



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2013-0495; FRL-10019-30-OAR]

RIN 2060-AT56

Pollutant-Specific Significant Contribution Finding for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, and Process for Determining Significance of Other New Source Performance Standards Source Categories

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: In this final action, the U.S. Environmental Protection Agency (EPA) is finalizing a significant contribution finding (SCF) for purposes of regulating source categories for greenhouse gas (GHG) emissions, under section 111(b) of the Clean Air Act (CAA) for electric generating units (EGUs), and in doing so, reaffirming that EGUs remain a listed source category. The EPA has reached that conclusion by articulating a framework under which source categories are considered to contribute significantly to dangerous air pollution due to their GHG emissions if the amount of those emissions exceeds 3 percent of total U.S. GHG emissions. The EPA is applying the 3-percent threshold to the EGU source category to demonstrate that GHG emissions from the EGU source category would contribute significantly to dangerous air pollution. While EGU GