its regulations to conform to the Amended Judgment as further explained in Section IV.

In general, this action proposes revisions to the PSD definitions at 40 Code of Federal Regulations (CFR) sections 51.166 and 52.21 for the following terms: "major stationary source," "major modification," "significant," and "subject to regulation." This action also proposes to revise the title V definitions at 40 CFR parts 70 and 71 for the terms "major stationary source" and "subject to regulation." In addition, this action proposes to add a definition of "greenhouse gases" to these PSD and title V regulations, which contains content that was previously part of the definition of "subject to regulation" in each set of regulations. The EPA believes these revisions are appropriate to fully implement the Amended Judgment. We are also proposing to revise the PSD GHG PAL provisions at 40 CFR part 52 to reflect the *UARG* decision, which stated that sources that only emit or have the potential to emit GHGs above the applicable thresholds are no longer required to obtain a PSD permit. Furthermore, we are proposing to revise certain provisions under 40 CFR part 60, which the EPA wrote to ensure that the existing GHG applicability threshold for the PSD BACT requirement continues to apply on an interim basis after this pollutant became regulated under standards set forth in those parts. Finally, we are proposing to revise a few state-specific PSD or title V permitting provisions that, in general, established permitting requirements for sources that only emit or have the potential to emit GHGs above the major source thresholds. We are proposing the revisions listed in this paragraph in response to the D.C. Circuit's directive in the Amended Judgment.

In addition, the EPA is proposing to establish a SER for the pollutant GHGs under the PSD permitting program in response to the *UARG* decision. The U.S. Supreme Court recognized that the EPA did not justify on *de minimis* grounds the 75,000 tons per year (tpy) carbon dioxide equivalent (CO_2e) threshold that currently determines whether GHG BACT is required for "anyway sources." [5] 134 S.Ct. at 2438 n. 3. The U.S. Supreme Court also expressly did not address whether 75,000 tpy CO_2e necessarily exceeds a true *de minimis* level, holding only that the EPA must justify its selection of such a level on proper grounds. 134 S.Ct. at 2449. An "anyway source" in this context refers to a facility or emission source that is otherwise required to obtain a PSD permit based on its emissions of one or more regulated NSR pollutants other than GHG. The U.S. Supreme Court limited the scope of the PSD permitting program to "anyway sources" and added that the EPA may exempt an "anyway source" from the GHG BACT requirement if the source emits a *de minimis* amount of GHGs. 134 S.Ct. at 2449.

In response to the outcome of the *UARG* decision, this rulemaking action proposes a GHG SER that represents a *de minimis* level of GHG emissions for the purposes of determining the applicability of the GHG BACT requirement at "anyway sources," new and modified sources that trigger PSD permitting obligations on the basis of their emissions of air pollutants other than GHGs. If not for provisions that remain in the EPA's definition of "subject to regulation" at this time, any GHG emissions increase at an "anyway source" would be considered "significant" and thus require a newly constructed major source, or a major modification at an existing major source, to undergo PSD BACT review for GHGs.[6]

In July 2014, following the *UARG* decision, the EPA issued a memorandum titled, "Next Steps and Preliminary Views on the Application of Clean Air Act (CAA) Permitting Programs to Greenhouse Gases Following the U.S. Supreme Court's Decision in *UARG* v. *EPA*" (Preliminary Views Memo).[7] In that memorandum

[2] 75 FR 31514, June 3, 2010.

[3] In this document, we reserve the abbreviations "GHG" and "GHGs" to refer to the air pollutant "greenhouse gases," which is defined as the aggregate of six individual greenhouse gases as discussed in Section III C.2 of this preamble. We spell out "greenhouse gas" where we refer more broadly to compounds that trap heat in the atmosphere.

[4] 80 FR 50199, August 19, 2015.

[5] Under existing regulations, a threshold level of 75,000 tpy CO_2e is contained in the definition of a "subject to regulation" to determine the applicability of the GHG PSD permitting requirements to "anyway sources." 40 CFR part 51.166(b)(48)(iv); 40 CFR part 52.21(b)(49)(iv). This value was based principally on addressing potential permitting burdens, but it was not proposed or promulgated as a permanent GHG SER (75 FR 31560).

[6] Definition of "significant," 40 CFR part 51.166(b)(23)(ii) and 40 CFR part 52.21(b)(23)(ii).

[7] Next Steps and Preliminary Views on the Application of Clean Air Act (CAA) Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision in *UARG* v. *EPA*, Memorandum from Janet G. McCabe, Acting Assistant Administrator, Office of Air and Radiation, and Cynthia Giles, Assistant

the EPA explained that, among other things, it would consider whether to promulgate a *de minimis* level.[8] The EPA also explained that, with respect to new "anyway sources," we preliminarily "intend to continue applying the PSD BACT requirements to GHG if the source emits or has the potential to emit 75,000 tpy or more of GHG on a [CO_2e] basis."[9] With respect to modified sources, we said that initially "the EPA intends to continue applying the PSD BACT requirements to GHG if both of the following circumstances are present: (1) The modification is otherwise subject to PSD for a pollutant other than GHG; (2) the modification results in a GHG emissions increase and a net GHG emissions increase equal to or greater than 75,000 tpy CO_2e and greater than zero on a mass basis."[10]

In this proposed rule, based on our technical and legal analyses as described in Section V of this preamble, we are proposing to establish a 75,000 tpy CO_2e SER. We propose to determine that this level represents a *de minimis* level of GHG emissions for purposes of determining whether the GHG BACT review should be required as part of an "anyway source" PSD permit. A 75,000 tpy CO_2e GHG SER, based on our technical analysis, represents a level of GHGs, below which there is trivial or no value in conducting a BACT analysis for GHGs because we would not expect to obtain meaningful GHG reductions from requiring application of BACT at all such sources. In addition, there does not appear to be a basis to set a GHG SER level above 75,000 tpy CO_2e based on our review of the GHG permitting experience to date and the fundamental principles for establishing a *de minimis* exception to a statutory requirement as described in Section V of this preamble. Therefore, we are not considering a GHG SER level greater than 75,000 tpy CO_2e. Finally and although our analysis supports a SER at 75,000 tpy CO_2e, we are soliciting comments on (and associated supporting documentation for) establishing a GHG SER level below 75,000 tpy CO_2e and at or above 30,000 tpy CO_2e. Based on our current understanding, we do not believe there is any basis for a SER level to be established below 30,000 tpy CO_2e, and we are not considering SER values below this level.

Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA, to Regional Administrators, July 24, 2014. Available at *http://www.epa.gov/sites/production/files/2015-12/documents/20140724memo.pdf*.

[8] *Id.* at 4.

[9] *Id.* at 3.

[10] *Id.* at 3.

III. Background

A. PSD Program

Part C of title I of the CAA contains the requirements for the PSD program. The primary element of this program is a preconstruction review and permitting requirement for new and modified stationary sources of air pollution locating in areas meeting a national ambient air quality standard (NAAQS) ("attainment" areas) and areas for which there is insufficient information to classify the area as either attainment or nonattainment ("unclassifiable" areas). Under the CAA, the PSD preconstruction permitting requirement applies to any "major emitting facility" that commences construction or undertakes a "modification." CAA 165(a) and CAA 169(2)(C). The Act defines the term "major emitting facility" as a stationary source that emits or has the potential to emit any air pollutant in the amount of at least 100 or 250 tpy, depending on the source category. CAA section 169(1). The Act also defines "modification" as any physical or operational change that increases the amount of any air pollutant emitted by the source. CAA section 111(a)(4).

The EPA's regulations reflect these requirements.[11] Under the regulations, PSD applies to any "major stationary source" that begins actual construction on a new facility or undertakes a "major modification" in an area designated as attainment or unclassifiable for a NAAQS. 40 CFR 52.21(a)(2)(i)–(iii). The regulations define a "major stationary source" as a stationary source that emits, depending on the source category, at least 100 or 250 tpy, of a "regulated NSR pollutant." 40 CFR part 52.21(b)(1)(i)(*a*)–(*b*). A "regulated NSR pollutant" is defined as any of the following: (1) In general, any pollutant subject to a NAAQS, (2) any pollutant subject to a standard of performance for new sources under CAA section 111, (3) any of a certain type of stratospheric ozone depleting substances, or (4) any pollutant that otherwise is subject to regulation under the Act. 40 CFR part 52.21(b)(50)(i)–(iv). Regulated NSR pollutants do not include hazardous air pollutants listed under CAA section 112. 40 CFR part 52.21(b)(v).

Construction of a new major stationary source[12] is subject to preconstruction review under PSD if the source has the potential to emit any regulated NSR pollutant in the amount of at least 100 or 250 tpy, depending on the source category. The PSD permitting requirements then apply to each regulated NSR pollutant that the source would have the potential to emit in "significant amounts." 40 CFR parts 52.21(j); 52.21(m)(1)(i). PSD does not apply to pollutants for which the area in which the source would be located is a nonattainment area (often referred to as "nonattainment pollutants") 40 CFR part 52.21(i)(2). The amount of emissions of each pollutant that is considered significant is specified in the definition of the term "significant." 40 CFR part 52.21(b)(23)(i). Because these values are expressed as a rate of emissions in tpy, the EPA often refers to each value as a "significant emissions rate" or "SER." For any regulated NSR pollutant for which no SER is specified, any emissions rate is considered significant. 40 CFR part 52.21(b)(23)(ii).

The PSD program also applies to an existing major stationary source when there is a planned "major modification" to the source, which is a physical change or change in the method of operation that would result in both a significant emissions increase and a significant net emissions increase of one or more regulated NSR pollutants, other than nonattainment pollutants.[13] The SERs are the measure that is used to determine whether projected emissions increases of regulated NSR pollutants are significant.

One principal PSD requirement is that a permit authorizing construction of a new major source or major modification must contain emissions limitations based on application of the BACT for each regulated NSR pollutant. BACT is

[11] The EPA's PSD regulations are found in two parts of 40 CFR, part 51 and part 52. The part 52 regulations at 40 CFR 52.21 constitute the federal PSD program that applies in any state or other area, such as Indian country, that does not have an approved PSD program in its implementation plan. The part 51 regulations at 40 CFR 51.166 spell out the requirements that must be met for the EPA to approve a PSD program into an implementation plan. The language in the regulations is nearly identical, with small differences reflecting their different purposes. For simplicity, we cite only the 40 CFR part 52 regulations in this section, but the part 51 regulations contain analogous provisions in 40 CFR 51.166.

[12] A new major stationary source can be either a newly constructed facility or a physical change at an existing minor source that would qualify as a major stationary source by itself. 40 CFR 52.21(b)(1)(i)(*c*).

[13] There is a two-step process for determining whether a planned physical or operational change at an existing major stationary source qualifies as a major modification that is subject to PSD. First, the change itself must be projected to result in a significant increase in a regulated NSR pollutant. If so, the change must also be projected to result in a significant net emissions increase of that pollutant when other contemporaneous, creditable increases and decreases of that pollutant at the source are taken into account. This process is spelled out at 40 CFR 52.21(a)(2)(iv); the definition of "major modification" is at 40 CFR 52.21(b)(2) and the definition of "net emissions increase" is at 40 CFR 52.21(b)(3).

determined on a case-by-case basis, taking into account, among other factors, the energy, environmental, and economic impacts. 40 CFR part 52.21(b)(12) and (j). To ensure these criteria are satisfied in individual permitting decisions, the EPA has developed a "top-down" approach for BACT review that the EPA applies and recommends to state permitting authorities. This involves a decision process that includes identification of all available control technologies, elimination of technically infeasible options, ranking of remaining options by control and cost effectiveness, and then selection of BACT. *In re Prairie State Generating Company,* 13 E.A.D. 1, 13–14 (EAB 2006). Under PSD, once a source is determined to be major for any regulated NSR pollutant, a BACT review is performed for each attainment pollutant that is projected to increase over its PSD significance level as a result of new construction or a modification project at an existing major source.

In addition to complying with the BACT requirements, the source must analyze impacts on ambient air quality and demonstrate that the construction will not cause or contribute to a violation of any NAAQS or PSD increments. However, this requirement is not applicable to GHGs because there are no NAAQS or PSD increments for GHGs. A permit applicant must also analyze impacts on soil, vegetation and visibility. In addition, new sources or modifications that would impact Class I areas (*e.g.,* national parks) may be subject to additional requirements to protect air quality related values (AQRVs) that have been identified for such areas (*e.g.,* visibility). Under PSD, if a source's proposed project may impact a Class I area, the Federal Land Manager is notified and is responsible for evaluating a source's projected impact on the AQRVs. Because it is not possible with current climate change modeling to quantify the impacts at particular locations attributable to a specific GHG source, the EPA considers the reduction of GHG emissions to the maximum extent achievable under the BACT requirement to be the best technique to satisfy the additional impacts analysis and Class I area requirements related to GHGs. PSD and Title V Permitting Guidance for Greenhouse Gases at 47–49.[14]

State or local air pollution control agencies issue most PSD permits. The EPA establishes the basic requirements for the PSD program in two sections of its regulations—40 CFR part 51.166 and 52.21. Under 40 CFR part 51.166, which sets out the minimum requirements for obtaining the EPA's approval of the PSD program in a State Implementation Plan (SIP), states may develop unique PSD requirements and procedures tailored for the air quality needs of each area as long as the program is at least as stringent as the EPA requirements. Because a state's SIP is required to contain a PSD program, states with PSD programs approved under 40 CFR part 51.166 are typically referred to as "SIP-approved states." Some local air pollution agencies have also developed their own PSD programs that have been approved, so typically they are also referred to as SIP-approved. To date, no tribes have developed PSD programs under Tribal Implementation Plans (TIP). In cases where state, tribal or local air pollution control agencies do not have a SIP-approved or TIP-approved PSD program, as applicable, the federal PSD program at 40 CFR part 52.21 applies. In these areas, such state, tribal or local air pollution control agencies can be delegated the federal law authority to issue permits on behalf of the EPA, and those programs are often referred to as "delegated programs." To date, no tribes have requested delegation of the federal PSD program and, therefore, the EPA is the permitting authority in those areas. The EPA is also the permitting authority in all areas where no other entity has requested delegation of the federal program or has requested approval of its own PSD program under a SIP or a TIP (*e.g.,* Puerto Rico, other U.S. Territories, and the jurisdictions of several local agencies in California).

B. Title V Program

Title V of the CAA establishes requirements for an operating permit program for major sources of air pollutant emissions and certain other sources. CAA section 502. The operating permit requirements under title V are intended to ensure that sources comply with CAA applicable requirements. CAA section 504; 40 CFR parts 70.1(b) and 71.1(b). The title V program is implemented through regulations contained in 40 CFR part 70 for the EPA-approved programs implemented by state and local agencies and tribes, and 40 CFR part 71 for the federal program generally implemented by the EPA in jurisdictions without a program approved under part 70 (*e.g.,* much of Indian country).

The title V program requires major sources and certain other sources to apply for operating permits. The EPA has interpreted the term "major source" to include stationary sources that emit or have a potential to emit (PTE) of 100 tpy or more of any air pollutant subject to regulation, as now reflected in the regulatory definition of "major source" in 40 CFR parts 70.2 and 71.2. 75 FR 31521. In general and under the EPA's longstanding interpretation, a pollutant is "subject to regulation" for purposes of title V if it is subject to a CAA requirement establishing actual control of emissions and it is first considered "subject to regulation" for title V purposes when such a requirement "takes effect." [15] Title V generally does not add new pollution control requirements, but it does require that each permit contain emission limitations and other conditions as are necessary to assure compliance with all "applicable requirements" required by the CAA, and it requires that certain procedural requirements be followed. "Applicable requirements" for title V purposes include stationary source requirements (*e.g.,* New Source Performance Standards (NSPS), and SIP requirements, including PSD). Procedural requirements include providing review of permits by the EPA, states, and the public, and requiring permit holders to track, report, and annually certify their compliance status with respect to their permit requirements.

C. Application of PSD and Title V Programs to GHG Emissions

1. Regulation of the Pollutant GHGs

On April 2, 2007, the U.S. Supreme Court held that GHGs fit within the definition of the term "air pollutant" under CAA section 302(g). *Massachusetts* v. *EPA,* 549 U.S. 497 (2007). As a result, the EPA was required to determine, under CAA section 202(a) whether: (1) GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or (2) the science is too uncertain to make a reasoned decision.[16] After issuing a proposal and receiving comment, the EPA Administrator signed two distinct findings regarding GHGs under CAA section 202(a), which were subsequently published in the **Federal Register** on December 15, 2009:[17]

• *Endangerment Finding:* The Administrator found that the current

[14] U.S. EPA, Document No. EPA–457/B–11–001, March 2011. *http://www2.epa.gov/nsr/new-source-review-policy-and-guidance-document-index.*

[15] A more detailed definition of the term "subject to regulation" can be found in 40 CFR 70.2 and 71.2.

[16] This background is also summarized in the Tailoring Rule. 75 FR 31519.

[17] 74 FR 66496.

and projected atmospheric concentrations of the mix of six long-lived and directly emitted GHGs are reasonably anticipated to endanger the public health and welfare of current and future generations. The six gases are carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) (referred to as "well-mixed greenhouse gases" in the endangerment finding).

• *Cause or Contribute Finding:* The Administrator found that the emissions of the single air pollutant defined as the aggregate group of six "well-mixed greenhouses gases" from new motor vehicles and new motor vehicle engines contributes to the GHG air pollution that threatens public health and welfare.

These findings did not themselves impose any requirements on industry or other entities. However, they triggered a requirement for the EPA to issue standards under CAA section 202(a) "applicable to" emissions of the air pollutant that the EPA found causes or contributes to the air pollution that endangers public health and welfare. Accordingly, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) finalized the Light-Duty Vehicle Rule (LDVR) as a joint rule on May 7, 2010. 75 FR 25324. Consistent with the Cause or Contribute Finding, the LDVR contains standards and other regulations applicable to the emissions of the air pollutant defined as the aggregate group of six greenhouse gases: CO_2, N_2O, CH_4, HFCs, PFCs and SF_6. 40 CFR part 86.1818–12(a).

When controls on GHGs in the LDVR took effect, the pollutant GHGs became a pollutant "subject to regulation under the Act," and therefore subject to PSD and title V requirements. 75 FR 17004. The EPA identified January 2, 2011, as the date when GHGs first became subject to regulation and subject to the stationary source permitting programs under the CAA. *Id.*

2. Revisions to PSD and Title V Regulations in the Tailoring Rule

Prior to promulgation of the LDVR, the EPA recognized that the regulation of GHGs under the PSD and title V programs would radically increase the number of sources subject to the program at the 100 or 250 tpy major source applicability thresholds provided under the CAA. 74 FR 55292. This is primarily because combustion sources emit GHGs (specifically CO_2) at levels that may be from several hundred times to over 1,000 times the emissions of other combustion pollutants that are subject to permitting under the longstanding PSD and title V major source applicability thresholds.

Under these circumstances, the EPA estimated that thousands of sources, mostly smaller sources that would otherwise not be subject to PSD permitting, would become subject to PSD review each year, thereby incurring the costs of the permit applications and individualized PSD BACT requirements that the PSD provisions require. We also estimated that millions of new and existing sources, mostly existing commercial and residential sources that had never before been required to obtain an air permit, would become subject to title V, and would incur the costs of obtaining title V permits. Additionally, state and local permitting authorities would be burdened by the large number of these permit applications, which would be orders of magnitude greater than the current inventory of applications and permits and would vastly exceed the administrative resources of the permitting authorities.

Therefore, to relieve the overwhelming permitting burdens that would have fallen on permitting authorities and sources under the Act in the absence of the EPA action, we promulgated the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (Tailoring Rule).[18] This rule limited the scope of permitting requirements that would have otherwise applied under the EPA's understanding of the CAA by including applicability criteria specifically "tailored" for GHGs. These criteria determined which GHG emission sources initially became subject to the PSD and title V programs when controls of GHG under the LDVR became effective. Thus, the rule established a phase-in approach for PSD and title V applicability, with the first two steps of the phase-in only applicable to the largest emitters of GHGs, and also included enforceable commitments for the EPA to study and consider further phasing-in the PSD and title V permitting requirements under the Act for sources emitting at lower GHG emissions thresholds.

Under Step 1, which went into effect on January 2, 2011, only "anyway sources" required a PSD permit and were subject to PSD requirements for their GHG emissions based on an applicability threshold of 75,000 tpy CO_2e.[19] For a Step 1 PSD "anyway source" that met or exceeded the GHG emissions threshold, the primary additional requirement, beyond the PSD permitting requirements already applicable to pollutants other than GHGs, was to determine and implement BACT for GHGs.[20] The EPA explained that the establishment of a significance level—which, in effect, is a BACT threshold—[wa]s appropriate and . . . decided [at that time] to establish this level at 75,000 tpy CO_2e. 75 FR 31568. The EPA also described this value as a "significance level" for convenience because it was intended to function in a manner similar to the significance levels for other pollutants. 75 FR 31559. However, the EPA did not add a GHG value to the definition of "significant" in the regulations or attempt to determine a *de minimis* level for GHGs. 75 FR 31560. The EPA selected the 75,000 tpy CO_2e level for this purpose in Step 1 because it was the same as one that the EPA established for Step 2, based on a judgment that the administrative burdens of addressing GHGs in the PSD program would be manageable using that value as an applicability level. 75 FR 31568.

For the title V program under Step 1, no sources were subject to title V permitting solely as a result of their GHG emissions. Only existing sources with, or new sources obtaining, title V permits based on pollutants other than GHGs were required to address GHGs as part of their title V permitting to the extent necessary to assure compliance with GHG applicable requirements established under other CAA programs. For a Step 1 title V "anyway source," the only additional requirement, beyond the already-applicable title V permitting requirements for the pollutants other than GHGs, was to apply any title V requirements to its GHG emissions when it applied for, renewed or revised its permit. These requirements included incorporating any GHG applicable requirements (*e.g.,* GHG BACT requirements from a PSD permit) and associated monitoring, recordkeeping and reporting. This also included a requirement to identify GHG emissions and other information to the extent required under the title V regulations.

Step 2, which went into effect on July 1, 2011, allowed PSD applicability

[18] 75 FR 31514, June 3, 2010.

[19] In addition to the applicability thresholds established in the Tailoring Rule on a CO_2e basis, in order for a source's GHG emissions to trigger PSD or title V requirements, the quantity of the GHGs also had to equal or exceed the statutory thresholds of 100 or 250 tpy on a mass basis. 75 FR 31523, June 3, 2010.

[20] Shortly after Step 1 went into effect, the EPA issued guidance on permitting, including BACT determinations, for GHGs titled "PSD and Title V Permitting Guidance for Greenhouse Gases," EPA Document No. EPA–457/B–11–001, March 2011. *http://www3.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf.*

under the Act to extend beyond "anyway sources" to new stationary sources that emit or have a PTE of 100,000 tpy CO_2e or more. Step 2 also covered modifications at existing major stationary sources that emit or have a PTE of 100,000 tpy CO_2e or more that would increase GHG emissions by 75,000 tpy CO_2e or more, even though the modification would not otherwise be subject to PSD based on emissions of any pollutant other than GHGs. A Step 2 source was required to obtain a PSD permit, with the associated procedural requirements, but the primary substantive requirement for GHGs was again to determine and implement BACT. Once PSD was triggered by GHG emissions, these Step 2 PSD sources also were subject to the applicable PSD requirements for any new or increased emissions of regulated NSR pollutants other than GHGs at or above of the applicable SERs.

Step 2 also extended the applicability of title V beyond "anyway sources" to new and existing sources that emitted or had a PTE of 100,000 tpy CO_2e or more, even if the new or existing source would not otherwise be subject to title V based on emissions of any pollutant other than GHGs. These Step 2 title V sources incurred the procedural expenses of obtaining a title V permit, but the requirement to apply for a permit did not, in itself, trigger any additional substantive requirements for control of GHGs. These permits also incorporated any applicable CAA requirements that applied to the source for any other air pollutants.

In addition, the Tailoring Rule made clear that the pollutant regulated in the PSD and title V programs was the same as the one regulated in the LDVR—the single air pollutant defined as the aggregate group of the six well-mixed GHGs. 75 FR 31522. To reflect this, the Tailoring Rule adopted a definition of the term "greenhouse gases" or "GHGs" in revisions to the PSD and title V regulations that describes this aggregate air pollutant (as opposed to the individual gases). We use a similar convention regarding GHGs in this preamble, using the abbreviation "GHG" or "GHGs" to refer to the aggregate air pollutant.

In the existing regulations adopted in the Tailoring Rule, this aggregate pollutant is measured in terms of "carbon dioxide equivalent" or "CO_2e" emissions, which is a metric that allows all the compounds comprising GHGs to be evaluated on an equivalent basis despite the fact that the different compounds have different heat-trapping capacities. The Global Warming Potential (GWP) that has been determined for each compound reflects its heat-trapping capacity relative to CO_2. The mass of emissions of a constituent compound is multiplied by its GWP to determine the emissions in terms of CO_2e. A source's emissions of all compounds in terms of CO_2e are summed to determine the source's total GHG emissions.

3. Actions After the Tailoring Rule

After the Tailoring Rule was completed, in accordance with the phase-in process begun in that rule, on July 12, 2012, the EPA completed a Step 3 rulemaking. In this rule, the EPA determined that the Tailoring Rule Step 1 or Step 2 permitting thresholds did not need to be revised at that time. The EPA also improved the usefulness of PALs for GHG emissions by allowing GHG PALs to be established on a CO_2e basis, in addition to the already-available mass basis.[21] The action revised the regulations to allow a source emitting only GHGs in major amounts (*i.e.,* an existing Step 2 source) to submit an application for a CO_2e-based GHG PAL while also maintaining its minor source status.[22]

The United States courts also resolved several challenges to the Tailoring Rule and other EPA actions regarding GHGs. On June 26, 2012, the D.C. Circuit upheld in all respects the Endangerment Finding, LDVR, Tailoring Rule, and other actions pertinent to the regulation of GHGs under the PSD and title V programs. After an appeal of this case, on June 23, 2014, the U.S. Supreme Court issued a decision in *UARG* v. *EPA* addressing only the application of stationary source permitting requirements to GHGs.

The U.S. Supreme Court held that the EPA may not treat GHGs as an air pollutant for the specific purpose of determining whether a source is a major source (or a modification thereof) and thus required to obtain a PSD or title V permit. However, the U.S. Supreme Court also said that the EPA could continue to require that PSD permits, otherwise required based on emissions of pollutants other than GHGs pollutants, contain limitations on GHG emissions based on the application of BACT. That is, the ruling effectively upheld PSD and title V permitting requirements for GHG emissions under Step 1 of the Tailoring Rule for "anyway sources," and invalidated the application of PSD and title V permitting requirements to Step 2 sources to the extent that these sources triggered permitting requirements solely because they had GHG emissions above the applicable thresholds.

The U.S. Supreme Court also noted that BACT applied to GHGs under provisions in the Tailoring Rule only if a source emits GHGs in excess of 75,000 tpy CO_2e, but that the EPA had not arrived at that number by determining that the impacts of emissions below that level were *de minimis.* 134 S.Ct. at 2449. The U.S. Supreme Court recognized that the "EPA may establish an appropriate *de minimis* threshold below which BACT is not required for a source's greenhouse gas emissions," but said that the EPA would need to justify such a threshold on proper grounds. *Id.* The U.S. Supreme Court had earlier noted that the EPA's 75,000 CO_2e tpy threshold was not an exercise of its authority to establish *de minimis* exceptions. 134 S.Ct. at 2438 n. 3. To address this part of the U.S. Supreme Court's decision, the EPA is now proposing to exercise that authority. This action proposes a GHG SER, which represents a *de minimis* exception level, for purposes of determining the applicability of the BACT requirement in PSD permitting.

To communicate the EPA's preliminary views on the effect of the *UARG* v. *EPA* decision to the public, on July 24, 2014, the EPA issued the previously-described Preliminary Views Memo. In that memorandum, the EPA explained that, with respect to "anyway sources," we initially intended "to continue applying the PSD BACT requirements to GHG if the source emits or has the potential to emit 75,000 tpy or more of GHG on a [CO_2e] basis."[23] With respect to modified sources, we said that initially "the EPA intends to continue applying the PSD BACT requirements to GHG if both of the

[21] Under the EPA's existing regulations, a PAL is an emissions limitation for a single pollutant expressed in tpy that is enforceable as a practical matter and is established source-wide in accordance with specific criteria. 40 CFR 52.21(aa)(2)(v). Sources may, but are not required to, apply for a PAL, and the decision to issue a PAL to particular source is at the discretion of the permitting authority. 77 FR 41060. PALs offer an alternative method for determining major NSR applicability by allowing sources to make a change without triggering PSD review, as long as the source can maintain its overall emissions of the PAL pollutant below the PAL level. Therefore, PALs allow sources to make the changes necessary to respond rapidly to market conditions, while generally assuring the environment is protected from adverse impacts from the change. *Id.*

[22] 77 FR 41051, July 12, 2012.

[23] Next Steps and Preliminary Views on the Application of Clean Air Act (CAA) Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision in *UARG* v. *EPA*, Memorandum from Janet G. McCabe, Acting Assistant Administrator, Office of Air and Radiation, and Cynthia Giles, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA, to Regional Administrators, p. 3, July 24, 2014.

following circumstances are present: (1) The modification is otherwise subject to PSD for a pollutant other than GHG; (2) the modification results in a GHG emissions increase and a net GHG emissions increase equal to or greater than 75,000 tpy CO_2e and greater than zero on a mass basis." *Id.* at 3. The EPA based this initial approach on the 75,000 tpy CO_2e applicability level that remained in the EPA's regulations pending further action by the courts. However, the EPA also explained that it would consider whether to promulgate a *de minimis* level, which the EPA is now proposing to do in this action. *Id.* at 4.

Because the *UARG* v. *EPA* decision affirmed in part and reversed in part the earlier decision of the D.C. Circuit in *Coalition for Responsible Regulation* v. *EPA,* 684 F.3d 102 (D.C. Cir. 2012), the matter was returned to the D.C. Circuit to determine whether particular parts of the regulations adopted by the EPA in the Tailoring Rule should be struck down (vacated) or left in place with instructions that the EPA revise them (remanded). On April 10, 2015, the D.C. Circuit issued an Amended Judgment, which provided a more specific remedy reflecting the *UARG* v. *EPA* U.S. Supreme Court decision.

In the Amended Judgment, the D.C. Circuit ordered that the EPA regulations under review (including 40 CFR parts 51.166(b)(48)(v) and 52.21(b)(49)(v)) be vacated to the extent they require a stationary source to obtain a PSD permit if GHGs are the only pollutant (i) that the source emits or has the potential to emit above the applicable major source thresholds, or (ii) for which there is a significant emissions increase from a modification. The D.C. Circuit also ordered that the regulations under review be vacated to the extent they require (i) a stationary source to obtain a title V permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds and (ii) the EPA to consider further phasing-in the GHG permitting requirements at lower GHG emission thresholds (in particular 40 CFR part 52.22 and 40 CFR parts 70.12 and 71.13). The Court did not vacate the provisions implementing Step 1 of the Tailoring Rule (in particular, for the PSD program, 40 CFR parts 51.166(b)(48)(iv) and 52.21(b)(49)(iv)).[24] However, the D.C. Circuit ordered that the EPA take steps to rescind and/or revise the applicable provisions of the CFR as expeditiously as practicable to reflect the relief granted in the Amended Judgment and to consider whether any further revisions are appropriate in light of *UARG* and, if so, to undertake such revisions.

Consistent with the Amended Judgment, on August 12, 2015, the EPA issued a final rule that removed from the PSD and title V regulations entire sections and paragraphs that were readily severable from other provisions in the PSD and title V regulations and specifically identified in the D.C. Circuit's Amended Judgment. These removed provisions required a stationary source to obtain a PSD permit solely on the basis of the source's GHG emissions and required the EPA to study and consider further phasing-in of GHG permitting requirements into the PSD and title V permitting programs at lower GHG emissions thresholds. 80 FR 50199. Because of the nature of the D.C. Circuit's Amended Judgment, these revisions were ministerial in nature and exempt from notice-and-comment rulemaking procedures under the "good cause" exception of the APA. In that rulemaking, we also announced that we intended to further revise the PSD and title V regulations to fully implement the Amended Judgment in a separate rulemaking, and the present action initiates that separate rulemaking. This action proposes revisions to several regulatory definitions in the PSD and title V permitting regulations, revisions to the PSD GHG PALs and revisions to other provisions necessary to ensure that neither the PSD nor title V rules require a source to obtain a permit solely because the source emits or has the potential to emit GHGs above the applicable thresholds. These latter revisions include revisions to the title V regulations that were vacated in the Amended Judgment case—those that require a stationary source to obtain a title V permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds. They also include revisions to state-specific GHG PSD or title V permitting regulations that, in general, the EPA believes are no longer necessary in light of the other proposed revisions in this action and that the EPA considers no longer appropriate to the extent that they might have the effect of establishing federal permitting requirements for sources that only emit or have the potential to emit GHGs above the major source thresholds. These additional revisions to the PSD and title V regulations, although necessary to implement the Amended Judgment, are not purely ministerial in nature because they amend, rather than completely remove, text that remains pertinent to the PSD and title V programs as a whole and their continued application to GHGs. As a result, we are addressing them in this separate notice-and-comment rulemaking to give the public an opportunity to comment on how the EPA proposes to address those portions of the Amended Judgment.

IV. Revisions to the PSD and Title V GHG Permitting Regulations

A. What revisions to the PSD and title V GHG permitting regulations is the EPA proposing with this action?

1. Revisions to the PSD Regulations

In this action, the EPA is proposing to revise certain definitions in the PSD permitting regulations to fully implement the Amended Judgment. The first revision would add an exemption clause to the definitions of "major stationary source" and "major modification" to ensure that the PSD rules do not require a source to obtain a permit solely because the source emits or has the potential to emit GHGs above the major source thresholds or significance level. In other words, a new stationary source that emits, or has the potential to emit, 100 or 250 tpy or more, as applicable, of any regulated NSR pollutant except for GHGs would be required to obtain a PSD permit before it is constructed. Furthermore, a physical change or change in the method of operation at an existing major source that would result in a significant increase in emissions of any regulated NSR pollutant except for GHGs and a significant net emission increase of that regulated NSR pollutant would be a major modification required to obtain a permit.

The EPA is proposing to establish a freestanding definition of the term "greenhouse gases" in the PSD regulations at 40 CFR parts 51.166(b)(31) and 52.21(b)(32) to facilitate the application of the exemptions clauses described earlier. Previously, the definition of this pollutant was located within the definition of the term "subject to regulation" and we are now proposing to simply move the language that defined GHGs in this context into an independent definition for the term "greenhouse gases." This proposed definition of GHGs does not change the meaning of the term; we are proposing to use the same language as in the existing regulations.

[24] Without these provisions in the definition of "subject to regulation" at this time, any GHG emissions increase would require a newly constructed major source, or a major modification at an existing facility, to undergo PSD BACT review for GHGs. 40 CFR 51.166(b)(23)(ii); 40 CFR 52.21(b)(23)(ii).

In this action we are also proposing to simplify the definition of "subject to regulation" in other ways. In the Tailoring Rule, the EPA placed the GHG applicability thresholds in a new definition of the term "subject to regulation" in an effort to enable states with approved PSD programs to rapidly apply the Tailoring Rule limitations without necessarily having to revise state regulations. 75 FR 31580–81. The EPA intended to enable states to immediately read rules that already contained the term "subject to regulation" in a manner consistent with the definition of this term adopted by the EPA in the Tailoring Rule. *Id.* at 31581. However, after the Tailoring Rule, most states concluded that it was still necessary to revise their regulations to incorporate the limitations on PSD applicability reflected in the Tailoring Rule. Also, experience has shown that this mechanism for implementing the GHG applicability thresholds is confusing and cumbersome. Thus, the EPA is proposing to eliminate this mechanism and revert to a more traditional approach of placing the value that determines applicability of BACT within the definition of the term "significant." This approach also enables the EPA to eliminate the Tailoring Rule Step 1 thresholds in 40 CFR parts 51.166(b)(48)(iv) and 52.21(b)(49)(iv) that were not vacated but that nevertheless, as the U.S. Supreme Court noted, lacked a *de minimis* rationale.

The EPA thus is proposing to repeal all parts of the definitions of "subject to regulation" except for the first paragraph, which simply served to codify our interpretation of the term "subject to regulation" that was reflected in prior actions. 75 FR 31582. Those prior actions are the following: (1) A Memorandum from Administrator Stephen Johnson titled "EPA's Interpretation of Regulations that Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program" [25] and (2) An action titled Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by Clean Air Act Permitting Programs.[26] This second action was subsequently described as the "Timing Decision" in Court proceedings. The EPA is not proposing to change or reconsider the interpretation of its regulations and the CAA reflected in these actions. Thus, we are retaining the first paragraph in the definition "subject to regulation" at 40 CFR parts 51.166(b)(48) and 52.21(b)(49) that codify this interpretation of the term "subject to regulation" that is used elsewhere in the PSD regulations.

Finally, consistent with deleting most of the remaining parts of the definition of "subject to regulation," we are proposing to amend the definition of "significant" to add the proposed value for the GHG SER. With these revisions to the PSD regulations, GHG will only be subject to BACT review under the PSD permitting requirements at 40 CFR parts 52.21(j) and 51.166(j) if the source has been classified as a major stationary source or a major modification for another regulated NSR pollutant first and there is a significant net emissions increase of the source's GHGs emissions equal to or greater than the GHG SER that is being proposed in this action.

2. Revisions to the PSD PAL Regulations

The EPA is proposing a number of revisions to the PSD PAL provisions at 40 CFR 52.21(aa) to address the *UARG* decision and Amended Judgment. Because a PSD PAL permit is only available to an existing major stationary source, and a source is no longer subject to PSD solely because of its emissions of GHGs, we are proposing to revise the PSD PAL provisions to remove the ability for a source that would be "major" [27] only for GHGs to obtain a GHG PAL and the ability of a source establishing a GHG PAL to retain its minor NSR status. We are proposing to make refinements to the PSD PAL provisions whereby an existing "anyway source" could still apply for and obtain a GHG PAL, but only for the limited purpose of relieving the source from having to address the BACT requirement for GHGs when triggering PSD for another NSR pollutant.[28] The EPA has previously observed that the PAL provisions may still have relevance for this purpose after the U.S. Supreme Court decision.[29] A PAL may be issued for this purpose if all requirements for obtaining a GHG PAL are met. As a result of our proposed revisions, a GHG PAL would be established and function in this narrower context in much the same way as a PAL for any other regulated NSR pollutant. The main difference will be that a GHG PAL would not be issued on a mass basis, but rather on a CO_2e basis since the regulated pollutant GHGs is the aggregate of six individual gases calculated on a CO_2e basis. Finally, all PALs must include enforceable requirements for the monitoring system to accurately determine plantwide emissions of the PAL pollutant. As current monitoring systems do not measure tpy CO_2e, we would also like to clarify that permitting authorities can specify in each individual GHG PAL permit, much as they already do for GHG PSD permits, the type of mass-based monitoring to be carried out for each individual gas and require the applicant to perform the applicable CO_2e calculations.

3. Revisions to State-Specific PSD Regulations

The EPA is also taking this opportunity to propose to remove elements in a specific SIP-approved program that are no longer needed as a result of the Amended Judgment. The EPA is proposing to remove the provisions at 40 CFR 52.2305, which establish the Federal Implementation Plan (FIP) requirements for the issuance of PSD permits for GHG emissions in the state of Texas.

On November 10, 2014, the EPA approved the revisions to the Texas PSD program for GHG emissions which provided the state of Texas the authority to regulate GHGs in the Texas PSD program and to issue GHG PSD permits to "anyway sources." 79 FR 66626. However, to avoid delays to some permit applicants, we retained limited authority under the Texas GHG PSD FIP at 40 CFR part 52.2305 to issue GHG PSD permits in certain circumstances. We retained the authority to: (1) Issue permits to those permit applicants who elected to continue their permit application with the EPA by May 15, 2014; (2) issue permits to those permit applicants who did not request a transfer to the Texas Commission on Environmental Quality prior to the date of final permit decision; and (3) complete the permit action for all GHG PSD permits issued by the EPA for which the time for filing an

[25] 75 FR 80300, December 31, 2008.

[26] 75 FR 17004, April 2, 2010.

[27] Assuming GHGs could still be considered in defining a source as "major." The EPA recognizes they cannot be after the U.S. Supreme Court decision. If the proposed changes in this rule are enacted, no source will be considered major for GHGs.

[28] We are not proposing similar revisions to 40 CFR 51.166 because the June 29, 2012, final rule that adopted the GHG PAL provisions under 40 CFR 52.21 did not adopt these changes into the existing PAL provisions contained in 40 CFR 51.166. 77 FR 41051. However, nothing in that 2012 action was intended to restrict states, tribes or local permitting authorities from adopting changes into their SIP-approved PAL program to allow for the issuance of PALs on a CO_2e basis if they choose to do so. Moreover, the revisions we are proposing in this action do not preclude a state, local or tribal program from applying construction permitting requirements equivalent to the PSD GHG PAL requirements for Step 2 sources under state law, although such provisions are no longer approvable parts of a PSD or title V program under federal law.

[29] 79 FR 70095; 80 FR 14062; 80 FR 23245; 80 FR 28901.

administrative appeal had not expired or all administrative and judicial appeals processes had not been completed by November 10, 2014. The EPA proposes to find that all three circumstances for limited authority to issue GHG PSD permits in Texas have now been satisfied; therefore, we no longer need to retain the authorities provided to us in 40 CFR part 52.2305 and propose to remove that section.

For questions on whether federally approved SIPs or TIP would need to be revised to address the regulatory revisions in this proposal, see Section VII of this preamble.

4. Revisions to the Title V Regulations

The EPA is proposing to revise certain definitions in the title V permitting regulations at 40 CFR parts 70 and 71 to fully implement the Amended Judgment. Specifically, we are proposing to revise the definition of "major source" in 40 CFR parts 70.2 and 71.2 to clarify that GHGs are no longer considered in determining whether a stationary source is a major source and thus subject to major source permitting requirements under the title V program. We are also proposing to remove paragraphs from the definition of "subject to regulation" to remove those provisions that incorporated the Tailoring Rule CO_2e applicability thresholds into the title V regulations. Those provisions are no longer necessary or appropriate, in light of the proposed revisions to the definition of "major source" in 40 CFR parts 70.2 and 71.2 described immediately above. Furthermore, we are proposing to move the definition of "GHGs" from the definition of "subject to regulation" to its own definition under the title V regulations at both 40 CFR parts 70.2 and 71.2. By moving this definition, the EPA does not intend to make any material changes in how the air pollutant GHGs is defined, but rather intends to clarify that the definition applies throughout the title V regulations and that it continues to include a description of CO_2e and how it is calculated.

While the EPA is proposing to revise its title V regulations so that they no longer require that a source obtain a title V permit solely because it emits or has the potential to emit GHGs above major source thresholds, the agency does not read the *UARG* decision or the Amended Judgment to affect other grounds on which a title V permit may be required or the applicable requirements that must be addressed in title V permits. The proposed revisions are not intended to change the existing title V requirements in that regard.

5. Revisions to State-Specific Title V Regulations

On December 30, 2010, we issued a final rule that narrowed the EPA's previous approval of state title V operating permit programs that apply (or may apply) to GHG-emitting sources under 40 CFR part 70, and, in a few instances, under 40 CFR part 52. 75 FR 82254. For most states, title V programs are federally-approved only under 40 CFR part 70, but, in some cases, states have chosen to submit their title V programs as part of their SIPs. The EPA has approved provisions related to the operating permit program into the SIP as codified in 40 CFR part 52 for three states that were addressed in the December 2010 rule: Arizona (Pinal County Air Quality Control District), Minnesota, and Wisconsin.

In that December 2010 final rule, we narrowed our previous approval of certain state permitting thresholds for GHG emissions so that only sources that equal or exceed the GHG thresholds established in the Tailoring Rule would be covered as major sources by the EPA-approved programs in the affected states. For most of the affected states, this was accomplished by amending our approvals under 40 CFR part 70, Appendix A. For Minnesota, and Wisconsin, which had title V applicability provisions that were federally approved under both 40 CFR part 70 and 40 CFR part 52, we amended our title V program approval in both 40 CFR part 70 and 40 CFR part 52 to ensure that the scope of the approved title V program was consistent. In Arizona (Pinal County Air Quality Control District), we amended our approval under 40 CFR part 52. In this proposal, however, we are proposing to remove those provisions from all the applicable state title V operating permit programs except for Arizona (Pinal County Air Quality Control District), which we intend to address in a separate action. For Minnesota and Wisconsin, we are proposing to remove the narrowing provisions under both 40 CFR parts 52 and 70 to ensure consistency.

We are proposing to remove those provisions from the applicable title V programs because they no longer seem necessary after the *UARG* decision, the Amended Judgment, and the EPA's actions to implement that decision and the Amended Judgment, since a source would no longer be required to obtain a title V permit solely because it emits or has the potential to emit GHGs above the major source threshold.

For questions regarding whether title V program approvals would need to be revised to address these regulatory revisions, *see* Section VII of this preamble.

B. What additional regulatory revisions is the EPA proposing with this action?

The EPA is also proposing to repeal provisions in its 40 CFR parts 60 regulations that the EPA considered advisable to ensure that the 75,000 tpy CO_2e applicability threshold for the GHG BACT requirement continued to apply on an interim basis after GHGs became regulated under section 111 of the CAA. These provisions were included in the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Generating Units,[30] the Standards of Performance for GHG Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Generating Units,[31] and the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after September 18, 2015.[32]

As we explained previously, under 40 CFR parts 51.166(b)(49) and 52.21(b)(50), we define a "regulated NSR pollutant" to include, among other requirements, "any pollutant subject to a new source standard of performance under CAA section 111" and "any pollutant that otherwise is subject to regulation under the Act." This definition first applied to GHGs in 2011 under the fourth part of this definition because this pollutant was then "otherwise subject to regulation under the Act" in the LDVR. However, because the EPA chose to include the Tailoring Rule thresholds in the definition of the term "subject to regulation," some question arose as to whether those thresholds would continue to apply after GHGs also became a regulated NSR pollutant when this pollutant became subject to a standard of performance under section 111. Thus, the EPA adopted provisions in 40 CFR part 60 that made clear that promulgation of CAA section 111 requirements for GHGs under these rules would not result in BACT applying to GHGs at an "anyway source" that increased GHGs by any amount below 75,000 tpy CO_2e. To ensure this was clear, the final regulatory text for these rules said that "the pollutant that is subject to the standard promulgated under section 111 of the Act" shall be considered to be the

[30] 80 FR 64662, October 23, 2015. On February 9, 2016, the U.S. Supreme Court stayed this rule pending judicial review before the U.S. Court of Appeals for the D.C. Circuit and any subsequent proceedings in the U.S. Supreme Court.

[31] 80 FR 64510, October 23, 2015.

[32] 81 FR 35823, June 3, 2016.

pollutant that otherwise is "subject to regulation" under the Act as defined under the respective "subject to regulation" definitions under the PSD and title V provisions. With the addition of a SER for GHGs, these 40 CFR part 60 provisions are no longer needed to ensure that a BACT applicability threshold remains applicable to GHGs after the regulation of GHGs under section 111 of the Act. Thus, we are proposing to remove the provisions at 40 CFR parts 60.5360a(b), 60.5515(b) and 60.5705(b).

V. Establishment of a GHG SER

A. What is the legal basis for establishing a GHG SER?

In the *UARG* decision, the U.S. Supreme Court observed that the EPA may limit application of the BACT requirement for GHGs to those situations where a source has the potential to emit "more than a *de minimis* amount of greenhouse gases." 134 S.Ct. at 2449. The Court also acknowledged the EPA's past practice of establishing *de minimis* levels for other pollutants that determine whether individual pollutants are subject to the BACT requirement. *Id.* at 2435 n. 1. In both of these parts of its opinion, the U.S. Supreme Court cited the D.C. Circuit's decision in *Alabama Power Co.* v. *Costle.*[33] The D.C. Circuit's opinion in that case provides the foundational legal principles upon which the EPA has previously established the *de minimis* levels in the NSR program that are known as "significant emission rates." In light of the U.S. Supreme Court's favorable citation of the *Alabama Power* case, the EPA continues to look to this case as providing the controlling legal principles for an agency to establish a *de minimis* exception to a statutory requirement.

Agencies have inherent authority "to overlook circumstances that in context may fairly be considered *de minimis*" and need not "apply the literal terms of a statute to mandate pointless expenditures of effort." *Alabama Power,* 636 F.2d at 360. "Unless Congress has been extraordinarily rigid, there is likely a basis for an implication of *de minimis* authority to provide an exemption when the burdens of regulation yield a gain of trivial or no value." *Id.* at 360–361. Determining when matters are truly *de minimis* depends on the particular circumstances and the agency bears the burden of making the required showing. *Id.* Thus, the *de minimis* authority is "tightly bounded by the need to show that the situation is genuinely *de minimis* or one of administrative necessity" *Id.* at 361. *De minimis* authority is not a mechanism to "depart from the statute, but rather a tool to be used in implementing the legislative design" and cannot be used where there are acknowledged benefits but the agency concludes they "are exceeded by the costs." *Id.*[34]

As the U.S. Supreme Court noted, the CAA does not specify how much of a given regulated pollutant a major source must emit before it is subject to the BACT requirement for that pollutant. 134 S.Ct. 2427 n. 1. The Act requires application of BACT to "each pollutant subject to regulation" under the Act but does not address whether the EPA has discretion not to apply the BACT requirement to pollutants emitted below a particular level. CAA section 169(3). The EPA has previously recognized that sources that trigger PSD can emit some pollutants at levels below which application of the BACT requirement would be a pointless expenditure of effort. Accordingly, the EPA's regulations specify that the BACT requirement need only be applied to pollutants that: (1) A new major source has "the potential to emit in significant amounts" and (2) will increase by a "net significant" amount as a result of a major modification at an existing major source. 40 CFR parts 51.166(j)(2)–(3) and 52.21(j)(2)–(3).

After acknowledging these existing regulations, the U.S. Supreme Court specifically recognized in *UARG* that the EPA could establish "an appropriate *de minimis* threshold below which BACT is not required." 134 S.Ct. at 2449. Inherent in this aspect of the *UARG* decision is a judgment by the U.S. Supreme Court that Congress has not been "extraordinarily rigid" with respect to application of the PSD BACT requirement to pollutants emitted in lower amounts. The U.S. Supreme Court has now recognized, consistent with the principles of *Alabama Power,* that the PSD statutory scheme includes the inherent authority for the EPA to overlook *de minimis* levels of pollutant emissions when applying the BACT requirement in the PSD permitting program.

However, the U.S. Supreme Court also emphasized that the EPA must justify its selection of a *de minimis* threshold "on proper grounds," citing the discussion at page 405 of *Alabama Power.* This part of the *Alabama Power* decision consists of two paragraphs expressly addressing the application of *de minimis* principles to BACT. The Court said that a "*de minimis* exception must be designed with the specific administrative burdens and the specific statutory context in mind" and then specifically considered the BACT context. *Id.* at 405. The Court recognized that *de minimis* principles could be used to address "severe administrative burdens on the EPA, as well as severe economic burdens on the construction of new facilities." 636 F.2d at 405. A rational approach to the application of BACT, the Court continued, would consider "the danger posed by increases in" emissions and "the degree of administrative burden posed by enforcement at various *de minimis* threshold levels." *Id.*

At first, there may appear to be an internal tension in *Alabama Power* between the language describing general parameters for the exercise of *de minimis* exemption authority and the BACT discussion. The Court's recognition that a *de minimis* exemption cannot be based simply on a conclusion that a requirement's costs outweigh its benefits, 636 F.2d at 361, was paired with explicit acknowledgement that a *de minimis* threshold could be "rationally designed to alleviate severe administrative burdens." 636 F.2d at 405. The Court also observed that a rational approach would consider the following factors: "the administrative burden with respect to each statutory context;" "whether the *de minimis* threshold should vary depending on the specific pollutant and the danger posed by increases in its emissions;" and "the degree of administrative burdens posed by enforcement at various *de minimis* threshold levels." *Id.* While the degree of burden might be viewed as part of a cost-benefit analysis, EPA believes it is possible to harmonize these parts of the Court's opinion by treating each of these elements as factors for the Agency to consider in a rational approach to determining a *de minimis* threshold.

Considering all the relevant parts of the *Alabama Power* opinion, the EPA believes that it need not focus solely on the programmatic advantages of regulation and disregard implementation burdens when establishing a *de minimis* exception. Where the record shows that the burdens of regulation are high relative to a small gain that is achievable by regulation, the EPA reads *Alabama Power* to allow an agency to consider such gains to be *de minimis* if the Agency finds this appropriate after considering the statutory context, the nature of pollutant, and the danger caused by increases of that pollutant. However, where the gains of regulation

[33] 636 F.2d 323, D.C. Cir. 1979.

[34] *See* also 44 FR 51937, September 5, 1979 (the EPA proposal to establish SERs stating that it would not be appropriate to base a SER on "a cost-effectiveness rationale").

are greater, the EPA reads *Alabama Power* to preclude the agency from declining to regulate on the basis of a judgment that the costs simply exceed achievable benefits that further the regulatory objectives.

In sum, therefore, to justify a *de minimis* exemption by regulation, an agency must show that the benefits of regulating an activity below the level set forth in the exemption are trivial or of no value. The supporting analysis must consider the regulatory context, including the nature of the pollutant and the dangers caused by increases in that pollutant, the nature and purposes of the regulatory program, the administrative and implementation burdens of, and the gain achieved from, regulating the activities at or below a certain level. Based on that analysis, the agency must make a reasoned judgment whether, in light of the regulatory context, the gains from regulating an activity below the exemption level can fairly be characterized as being trivial or of no value. In developing the SER for GHGs proposed in this action, the EPA has considered the factors laid out by the Court in *Alabama Power.*

B. What is the regulatory context for the de minimis exception proposed in this rule?

The *Alabama Power* opinion said that a "*de minimis* exception must be designed with . . . the specific statutory context in mind." *Id.* at 405. The SER for GHGs that the EPA is proposing in this rule will apply only in the particular context of determining whether the BACT requirement applies to GHG emissions from a new source or modification that requires a PSD permit based on emission of pollutants other than GHGs.

Because GHGs are a regulated NSR pollutant under the applicable definition, the BACT provisions in 40 CFR parts 51.166(j) and 52.21(j) apply to GHGs when an "anyway source" triggers the obligation to obtain a PSD permit. Under the specific terms of 40 CFR parts 51.166(j)(2)–(3) and 52.21(j)(2)–(3) of the EPA's regulations, the SER adopted in this rule will determine whether the BACT requirement applies to GHGs.

Because of the U.S. Supreme Court's decision, the requirement to obtain a PSD permit does not apply to a source that emits only GHGs in major amounts. Likewise, the modification of an existing major source cannot trigger the requirement to obtain a PSD permit based solely on a significant increase in the amount of GHGs. In order to qualify as a major modification under the revisions proposed in this rule, a modification of an existing major source must result in a significant net emissions increase of a regulated NSR pollutant other than GHGs. If a modification triggers PSD on this basis, then the SER proposed in this rule will apply to determine whether the PSD permit for that modification must contain a BACT limit for GHGs. But the SER proposed in this rule will not determine whether a modification at an existing major source requires a PSD permit in the first instance.

This contrasts with the 75,000 tpy CO_2e value the EPA identified as a "significance level" in parts of the Tailoring Rule. During Step 2 of the Tailoring Rule phase-in, this value was used to determine whether a PSD permit was required based solely on an increase in GHG emissions resulting from a modification at an existing major source that did not increase any other pollutants above the significance levels. In this context, the EPA said that if the agency were to establish a *de minimis* level for GHGs, "that amount could be below—perhaps even well below—the 'major emitting facility' thresholds established in this rulemaking on the grounds of 'administrative necessity' and other doctrines." 75 FR 31560. Paraphrasing this statement, the U.S. Supreme Court noted that the "EPA stated . . . that a truly *de minimis* level might be 'well below' 75,000 tons per year [CO_2e]." 134 S. Ct at 2427 n.3. At the time of the Tailoring Rule, the EPA read the definition of "major emitting facility" in section 169(1) of the CAA to require that the agency apply the 100 or 250 tpy major source threshold to all regulated pollutants, including GHGs. In that light, the EPA believed it would be difficult for the agency to justify a value substantially greater than the statutory major source thresholds as a *de minimis* or trivial level of emissions. Thus, the EPA said that a *de minimis* level for GHGs could perhaps be "well below" 75,000 tpy CO_2e based on its understanding at the time that the EPA's *de minimis* exception authority was constrained by the Congressional determination that it was worth regulating any source emitting more than 100 or 250 tpy of a regulated pollutant. The U.S. Supreme Court has since clarified that the EPA cannot apply the 100 or 250 tpy levels to GHGs, or even consider the pollutant GHGs in defining a major source (or modification thereof) that requires a PSD permit. The Court's reasoning suggests that Congress has not determined that 100 or 250 tpy is a major amount of GHGs. Thus, the EPA no longer views the 100 and 250 tpy thresholds as a constraint on the level of GHGs that the EPA may identify as *de minimis* in the PSD program context. Furthermore, in this proposed rule, the EPA is considering the application of a *de minimis* level in a PSD program context that is narrower than the one the EPA was addressing in the Tailoring Rule. The SER the EPA proposes in this rule will apply only to determine whether BACT applies to GHGs and not to determine whether a source is required to obtain a PSD permit.

In addition, because there is no NAAQS for GHGs, the SER for GHGs proposed in this rule will not determine whether a PSD permit application is required to include an ambient air quality analysis for this pollutants. 40 CFR parts 51.166(m)(1)(i) and 52.21(m)(1)(i). In the absence of a NAAQS or PSD increment for GHGs, a permit applicant need not make an air quality demonstration for GHGs, as required for other pollutants under section 165(a)(3) of the Act and 40 CFR parts 51.166(k) and 52.21(k) of the EPA's regulations.[35]

Accordingly, in light of the Court direction that an agency consider the particular context for a *de minimis* exception, the EPA has based the proposed SER for GHGs on an evaluation of the benefits and burdens of applying the BACT requirement to GHGs when an "anyway source" emits this pollutant at various levels. Under section 169(3) of the CAA, BACT is an emissions limitation based on "the maximum degree of reduction . . . which the permitting authority . . . determines is achievable" through application of pollutant control technology. CAA section 169(3). Thus, in assessing the value of regulating GHG emissions under the PSD BACT requirement at sources emitting GHGs at various emissions levels, the EPA has focused on the degree of emission reduction that would be expected to be achieved at individual sources emitting GHGs below the levels under consideration. Furthermore, since the regulation the EPA is proposing will apply across the PSD program as a whole, the EPA has also considered the potential for GHG emissions reduction, principally through the characterization of affected sources and units, that one would expect to achieve at "anyway sources" emitting (or modifications increasing) GHGs below prospective *de minimis* levels as compared in relation to the potential for GHG emissions

[35] "PSD and Title V Permitting Guidance for Greenhouse Gases," EPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, EPA–457/B–11–001, pp. 47–48, March 2011.

reductions expected from the population of sources that would be subject to the BACT requirement because they emit GHGs above that level.

While the dangers caused by increases in GHGs are relevant under the factors discussed in the preceding section, since the SER for GHGs will not be used to determine what sources must apply for a PSD permit or whether an ambient air quality analysis must be conducted for GHG, the EPA does not believe it is necessary for the Agency to attempt to identify the specific nature or degree of environmental impact predicted from various levels of GHG emissions from "anyway sources" that are required to obtain a PSD permit. Likewise, EPA does not believe it is necessary for the Agency to try to distinguish specific environmental impacts at a given level from those expected at other levels. As the EPA has noted, climate change modeling and evaluations of risks and impacts of GHG emissions is typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in PSD permit reviews.[36] In the context of PSD permitting, the EPA is continuing to use the *level* of GHG emissions from a stationary source as the more credible and appropriate means for assessing the potential environmental impact of such a source. This aligns with the Congressional direction in the BACT provision to achieve the maximum degree of emissions reduction of each pollutant. Congress established a separate requirement in the PSD program to demonstrate that the air quality impact of a source does not cause a violation of air quality standards, but that requirement is not applicable to GHGs at this time.

Considering this context and Congressional intent that BACT reflect a "degree of reduction" that is achievable, the SER that the EPA proposes to establish for GHGs represents a level of GHG emissions below which application of the BACT requirement would be expected to yield a "degree of emissions reduction" that has trivial or no value. In this proposed rule, the EPA's analysis shows that the proposed SER is *de minimis* only as applied in the particular context of determining whether application of the BACT requirement to GHGs would be of value in reducing GHG emissions from "anyway sources" that trigger the requirement to obtain a PSD permit. The proposed SER is not a level of GHGs below which the EPA has concluded there is a *de minimis* impact on the global climate. Rather, the *de minimis* level proposed in this rule reflects only a level of GHG emissions from an "anyway source" below which the EPA is proposing to find that there would be trivial or no value in applying the BACT requirement to GHGs in the context of preparing a PSD permit.

C. Historical Approaches to Establishing a De Minimis Level in the PSD Program

The EPA has previously established *de minimis* levels for several pollutants in the PSD program that are reflected in the definition of "significant" in existing PSD regulations. 40 CFR parts 51.166(b)(23)(i) and 52.21(b)(23)(i). In this section of the preamble, we discuss the approaches the EPA has previously used to establish *de minimis* emissions levels. We then examine the extent to which these approaches can be employed to support the development of a *de minimis* emissions level for GHGs. The EPA's judgment at this time is that the approaches we have previously used to establish SERs are not workable for the establishment of a GHG SER due the unique nature of GHG emissions.

The EPA first established SERs in 1980 as part of the revised PSD regulations that the EPA completed following the *Alabama Power* decision. 45 FR 52676 (1980 PSD Rule). The 1980 PSD Rule included the current approach for defining "major" modifications, based on the use of SERs to define "significant" increases in emissions. As discussed previously, a modification must be "major" to trigger the PSD permitting requirement. The EPA determined the level of these SERs following the principles regarding *de minimis* exceptions that the Court provided in *Alabama Power.*

In the preamble to the 1980 PSD Rule, the EPA identified the primary objectives the Agency sought to meet in selecting *de minimis* values: (1) Provide effective Class I area protection, (2) guard against excessive un-reviewed consumption of the Class II or III PSD increments, and (3) assure meaningful permit reviews. 45 FR 52676, 52706. "Meaningful" in this context meant that there would be a possibility of obtaining useful air quality information or obtaining greater emission reductions as a result of BACT analysis than would be expected from otherwise-applicable state permit or NSPS/national emission standards for hazardous air pollutants (NESHAP) processing. *Id.*

Within this framework, the *de minimis* levels finalized for each pollutant in the 1980 PSD Rule were based on consideration of both environmental impacts and administrative burden. The Administrator chose to specify *de minimis* level cutoffs in terms of emissions rate (*i.e.,* tpy). The derivation of the *de minimis* levels are described in preambles published in the **Federal Register** and two technical support documents to the 1980 rulemaking.[37] In setting the *de minimis* levels for each pollutant, the EPA relied on existing "data on sources permitted under the PSD program" to predict the environmental/air quality impacts associated with regulating emissions above that level, and a measure of the number of PSD permitting actions that might result from a particular *de minimis* level. 45 FR 52676, 52707.

The EPA assessed the air quality impacts differently for criteria and non-criteria pollutants.[38] For criteria pollutants, where there was extensive health and welfare documentation based on ambient concentration data used in setting NAAQS, the EPA based the *de minimis* emission levels on ambient air impacts. For non-criteria pollutants, for which no ambient air quality standards existed, the EPA based the *de minimis* emission levels on emission rates embodied in NSPS and NESHAP, which are national emission standards developed under CAA 111 and CAA 112, respectively. The bases for the *de minimis* emissions rates are summarized below.

For the criteria pollutants (all except carbon monoxide (CO), as discussed later), the final *de minimis* levels were based on 2 to 4 percent of the primary NAAQS for the pollutant. 45 FR 52676, 52708. To develop these SERs in tpy, the EPA first established a range of potential air quality "design values" [39] representing percentages of the then-current primary NAAQS and, for particulate matter (PM) and sulfur dioxide (SO_2), percentages of the Class

[36] "PSD and Title V Permitting Guidance for Greenhouse Gases," EPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, EPA–457/B–11–001, p. 48, March 2011.

[37] One report is titled "Impact of Proposed and Alternative *De Minimis* Levels for Criteria Pollutants," EPA–450/2–80–072; the other report is a staff paper titled "Approach to Developing *De Minimis* Levels for Noncriteria Air Pollutants." Both papers have a June 1980 publication date.

[38] "Criteria pollutants" are those pollutants listed by the EPA under CAA section 108 for study and subsequent development of NAAQS under CAA section 109. "Non-criteria" pollutants are other pollutants that are subject to regulation under the Act.

[39] These "design values" are to be distinguished from the design values calculated from ambient air quality data as part of determining compliance with certain of the NAAQS.

II PSD increments.[40] These design values were then converted to annual emissions rates in accordance with the EPA modeling procedures using data on sources permitted under the PSD program. 45 FR 52676, 52707. Since at that time there was only an annual NAAQS for nitrogen dioxide (NO_2), the EPA elected to set the *de minimis* emissions rate for nitrogen oxides (NO_X) at the level corresponding to 2 percent of the annual NAAQS. *Id.* For CO, the emissions rates corresponding to all the evaluated percentages of the NAAQS were in excess of the major stationary source threshold of 100 tpy that applies to many source categories, so the EPA set the SER at 100 tpy. *Id.* The pollutant volatile organic compounds (VOC) is not a criteria pollutant in itself but was, and is, designated as a precursor to the formation of the criteria pollutant ozone in the atmosphere. The EPA set the SER for VOC at the same level as that for NO_X in recognition of the link between VOC and NO_X emissions in the formation of ozone. *Id.*

For other non-criteria pollutants, the *de minimis* emissions rates were generally based on 20 percent of the NSPS or 10 percent of the NESHAP that imposed limits on their emissions. For example, for sulfuric acid, the SER in tpy was determined based on 20 percent of a model sulfuric acid production plant's annual emissions using the NSPS-based emission standard. A model plant is considered a typical plant affected by the NSPS. 45 FR 52676, 52709.

Since no NAAQS has been set for GHGs, the EPA cannot use the approach based on a percentage of the NAAQS to identify a *de minimis* level for GHGs. In addition, current climate modeling tools are not capable of isolating the precise correlations between singular, incremental facility-specific GHG emissions changes, ambient CO_2 concentrations, and climate impacts. Thus, because of the absence of a NAAQS for GHGs and the inherent uncertainties and limitations in modeling climate-related impacts from incremental project-level GHG emission increases, the EPA's judgment at this time is that an ambient-air quality impact-based approach is not workable for setting a GHG SER.

Regarding the historical "20 percent of NSPS" approach for non-criteria pollutants, we believe that this would result in a GHG SER that would be inconsistent with the *de minimis* principles described earlier. The only NSPS containing a GHG emissions limit that EPA had finalized as of the date of our analysis[41] was the rule that limits CO_2 emissions from new electric generating units (EGUs).[42] Based on the modeled emissions profile for the EGU NSPS emissions limit, the "20 percent of NSPS" approach would result in a *de minimis* value of approximately 320,000 tpy CO_2e when applied to the standard for a 600 megawatt natural gas combined cycle EGU.[43] For comparison purposes, this level of GHG emissions is four times greater than the current interim GHG BACT applicability level of 75,000 tpy CO_2e. As described later in Section V.D.1 of this preamble, the 75,000 tpy CO_2e permitting level has been successfully implemented and is achieving meaningful GHG emission reductions through BACT review at larger, industrial GHG emission sources and units, some of which would not have GHG emission increases large enough to be subject to GHG BACT review at a 320,000 tpy CO_2e permitting level.

In addition, using the "model plant" approach for establishing a *de minimis* level for GHGs is problematic because GHGs are emitted from such a diverse group of sources, in terms of both type and size. Even if NSPS that regulated GHG emissions for source categories other than EGUs had been available for analysis, the diversity of sources and the differences in GHG emissions contribute to eliminate the viability of the "model plant" approach for setting a SER. The model plant approach worked for other non-criteria pollutants because there was a much narrower set of industrial source categories from which the pollutant of interest was emitted in quantities of any concern (*e.g.*, fluoride emissions from aluminum production plants).

Following the approach used for CO (*i.e.*, applying the major source threshold of 100 tpy as a SER level) would result in a GHG threshold that would exclude only very small emissions units. However, it may still require GHG BACT for what still can be considered relatively small units in terms of GHG emission increases for which, under any reasonable viewpoint, there would be trivial value in conducting a GHG BACT review. This would impose unreasonable administrative burdens for implementation and enforcement. As discussed previously, after the U.S. Supreme Court's *UARG* decision, PSD review is limited to only "anyway sources," where emissions of a regulated pollutant other than GHGs triggers major stationary source or major modification status under PSD. Thus, the GHG BACT requirement will only apply to such sources. In this context, the term "small unit" is a relative term because the smallest units or modifications will be excluded from PSD entirely because they do not emit or increase any pollutant in major amounts. Cases where a new major stationary source or a major modification involves combustion units with emissions of other pollutants large enough to trigger PSD generally would be associated with large CO_2 emission increases as well, and thus would focus GHG BACT review on the larger emitting units. However, in cases where major stationary source or major modification status is triggered by non-combustion emissions units, such as large VOC emitters, there may be collateral GHG emission increases that are very small. In addition, CO_2 is emitted in much greater quantities than CO; the CO_2 emission factor for natural gas boilers is 1,400 times that of CO, meaning that a boiler triggering PSD for emissions of 100 tpy CO would emit 140,000 tpy CO_2.[44] Very small combustion units can emit 100 tpy CO_2, such as small stationary internal combustion (IC) engines, water heaters, and heating, ventilation and air conditioning units. Thus, a 100 tpy GHG SER may trigger BACT review for very small units or modifications. However, as will be discussed later in this preamble, the EPA believes applying the BACT requirement to such small combustion units would provide emission reductions gains of trivial or no value.

In addition, it should be noted that the SER for CO was set at 100 tpy in deference to the statutory definition of "major stationary source" that applies to many source categories, in spite of the fact that the emissions rates corresponding to all the percentages of the NAAQS that were evaluated as potential *de minimis* levels were in excess of 100 tpy. As a criteria

[40] At the time, increments had been established only for PM, which at that time was expressed as total suspended particulate (TSP), and SO_2.

[41] EPA has since completed other standards that contain GHG emission limits, but these were not available at the time of our analysis.

[42] Final Rulemaking titled "Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units" (80 FR 64510, October 23, 2015).

[43] "Regulatory Impact Analysis for the Final Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units." Chapter 5, Table 5–1. EPA–452/R–15–005, August 2015, (*http://www2.epa.gov/sites/production/files/2015-08/documents/cps-ria.pdf.*

[44] U.S. EPA, Compilation of Air Pollutant Emission Factors, Document No. AP–42, Volume I, Chapter 1, Section 1.4 "Natural Gas Combustion," Tables 1.4.1 and 1.4.2, July 1998.

pollutant, CO is clearly covered by this statutory major source definition. However, the U.S. Supreme Court made clear in *UARG* that the major source levels are not applicable to GHG emissions. Thus, for the reasons discussed earlier, setting a SER for GHGs need not be limited by the major source thresholds in the same manner that the EPA viewed it as a limitation for CO.

D. What is the technical basis for the proposed GHG SER?

1. Summary of Technical Support Information

In this section, we summarize the key findings from our data reviews and how they support our proposed GHG SER value. Following this summary, Sections V.D.2 to V.D.5 of this preamble provide more detailed information on each of the individual reviews and analyses, the findings from each, and references to applicable supporting documents. Section V.E of this preamble then presents our proposed GHG SER, an overall summary of our findings that support our propose GHG SER level, and a request for comments.

It is important to note that no single review or analysis by itself constitutes the basis for the proposed GHG SER value of 75,000 tpy CO_2e. Instead, we based our proposed GHG SER on the collective findings from these technical reviews, some quantitative in nature and some qualitative, that sought to evaluate the potential coverage of GHG sources, and the opportunities for achieving meaningful GHG emissions reductions from the BACT review as part of projects at "anyway sources" under the PSD permitting program.

Information obtained from the following four categories of data reviews supports the proposed GHG SER level: (1) A review of recent PSD permitting information for "anyway sources," including those subject to GHG BACT review since GHGs became subject to regulation in 2011; (2) a calculation of the equivalent GHG emissions corresponding to a 40 tpy NO_X SER level for different combustion unit types that could be expected to be part of "anyway sources;" (3) an analysis of non-combustion related GHG source category emissions data; and (4) a review of control strategies that have been or would likely be applied for GHG BACT reviews. In addition, the EPA considered the burdens of applying the GHG BACT requirement to sources emitting (or modifications increasing) GHGs in relatively small amounts. The following paragraphs summarize the key findings from each of these reviews that informed our decision on the proposed GHG SER.

Under the first category of data review, we examined existing PSD permitting information to determine the types and size of GHG emission units that are likely to be part of PSD "anyway sources." We looked at two sources of permitting information for this review. First, we looked at GHG permitting information from the EPA Regional offices and states as part of the EPA's effort under the phase-in process established in the Tailoring Rule to collect information on actual permits issued that included GHG BACT limits. This information provided actual, historical information on the type of emissions units undergoing GHG BACT review at a 75,000 tpy CO_2e permitting applicability level. This was the effective applicability level for determining whether GHG BACT review applied to "anyway sources" that were otherwise subject to PSD permitting based on conventional (non-GHG) pollutants under Step 1 of the Tailoring Rule. It is also the current effective applicability level for determining if GHG BACT review applies to "anyway sources."[45] The second data source we looked at as part of this permitting review was information from the EPA's Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC). The RBLC is a voluntary, national reporting database containing PSD permit information, including permits for which no GHG BACT review was conducted after GHGs became regulated in 2011. We reviewed the RBLC data to further characterize PSD permits in regards to potential GHG-emitting sources and to specifically identify the likelihood of new PSD "anyway sources" emitting (or a modified "anyway source" increasing) GHG emissions in an amount less than 75,000 tpy CO_2e. Such a source would not have been subject to GHG BACT review under Step 1 of the Tailoring Rule. Because all of this PSD permitting information was from a period when 75,000 tpy CO_2e was used as the effective BACT applicability level for GHGs, this value serves as a key reference point throughout each part of our analysis.

Our review of this permit information produced a number of important findings. First, we found that, using a 75,000 tpy CO_2e applicability level, BACT review for GHGs was triggered for the largest sources of GHGs from a national perspective. This was evidenced by the fact that the source categories represented in the "anyway sources" with PSD permits addressing GHGs correlated very well with the largest GHG-emitting source categories identified through the EPA's GHG Reporting Program (GHGRP).[46] The GHGRP emissions reports are submitted by stationary sources to the EPA on a yearly basis. Almost all of the PSD permits since 2011 that contained GHG BACT limits were issued to sources in categories that collectively represent over 92 percent of the 2013 reported emissions under the GHGRP. These GHGRP categories include power plants (66 percent of GHGRP emissions for 2013), petroleum and natural gas systems (7 percent), petroleum refineries (5.6 percent), organic and inorganic chemicals manufacturing (5.5 percent), minerals production (3.5 percent), metals production (3.4 percent) and pulp and paper manufacturing facilities (1.2 percent). The percentages provided above reflect the portion of the total nationally-reported GHG emissions, on a CO_2e basis, emitted from facilities in the particular source category. The distribution of "anyway source" permits containing a GHG BACT limit was similar: Power plants made up the largest percentage (47 percent) followed by the chemical production sector (20 percent), the oil and gas sector (10 percent), metals production (8 percent), refineries (6 percent), minerals production (6 percent) and the pulp and paper industry (3 percent). These same categories also contributed over 92 percent of the GHG emissions, based on CO_2e, as reported under the EPA's GHGRP.[47]

This correlation between source categories subject to the GHG BACT requirement and the source categories contributing the most reported GHG emissions confirms that at the current applicability level of 75,000 tpy CO_2e, the categories of sources contributing the most to national stationary source GHG emissions are included in the population of sources that were subject to the BACT requirement for GHGs. We did not see any prominent, high-ranking

[45] Next Steps and Preliminary Views on the Application of Clean Air Act (CAA) Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision in *UARG* v. *EPA*, Memorandum from Janet G. McCabe, Acting Assistant Administrator, Office of Air and Radiation, and Cynthia Giles, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA, to Regional Administrators, p. 3, July 24, 2014.

[46] "A Summary Analysis of the GHG Permitting Experience between 2011 and 2014," prepared by EPA Staff, March 2015.

[47] 2013 GHGRP Overview Report, *http://www.epa.gov/sites/production/files/2015-07/documents/ghgrp-overview-2013.pdf.*

GHG reporting source categories, in terms of their national GHG emissions contributions, that were not included in the "anyway sources" that obtained PSD permits with GHG BACT limits at the 75,000 tpy CO_2e level. This is one consideration in evaluating whether there is value in applying BACT to GHGs at sources emitting (or modifications increasing) this pollutant below the 75,000 tpy CO_2e level. Other parts of the EPA's analysis show that the potential for achieving meaningful GHG reductions from BACT review is highest at the GHG reporting source categories that are responsible for most of the national GHG emissions.

A second key finding from our review of past permitting actions was that the emissions from large, fossil-fueled combustion units were generally the principle cause for "anyway sources" requiring PSD permits based on emissions of pollutants other than GHGs. Across all industry categories, we found that "anyway sources" have been triggering PSD primarily because of the addition or modification of combustion units. Most of these projects involved some combination of turbines, boilers, process heaters/furnaces, and stationary IC engines that were principally fired with either diesel fuel or natural or process gas, with smaller numbers of biomass-fueled units. We found that even for a specific sector such as the oil and gas industry, where there are a variety of fugitive emission sources, combustion emissions still dominate the emission profile and are the primary driver of PSD applicability for new construction and major modification projects.

This finding that combustion units dominate the population of PSD permits that contain GHG BACT limits to date is also consistent with the general composition of the sources in the national GHG emissions inventory. Nationally, CO_2 is the GHG emitted in the largest quantities from stationary sources.[48] The 2.9 billion metric tons of CO_2 emissions reported by stationary sources under the EPA's GHGRP for the year 2013 represent 91.4 percent of the total reported GHGs, in terms of percent of total CO_2e emissions, from reporting stationary sources in 2013.[49] Of the reported 2.9 billion metric tons of CO_2 emissions, approximately 90 percent results from fossil fuel-fired combustion units.[50]

The fact that combustion units dominate the reported GHG emissions for industrial stationary sources and are to date the most prevalent units triggering the requirement to obtain a PSD permit at these same types of industrial sources is another important consideration in our development of a GHG SER. The EPA has no reason to believe that economic conditions or other factors will dramatically alter the nature of industrial activity triggering PSD permitting in the future. Thus, we expect that new and modified combustion units of a similar profile will continue to make up most of the potential "anyway sources" and modifications requiring a PSD permit, regardless of the GHG SER level that applies to determine whether BACT applies to GHGs at such sources

A third finding, resulting from our review of the RBLC permitting information, was that very few "anyway sources" obtaining permits experienced GHG emission increases less than 75,000 tpy CO_2e. From the RBLC dataset, we identified 20 PSD permits issued to "anyway sources" between 2011 and 2014 that included permitted combustion units that did not contain BACT limits for GHGs. All of these permits authorized modifications of an existing major source, and typically included some type of smaller, ancillary combustion units, such as a flare, an IC engine or process heater. It is possible that each of the projects authorized by these permits increased GHG emissions in an amount less than 75,000 tpy CO_2e (but greater than zero tpy). We use the term "possible" because our analysis is based on emissions unit information available for the permit from the RBLC database, or from individual permit documents in cases where those were available. The unit types and/or fuel used suggest the presence of GHG emission sources, but without a full site-specific PSD applicability determination prepared specifically for GHGs (accounting for all contemporaneous increases and decreases of GHG emissions), these occurrences should only be considered possible instances where there may have been GHG emission increases. These 20 permits represent 5 percent out of a total of about 400 PSD permits in the RBLC dataset occurring over a 4-year period. Although the RBLC dataset is based on voluntary reporting and, due to incomplete participation, does not represent a complete dataset of PSD permits issued nationally, we believe that this relatively small percentage of "anyway source" permits that we identified in the RBLC dataset reflects the unlikeliness of a significant number of "anyway source" PSD permits requiring GHG BACT review below a 75,000 tpy CO_2e SER level.

Given the nature and number of these permits that we identified, we would not expect to add many additional GHG BACT reviews nationwide at a GHG SER level below 75,000 tpy CO_2e. In addition, any additional BACT reviews would likely only be for modifications of existing major sources. The past permitting information shows that any wholly-new "greenfield facilities" would be expected to trigger the PSD BACT requirement at GHG SER level of 75,000 tpy CO_2e. Any new major stationary source that emits pollutants other than GHGs above the major source thresholds would be expected to emit GHGs in amounts of at least 75,000 tpy CO_2e or more. Thus, our technical analysis of past PSD permitting activity indicates that GHG SER values below 75,000 tpy CO_2e are only potentially meaningful for modification projects that trigger PSD at existing major sources. Modification projects may include both additions of new emissions units at existing facilities and physical changes to existing emissions units that result in increases in emissions.

The last key finding from our review of PSD permit information was that applying BACT to GHGs at the 75,000 tpy CO_2e permitting level has been administratively feasible for both sources and permitting authorities over the 4 years it has been in place. The EPA's analysis showed effective and timely implementation of the BACT requirement for GHGs. A knowledge base on BACT review and design for GHGs at source categories and units triggering the BACT requirement at the 75,000 tpy CO_2e level has also been developed over this permitting period that will facilitate future permit reviews.

Based on the finding, supported by our review of past PSD permit actions, that construction or modification of combustion units is the dominant form of activity that triggers the requirement to obtain a PSD permit, our second category of data review involved identifying the specific level of increased GHG emissions resulting from the construction or modification of combustion units most likely to trigger PSD in the future. As discussed earlier, the EPA projects that GHG SER values below 75,000 CO_2e would only be meaningful for modifications of existing major sources that trigger PSD review.

[48] 2013 GHGRP Overview Report, *http://www.epa.gov/sites/production/files/2015-07/documents/ghgrp-overview-2013.pdf.*

[49] 2013 GHGRP Overview Report, *http://www.epa.gov/sites/production/files/2015-07/documents/ghgrp-overview-2013.pdf.*

[50] 2013 GHGRP Reporting Dataset, *http://www.epa.gov/ghgreporting/ghg-reporting-program-data-sets.*

Thus, this portion of our analysis did not involve wholly new sources, but focused instead on projects involving the addition of new emissions units at an existing major source. Since GHG BACT review can only apply to a modification in cases where a pollutant other than GHGs is increased in significant amounts and is thus subject to BACT review for that pollutant, we used the existing PSD NO_X SER value of 40 tpy to calculate an equivalent level of increase in GHG emissions that we would expect to be associated with the combustion unit types most likely to be part of future modification projects that trigger the requirement to obtain a PSD permit. Using this approach, the GHG equivalency results simply provide an approximate measure of the theoretical minimum level of GHG emissions increase that could be associated with a project that adds a particular type of combustion unit that increases NO_X by just more than the NO_X SER level of 40 tpy. We then examined this equivalency level in relation to both the findings from our first technical review (the past actual permitting actions) and our fourth technical review, which evaluated the degree of reductions found to be achievable in GHG BACT reviews for these unit types.

The results of our equivalency analysis ranged from 17,529 tpy CO_2e for certain types of stationary IC engines, upwards to 425,665 tpy CO_2e for large power plant turbines. The average result across unit types was 98,333 tpy CO_2e. The analysis confirmed that, for some unit types, GHG emissions increases would clearly exceed the current 75,000 tpy CO_2e level if that unit increased NO_X emissions over the NO_X 40 tpy SER level. For example, a natural-gas fired combustion turbine, commonly added as part of a modification project at existing power plants, would have GHG emissions well in excess of 75,000 tpy CO_2e. In projects involving a large power plant turbine unit such as this, a single unit can trigger the requirement to obtain a PSD permit.

However, for other types of emissions units that might be added as part of a PSD triggering modification, we found it necessary to consider the results in light of the actual permitting experience. For example, our analysis showed equivalent GHG emissions increases below a 20,000 tpy CO_2e level for adding a stationary IC engine. In other words, an IC engine that just increases NO_X emissions by 40 tpy or more could be expected to increase GHGs by less than 20,000 tpy CO_2e. However, addition of a single IC engine is not commonly a PSD triggering event. Our permitting review showed that most of the IC engines addressed in "anyway source" PSD permits are present for one of the following two reasons: (1) As associated equipment (*e.g.,* emergency backup generator or fire pump engine) when the source is adding a large combustion unit (such as a turbine or boiler) that is principally responsible for triggering the requirement to obtain a permit; or (2) in multiple-unit configuration generator sets (*e.g.,* 10 or more large IC engines linked together for electricity production). Also, in practice, there is a low likelihood that a PSD project involving the addition of a single unit, of any type, will just exceed the 40 tpy NO_X SER level because, in such cases, the permit applicant very often accepts PTE emission limits to avoid triggering PSD if the project's NO_X emission increase is close to the NO_X SER level.

Therefore, while our equivalency analysis resulted in possible theoretical occurrences of "anyway source" projects involving combustion units that may have emissions less than 75,000 tpy CO_2e, we found very few actual PSD-triggering modification projects that involved adding a single combustion unit that would have total GHG emissions less than 75,000 tpy CO_2e. We found it is much more likely that a PSD-permitted project would have NO_X emissions well in excess of the 40 tpy NO_X SER level due to the addition of multiple combustion units or the sheer size of the primary unit itself, such as a power plant turbine or steam-generating unit. Such projects will have GHG emissions multiple times greater than our theoretical equivalency results.

Our third category of data review looked to identify any additional GHG emission sources, particularly non-combustion related units or processes that might be part of "anyway sources" PSD modification projects, which could potentially be subject to the BACT requirement for GHGs at applicability levels below 75,000 tpy CO_2e. Our review of past PSD permits showed that the large majority of PSD permitted projects that involved GHG emission increases triggered PSD because of the addition of combustion units. In addition, most of these combustion unit projects had GHG emission increases in excess of 75,000 tpy CO_2e. Nevertheless, we also assessed the coverage of non-combustion related GHG sources that might trigger PSD to ensure that we did not miss meaningful reductions of GHGs that could be achieved by applying BACT to GHG at modification projects that increase GHGs in amounts less than the 75,000 tpy CO_2e level that were used in prior permits. Using information from the EPA's GHGRP, we identified and evaluated emissions from GHG-emitting processes and units associated with non-combustion related GHG source categories relative to different GHG emission threshold levels.

One main finding from this evaluation was that a high percentage of GHG emissions from non-combustion units or processes triggering PSD would be covered by the BACT requirement at a level of 75,000 tpy CO_2e on a PTE basis. We found that at a 75,000 tpy CO_2e PTE-based emission threshold level, non-combustion related units and processes responsible for approximately 89 percent of the GHG emissions, on a CO_2e basis, all the non-combustion "anyway source" categories included in our analysis would be captured, and thus conceivably subject to GHG BACT review if the GHG SER was set at a 75,000 tpy CO_2e level. A construction project at a municipal waste landfill, for example, can trigger PSD applicability if its increased emissions exceed the PSD SER level of 50 tpy for non-methane organic compounds (NMOC), the regulated NSR pollutant most commonly emitted from municipal waste landfills. A landfill increasing its emissions by just over 50 tpy NMOC would add over 190,000 tpy CO_2e of GHG emissions (CH_4 expressed on a CO_2e basis), which is well in excess of 75,000 tpy CO_2e.[51] We found significant GHG emission source coverage at a 75,000 tpy CO_2e level for other important source categories containing non-combustion related GHG-emitting units and processes, including cement production, nitric acid production, refineries, and underground coal mines. The non-combustion related units and processes in these categories that emit GHGs in amounts greater than 75,000 tpy CO_2e are responsible for over 90 percent of the non-combustion related GHG emissions from each of these source categories.

Another important finding from our review of non-combustion sources that emit GHGs was that there is evidence that smaller GHG-emitting units that would not otherwise trigger PSD independently can be pulled into PSD when other emissions units are added in the same project. Once the BACT requirement is applicable to a given pollutant based on emissions in excess of the significance levels, the BACT review covers any associated processes emitting the same pollutants as the main units that are the principal reason for triggering PSD review. Because of the

[51] Memorandum from H. Ward, EPA/SPPD, to J. Mangino, EPA/AQPD, re: Methane to NMOC ratio at landfills. June 17, 2014.

definition of the GHG pollutant as the "sum-of-six" constituent gases, ancillary units that emit relatively small amounts of GHGs other than CO_2 could become subject to GHG BACT requirement if a combustion unit added to the source at the same time emits GHGs in excess of the significance level that the EPA promulgates. Based on the actual experience of permitted sources using a 75,000 tpy CO_2e level under Step 1 of the Tailoring Rule to determine GHG BACT applicability, we have seen smaller GHG-emitting units get pulled into PSD permits involving larger units at oil and gas production, processing and transmission facilities. At these facilities, projects that have triggered PSD involved addition of a large single or multiple smaller combustion units (such as large gas compressor turbines and engines that trigger PSD because of emissions of NO_X or another pollutant besides GHG). These projects also had associated CH_4 leaks from piping, valves, and gas storage equipment. The combustion unit(s) involved in such projects that triggered PSD had GHG emission increases exceeding 75,000 tpy CO_2e, and thus subjecting the project to GHG BACT review under previous PSD regulations. In addition to evaluating controls for GHG emission from the combustion units, the GHG BACT review accompanying these projects included measures directed at the fugitive CH_4 sources associated with the project because the GHG pollutant includes both CO_2 and CH_4 gases. By themselves, the CH_4 emissions fell below the 75,000 tpy CO_2e level, and the fugitive sources alone would not have triggered PSD based on pollutants other than GHGs. However, based on the definition of the GHG pollutant, because other emissions units at these sources triggered PSD and then also triggered BACT for GHGs based on emission in excess of 75,000 tpy CO_2e, these ancillary units were pulled into the overall GHG BACT review.

This finding explains in part why we did not find evidence of many "anyway source" PSD permits with emission units that emit less than 75,000 tpy CO_2e. Our review of prior "anyway source" PSD permitting actions showed that a large majority of PSD permits for projects that would be most likely to involve GHG emission increases are triggered by the addition of large combustion units. In addition, we found that most of these larger combustion units would have GHG emission increases in excess of a 75,000 tpy CO_2e GHG SER level. Thus, we can anticipate that setting a GHG SER below the 75,000 tpy CO_2e level would be unlikely to subject additional non-combustion emissions to the GHG BACT review. If these non-combustion units are constructed independently, they will generally not emit regulated NSR pollutants other than GHGs in amounts that are high enough to trigger PSD review, or they will not involve GHG emissions at all. So establishing a GHG SER lower than 75,000 tpy CO_2e would not likely cause these non-combustion sources to become subject to the GHG BACT requirement. Non-combustion GHG-emitting processes that are part of a project generally are not brought into the GHG BACT review without the contemporaneous addition of a combustion unit that serves as the PSD-triggering event. A GHG SER of 75,000 tpy CO_2e would ensure that such projects will be subject to the GHG BACT requirement.

Our fourth category of data review looked at the degree of GHG emissions reductions that one could expect to achieve by applying energy efficiency measures as BACT for GHGs at projects involving certain types and sizes of combustion units. Although we reviewed a variety of GHG reduction techniques focused on energy efficiency measures applied to combustion units since, as noted in our review of "anyway source" permitting, the addition or modification of combustion units is, and likely will continue to be, the principal triggering event for most PSD permits involving GHGs. The EPA's GHG permitting experience has been that BACT for such sources will usually be energy efficiency measures. Therefore, in evaluating a possible GHG SER option, we focused on the implementation, effectiveness and value of energy efficiency measures at combustion sources that may be expected to trigger PSD.

Our main finding from reviewing these energy efficiency measures is that the degree of emissions reductions achieved is greater at larger combustion units that would be subject to GHG BACT review at or above a 75,000 tpy CO_2e SER. We found that the maximum reduction potential from energy efficiency measures is approximately 7 percent [52] from a baseline industrial boiler configuration. Emissions reductions on this scale are generally only obtainable where site-specific design and construction criteria can be part of the combustion unit design and manufacture. Large industrial boilers, process heaters and furnaces of the size typically seen as part of "anyway source" PSD projects are custom-built and thus not generally purchased as "off-the-shelf" items. Thus, these units can be site-designed and constructed in a way that considers and incorporates a combination of energy efficiency measures.[53] The application of BACT review is thus particularly relevant to these types of units as it involves case-by-case review of technology implementation and cost considerations.

If carbon capture and sequestration (CCS) is found to be achievable at such large industrial boilers, process heaters and furnaces, the degree of emissions reductions that could be achieved is significantly increased. Thus, whether energy efficiency or more effective controls are applied, the BACT requirement would be expected to yield a meaningful degree of GHG emissions reductions when applied to an individual source or modification that increases GHG emission by 75,000 tpy CO_2e or more.

In contrast, when we consider emissions units that emit GHGs in amounts below 30,000 tpy CO_2e, we generally see smaller "off-the-shelf" type units, such as stationary IC engines. The ability to achieve additional GHG reductions from such units is limited or non-existent for several reasons. First, implementing the efficiency measures generally requires site-specific design and construction criteria, more typically associated with larger scale projects where these measures can be part of unit design and manufacture. Second, "off-the-shelf" units such as IC engines typically cannot be substantially modified or tampered with in order to be guaranteed to meet their certified performance standards. Third, there is little variation, typically within 1 or 2 percentage points, in the efficiency of these types of engines sold by different vendors. The market demands that all such engines be highly-efficient across vendors, and thus offers little opportunity for GHG reductions from the purchase decision. Finally, given the relatively small capital cost of these units and the anticipated high cost of CCS, it is unlikely that CCS will even be found to be achievable when such a unit is installed by itself without a much

[52] "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial, Commercial, and Institutional Boilers," EPA Office of Air Quality Planning and Standards. October 2010. *http://www.epa.gov/sites/production/files/2015-12/documents/iciboilers.pdf.*

[53] "Boiler Efficiency Projects-Development of Issues Papers for GHG Reduction Project Types: Boiler Efficiency Projects," Prepared for the California Climate Action Registry, January 7, 2009. *http://www.climateactionreserve.org/wp-content/uploads/2009/03/future-protocol-development_boiler-efficiency.pdf.*

larger combustion unit that will trigger the PSD BACT requirement.

It is worth recalling the definition of the word "meaningful," as described earlier in Section V.C of this preamble where we discuss the historical background for *de minimis* levels under PSD. In the preamble to its 1980 PSD rule, the EPA defined "meaningful" reductions as greater emission reductions than one would expect to be achieved from otherwise-applicable regulatory requirements such as an NSPS or NESHAP. 45 FR 52706. The EPA does not expect that BACT review for IC engines would produce any reductions for GHGs beyond that resulting from the NSPS compliance standards that already exist for these new units. Given the nature of these units, the EPA and permitting authorities have not identified controls at this time that can be added to these engines to further reduce their GHG emissions. Where IC engines have been part of "anyway source" PSD projects to date, typically in association with a larger turbine or boiler units, the selection of high-efficiency engines that meet the requirements of the applicable NSPS has qualified as BACT. Therefore, the value for site-specific GHG BACT review on projects involving only one or two smaller combustion units of the type that might be implicated at GHG SER values less than 30,000 tpy CO_2e is likely to be virtually non-existent. The EPA therefore does not view potential emission reductions from the BACT requirement at projects that increase GHG emissions by less than 30,000 tpy CO_2e as meaningful in the context of setting a *de minimis* level under PSD.

For modifications at "anyway sources" that trigger PSD and increase GHG emissions by 30,000 tpy to 75,000 tpy CO_2e, we found that it may be possible to apply energy efficiency measures to achieve some reductions in emissions, but there is reason to question whether the degree of reduction achieved would be meaningful. For example, we found that the current maximum reduction potential from energy efficiency measures for combustion units, mainly at boiler configurations, is around 7 percent.[54] At smaller combustion units, there are reasons to question whether this maximum reduction potential could be achieved. However, assuming this percentage of reduction could be achieved by applying the most aggressive energy efficiency measures on an additional unit that emits at or near the current 75,000 tpy CO_2e permitting threshold, the total amount of GHG emissions avoided would be limited considering the total amount of increased GHG emissions from such a unit. A 7 percent improvement in a baseline boiler unit efficiency could reduce a 74,999 tpy CO_2e boiler unit's GHG emissions by approximately 5,500 tons CO_2e per year. Another way to view this is that exempting such a source from the BACT requirement for GHGs would result in a marginal increase of 5,500 tpy CO_2e in GHG emissions. The modification would still increase GHG emissions by 69,500 tpy CO_2e even after applying the most aggressive energy efficiency measures through the BACT requirement. In reality, the marginal emissions increase from not applying BACT to GHGs at such a source would likely be less than 5,500 tpy CO_2e because that increase is based on a PTE scenario.[55]

In addition to considering the findings from the four categories of analysis described earlier, we also considered the GHGRP's reporting threshold for GHG emissions, which is 25,000 metric tpy CO_2e for most reporting sources, based on *actual* emissions. Depending on utilization, the PTE-based emissions can be significantly greater than 25,000 metric tpy CO_2e. For example, a source actually emitting 25,000 tpy CO_2e would have a PTE of 50,000 tpy CO_2e if it were run at a 50 percent utilization rate over the course of the year. Also, the reporting rule does not require that those facilities above the reporting threshold take measures to control their GHG emissions; rather it only requires that sources monitor and report their emissions. So while the GHGRP illustrates a comparative level of GHG emissions associated with industrial type GHG-emitting facilities deemed significant for monitoring and reporting purposes, we did not see this threshold as a directly transferrable GHG metric for setting a GHG SER because of the different end-uses and requirements. However, the GHGRP reporting threshold did provide us a quantified GHG emission level for a relative frame of reference in evaluating our proposed GHG SER option as described in the sections of this preamble that follow.

Sections V.D.2 to V.D.5 of this preamble provide more detail on each of the individual technical reviews and analyses and the findings obtained from each.

2. Review of PSD Permitting and GHG Emission Sources

Under our first technical review, we examined existing PSD permitting information to determine the types and size of GHG emission sources that are likely to be part of PSD "anyway sources." We looked at two sources of information for this review. First, we looked at GHG permitting information from the EPA Regional offices and states as part of an effort under the Tailoring Rule to collect information on actual PSD permits issued that included GHG BACT review. Second, we reviewed information from the EPA's RBLC, including permits for which no GHG BACT review was included. The subsections of this preamble that follow describe each review and the key findings.

a. GHG Permitting Under Step 1 of the Tailoring Rule

The main purpose of this analysis was to assess and summarize the GHG permitting experience to date for "anyway sources" emitting GHGs at or above the 75,000 tpy CO_2e GHG threshold level, the effective GHG permitting level for sources that were otherwise subject to PSD permitting for conventional non-GHG pollutants under Step 1 of the Tailoring Rule. The term "anyway sources" refers to sources that trigger PSD permitting requirements "anyway" based on pollutants other than GHGs, regardless of the amount of their project-related GHG emissions. We focused on these "anyway source" permits since they are the only GHG sources and projects that would potentially be subject to GHG permitting following the *UARG* decision that effectively limited GHG permitting to sources and projects that would otherwise be subject to permitting based on emissions of pollutants other than GHGs. We did not include in our review PSD permitting conducted under Step 2 of the Tailoring Rule since Step 2 required PSD permits and GHG BACT review for sources and modifications based solely on GHG emission increases. Such sources do not trigger PSD after the *UARG* decision and subsequent revisions to the EPA's regulations, including those proposed in this rule.

By analyzing the types of GHG emission units and sources subject to

[54] "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial, Commercial, and Institutional Boilers," EPA Office of Air Quality Planning and Standards. October 2010. *http://www.epa.gov/nsr/ghgdocs/iciboilers.pdf.*

[55] As this summary of our technical review demonstrates, our findings are based on an analysis of currently available information. The information considered as part of our analysis, such as the average GHG emissions reduction that can be achieved from the application of energy efficiency or the availability of CCS for smaller sources, may change in the future. Thus, after this rule is finalized, EPA may need to periodically consider if there are significant changes to the information considered in our analysis.

GHG BACT review during the past four years, we developed a historical profile of the source coverage and GHG BACT review process at the 75,000 tpy CO_2e GHG permitting level. Looking at this historical record, we can better assess to what extent the existing 75,000 tpy CO_2e permitting level subjects significant GHG-emitting sources to BACT review, and whether GHG BACT review at that level yields emission reductions that were meaningful.

For this analysis, we reviewed summary information on 200 PSD permits issued during the 2011–2014 timeframe that contained GHG BACT requirements after GHGs became a regulated NSR pollutant. We summarized the characteristics of the sources and types of units that have been subject to GHG BACT review. Some of the key findings from this review are presented here; more details on this analysis are included in the docket for this proposed rulemaking.[56] Based on this review sample, approximately 90 percent of all the PSD permits with GHG BACT limits were issued to "anyway sources,"[57] with the other 10 percent issued to sources that were subject to PSD permitting only because of their GHG emissions (and thus would not be captured at any SER level because they are not "anyway sources").

The importance and contribution of the power generating sector to GHG national emissions cannot be overstated when considering opportunities for GHG reductions and identifying where there is clear, non-trivial value in applying BACT review to obtain such reductions. Power plants are responsible for a majority of the country's total stationary source GHG emissions, approximately 66 percent of the reported 2013 GHG emissions under the EPA's GHGRP.[58] Since combustion units, such as large gas turbines and steam boilers installed at power plants, consistently have GHG emission increases well in excess of 75,000 tpy CO_2e, a GHG SER at this level will ensure that permitting authorities continue to apply GHG BACT review to the largest and most prevalent GHG emission units in the power plant sector as part of "anyway sources" permitting actions.

A 75,000 tpy CO_2e level also does not overlook other significant units. In our review of GHG permitting at a variety of "anyway sources" besides power plants, we found that GHG emissions for units subject to GHG BACT review were generally well above the 75,000 tpy CO_2e threshold. This is because of the greater level of GHG emissions associated with large fossil-fuel fired combustion units, such as turbines and boilers. The addition of these units was typically the triggering event that caused the need for a PSD permit for pollutants other than GHGs. It was also evident from the review that most newly constructed facilities (*i.e.,* "greenfield facilities" as opposed to modifications of existing major sources) that obtain "anyway source" PSD permits will generally have GHG emissions well in excess of a 75,000 tpy CO_2e threshold based on the cumulative, facility-wide total GHG emissions from all emission points in the facility fence line.

As part of this same analysis, we also performed a more detailed review on a sample subset of 55 individual "anyway source" permits that included GHG BACT limits and represented PSD permits for different source category types. Key findings from these sample permit reviews are summarized here with more details of the review included in the docket for this proposed rulemaking.[59] The source category types represented by these 55 permits included the following: Power plants; chemicals production facilities; oil and gas industry sources; metals and mineral production facilities; pulp and paper production facilities; ethanol production plants; and a municipal waste combustion facility.

We found that the construction projects covered by these PSD permits included at least one, and in most cases multiple, large combustion units, such as large fossil fuel-fired turbines, boilers, process heaters, or furnaces, along with associated stationary IC engines for some facilities (generally as backup emergency generators or for associated equipment such as pumps and compressors). The GHG emission levels associated with these sample PSD projects were consistently over 100,000 tpy CO_2e, with many facilities, particularly greenfield facilities, reporting much higher levels. The principal fuels used in the combustion units were natural gas for boilers, furnaces, and turbines and diesel or natural gas for large stationary IC engines. There were limited cases of biomass fuel used, principally in the pulp and paper sector. The emissions from these larger combustion units were in most cases the principal cause for these projects requiring PSD review for both non-GHG pollutants and GHGs. Over 90 percent of the permitted activities within the sample of reviewed permits involved combustion units of some type, primarily fossil fuel-fired boilers, turbines, or stationary IC engines.

Some permits for these combustion unit projects also included ancillary, non-combustion related sources of GHGs for which GHG BACT review was conducted. These sources consisted principally of fugitive emission releases of CH_4 from natural gas delivery, processing or storage units, and SF_6 releases from circuit breaker equipment associated with power plants.[60] There were isolated examples of other non-combustion related sources at two chemical production facilities: GHG emissions from a nitric acid production process and CO_2 from a CO_2 liquefaction process. These processes were both large GHG-emitting processes, emitting more than 90,000 tpy CO_2e.

b. RBLC Permitting Information

For this analysis, we reviewed information on PSD permits contained in the RBLC to understand the types of non-GHG emission sources that were subject to BACT review for other pollutants besides GHG but that may also be important from a GHG emission perspective. Since the *UARG* decision limited the scope of the PSD permitting program to "anyway sources," it is important to understand the types of sources that are typically part of "anyway sources" PSD permitted projects and their potential to emit GHGs. This analysis differed from our review of historical GHG permitting data since the RBLC dataset also contains PSD permits that did not contain GHG BACT limits, and thus we could identify if there were other GHG emissions sources that could potentially be subject to GHG BACT review at permitting threshold levels below 75,000 tpy CO_2e. A detailed report of this analysis is included in the docket for this rulemaking.[61]

[56] "A Summary Analysis of the GHG Permitting Experience between 2011 and 2014." Prepared by EPA Staff, March 2015.

[57] As discussed previously in Section V.D.1, the "anyway source" permits with GHG BACT limits all involved energy-intensive industries, emitting significant amounts of CO_2 from the burning of fossil fuels in various types of combustion units.

[58] 2013 GHGRP Overview Report, *http://www.epa.gov/sites/production/files/2015-07/documents/ghgrp-overview-2013.pdf.*

[59] "A Summary Analysis of the GHG Permitting Experience between 2011 and 2014." Prepared by EPA staff, March 2015.

[60] "A Summary Analysis of the GHG Permitting Experience between 2011 and 2014." Prepared by EPA staff, March 2015.

[61] "A Summary Review of Recent PSD Permitting Activity for "Anyway Source" Categories and the Potential GHG-Emitting Units and Processes within Those Categories." Prepared by EPA staff, March 2015.

We began our review of "anyway source" PSD permits by assessing the types of emission units and sources that triggered PSD actions for pollutants other than GHGs. We then identified which of the units would most likely emit GHGs. We reviewed detailed process level information from over 100 "anyway source" PSD permits issued in the last 4 years for source categories likely to have some amount of GHG emissions.[62]

We examined individual source category projects as represented in the RBLC dataset to see if there was evidence of any consistency in the type and/or size of combustion units across key source categories and the extent to which they appear to be the primary emissions unit that is installed or modified and triggers PSD for pollutants other than GHGs. To get a representative sample across different source categories, we reviewed permits from a variety of industrial classifications, including potentially important GHG-emitting categories such as metals production, chemical manufacturing, petroleum refineries, the oil and gas industry, pulp and paper industries, and waste industries.[63] We did not include power plants in the RBLC sample set we reviewed because we knew with a high level of certainty that the PSD permitted projects for these facilities principally involved very large combustion units, such as large gas turbines, with GHG levels well in excess of the current 75,000 tpy CO_2e threshold. Therefore, these permits would not provide any additional insight into the characterization of sources that obtained permits because of pollutants other than GHGs for purposes of evaluating a possible GHG SER option.

Across the sampled industry categories, we found that "anyway sources" triggered PSD for conventional pollutants primarily because of the addition or modification of combustion units, such as turbines, boilers, process heaters, furnaces, and stationary IC engines. For most facilities, combustion units or associated combustion unit-related emissions (*e.g.,* flares, exhaust gas treatment systems) constituted the majority of the overall processes for which BACT limits were required for pollutants other than GHGs at any given facility. Most of the larger combustion units covered by PSD permits were fueled principally by either natural gas or process-related gas for industries (such as petroleum refineries) where such gas is generated. Some permits also included smaller, stationary engines (typically emergency generators or fire pumps) principally fueled by either diesel or natural gas.

From a sample of about 400 PSD permits contained in the RBLC dataset for the years 2011 to 2014, we identified only 20 PSD permits for modification projects[64] from the RBLC data set that included combustion units whose cumulative GHG emissions would likely not exceed 75,000 tpy CO_2e based on their fuel input data. Although we recognize that the RBLC dataset does not reflect a complete dataset of permitting actions due to its voluntary participation and under-reporting, we reasonably expect, based on the overall characteristics of the other PSD permits we reviewed and the type of GHG source categories affected under PSD, that there are a relatively low number of "anyway source" PSD projects with GHG emissions likely to be less than 75,000 tpy CO_2e.

We also found that where non-combustion processes were covered by a PSD permit, the emissions from these processes principally consisted of PM-related fugitive emissions, such as dust from material handling or roads. There were also some specific industries, such as oil and gas processing plants, refineries, chemical production plants and landfills, where VOC emissions, often fugitive in nature, from piping, pumps and storage tanks, were subject to BACT requirements. However, in most of these cases there were large combustion units included in the PSD-permitted project that appear to be the key source of the emissions of a pollutant other than GHGs that exceed the applicable pollutant significance level, and thus drive the requirement for a PSD permit.[65]

Working from our preliminary finding above regarding non-combustion sources, we took a closer look at the extent to which combustion units were the main component of PSD projects related to a particular source category that has significant non-combustion GHG emissions, namely, facilities in the oil and gas sector with CH_4 emissions. The oil and gas industry is well represented in PSD permitting, with the third highest count of permits between 2011 and 2014, and is also the second largest emitting industrial sector for non-combustion related CH_4 emissions.[66] We were particularly interested in understanding the contribution of combustion units in triggering PSD "anyway" at oil and gas sector facilities, and how this might influence GHG permitting at a proposed GHG SER level.

We found that, for projects subject to PSD in the oil and gas industry, combustion units still dominate the GHG emission profile. We examined a sample of 16 PSD permits issued between 2011 and 2015 associated with the oil and gas sector to determine whether PSD permits in the industry are principally and routinely required due to projects involving combustion units or if they are sometimes triggered by non-combustion emissions units alone, and whether such non-combustion units might also be sources of GHG emissions. A detailed summary of this review of oil and gas sector PSD permits is provided in the docket for this proposed rulemaking, from which the following key findings are taken.[67] In all the PSD permits that we evaluated for this oil and gas sector review, combustion sources were the primary driver of PSD applicability for the permitted new source or major modification. Based on available emissions data within the permits, we did not find a PSD permit that did not cover combustion units as the primary emitters of PSD pollutants, including GHGs. Of the 13 permits for which GHG emissions were provided or could be readily calculated, 12 of the projects involved GHG emissions greater than 75,000 tpy CO_2e, with four of these over 500,000 tpy CO_2e. The one project with less than 75,000 tpy CO_2e was a modification project to increase flaring as a BACT control strategy for VOCs. Of the 10 permit actions with adequate data to estimate GHG emissions on a unit basis, combustion emissions accounted for more than 70 percent of GHG emissions in all cases, more than 80 percent in 8 of the 10 cases, and more than 90 percent in 5 of the 10 cases.

[62] "A Summary Review of Recent PSD Permitting Activity for "Anyway Source" Categories and the Potential GHG-Emitting Units and Processes within Those Categories." Prepared by EPA staff, March 2015.

[63] "A Summary Review of Recent PSD Permitting Activity for "Anyway Source" Categories and the Potential GHG-Emitting Units and Processes within Those Categories." Prepared by EPA staff, March 2015.

[64] "List of Permits Identified in RACT/BACT/LAER Clearinghouse that Likely Have Combustion-Related Emissions that are less than 75,000 tpy CO_2e". Prepared by EPA Staff, October 2015.

[65] "A Summary Review of Recent PSD Permitting Activity for "Anyway Source" Categories and the Potential GHG-Emitting Units and Processes within Those Categories." Prepared by EPA staff, March 2015.

[66] "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013," Table ES–2. Document No. EPA 430–R–15–004. April 15, 2015. *http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html.*

[67] "A Summary Review of Recent PSD Permitting Activity for "Anyway Source" Categories and the Potential GHG-Emitting Units and Processes within Those Categories." Prepared by EPA staff, March 2015.

3. GHG Emissions Levels for Combustion Units

Once we had an understanding of the characteristics of "anyway source" permitting actions specially, the prevalence of combustion units as the primary GHG-emitting sources in these PSD permits based on the permitting review described in Section V.D.2 of this preamble, we then focused on identifying the level of GHG emissions associated with the combustion units most likely to be part of future PSD-triggering projects. From our review of "anyway source" PSD permits, we found that most of the projects involved some combination of turbines, boilers, process heaters/furnaces, and stationary IC engines.[68] Most of the units were either natural gas or diesel-fired, with a smaller number of biomass-fueled units. Natural gas-fired units predominated in the larger combustion categories of turbines and boilers. This finding is consistent with the projections from the EPA's Boiler maximum achievable control technology (MACT), which shows over 94 percent of projected industrial boilers and process heaters to be natural gas-fired units.[69]

In order to estimate the level of GHG emissions that correlated with the type and size of combustion units that are most likely to trigger PSD for "anyway sources," we needed to equate GHG emissions with those from an appropriate non-GHG pollutant SER that would trigger PSD applicability. From our review of permit data, we identified that the combustion units most often occurring in "anyway sources" PSD permits were commonly triggering PSD for emissions of NO_X. We determined that the use of the NO_X SER would be a reasonable and appropriate value to use as the basis for estimating equivalent GHG emissions associated with these "anyway source" combustion units. A full description of this analysis is provided in the docket for this rulemaking.[70]

The basic premise of this analysis was to identify a theoretical minimum GHG emissions level that equates to the existing NO_X SER level (*i.e.,* 40 tpy) for different combustion unit types. We could then consider the merits, in the context of meeting the *de minimis* principles, of aligning GHG BACT review on similar-sized combustion unit projects that would be otherwise requesting PSD review for non-GHG pollutants. From a theoretical standpoint alone, such an alignment would optimize the emissions-reduction benefits available through the BACT review process with a marginal increase in permitting burden program-wide for both permitting authorities and sources (the incremental increase in burden from the BACT review for an additional pollutant).

We identified NO_X as the most appropriate surrogate "anyway" pollutant with which to compare the GHG emissions level. NO_X is commonly emitted in significant quantities from the types of combustion units that are expected to be covered in most of the future PSD permits. These are new electricity generation, large natural gas and diesel-fired turbines, boilers, process heaters, furnaces, and IC engines. We did not consider coal-fired units in designing the surrogate analysis because projections of future boiler and process heater units from the EPA's Boiler MACT (78 FR 7138, January 31, 2013) and EGU NSPS (80 FR 64510, October 23, 2015) rulemakings show little, if any, new coal-fired capacity as part of projected new construction.[71]

We investigated the possibility of using alternative surrogate pollutants for performing the equivalency analysis but found little value in pursuing these other options. For various reasons, these other pollutants did not correlate well with estimating equivalent GHG emissions from the combustion unit sources that represent the largest proportion of the sources that have been permitted for GHG. For example, CO is not a good surrogate since its emissions are typically inversely related to the amount of CO_2 emitted from combustion, the former representing more incomplete combustion conditions and the latter more complete combustion. Also, since the CO SER level is relatively high compared to other pollutants (100 tpy), equating CO_2 emissions to CO levels would result in a GHG SER level well above 100,000 tpy, which would not adequately capture significant projects that are otherwise subject to permitting for other non-GHG combustion pollutants based on our knowledge of GHG permitting for "anyway sources" that occurred under the GHG Tailoring Rule. PM is also a combustion pollutant, but it is emitted in very small quantities from natural gas units and PM often does not trigger PSD review on its own. Therefore, as a surrogate, PM would not adequately capture significant projects involving natural gas fired units, which are anticipated to comprise a large proportion of future PSD permitted units. Volatile organic compounds (VOCs) are emitted from a large variety of processes, many of which do not involve combustion units or have associated CO_2 emissions, and therefore is not well suited as the basis for developing a representative, surrogate GHG level.

Our equivalency analysis used the ratio of the emission factors of GHG to NO_X for each applicable unit type.[72] The ratio was then used to calculate the equivalent emissions of GHG, on a PTE) basis, for a 40 tpy NO_X emission level for each unit type. The GHG-to-NO_X ratio varied based on the unit types, which was expected since the emission factors for NO_X, and to a lesser extent CO_2, vary among the unit types and their control configurations. The underlying emission factors used for the surrogate analysis were selected to best represent the most likely configurations for newly installed units at PSD permitted facilities.

We estimated the following GHG emissions based on our equivalency analysis. For natural gas-fired turbines, the range was 50,346 to 425,655 tpy CO_2e, with an average of 186,537 tpy CO_2e across configurations. For large (greater than 100 MMBtu/hr) natural gas boiler/process heaters/furnaces, the range was 34,302 to 63,188 tpy CO_2e, with an average of 48,504 tpy CO_2e across configurations. For small (less than 100 MMBtu/hr) natural gas boilers/process heaters/furnaces, the range was 48,023 to 150,072 tpy CO_2e, with an average of 98,047 tpy CO_2e across configurations. The resulting equivalency level for GHGs was greater for the smaller boiler category since the ratio of GHG to NO_X in the emission rate was greater; in other words, for the small boiler category, each ton of NO_X emissions correlated with more tons of GHG emissions than for the large boiler category. For biomass boilers, the result was 78,210 tpy CO_2e based on average factor for wood residue, including bark and wet wood. For large (greater than 500 horsepower (HP)) natural gas-fired stationary IC engines, the result was

[68] "A Summary Review of Recent PSD Permitting Activity for "Anyway Source" Categories and the Potential GHG-Emitting Units and Processes within Those Categories." Prepared by EPA staff, March 2015.

[69] Memorandum from Eastern Research Group, Inc. to Brian Shrager, EPA, "Revised New Unit Analysis Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants—Major Source," November 2011.

[70] "Estimating Equivalent GHG Emissions Levels based on the PSD NO_X SER Value." Prepared by EPA staff, September 2015.

[71] Memorandum from Eastern Research Group, Inc. to Brian Shrager, EPA, "Revised New Unit Analysis Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants—Major Source," November 2011.

[72] Estimating Equivalent GHG Emissions Levels based on the PSD NO_X SER Value." Prepared by EPA staff, September 2015.

19,000 tpy CO_2e. For large (greater than 750 HP) diesel-fired stationary IC engines, the result was 17,529 tpy CO_2e. The average result across all ranges and units was 98,333 tpy CO_2e.[73]

It is important to note that the levels of GHG equivalency shown earlier provide an approximate measure of the theoretical minimum level of GHG emissions that could be associated with adding a particular type of combustion unit with emissions that just exceed the NO_X SER level of 40 tpy. This does not necessarily mean that applying BACT for GHGs to projects of a certain size would yield greater than a *de minimis* benefit. This analysis is simply another data point to inform the identification of a SER level for GHGs where the confluence of ''anyway source'' PSD projects and GHG reduction benefits is meaningful. The equivalent GHG emissions level represents emissions from a theoretical project that adds a combustion unit(s) that emits just over 40 tpy NO_X. However, based on what we saw in our review of ''anyway source'' permits described in Section V.D.2 of this preamble, the likelihood of such a project is not high because, in cases where the NO_X emission increase is close to the NO_X SER level, and where it is considered a practical operating condition for the unit involved (such as smaller units), the applicant very often accepts PTE limits to avoid triggering PSD at all.

Also, as we have seen in our review of actual permits, it is more likely that a PSD-permitted project would have NO_X emissions well in excess of the 40 tpy NO_X SER level, due to the addition of multiple combustion units or the sheer size of the unit itself, such as a power plant turbine or steam-generating unit. In these more typical PSD scenarios, GHG emissions would be multiple times higher than the values shown earlier. Although our review of actual samples of PSD permits revealed few cases where projects involving these units would have GHG emissions just above these equivalent NO_X SER equivalent levels, these equivalency levels have value in helping us understand and establish a marker point for the theoretical minimum level of GHG emissions that would be associated with particular unit types. It is also useful to look at the results above in light of the type of unit involved. As shown earlier, stationary IC engines have an equivalent GHG emission ratio below the 30,000 tpy CO_2e level. Most of these IC engines units typically show up in one of two ways in ''anyway source'' PSD permits: (1) As associated equipment (*e.g.,* emergency backup generator or fire pump engine) where there is a large combustion unit such as a turbine or boiler that is principally responsible for triggering the permitting action; or (2) in multiple-unit configuration generator sets (*e.g.,* 10 or more large IC engines linked together for electricity production). Unlike the addition or modification of a large turbine unit where a single unit can trigger a PSD action, it is a much less common scenario where a single IC engine would be the triggering event for a PSD permit since such units generally consume much less fuel and generate much lower emissions, non-GHG or GHG, than larger boiler and turbine units.

Our reviews and analyses to this point have clearly identified the importance of combustion units as both a triggering event for ''anyway source'' permitting actions for conventional pollutants and also as a critical GHG emission component of these projects. The next section in this preamble describes our review of non-combustion related GHG emission sources, and how they may also contribute to GHG emissions for certain PSD projects associated with certain source categories.

4. Non-Combustion Related GHG Emissions

We conducted an additional evaluation to identify any GHG source categories that we might not have identified in our review of permitting activity described in earlier sections of this preamble. We were particularly focused on process-related, GHG-emitting units which could potentially be subject to the GHG BACT requirement at *de minimis* levels below 75,000 tpy CO_2e. Our review of PSD permits issued to date with GHG limits had shown a very small percentage of PSD permits and GHG BACT reviews that have been triggered based principally on non-combustion units or processes. We wanted to better understand the types and sizes of GHG-emitting units and processes that might possibly fall into non-combustion source categories to ensure that we did not miss potential non-trivial reductions at the proposed GHG SER level.

One category we looked at specifically was landfills. Municipal waste landfills are important non-combustion, CH_4-emitting sources, and are the third largest contributing source category to national CH_4 emissions behind enteric fermentation and natural gas systems.[74] A landfill project can trigger PSD applicability as an ''anyway source'' if its increased emissions exceed the PSD SER level of 50 tpy for NMOC, the applicable NSR regulated pollutant for municipal waste landfills. A landfill emitting just over 50 tpy NMOC would emit just over 190,000 tpy of CH_4 on a CO_2e basis, well in excess of the current 75,000 tpy CO_2e GHG permitting level.[75] Thus, there is high confidence that any landfill project exceeding the PSD SER level for NMOC will likely exceed any GHG SER option below this 190,000 tpy CO_2e level.

We analyzed other source categories with significant non-combustion related GHG emissions based on the EPA's national GHG inventory.[76] The inventory included source categories with facilities that had a likelihood of triggering PSD based on our review of past permits. Unlike landfills, these categories do not have a source-specific, regulated NSR pollutant that can be equated with GHG emissions and compared to a GHG SER option. The categories we looked at included cement production, glass production, nitric acid production, electronics manufacturing, petroleum refineries, natural gas systems, underground coal mines and industrial wastewater treatment. For this effort, we analyzed GHG emissions data for these source categories that were submitted under the GHGRP. A technical support document describing the analysis and results is provided in the docket.[77] In the following discussion, we summarize the analysis and some of our key findings.

For this analysis, we characterized GHG emissions at the unit level where available (for some categories only facility level data were available) and compared these emissions to various actual emissions-based thresholds (50,000 tpy CO_2e, 37,500 tpy CO_2e, 25,000 tpy CO_2e, and 12,500 tpy CO_2e) to provide an indication of the magnitude of emissions above each

[73] ''Estimating Equivalent GHG Emissions Levels based on the PSD NO_X SER Value.'' Prepared by EPA staff, September 2015

[74] ''Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013,'' Table ES–2. Document No. EPA 430–R–15–004. April 15, 2015. *http://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html.*

[75] Memorandum from H. Ward, EPA/SPPD, to J. Mangino, EPA/AQPD, re: Methane to NMOC ratio at landfills. June 17, 2014.

[76] ''Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013,'' Table ES–2. EPA 430–R–15–004. April 15, 2015. *http://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html.*

[77] Memorandum from T. Parise and S. Edgerton, EC/R Incorporated, to J. Montanez and J. Mangino, EPA, ''Analysis of Greenhouse Gas Emissions Data Collected Under Selected Subparts of the Greenhouse Gas Reporting Rule,'' September 30, 2015.

threshold in the reporting population. We used actual emissions because that is the form in which emissions data are submitted under the GHGRP. We selected the actuals-based thresholds to represent possible PTE-based levels if one were to assume something less than 100 percent capacity utilization. For example, at a 50 percent utilization rate, a 37,500 tpy CO_2e actuals-based level equates to a 75,000 tpy CO_2e PTE-based level and a 25,000 tpy CO_2e actuals-based level equates to a 50,000 tpy CO_2e PTE-based level. Utilization rates can vary from site to site, and across and within industry types, but we believe the actuals-based thresholds we chose for the analysis provide a good representation of the possible range of equivalent PTE CO_2e emissions levels.

Our non-combustion unit analysis across all the source categories in the analysis showed a consistent profile of a high percentage of GHG emissions associated with a relatively small percentage of high-emitting units and facilities. Also, the variation in the amount of total GHG emissions covered across the analysis thresholds was not great. Across all categories, this varied from 95 percent of GHG emissions at the 12,500 tpy CO_2e actuals-based threshold to 88 percent of GHG emissions at the 50,000 tpy CO_2e actuals-based threshold. We found that for a number of the source categories there are particular subcategories of processes or units that are responsible for a majority of the non-combustion related GHG emissions. Also, within those particular subcategories there tend to be a relatively small percentages of large emitting units that are responsible for most of those emissions. A summary of all the source category analyses is provided in the supporting technical document included in the docket for this rulemaking.[78]

Overall, this analysis gave us an indication of the relative size of emissions from GHG- emitting processes and units in some key non-combustion related GHG source categories. Our analysis showed that, even when not including direct combustion emissions from these sources and isolating only the non-combustion related GHG-emitting units or processes, a high percentage of GHG emissions would be covered at the current GHG permitting threshold level of 75,000 tpy CO_2e on PTE basis. Most PSD projects involving sources in these non-combustion categories, such as refineries and cement production facilities, would also likely include combustion units with substantial associated GHG emissions. This would increase the overall GHG emissions from such projects.

5. Potential BACT Techniques Applicable to GHG Emission Sources

To evaluate the value obtained through the BACT review process, we looked at the emission reduction potential of control techniques that might be considered as BACT for a particular type of unit/process. The following section describes the most common BACT techniques available for reducing GHG emissions from units that have been, and will continue to be, part of "anyway source" PSD projects.

Under the CAA and applicable regulations, a PSD permit must contain emissions limitations based on application of BACT for each regulated NSR pollutant. CAA section 165(a)(4); 40 CFR 52.21(j). An analysis of BACT for GHGs should be conducted in the same manner as for any other PSD regulated pollutant. The CAA and corresponding implementing regulations require that a permitting authority conduct a BACT analysis on a case-by-case basis. The permitting authority must evaluate the amount of emissions reductions that each available emissions-reducing technology or technique would achieve, as well as the energy, environmental and economic impacts and other costs associated with each technology or technique. Based on this assessment, the permitting authority must establish a numeric emissions limitation that reflects the maximum degree of reduction achievable for each pollutant subject to BACT through the application of the selected technology or technique. However, if the permitting authority determines that technical or economic limitations on the application of a measurement methodology would make a numerical emissions standard infeasible for one or more pollutants, it may establish design, equipment, work practices or operational standards to satisfy the BACT requirement. 40 CFR 52.21(b)(12).

One overarching challenge to analyzing GHG emissions-reduction potential is the inherent difficulty in predicting the specific makeup of new construction and modification projects that will trigger PSD in general. Another challenge is that the BACT control requirement is determined on a case-by-case basis, based on site-specific factors at the source in question. Thus, even if we could roughly predict what sources are likely to be subject to PSD and required to get a permit, it is still challenging to calculate the emission reductions associated with application of BACT to GHG emissions from a particular source.

The emissions-reduction benefits that may result from the application of BACT can vary widely, depending on the specific configuration of the project and source, and the results of the case-specific BACT review. Thus, the variation in project composition and case-specific BACT review not only affects the ability to generate "typical" emissions increases and reductions from BACT, but, in turn, also severely hinders any ability to relate this to health or environmental benefits. Further complicating the ability to quantify the benefit of BACT is that the emission reductions would have to be measured from some alternative baseline, *i.e.*, what the facility would have emitted absent the application of the BACT technique selected through the review process. After predicting the project components subject to BACT review, establishing what the alternative baseline would have been absent application of a BACT technique requires specific information about each facility site, the source's development options and what the potential emissions would have been absent application of BACT. The alternative future baseline scenarios for any given facility can vary based on the planned operations and practices. Thus, it is difficult to project a future project's PTE level with any specificity within or across industries.

In light of these challenges, we focused on the possible GHG control techniques that could apply to GHG-emitting units/processes that other parts of our analysis indicated would most likely be subject to GHG BACT review at "anyway sources." This review informed our consideration of the meaningfulness of the GHG BACT review for units and sources that might be covered at various GHG SER levels.

Recognizing that larger combustion units will likely be the most predominant GHG emission source type at "anyway source" PSD projects, one finding from this review was that energy efficiency measures are currently the most common BACT strategy for these units. In addition, we found that larger combustion units provide the best opportunity for achieving GHG reductions through case-by-case BACT review. Sources with small combustion units or other sources of GHGs provide limited opportunities for achieving additional GHG reductions through the BACT review.

[78] Memorandum from T. Parise and S. Edgerton, EC/R Incorporated, to J. Montanez and J. Mangino, EPA, "Analysis of Greenhouse Gas Emissions Data Collected Under Selected Subparts of the Greenhouse Gas Reporting Rule," September 30, 2015.

The sections that follow discuss the most common types of BACT techniques that have been evaluated through GHG BACT review at "anyway sources" and implemented by sources that obtained permits. These are not intended to represent every possible category of BACT for GHGs but reflect the techniques most commonly evaluated and applied across a variety of "anyway sources." In specialized cases, there are unique GHG control techniques available for industry-specific processes that emit GHGs, such as those that can be implemented at nitric acid plants to reduce nitrous oxide emissions from the ammonia oxidation step. However, based on our review of permitting data at "anyway sources" and considering the nature of units emitting GHGs below 75,000 tons per year, we expect for the near to medium term that energy efficiency measures will continue to be the most predominant GHG BACT mitigation strategy applicable to "anyway sources" that increase emissions of GHGs by less than 75,000 tons per year (on a CO_2e basis). Therefore, the emissions-reduction achievable with this technique at sources that have the potential to emit less than 75,000 tons per year was an important consideration in developing our proposed GHG SER.

a. Energy Efficiency Measures

While energy efficiency measures can reduce emissions of all combustion-related pollutants, they are particularly important for GHGs for two reasons: (1) GHG emissions from combustion sources (particularly CO_2) make up a large majority of the GHG inventory from the industrial facilities most often subject to PSD permitting; and (2) the use of add-on controls to reduce GHG emissions is expected, for the foreseeable future, to be a viable BACT option at a only small set of the largest GHG emission sources. To date, most GHG BACT determinations for combustion sources have relied on some combination of energy efficiency measures. Therefore, it is important to consider the implementation, effectiveness and value of energy efficiency measures as applied through the BACT process to combustion sources that may trigger the GHG BACT requirement at different GHG SER option levels. The following is a description of efficiency improvement measures that have been applied to industrial combustion units.

The EPA has identified a number of energy efficiency measures, many of which have been utilized to date to satisfy GHG BACT requirements in actual PSD permits. These procedures include:[79]

- High efficiency burners.
- Combustion and boiler performance optimization.
- Combustion system instrumentation and controls.
- Air preheat and economizers.
- Turbulators for firetube boilers.
- Boiler insulation.
- Minimization of air infiltration.
- Boiler blowdown heat exchanger.
- Condensate return system.
- Refractory material selection.
- Minimization of gas-side heat transfer surface deposits.
- Steam line maintenance.

In many cases, the impacts of these measures were highly site-specific and the benefits varied based on the site-specific configuration and operational conditions of the unit. These measures were typically associated with a GHG emission limit, steam generation rate or required maximum fueling rate for the combustion units involved. For most of these measures, site-specific conditions and economic variables must be addressed to determine whether they would be technically and economically viable. Also, the absolute benefits for any given facility or project undergoing PSD BACT review will depend on the relative improvement over some baseline unit efficiency that might have been used absent the GHG BACT review process.

To give some perspective on the potential benefits of these measures, a new natural gas-fired industrial boiler unit will generally have a baseline thermal efficiency in the 82 to 85 percent range.[80] Implementing a mix of the additional measures above, it is possible to obtain thermal efficiencies close to 90 percent.[81] Thus, looking at the difference between the baseline efficiency of a new boiler unit and a maximum efficiency around 90 percent, we can identify a maximum GHG reduction potential of approximately 7 percent.

In evaluating the value of BACT review, it is also helpful to look at the type and size of combustion unit involved. Industrial boilers, process heaters and furnaces of the size typically seen as part of "anyway source" projects (*e.g.*, greater than 50 MMBtu/hr heat input rating) are not generally purchased as an "off-the-shelf' item. These units can be site-designed in a way that enables consideration and incorporation of a combination of the measures shown earlier. The BACT review is particularly valuable for these types of units as it is based on case-by-case review of technology implementation and cost considerations. Manufacturers have models that they can construct based on the specifications provided by a facility design engineer. To achieve the desired performance, the engineer will specify the desired design output capacity, steam pressure and/or temperature requirements, and emission thresholds that the boiler unit must meet. The design engineer can then provide the project-specific boiler specifications to the boiler manufacturer who will then apply the correctly sized boiler components to its boiler plan and engineered specifications before running a computer model to estimate the resulting operational characteristics, including thermal efficiency and emissions of the resulting boiler.[82]

Smaller combustion units, such as smaller industrial and commercial size boilers and stationary IC engines, are typically purchased "off the shelf" and meet manufacturer's efficiency standards. Minimum efficiency requirements for these boilers are mandated to manufacturers by the federal government (U.S. Department of Energy (DOE) and the EPA), and some states have minimum efficiency requirements for boilers that are allowed to be sold in the market. Stationary IC engines that are part of "anyway source" PSD projects typically have to meet NSPS requirements for non-GHG pollutants, which in many cases form the basis for the BACT requirement for those, resulting in purchase decisions that include newer, highly-efficient engines that are low-emitters for all combustion pollutants, including GHGs. The range in performance efficiency across manufacturers for these new engines is typically within a couple of percentage points.

Beyond small differences in efficiencies between manufacturers and model types, the ability to achieve

[79] "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial, Commercial, and Institutional Boilers," Office of Air Quality Planning and Standards, EPA. October 2010. *http://www.epa.gov/nsr/ghgdocs/iciboilers.pdf.*

[80] "Evaluating Efficiency and Compliance Options for Large Industrial Boilers in California's Changing Local and State Regulatory Environment," 2009 ACEEE Summer Study on Energy Efficiency in Industry.

[81] "Climate Leaders GHG Offset Protocol: Industrial Boiler Efficiency (Industrial Boiler Applications)," EPA, Climate Protection Partnerships Division, August 2008, Version 1.

[82] "Boiler Efficiency Projects-Development of Issues Papers for GHG Reduction Project Types: Boiler Efficiency Projects," Prepared for the California Climate Action Registry, January 7, 2009. *http://www.climateactionreserve.org/wp-content/uploads/2009/03/future-protocol-development_boiler-efficiency.pdf.*

additional GHG reductions at these smaller "off-the-shelf" type units, whether they are small boilers or IC engines, is difficult for a couple of reasons. First, implementing a number of the efficiency measures described previously requires site-specific design and construction criteria, more typically associated with larger scale projects where these measures can be part of unit design and manufacture. Second, "off-the-shelf" units typically cannot be substantially modified or tampered with in order to be guaranteed to meet their certified performance standards. Many of the energy efficiency measures described previously involve significant additions and/or modifications to the basic unit, which also may not be technically or economically viable for smaller unit applications.

b. Carbon Capture and Storage

For the purposes of the initial step of a BACT analysis for GHGs, the EPA classifies CCS as an add-on pollution control technology that is "available" for facilities emitting CO_2 in large amounts, including fossil fuel-fired power plants and industrial facilities with high-purity CO_2 streams (*e.g.,* hydrogen production, ammonia production, natural gas processing, ethanol production, ethylene oxide production, cement production and iron and steel manufacturing).[83] CCS is a promising technology with the potential for substantially reducing CO_2 emissions. In October 2015, EPA issued a final NSPS[84] for new fossil-fueled power plants. The EPA found that a highly efficient supercritical boiler implementing partial CCS is the Best System of Emission Reduction (BSER) for newly constructed steam generating units.[85] The final NSPS requires that newly constructed steam generating EGUs meet an emission standard consistent with the implementation of a CCS system capturing less than 30 percent of the CO_2 emissions from the plant.[86] This level of control is referred to as "partial CCS."[87] For units subject to this standard, this NSPS standard sets the minimum requirements for a BACT emission limit. 42 U.S.C. 7479(3) ("In no event shall application of [BACT] result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 or 7412 . . ."). However, a PSD BACT analysis is a case-by-case analysis that considers several factors before determining the "maximum degree of reduction" that is achievable for a particular source. In the context of some PSD permit applications, such as those that predate the October 2015 NSPS or those for other types of sources, CCS has not been selected as BACT because it was not found to be technically feasible or the costs of CCS have made the application of the technology economically unachievable.[88] CCS is most likely to be a viable BACT candidate for projects involving very large CO_2 emission sources that already trigger GHG BACT review at the current 75,000 tpy CO_2e GHG permitting level. CCS technologies may not be technically feasible or economically achievable for lower emitting stationary sources—*i.e.,* those below the 75,000 tpy CO_2e GHG threshold—and for sources that emit CO_2 in a dilute emission stream.

c. Gas Recovery and Utilization

The collection and combustion or utilization of either industrial process waste gas or biogas, both streams which can contain CH_4, is a GHG BACT control technique that has been required as BACT in PSD permits addressing GHG emissions at oil and gas production facilities, refineries, landfills, and chemical plants. Flares are commonly used to control VOC emissions as part of "anyway source" PSD permits for projects that include a process that produces the waste gas emissions that must be controlled. Combustion of the waste gas stream avoids simply venting the VOC emissions to the atmosphere, and as described later in this preamble can also have a beneficial impact on the CO_2e emissions profile for the sources. Flares are used extensively to dispose of: (1) Purged and wasted products from refineries, (2) unrecoverable gases emerging with oil from oil wells, (3) vented gases from blast furnaces, (4) unused gases from coke ovens, and (5) gaseous wastes from chemical industries. *Id.* From our review of "anyway source" PSD permitting activity for these types of industries, these waste gas streams are usually coincidental to a larger project component driving the PSD applicability for the project. As an example, for an iron and steel facility, the addition of a blast furnace would likely trigger applicability for PSD for a number of criteria pollutants, and also have significant GHG emissions in terms of direct combustion related CO_2 emissions (large blast furnace units typically will exceed 75,000 tpy CO_2e emissions). Associated with this furnace unit, however, are likely to be off-gas streams, possibly containing CH_4 gas, which also then become subject to BACT review as part of the overall project.

A common method for minimizing emissions from flares is through good combustion practices. When these waste gas streams are combusted in either a flare or a thermal oxidizer, CH_4 in the waste gas stream is converted to CO_2, typically at efficiency levels greater than 96.5 percent.[89] Since CO_2 is a GHG with less radiative force than CH_4, this technique produces a lower overall GHG emissions increase on a CO_2e basis. Assuming a combustion efficiency of 96.5 percent and CH_4 being the principal GHG of concern in the waste gas stream, the combustion process can result in reductions of CO_2e emissions of approximately 86 percent (assumes a GWP value of 25 for CH_4).

Utilization of process waste gas, which often can contain CH_4, for on-site energy or off-site sale and use can provide additional GHG benefits beyond simply flaring. Like flaring, the collection and utilization of the waste gas can serve as a BACT control technique that effectively converts CH_4 to CO_2 through a combustion unit with the net benefits realized on a CO_2e emissions basis. In addition, utilization of the gas has the potential to avoid additional GHG emissions associated with supplemental on-site fossil-fuel usage.

For example, at sites such as natural gas processing plants, refineries, or at

[83] "PSD and Title V Permitting Guidance for Greenhouse Gases," EPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, EPA–457/B–11–001, p. 32, March 2011.

[84] Final Rulemaking titled "Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units" (80 FR 64513, October 23, 2015).

[85] For newly constructed intermediate and baseload stationary combustion turbines, the final NSPS requires meeting an emission standard consistent with the performance of modern, efficient Natural Gas Combined Cycle (NGCC) technology.

[86] EPA Fact Sheet on Carbon Dioxide Capture and Sequestration, *http://www3.epa.gov/climatechange/ccs/.*

[87] "Partial CCS" is the implementation of CCS technology to capture only a portion of the CO_2 emission from a stationary source—typically some amount less than 90 percent of the CO_2 and often by treating only a portion of the sources emission stream. "Full CCS" is the capture of more than 90 percent of the sources CO_2—typically accomplished by treating the sources entire emission stream.

[88] However, this was not always the outcome in PSD permits that pre-date the October 2015 NSPS. For example, in November 2014, the EPA issued a PSD permit for GHGs for the Nuevo Midstream, LLC—Ramsey Gas Plant in Orla, Reeves County, Texas that assumes use of partial CCS as BACT to capture 35 percent of the CO_2 emissions from the Ramsey IV and VI plants amine still vents.

[89] AP–42, Fifth Edition, Volume I, Chapter 13: Miscellaneous Sources, Section 13.5 "Industrial Flares," EPA, April 2015. *http://www.epa.gov/ttn/chief/ap42/ch13/final/C13S05_4-20-15.pdf.*

other facilities where the collected waste gas can be used to fuel on-site equipment or made available for sale or other uses, there may be alternatives to simply flaring the gas. In addition, the on-site use of the collected gas in lieu of additional fossil-fuel use can also lead to a reduction in the facility's GHG emissions, although GHG emissions from any off-site sale and use of the collected gas are completely excluded from the seller facility's calculated GHG emissions.

Another example where gas collection and utilization has applications for GHG BACT is landfills, where large amounts of CH_4 gas generated through waste decomposition can, at properly designed sites, be collected through biogas collection wells and used to run IC engines or microturbines that produce energy for onsite usage or sale to the electric grid. As mentioned earlier in Section V.D.4 of this preamble, landfills that are subject to PSD permitting for their NMOC emissions will likely have CH_4 emissions well in excess of 75,000 tpy CO_2e, such that BACT strategies involving gas utilization and recovery may be found applicable for both non-GHG and GHG emissions from the landfill.

d. Leak Detection and Repair Measures

Leak detection and repair (LDAR) systems have been used as GHG BACT controls for both fugitive CH_4 losses and SF_6 emission losses from electrical equipment. Typically, and as previously described in more detail in the summary of our review of "anyway source" permits in Section V.D.2 of this preamble, these fugitive sources were associated with a PSD project that involved a larger stationary source unit or process, such as combustion unit installations at a power plant or a large gas or oil production/process unit that contained associated fugitive release points, such as piping or valves. The GHG reduction potential for LDAR systems can be highly variable depending on the site-specific design and implementation procedures. The EPA has identified VOC applications for LDAR systems that can achieve VOC emissions reductions in the 45 to 70 percent range for various equipment types (since CH_4 would typically be part of the same waste gas stream, these level of reductions in fugitive VOC emissions would be expected for fugitive CH_4 emissions as well).[90] The emission sources for CH_4 where these methods are deployed are generally CH_4 fugitive losses from associated piping and natural gas delivery networks, or equipment leaks at compressor or pumps that move natural gas product. These sources tend to be most commonly encountered at PSD-triggering projects involving the oil and gas sector, primarily in the production, processing and transmission subsectors. However, anywhere combustion units utilize natural gas as fuel, they can also have associated leaks in the piping network associated with the unit configuration. In both these general cases where LDAR has been selected as a BACT for GHG emissions dominated by CH_4, the fugitive CH_4 losses have been ancillary to the main GHG emission points in the project, typically a single or combination of large fossil fuel combustion units. At all of the "anyway source" permits we have reviewed that required LDAR as GHG BACT, combustion units triggered the BACT requirement for conventional pollutants as well as GHGs (principally CO_2 from combustion). The fugitive CH_4 losses associated with the combustion unit projects were included in the BACT review for the GHG emissions increases for the project.

Another application of LDAR has been in the power plant sector. In this sector, fugitive leaks of SF_6 gas from ancillary circuit breaker equipment associated with power plant projects have been subject to GHG BACT review where the principle PSD-triggering event involved the installation of power-generating combustion units. SF_6 is used as an electrical insulator and interrupter in equipment that transmits and distributes electricity.[91] Fugitive emissions of SF_6 can escape from gas-insulated substations and switchgear through seals, especially from older equipment. The gas can also be released during equipment manufacturing, installation, servicing and disposal. The EPA estimates that where consistently implemented in the power plant sector, applications of LDAR systems could reduce SF_6 emissions by 20 percent.[92]

6. Costs of GHG BACT Review

We have estimated that it costs an individual source approximately $24,000 to undergo GHG BACT review for a PSD modification project and the associated title V permit revision costs to include those requirements in the facility's title V permit.[93] These costs include preparing the permitting application, supporting analyses and various other aspects of the review and submission of the permit application as it pertains to GHGs. These estimates do not include what can be significant additional costs for the GHG BACT control that is ultimately adopted and implemented by the permitted facility since BACT, and ultimately the costs, can vary from site to site based on site specific factors that are difficult to predict with any specificity or certainty in advance. We also estimate it costs the permitting authority approximately $5,000 for regulatory review and processing costs related to the GHG BACT review for a PSD modification project and the associated title V revisions costs to include those requirements in the facility's title V permit.

E. Proposed GHG SER and Request for Comment

After consideration of several factors, we are proposing to establish a GHG SER of 75,000 tpy CO_2e. Establishing a *de minimis* exemption threshold requires both policy and legal judgments to determine what constitutes a "gain of trivial value" and "pointless expenditure of effort." In an effort to identify an appropriate SER for GHGs, we considered the approaches that the EPA has previously used to identify *de minimis* levels for other pollutants in the PSD program, but we have found that a new approach is needed for GHGs. To develop this approach, we have considered the legal basis for establishing *de minimis* exemptions under the D.C. Circuit's *Alabama Power* opinion and the factors the Court called for the agency to consider. These include the context in which a SER for GHGs would apply to determine only whether BACT applies to the pollutant GHGs at a source that triggers PSD based on other pollutant emissions. Other factors we considered are the nature of the pollutant and the dangers caused by increases in that pollutant, the nature and purposes of the regulatory program, the gains achieved from regulating GHG emissions through the PSD program at or below a certain level, and administrative and implementation burdens of regulating at or below such levels. We developed findings relevant to these factors through a four-part technical analysis of GHG-emitting

[90] "Leak Detection and Repair: A Best Practices Guide." EPA–305–D–07–001. EPA Office of Compliance, Office of Enforcement and Compliance Assurance, October 2007.

[91] "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2013," Section 4.24. EPA 430–R–15–004. April 15, 2015. *http://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html.*

[92] SF_6 Emissions Reduction Partnership for Electric Power Systems, *http://www3.epa.gov/highgwp/electricpower-sf6/basic.html.*

[93] Information related to the associated individual and programmatic burden at the proposed GHG SER level is provided in Section VI of this preamble.

sources, PSD permitting information, and GHG emissions reduction strategies likely to be considered in a BACT review for those sources.

Based on all the information obtained from the various data reviews and analyses summarized in Section V.D.1 of this preamble, taking into account the factors mentioned previously, we are proposing a SER of 75,000 tpy CO_2e for GHGs. The following discussion describes how each of the key findings together led to and support our proposed GHG SER value of 75,000 tpy CO_2e.

First, our actual, historical experience of GHG BACT reviews occurring at a 75,000 tpy CO_2e level for sources under Step 1 of the Tailoring Rule provided us valuable insight into the affected sources and value of GHG BACT review at that permitting level. When considered in the context of individual sources and the collective population of sources subject to PSD, the degree of GHG reductions achievable through application of GHG controls to new sources and modifications that increase GHG emissions by more than 75,000 tpy CO_2e is meaningful, and thus has more than "trivial" value. The current 75,000 tpy CO_2e threshold has resulted in the PSD BACT requirement applying to GHGs in the vast majority of the actual "anyway source" PSD permits covering the type of units for which GHG BACT review would be expected to achieve meaningful emissions reductions. We also found that the types of GHG sources that have been addressed in those GHG BACT reviews represent the most important industry sectors in terms of national GHG emissions contribution. These include source categories such as power plants, refineries, chemical production facilities, and oil and gas production sites. While most of the GHG emissions from these sources, as well as the "anyway source" PSD triggering actions, are related to large, fossil-fueled combustion units, our investigation into non-combustion sources also revealed that the most important, non-combustion related GHG-emitting sources, such as landfills, cement plants, refineries, and nitric acid plants, have process emissions well in excess of the 75,000 tpy CO_2e level. In summary, based on information from previous permitting decisions using the 75,000 tpy CO_2e applicability level for GHG BACT review at "anyway sources," we did not see any sources within major GHG source categories that were "missing" BACT limits for GHGs in permits issued to "anyway sources," which would have been an indicator that there may be value in applying BACT to GHGs at a lower SER.

In addition to finding broad coverage of sources in the major GHG emissions source categories using a 75,000 tpy CO_2e threshold, we found that the "anyway source" permitting experience involving GHG BACT reviews to date since GHGs became subject to PSD has not imposed unreasonable administrative and enforcement burdens. State and local permitting authorities, as well as affected industries, have successfully implemented PSD permitting for GHGs at a 75,000 tpy CO_2e threshold.

Second, our investigation into "anyway source" PSD permits that did not go through GHG BACT review under the Tailoring Rule Step 1 permitting level of 75,000 tpy CO_2e revealed only a few cases where a GHG SER level below 75,000 tpy CO_2e may have resulted in additional GHG BACT reviews. Considering the limited additional cases where GHG BACT review could apply at a GHG SER below 75,000 tpy CO_2e and the limited degree of emissions reductions that might be achieved in each case, we propose to conclude that the burdens of subjecting such projects to case-by-case BACT review for GHGs would yield a gain of trivial or no value.

Our review revealed only a handful of PSD modification projects on a yearly basis nationwide that can be expected to increase GHG emissions in the range from 30,000 to 75,000 tpy CO_2e. Based on our review of permitting data at "anyway sources" and considering the nature of units emitting GHGs between these values, we expect for the near to medium term that energy efficiency measures will continue to be the most predominant GHG BACT mitigation strategy that could be applicable to sources with the potential to emit between 30,000 and 75,000 tpy CO_2e. At a project scale, if we were to consider a single hypothetical, combustion-related project with a GHG emissions increase of 74,999 tpy CO_2e (just under the 75,000 tpy CO_2e proposed GHG SER level) and a maximum energy efficiency gain through GHG BACT review of 7 percent described above, the maximum marginal difference in GHG emissions that could result from applying BACT to GHGs is approximately 5,500 tpy CO_2e. Given the limited number of projects expected in this 30,000 to 75,000 tpy CO_2e range and the limited amount of emissions reductions that could theoretically be achieved at each source, from a programmatic perspective, there is little to be gained in terms of overall reduction in GHG emissions from applying GHG BACT review at a GHG SER level below 75,000 tpy CO_2e. Thus, we propose to conclude that the burdens of regulation at a GHG SER level between 30,000 and 75,000 tpy CO_2e would yield a gain of trivial or no value from both a programmatic and individual project-level perspective.

For PSD modification projects that increase GHGs by less than 30,000 tpy CO_2e, we found virtually no value in applying the GHG BACT requirement. We found through both our equivalency analysis and permitting reviews that these smaller emitting unit projects will typically not qualify as "anyway source" projects by themselves. In addition, we found that many smaller emissions units will often be pulled into the GHG BACT analysis because they are ancillary units to a larger combustion unit that emits well above 75,000 tpy CO_2e; examples include emission units such as flares, thermal oxidizers, emergency generators, and fugitive emission leaks. Since the types of units adding GHGs in amounts less than 30,000 tpy CO_2e would not likely trigger PSD at all or would already be covered because of other changes occurring at the same time, lowering the GHG threshold to 30,000 tpy CO_2e would subject few, if any, additional projects to the GHG BACT requirements. In cases where a project theoretically could increase emissions of a pollutant besides GHGs enough to trigger PSD, the project would involve emission units such as IC engines. There is virtually no value obtained in conducting a GHG BACT review of such a unit. We found that "off-the-shelf" combustion units, such as IC engines, are generally meeting manufacturers' performance and efficiency compliance standards established by DOE and the EPA for new units with only marginal variations in efficiency ratings on newly purchased units. Also, we do not expect that GHG BACT review for IC engines would produce any reductions for GHGs beyond that resulting from the NSPS compliance standards that already exist for these new units. Thus, the gain from applying BACT to GHG emissions would yield a gain of virtually no value and be a pointless expenditure of effort. This is even more apparent when considered in light of the administrative burdens of conducting a case-by-case BACT analysis for GHGs at such sources. Thus, the EPA is not considering establishing a GHG SER level below 30,000 tpy CO_2e.

We are soliciting comment on the extent to which our proposed GHG SER level of 75,000 tpy CO_2e reflects a level below which the burdens of applying the BACT requirement to GHGs would "yield a gain of trivial or no value" and

thus would be a "pointless expenditure of effort" when applied to all of the affected units and sources. We are also soliciting comment on whether a value between 30,000 and 75,000 tpy CO_2e, specifically such as 30,000 tpy or 45,000 tpy CO_2e, would better represent a *de minimis* threshold for applying the BACT requirement to GHGs. We encourage commenters to consider the following in submitting comments. Comments, arguments, and supporting data for a specific GHG SER level other than 75,000 tpy CO_2e should identify a more appropriate level and explain why that specific level would be better. Commenters are encouraged to provide information as to the likely number and type of new or modified emission sources and units that would trigger PSD and be subject to the GHG BACT requirement at the suggested alternative GHG SER level. Comments should also address what source categories would be affected, what types of control technique would be considered in the GHG BACT review, the expected degree of GHG reductions achievable from such control techniques, and the anticipated burden to permitting authorities and sources of conducting a BACT analysis at the specific alternative level.

In soliciting comment for a SER between 30,000 and 75,000 tpy CO_2e, we recognize that sources and others in the public may have access to information that is not available to the Agency and that may inform an appropriate SER level. Therefore, we are specifically soliciting comment on and requesting data for areas in our technical analysis where commenters believe such information will provide support for adjusting our applied assumptions. However, commenters should keep in mind that the universe of future PSD permitting is constrained by the U.S. Supreme Court's decision limiting the program to "anyway sources" and modifications at "anyway sources." The GHG BACT requirement is potentially applicable only to sources and modifications that would otherwise trigger PSD requirements based on emissions of pollutants other than GHGs.

We are proposing a GHG SER value based on the GHG metric of CO_2e, representing the single air pollutant defined as the aggregate group of the six well-mixed greenhouse gases (CO_2, N_2O, CH_4, HFCs, PFCs and SF_6). As explained earlier, this aggregate pollutant is measured in terms of "carbon dioxide equivalent" or "CO_2e" emissions, which is a metric that allows all the compounds comprising GHGs to be evaluated on an equivalent basis despite the fact that the different compounds have different heat-trapping capacities. The GWP that has been determined for each compound reflects its heat-trapping capacity relative to CO_2. The mass of emissions of a constituent compound is multiplied by its GWP to determine the emissions in terms of CO_2e. A source's emissions of all compounds in terms of CO_2e are summed to determine the source's total GHG emissions.[94] This construct differs from other pollutant SERs based solely on a mass basis; however, we believe, as we did in the Tailoring Rule, that the CO_2e metric is consistent with the definition of the pollutant as defined in the Administrator's endangerment and contribution findings regarding GHGs (74 FR 66496) and that by incorporating the GWP values, best addresses the relevant environmental endpoint, which is the radiative forcing of the GHGs emitted. We also see no requirement for using a mass-based calculation method for the GHG SER, such as we determined necessary in the Tailoring Rule. The determination that a mass-based calculation method was a necessary first step under the Tailoring rule was due to the statutory 100 and 250 tpy levels in the statutory definition of "major emitting facility."[95] The SERs are based on EPA's inherent authority to identify a *de minimis* level of GHG emissions for purposes of determination applicability of the statutory BACT provisions of the CAA. These provisions in the Act do not include a mass-based emissions applicability threshold. In addition, the emissions thresholds in the definition of major stationary source that influenced our reasoning in the Tailoring rule are no longer applicable to GHGs in light of the U.S. Supreme Court's decision in *UARG*.

In addition to consistency with the Administrator's endangerment and contribution findings, there are programmatic and policy advantages to using the "sum-of-six" construct based on CO_2e for purposes of the GHG SER BACT review. One significant advantage to this construct is that it allows more flexibility to sources for designing and implementing control strategies that maximize reductions across multiple GHGs. From a programmatic standpoint, the CO_2e metric facilitates permitting authorities' review and consideration of the combined effect of the six individual GHGs when sources emit any one or combination of the individual gases. Also, given that Congress built in considerations of energy, environmental, and economic impacts into the BACT requirement, we think that allowing consideration of those factors across six gases will result in decisions that more appropriately account for those impacts at the source. In summary, we see no statutory requirement or programmatic advantages for considering a GHG SER value that incorporates a mass-based component; however, we welcome comments on whether such a need exists and how such a component would function for GHG BACT applicability purposes.

Lastly, we are also requesting any specific comments related to the administrative and enforcement burdens associated with implementing GHG BACT review at the proposed GHG SER level (75,000 tpy CO_2e), or at a suggested alternative GHG SER level. Due to the relatively short history of applying the BACT requirement to GHGs (as compared to PSD permitting overall), the limited experience in applying BACT to GHGs permitting in some sectors, and the overall uncertainties in predicting exact levels of future PSD activity, we solicit any comments pertaining specifically to the administrative and programmatic burdens associated with the proposed GHG SER and applying the BACT review process to GHGs emitted at that level or at a suggested alternative level. We also solicit comments from all parties, including the regulated community and permitting authorities, as well as commenters supporting an alternative threshold, as to the administrative and enforcement burdens of establishing a *de minimis* threshold at the suggested alternative level.

VI. What would be the economic impacts of the proposed rule?

The main focus of the Economic Impact Analysis (EIA) is the cost savings to permitting authorities and affected sources due to "anyway sources" that are below the proposed *de minimis* GHG SER not having to go through GHG BACT review. If not for provisions we are proposing to remove in this proposal and that currently remain in the EPA's definition of "subject to regulation" at this time, under the present definition of "significant" in the PSD regulations, *any* GHG emissions increase would require a newly constructed major source of another regulated NSR pollutant, or a major modification at an existing facility significantly increasing another pollutant, to undergo PSD GHG

[94] *See* the accompanying proposed regulatory text to this preamble at 40 CFR 51.666 (b)(31) and 40 CFR 52.21(b)(32) for further details on the calculation of CO_2e emissions.

[95] *See* 75 FR 31531 for background on why this step was needed in Tailoring Rule.

BACT review.[96] Therefore, the EIA includes estimated costs relative to a "no-action" scenario where the current functioning GHG permitting level of 75,000 tpy CO_2e would no longer be applicable and *any* increase in GHG emissions at sources otherwise subject to PSD would trigger the requirement for a GHG BACT analysis. The proposed rule would remove the requirement of conducting the GHG BACT review, as well as the need to include the requirements resulting from this GHG BACT review in a source's title V permit, for sources with GHG emissions increases less than the proposed GHG SER. A summary of the avoided costs relative to the "no-action" scenario for both PSD and title V programs based on the proposed 75,000 tpy CO_2e GHG SER is described in the following paragraphs. Details related to the EIA are documented in the report titled "Economic Impact Analysis for Revisions to the Prevention of Significant Deterioration and Title V Greenhouse Gas Permitting Regulations and Establishment of a Significant Emissions Rate for Greenhouse Gas Emissions Under the Prevention of Significant Deterioration Program: Proposed Rule." This report is available in the rulemaking docket.

For affected sources, the avoided permitting cost or savings for PSD permits is approximately $23,532 per permit (in 2014 dollars). Total annual avoided cost program-wide is under $870,000 for sources that would not have to go through GHG BACT review. State, local and tribal permitting authorities are estimated to expend $4,400 per permit to conduct a GHG BACT review in the context of reviewing a PSD permit application for a source with GHG emissions in the applicable range. Thus, annual savings for permitting authorities program-wide are less than $165,000 at a 75,000 tpy CO_2e GHG SER.

We anticipate sources subject to title V will experience avoided regulatory costs because they will not have to add requirements to their title V permit resulting from a GHG BACT review. Avoided cost is estimated at approximately $2,470 per permit for addressing GHG requirements in a new permit, and $520 per permit for revising an existing permit to include requirements related to a GHG BACT limit. Total program-wide savings for title V permitting related to the proposed GHG SER of 75,000 tpy CO_2e is less than $20,000 dollars per year for sources. Regulatory cost avoided relative to no GHG SER for state, local, and tribal permitting authorities is estimated at $2,632 per permit for adding GHG requirements to a new permit, and $504 per permit for revisions to existing permits. At the proposed GHG SER of 75,000 tpy CO_2e, title V program-wide avoided costs for permitting authorities totals approximately $20,000 per year.

Total annual regulatory cost avoided relative to no GHG SER for sources for both PSD and title V programs together amounts to less than $890,000 at the proposed 75,000 tpy CO_2e GHG SER level. Total annual avoided costs for permitting authorities for both PSD and title V programs together is expected to be less than $185,000 at the proposed 75,000 tpy CO_2e GHG SER level. This rulemaking does not impose economic impacts on any sources or permitting authorities, but should instead be viewed as leading to savings for "anyway sources" and permitting authorities. Because no businesses or governmental entities are expected to incur positive costs as a result of this rule, there is not a significant impact on a substantial number of small entities. Because the savings are small and spread among many sources, the market impacts of this rule will be minimal.

VII. How should state, local and tribal authorities adopt the regulatory revisions included in this action?

Consistent with the PSD regulations for SIP-approved programs at 40 CFR 51.166 and the title V regulations for title V program approvals at 40 CFR part 70, the EPA expects that many state, local and tribal permitting authorities will amend their respective PSD and title V permitting regulations and seek revisions of their SIPs, TIPs or title V program approvals, as applicable, to incorporate (once finalized) the regulatory changes consistent with those contained in this proposal.

For PSD, 40 CFR part 51.166(a)(6)(i) states that "any state required to revise its implementation plan by reason of an amendment to section [51.166]. . . shall adopt and submit such plan revision to the Administrator for approval no later than three years after such amendment is published in the **Federal Register**." Therefore, any implementation plan that defines a source or modification as major based solely on GHGs emissions will require a revision to conform to the amendments to 40 CFR part 51.166 proposed in this rule. However, states may elect not to incorporate a significant emissions rate for GHGs into their program if they wish to apply BACT to GHGs at sources emitting or increasing this pollutant by any amount.

We request comment on what we described in our Preliminary Views Memo as the "most efficient and least burdensome way to accomplish such revisions to state, [local], or tribal programs" to meet the SIP or TIP submittal requirements, as applicable.[97] Furthermore, we ask for comments on whether the Administrator should shorten the 3-year time period required under 40 CFR part 51.166(a)(6) (and section 110(a)(1) of the CAA, to the extent applicable), for each state, or local permitting authority to revise its SIP or TIP (or make a new submission).

For purposes of the title V program, 40 CFR part 70.4(a) states in relevant part that: "If part 70 is subsequently revised such that the Administrator determines that it is necessary to require a change to an approved State program, the required revisions to the program shall be submitted within 12 months of the final changes to part 70 or within such a period as authorized by the Administrator." Since we believe that the changes being proposed, once finalized, may require changes to many EPA-approved state title V programs, we also ask for comments on the most efficient way to accomplish those title V program revisions and what time period would be appropriate for those revisions.

Furthermore, SIP revisions for the PSD program and revisions to title V programs that still include the Step 2 provisions may be needed if any permitting authorities prefer to retain under state law the construction or operating permit requirements equivalent to the PSD and title V permitting requirements for Step 2 sources that are no longer approvable parts of a PSD or title V program under federal law. In the Preliminary View Memo, we stated that "we do not read the [*UARG* v *EPA*] U.S. Supreme Court decision to preclude states from retaining permitting requirements for sources of GHG emissions that apply independently under state law even when those requirements are no longer required under federal law"[98] and that

[96] Definition of "significant," 40 CFR 51.166(b)(23)(ii) and 40 CFR 52.21(b)(23)(ii).

[97] Next Steps and Preliminary Views on the Application of Clean Air Act (CAA) Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision in *UARG* v. *EPA*, Memorandum from Janet G. McCabe, Acting Assistant Administrator, Office of Air and Radiation, and Cynthia Giles, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA, to Regional Administrators, p. 5, July 24, 2014.

[98] Next Steps and Preliminary Views on the Application of Clean Air Act (CAA) Permitting Programs to Greenhouse Gases Following the Supreme Court's Decision in *UARG* v. *EPA*, Memorandum from Janet G. McCabe, Acting Assistant Administrator, Office of Air and

Continued

"similar to state-law construction permitting requirements, the [*UARG* v *EPA*] U.S. Supreme Court decision does not preclude states from continuing to require that certain types of sources obtain operating permits meeting requirements that apply independently under state law." [99] Therefore, state, local, or tribal programs wishing to retain construction or operating permit requirements equivalent to the PSD and title V permitting requirements for Step 2 sources as a matter of state, local or tribal law should consult with the EPA Regional offices on how best to retain those requirements as appropriate, while excluding them from the EPA-approved SIPs, TIPs or title V programs.[100]

In cases where state, tribal or local air pollution control agencies incorporate the federal regulations by reference or do not have an approved SIP or TIP for the PSD program or a title V program approval for the title V permitting requirements, the federal PSD program at 40 CFR 52.21 and the title V program at 40 CFR part 71 apply, respectively. Therefore, the EPA anticipates that the revisions included in this proposal will likely apply automatically to these programs once finalized.

VIII. Environmental Justice Considerations

This action proposes certain revisions to the PSD and title V GHG permitting regulations in response to the June 23, 2014, *UARG* v. *EPA* U.S. Supreme Court decision and the April 10, 2015, Amended Judgment by the D.C. Circuit in *Coalition for Responsible Regulation* v. *EPA*. To comport with these decisions, the proposed revisions would ensure that neither PSD nor title V rules require a source to obtain a permit solely because the source emits or has the PTE GHGs above the applicable thresholds. It also establishes a SER for GHGs that would serve to determine when a source otherwise subject to PSD would be required to conduct a BACT analysis for GHGs. Therefore, this proposed action itself does not compel any specific changes to our permitting public participation requirements nor does it finalize a particular permit action that may affect the fair treatment and meaningful involvement of all people. Rather, it ensures that the *Coalition* Amended Judgment is implemented and makes clear in the EPA's PSD regulations that sources are no longer required to submit a PSD permit application if GHGs are the only pollutant that the sources emits above the applicable major source thresholds or that will increase in major amounts due to a modification of an existing major sources. Similarly, this proposed rule clarifies in the EPA's title V regulations that a source is not required to apply for title V permit solely because it emits or has the PTE GHGs above the major source threshold.

IX. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is a significant regulatory action that was submitted to the Office of Management and Budget (OMB) for review because it raises novel legal or policy issues. Any changes made in response to OMB recommendations have been documented in the docket. The EPA prepared an EIA of the potential costs and benefits associated with this action, which is discussed in Section VI of this preamble. This analysis, "Economic Impact Analysis for the Revisions to the Prevention of Significant Deterioration and Title V Greenhouse Gas Permitting Regulations and Establishment of a Significant Emissions Rate for Greenhouse Gas Emissions under the Prevention of Significant Deterioration Program; Proposed Rule," is available in the rulemaking docket.

B. Paperwork Reduction Act (PRA)

This action does not impose any new information collection burden under the PRA. The OMB has previously approved the information collection activities contained in the existing regulations and has assigned OMB control number 2060–0003 for the PSD program and OMB control numbers 2060–0243 and 2060–0336 for the title V part 70 and part 71 programs, respectively.

This action does not impose an information collection burden because it does not impose a new or revised information collection burden for stationary sources of air pollution. Instead, the regulatory revisions reduce the number of sources that may be subject to the PSD and title V program due to the sources' GHG emissions. Specifically, this proposed action revises several regulatory provisions under the federal and state-specific PSD and title V regulations and establishes a GHG SER for the PSD program.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. In making this determination, the impact of concern is any significant adverse economic impact on small entities. An agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, has no net burden or otherwise has a positive economic effect on the small entities subject to the rule. This rule relieves regulatory burden because it reduces the number of sources that may be subject to the PSD and title V program due to the sources' GHG emissions. We have, therefore, concluded that this action will relieve regulatory burden for all directly regulated small entities.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The EPA expects that many state, local and tribal permitting authorities will amend their respective PSD and title V permitting regulations and seek revisions of their SIPs, TIPs or title V program approvals, as applicable, to incorporate, once finalized, the regulatory changes consistent with those in this proposed action. This will result in a small increase in burden to these entities. However, as discussed in Section VI of this preamble, this proposed action is expected to result in cost savings and an administrative burden reduction for permitting authorities. We have therefore concluded that there are no unfunded mandates greater than $100 million or any significant or unique effect on small governments.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states or on the

Radiation, and Cynthia Giles, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA, to Regional Administrators, p. 4, July 24, 2014.

[99] *Id.* at 5.

[100] As noted previously, while the *UARG* decision and the Amended Judgment determined that the EPA may no longer require a source to obtain a title V permit solely because it emits or has the potential to emit GHGs above major source thresholds, the agency does not read the *UARG* decision or the Amended Judgment to affect other grounds on which a title V permit may be required or the applicable requirements that must be addressed in title V permits. Thus, as explained previously, the EPA's proposed revisions are not intended to change the existing title V requirements in that regard and the EPA would not expect proposed revisions to the EPA-approved programs to change those requirements, either.

distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175. The proposed rule would not impose substantial direct compliance costs on Indian tribal governments nor preempt tribal law. There are no tribal agencies currently implementing the PSD program under a tribal implementation plan under 40 CFR part 51.166 or delegation of the federal PSD program at 40 CFR part 52.21. Only two tribes are implementing the title V program, one through the approval of its title V program under 40 CFR part 70 and one through a delegation agreement under 40 CFR part 71. In addition and as explained previously, this proposed action relieves regulatory burden because it reduces the number of sources that may be subject to the PSD and title V program due to the sources' GHG emissions. Specifically, this action revises several regulatory provisions under the federal and state-specific PSD and title V regulations and establishes a GHG SER for the PSD program. If the current PSD GHG permitting level of 75,000 tpy CO_2e were to not be applicable, as described in the Preliminary Views Memo, any increase in GHG emissions at sources otherwise subject to PSD would trigger the requirement for a GHG BACT analysis and thus increase the permitting costs and burden for both permittees (including entities in tribal areas) and permitting authorities (including any tribal agencies). Tribal programs may need to make minor changes to their title V program approvals and their implementing regulations, as applicable, to incorporate, once finalized, the regulatory changes being proposed in this action. Nevertheless, we expect the burden of undertaking those revisions to be minimal as compared to the burden of applying and reviewing the permits for GHG-emitting sources that would otherwise be subject to title V program without the regulatory revisions included in this proposed action. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of "covered regulatory action" in section 2–202 of the Executive Order. This action is not subject to Executive Order 13045 because it does not concern an environmental health risk or safety risk.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use

This action is not a "significant energy action" because it is not likely to have a significant adverse effect on the supply, distribution or use of energy. Further, we have concluded that this rule is not likely to have any adverse energy effects because to the extent that this action would affect PSD and title V permit applicants in the energy supply, distribution or use sectors, it would reduce the permitting burden for such sectors.

I. National Technology Transfer and Advancement Act

This rulemaking does not involve technical standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes the human health or environmental risk addressed by this action will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income or indigenous populations. The results of this evaluation are contained in Section VIII of this preamble titled, "Environmental Justice Considerations" for this action.

K. Determination Under CAA Section 307(d)

Pursuant to CAA 307(d)(1)(J) and 307(d)(1)(V), the Administrator determines that this action is subject to the provisions of section 307(d). Section 307(d)(1)(J) provides that the provisions of section 307(d) apply to promulgation or revision of regulations under part C of title I of the CAA (relating to PSD and protection of visibility), and section 307(d)(1)(V) of the CAA provides that the provisions of section 307(d) apply to such other actions as the Administrator may determine.

X. Statutory Authority

The statutory authority for this action is 42 U.S.C. 7401–7671q.

List of Subjects

40 CFR Part 51

Environmental protection, Administrative practice and procedure, Air pollution control, Carbon monoxide, Greenhouse gases, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Transportation, Volatile organic compounds.

40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Greenhouse gases, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

40 CFR Part 60

Environmental protection, Administrative practice and procedure, Air pollution control, Greenhouse gases, Intergovernmental relations, Reporting and recordkeeping requirements.

40 CFR Part 70

Environmental protection, Administrative practice and procedure, Air pollution control, Greenhouse gases, Intergovernmental relations, Reporting and recordkeeping requirements.

40 CFR Part 71

Environmental protection, Administrative practice and procedure, Air pollution control, Greenhouse gases, Reporting and recordkeeping requirements.

Dated: August 26, 2016.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, title 40, Chapter I of the Code of Federal Regulations is proposed to be amended as follows:

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION, AND SUBMITTAL OF IMPLEMENTATION PLANS

■ 1. The authority citation for part 51 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

Subpart I—Review of New Sources and Modifications

■ 2. Section 51.166 is amended by:
■ a. Revising paragraphs (b)(1)(i)(*a*) and (*b*);
■ b. Revising paragraph (b)(2)(i);
■ c. Revising paragraph (b)(23)(i);
■ d. Adding paragraph (b)(31); and
■ e. Revising paragraph (b)(48).

The revisions and addition read as follows:

§ 51.166 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(1) * * *

(i) * * *

(*a*) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant (except the pollutant greenhouse gases as defined in paragraph (b)(31) of this section): Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, Portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants (with thermal dryers), primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140), fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(*b*) Notwithstanding the stationary source size specified in paragraph (b)(1)(i)(*a*) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant (except the pollutant greenhouse gases as defined in paragraph (b)(31) of this section); or

* * * * *

(2) * * *

(i) *Major modification* means any physical change in or change in the method of operation of a major stationary source that would result in: A significant emissions increase (as defined in paragraph (b)(39) of this section) of a regulated NSR pollutant (as defined in paragraph (b)(49) of this section) other than the pollutant greenhouse gases (as defined in paragraph (b)(31) of this section); and a significant net emissions increase of that regulated NSR pollutant from the major stationary source.

* * * * *

(23) * * *

(i) *Significant* means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter: 25 tpy of particulate matter emissions
PM_{10}: 15 tpy
$PM_{2.5}$: 10 tpy of direct $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions; 40 tpy of nitrogen oxide emissions unless demonstrated not to be a $PM_{2.5}$ precursor under paragraph (b)(49) of this section
Ozone: 40 tpy of volatile organic compounds or nitrogen oxides
Lead: 0.6 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduced sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy
Greenhouse gases: 75,000 tpy CO_2e
Municipal waste combustor organics (measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans): 3.2×10^{-6} megagrams per year (3.5×10^{-6} tons per year)
Municipal waste combustor metals (measured as particulate matter): 14 megagrams per year (15 tons per year)
Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride): 36 megagrams per year (40 tons per year)
Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

* * * * *

(31) *Greenhouse gases (GHGs)* means the air pollutant defined in § 86.1818–12(a) of this chapter as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. To represent an amount of GHGs emitted, the term tpy *CO_2 equivalent emissions* (CO_2e) shall be used and computed as follows:

(a) Multiply the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A–1 to subpart A of part 98 of this chapter—Global Warming Potentials.

(b) Sum the resultant value for each gas to compute a tpy CO_2e.

* * * * *

(48) *Subject to regulation* means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally-applicable regulation codified by the Administrator in subchapter C of this chapter, that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity. Pollutants subject to regulation include, but are not limited to, greenhouse gases as defined in paragraph (b)(31) of this section.

* * * * *

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

■ 3. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart A—General Provisions

■ 4. Section 52.21 is amended by:
■ a. Revising paragraphs (b)(1)(i)(*a*) and (*b*);
■ b. Revising paragraph (b)(2)(i);
■ c. Revising paragraph (b)(23)(i);
■ d. Adding paragraph (b)(32);
■ e. Revising paragraph (b)(49);
■ f. Revising paragraph (aa)(1);
■ g. Revising paragraphs (aa)(2)(i) and (iii);
■ h. Removing paragraph (aa)(2)(iv)(*c*);
■ i. Revising paragraphs (aa)(2)(v), (viii) through (xi);
■ j. Removing paragraphs (aa)(2)(xii)through (xv);
■ k. Revising paragraph (aa)(3) introductory text;
■ l. Removing paragraph (aa)(3)(iv);
■ m. Revising paragraph (aa)(4)(i) introductory text;
■ n. Revising paragraphs (aa)(4)(i)(*a*), (*d*) and (*g*);
■ o. Revising paragraph (aa)(5);
■ p. Revising paragraph (aa)(6)(i);
■ q. Removing paragraph (aa)(6)(iii);
■ r. Revising paragraph (aa)(7) introductory text;
■ s. Revising paragraphs (aa)(7)(i), (iii), (v), (vi) and (vii);
■ t. Removing paragraph (aa)(7)(xi);
■ u. Revising paragraph (aa)(8)(ii)(*b*)(*2*);
■ v. Revising paragraph (aa)(9)(i)(*a*);
■ w. Revising paragraphs (aa)(9)(iv) and (v);
■ x. Revising paragraphs (aa)(10)(i) and (ii);

■ y. Revising paragraphs (aa)(10)(iv)(*c*)(*1*) and (*2*);
■ z. Revising paragraph (aa)(11)(i) introductory text;
■ aa. Revising paragraphs (aa)(11)(i)(*a*) and (*b*);
■ bb. Revising paragraph (aa)(12)(i)(*a*);
■ cc. Revising paragraphs (aa)(14)(i)(*b*) and (*d*); and
■ dd. Revising paragraph (aa)(14)(ii) introductory text.

The revisions and addition read as follows:

§ 52.21 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(1) * * *

(i) * * *

(*a*) Any of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant (except the pollutant greenhouse gases as defined in paragraph (b)(32) of this section): Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants (with thermal dryers), primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140), fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants;

(*b*) Notwithstanding the stationary source size specified in paragraph (b)(1)(i)(*a*) of this section, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant (except the pollutant greenhouse gases as defined in paragraph (b)(32) of this section); or

* * * * *

(2) * * *

(i) *Major modification* means any physical change in or change in the method of operation of a major stationary source that would result in: A significant emissions increase (as defined in paragraph (b)(40) of this section) of a regulated NSR pollutant (as defined in paragraph (b)(50) of this section) other than the pollutant greenhouse gases (as defined in paragraph (b)(32) of this section); and a significant net emissions increase of that regulated NSR pollutant from the major stationary source.

* * * * *

(23) * * *

(i) *Significant* means, in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)
Nitrogen oxides: 40 tpy
Sulfur dioxide: 40 tpy
Particulate matter: 25 tpy of particulate matter emissions
PM_{10}: 15 tpy
$PM_{2.5}$: 10 tpy of direct $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions; 40 tpy of nitrogen oxide emissions unless demonstrated not to be a $PM_{2.5}$ precursor under paragraph (b)(50) of this section
Ozone: 40 tpy of volatile organic compounds or nitrogen oxides
Lead: 0.6 tpy
Fluorides: 3 tpy
Sulfuric acid mist: 7 tpy
Hydrogen sulfide (H_2S): 10 tpy
Total reduced sulfur (including H_2S): 10 tpy
Reduced sulfur compounds (including H_2S): 10 tpy
Greenhouse gases: 75,000 tpy CO_2e
Municipal waste combustor organics (measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans): 3.2×10^{-6} megagrams per year (3.5×10^{-6} tons per year)
Municipal waste combustor metals (measured as particulate matter): 14 megagrams per year (15 tons per year)
Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride): 36 megagrams per year (40 tons per year)
Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

* * * * *

(32) *Greenhouse gases (GHGs)* means the air pollutant defined in § 86.1818–12(a) of this chapter as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. To represent an amount of GHGs emitted, the term tpy *CO_2 equivalent emissions* (CO_2e) shall be used and computed as follows:

(a) Multiply the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A–1 to subpart A of part 98 of this chapter—Global Warming Potentials.

(b) Sum the resultant value for each gas to compute a tpy CO_2e.

* * * * *

(49) *Subject to regulation* means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally-applicable regulation codified by the Administrator in subchapter C of this chapter, that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity. Pollutants subject to regulation include, but are not limited to, greenhouse gases as defined in paragraph (b)(32) of this section.

* * * * *

(aa) * * *

(1) * * *

(i) The Administrator may approve the use of an actuals PAL for any existing major stationary source if the PAL meets the requirements in paragraphs (aa)(1) through (15) of this section. The term "PAL" shall mean "actuals PAL" throughout paragraph (aa) of this section.

(ii) Any physical change in or change in the method of operation of a major stationary source that maintains its total source-wide emissions below the PAL level, meets the requirements in paragraphs (aa)(1) through (15) of this section, and complies with the PAL permit:

(*a*) Is not a major modification for the PAL pollutant;

(*b*) Does not have to be approved through the PSD program; and

(*c*) Is not subject to the provisions in paragraph (r)(4) of this section (restrictions on relaxing enforceable emission limitations that the major stationary source used to avoid applicability of the major NSR program).

(iii) Except as provided under paragraph (aa)(1)(ii)(*c*) of this section, a major stationary source shall continue to comply with all applicable Federal or State requirements, emission limitations, and work practice

requirements that were established prior to the effective date of the PAL.

(2) * * *

(i) *Actuals PAL* for a major stationary source means a PAL based on the baseline actual emissions (as defined in paragraph (b)(48) of this section) of all emissions units (as defined in paragraph (b)(7) of this section) at the source, that emit or have the potential to emit the PAL pollutant.

* * * * *

(iii) *Small emissions unit* means an emissions unit that emits or has the potential to emit the PAL pollutant in an amount less than the significant level for that PAL pollutant, as defined in paragraph (b)(23) of this section or in the Act, whichever is lower.

* * * * *

(v) *Plantwide applicability limitation (PAL)* means an emission limitation expressed on a mass basis in tons per year, or expressed in tons per year CO_2e for a GHG emission limitation, for a pollutant at a major stationary source, that is enforceable as a practical matter and established source-wide in accordance with paragraphs (aa)(1) through (15) of this section.

* * * * *

(viii) *PAL major modification* means, notwithstanding paragraphs (b)(2) and (b)(3) of this section (the definitions for major modification and net emissions increase), any physical change in or change in the method of operation of the PAL source that causes it to emit the PAL pollutant at a level equal to or greater than the PAL.

(ix) *PAL permit* means the major NSR permit, the minor NSR permit, or the State operating permit under a program that is approved into the State Implementation Plan, or the title V permit issued by the Administrator that establishes a PAL for a major stationary source.

(x) *PAL pollutant* means the pollutant for which a PAL is established at a major stationary source.

(xi) *Significant emissions unit* means an emissions unit that emits or has the potential to emit a PAL pollutant in an amount that is equal to or greater than the significant level (as defined in paragraph (b)(23) of this section or in the Act, whichever is lower) for that PAL pollutant, but less than the amount that would qualify the unit as a major emissions unit as defined in paragraph (aa)(2)(iv) of this section.

(3) *Permit application requirements.* As part of a permit application requesting a PAL, the owner or operator of a major stationary source shall submit the following information to the Administrator for approval:

* * * * *

(4) * * *

(i) The Administrator is allowed to establish a PAL at a major stationary source, provided that at a minimum, the requirements in paragraphs (aa)(4)(i)(*a*) through (*g*) of this section are met.

(*a*) The PAL shall impose an annual emission limitation expressed on a mass basis in tons per year, or expressed in tons per year CO_2e for a GHG PAL, that is enforceable as a practical matter, for the entire major stationary source. For each month during the PAL effective period after the first 12 months of establishing a PAL, the major stationary source owner or operator shall show that the sum of the monthly emissions from each emissions unit under the PAL for the previous 12 consecutive months is less than the PAL (a 12-month average, rolled monthly). For each month during the first 11 months from the PAL effective date, the major stationary source owner or operator shall show that the sum of the preceding monthly emissions from the PAL effective date for each emissions unit under the PAL is less than the PAL.

* * * * *

(*d*) The PAL shall include fugitive emissions, to the extent quantifiable, from all emissions units that emit or have the potential to emit the PAL pollutant at the major stationary source.

* * * * *

(*g*) The owner or operator of the major stationary source with a PAL shall comply with the monitoring, recordkeeping, and reporting requirements provided in paragraphs (aa)(12) through (14) of this section for each emissions unit under the PAL through the PAL effective period.

* * * * *

(5) *Public participation requirements for PALs.* PALs for existing major stationary sources shall be established, renewed, or increased through a procedure that is consistent with §§ 51.160 and 51.161 of this chapter. This includes the requirement that the Administrator provide the public with notice of the proposed approval of a PAL permit and at least a 30-day period for submittal of public comment. The Administrator must address all material comments before taking final action on the permit.

(6) * * *

(i) Except as provided in paragraph (aa)(6)(ii) and (iii) of this section, the plan shall provide that the actuals PAL level for a major stationary source shall be established as the sum of the baseline actual emissions (as defined in paragraph (b)(48) of this section) of the PAL pollutant for each emissions unit at the source; plus an amount equal to the applicable significant level for the PAL pollutant under paragraph (b)(23) of this section or under the Act, whichever is lower. When establishing the actuals PAL level, for a PAL pollutant, only one consecutive 24-month period must be used to determine the baseline actual emissions for all existing emissions units. However, a different consecutive 24-month period may be used for each different PAL pollutant. Emissions associated with units that were permanently shut down after this 24-month period must be subtracted from the PAL level. The reviewing authority shall specify a reduced PAL level(s) in tons per year (or tons per year CO_2e for a GHG PAL) in the PAL permit to become effective on the future compliance date(s) of any applicable Federal or State regulatory requirement(s) that the reviewing authority is aware of prior to issuance of the PAL permit. For instance, if the source owner or operator will be required to reduce emissions from industrial boilers in half from baseline emissions of 60 ppm NO_X to a new rule limit of 30 ppm, then the permit shall contain a future effective PAL level that is equal to the current PAL level reduced by half of the original baseline emissions of such unit(s).

* * * * *

(7) *Contents of the PAL permit.* The PAL permit must contain, at a minimum, the information in paragraphs (aa)(7)(i) through (x) of this section.

(i) The PAL pollutant and the applicable source-wide emission limitation in tons per year, or in tons per year CO_2e for a GHG PAL.

* * * * *

(iii) Specification in the PAL permit that if a major stationary source owner or operator applies to renew a PAL in accordance with paragraph (aa)(10) of this section before the end of the PAL effective period, then the PAL shall not expire at the end of the PAL effective period. It shall remain in effect until a revised PAL permit is issued by a reviewing authority.

* * * * *

(v) A requirement that, once the PAL expires, the major stationary source is subject to the requirements of paragraph (aa)(9) of this section.

(vi) The calculation procedures that the major stationary source owner or operator shall use to convert the monitoring system data to monthly emissions and annual emissions based

on a 12-month rolling total as required by paragraph (aa)(13)(i) of this section.

(vii) A requirement that the major stationary source owner or operator monitor all emissions units in accordance with the provisions under paragraph (aa)(12) of this section.

* * * * *

(8) * * *

(ii) * * *

(*b*) * * *

(*2*) Reduce the PAL consistent with any other requirement, that is enforceable as a practical matter, and that the State may impose on the major stationary source under the State Implementation Plan; and

* * * * *

(9) * * *

(i) * * *

(*a*) Within the time frame specified for PAL renewals in paragraph (aa)(10)(ii) of this section, the major stationary source shall submit a proposed allowable emission limitation for each emissions unit (or each group of emissions units, if such a distribution is more appropriate as decided by the Administrator) by distributing the PAL allowable emissions for the major stationary source among each of the emissions units that existed under the PAL. If the PAL had not yet been adjusted for an applicable requirement that became effective during the PAL effective period, as required under paragraph (aa)(10)(v) of this section, such distribution shall be made as if the PAL had been adjusted.

* * * * *

(iv) Any physical change or change in the method of operation at the major stationary source will be subject to major NSR requirements if such change meets the definition of major modification in paragraph (b)(2) of this section.

(v) The major stationary source owner or operator shall continue to comply with any State or Federal applicable requirements (BACT, RACT, NSPS, etc.) that may have applied either during the PAL effective period or prior to the PAL effective period except for those emission limitations that had been established pursuant to paragraph (r)(4) of this section, but were eliminated by the PAL in accordance with the provisions in paragraph (aa)(1)(ii)(*c*) of this section.

(10) * * *

(i) The Administrator shall follow the procedures specified in paragraph (aa)(5) of this section in approving any request to renew a PAL for a major stationary source, and shall provide both the proposed PAL level and a written rationale for the proposed PAL level to the public for review and comment. During such public review, any person may propose a PAL level for the source for consideration by the Administrator.

(ii) *Application deadline.* A major stationary source owner or operator shall submit a timely application to the Administrator to request renewal of a PAL. A timely application is one that is submitted at least 6 months prior to, but not earlier than 18 months from, the date of permit expiration. This deadline for application submittal is to ensure that the permit will not expire before the permit is renewed. If the owner or operator of a major stationary source submits a complete application to renew the PAL within this time period, then the PAL shall continue to be effective until the revised permit with the renewed PAL is issued.

* * * * *

(iv) * * *

(*c*) * * *

(*1*) If the potential to emit of the major stationary source is less than the PAL, the Administrator shall adjust the PAL to a level no greater than the potential to emit of the source; and

(*2*) The Administrator shall not approve a renewed PAL level higher than the current PAL, unless the major stationary source has complied with the provisions of paragraph (aa)(11) of this section (increasing a PAL).

* * * * *

(11) * * *

(i) The Administrator may increase a PAL emission limitation only if the major stationary source complies with the provisions in paragraphs (aa)(11)(i)(*a*) through (*d*) of this section.

(*a*) The owner or operator of the major stationary source shall submit a complete application to request an increase in the PAL limit for a PAL major modification. Such application shall identify the emissions unit(s) contributing to the increase in emissions so as to cause the major stationary source's emissions to equal or exceed its PAL.

(*b*) As part of this application, the major stationary source owner or operator shall demonstrate that the sum of the baseline actual emissions of the small emissions units, plus the sum of the baseline actual emissions of the significant and major emissions units assuming application of BACT equivalent controls, plus the sum of the allowable emissions of the new or modified emissions unit(s) exceeds the PAL. The level of control that would result from BACT equivalent controls on each significant or major emissions unit shall be determined by conducting a new BACT analysis at the time the application is submitted, unless the emissions unit is currently required to comply with a BACT or LAER requirement that was established within the preceding 10 years. In such a case, the assumed control level for that emissions unit shall be equal to the level of BACT or LAER with which that emissions unit must currently comply.

* * * * *

(12) * * *

(i) * * *

(*a*) Each PAL permit must contain enforceable requirements for the monitoring system that accurately determines plantwide emissions of the PAL pollutant in terms of mass per unit of time or, in CO_2e per unit of time for a GHG PAL. Any monitoring system authorized for use in the PAL permit must be based on sound science and meet generally acceptable scientific procedures for data quality and manipulation. Additionally, the information generated by such system must meet minimum legal requirements for admissibility in a judicial proceeding to enforce the PAL permit.

* * * * *

(14) * * *

(i) * * *

(*b*) Total annual emissions (expressed on a mass-basis in tons per year, or expressed in tons per year CO_2e for a GHG PAL) based on a 12-month rolling total for each month in the reporting period recorded pursuant to paragraph (aa)(13)(i) of this section.

* * * * *

(*d*) A list of any emissions units modified or added to the major stationary source during the preceding 6-month period.

* * * * *

(ii) *Deviation report.* The major stationary source owner or operator shall promptly submit reports of any deviations or exceedance of the PAL requirements, including periods where no monitoring is available. A report submitted pursuant to § 70.6(a)(3)(iii)(B) of this chapter shall satisfy this reporting requirement. The deviation reports shall be submitted within the time limits prescribed by the applicable program implementing § 70.6(a)(3)(iii)(B) of this chapter. The reports shall contain the following information:

* * * * *

Subpart Y—Minnesota

§ 52.1233 [Amended]

■ 5. Section 52.1233(b) is removed.

* * * * *

Subpart SS—Texas

§52.2305 [Amended]

■ 6. Section 52.2305 is removed and reserved.

* * * * *

Subpart YY—Wisconsin

§52.2590 [Amended]

■ 7. Section 52.2590 is removed and reserved.

* * * * *

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

■ 8. The authority citation for part 60 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart OOOOa—Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18, 2015

§60.5360a [Amended]

■ 9. Section 60.5360a is amended by removing and reserving paragraph (b).

Subpart TTTT—Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units

§60.5515 [Amended]

■ 10. Section 60.5515 is amended by removing and reserving paragraph (b).

Subpart UUUU—Emission Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units

§60.5705 [Amended]

■ 11. Section 60.5705 is amended by removing and reserving paragraph (b).

PART 70— STATE OPERATING PERMIT PROGRAMS

■ 15. The authority citation for part 70 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

■ 16. Section 70.2 is amended by:

■ a. Adding in alphabetical order a definition for "Greenhouse gases;"

■ b. Revising the introductory text paragraph (2) for the definition of "Major source;" and

■ c. Revising the definition of "Subject to regulation".

The revisions and addition read as follows:

§70.2 Definitions.

* * * * *

Greenhouse gases (GHGs) means the air pollutant defined in § 86.1818–12(a) of this chapter as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. To represent an amount of GHGs emitted, the term tpy *CO_2 equivalent emissions* (CO_2e) shall be used and computed as follows:

(1) Multiply the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A–1 to subpart A of part 98 of this chapter—Global Warming Potentials.

(2) Sum the resultant value for each gas to compute a tpy CO_2e.

Major source means * * *

(1) * * *

(2) A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant subject to regulation except the pollutant greenhouse gases as defined in this section. This definition of major stationary source includes any major source of fugitive emissions of any such pollutant (except the pollutant greenhouse gases as defined in this section), as determined by rule by the Administrator. The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:

* * * * *

Subject to regulation means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally-applicable regulation codified by the Administrator in subchapter C of this chapter, that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity. Pollutants subject to regulation include, but are not limited to, greenhouse gases as defined in this section.

Appendix A to Part 70—Approval Status of State and Local Operating Permits Programs

■ 17. Appendix A to Part 70 is amended by:

■ a. Removing paragraph (d) under Alabama;

■ b. Removing paragraph (jj) under California;

■ c. Removing paragraph (c) under Colorado;

■ d. Removing paragraph (d) under District of Columbia;

■ e. Removing paragraph (c) under Georgia;

■ f. Removing paragraph (d) under Hawaii;

■ g. Removing paragraph (c) under Illinois;

■ h. Removing and reserving paragraph (m) under Iowa;

■ i. Removing and reserving paragraph (e) under Kansas;

■ j. Removing paragraph (c) under Louisiana;

■ k. Removing paragraph (c) under Maine;

■ l. Removing paragraph (d) under Maryland;

■ m. Removing paragraph (d) under Minnesota;

■ n. Removing paragraph (c) under Mississippi;

■ o. Removing and reserving paragraph (x) under Missouri;

■ p. Removing and reserving paragraph (k) under Nebraska, City of Omaha; Lincoln Lancaster County Health Department;

■ q. Removing paragraph (d) under Nevada;

■ r. Removing paragraph (c) under New Hampshire;

■ s. Removing paragraph (e) under New York;

■ t. Removing paragraph (d) under Ohio;

■ u. Removing paragraph (c) under Oklahoma;

■ v. Removing and reserving paragraph (c) under Pennsylvania;

■ w. Removing paragraph (c) under Rhode Island;

■ x. Removing paragraph (c) under South Carolina;

■ y. Removing paragraph (c) under South Dakota;

■ z. Removing paragraph (f) under Tennessee;

■ aa. Removing paragraph (c) under Utah;

■ bb. Removing paragraph (c) under Vermont;

■ cc. Removing paragraph (c) under Virgin Islands;

■ dd. Removing paragraph (c) under Virginia;

■ ee. Removing paragraph (j) under Washington;

■ ff. Removing paragraph (f) under West Virginia; and

■ gg. Removing paragraph (c) under Wisconsin.

PART 71—FEDERAL OPERATING PERMIT PROGRAMS

■ 18. The authority citation for part 71 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

■ 19. Section 71.2 is amended by:
■ a. Adding in alphabetical order a definition for "Greenhouse gases;"
■ b. Revising the introductory text paragraph (2) for the definition of "Major source;" and
■ c. Revising the definition of "Subject to regulation".

The revisions and addition read as follows:

§ 71.2 Definitions.

* * * * *

Greenhouse gases (GHGs) means the air pollutant defined in § 86.1818–12(a) of this chapter as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. To represent an amount of GHGs emitted, the term tpy *CO_2 equivalent emissions (*CO_2e*)* shall be used and computed as follows:

(1) Multiply the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A–1 to subpart A of part 98 of this chapter—Global Warming Potentials.

(2) Sum the resultant value for each gas to compute a tpy CO_2e.

* * * * *

Major source means * * *

(1) * * *

(2) A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits, or has the potential to emit, 100 tpy or more of any air pollutant subject to regulation except the pollutant greenhouse gases as defined in this section. This definition of major stationary source includes any major source of fugitive emissions of any such pollutant (except the pollutant greenhouse gases as defined in this section), as determined by rule by the Administrator. The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:

* * * * *

Subject to regulation means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally-applicable regulation codified by the Administrator in subchapter C of this chapter, that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity. Pollutants subject to regulation include, but are not limited to, greenhouse gases as defined in this section.

* * * * *

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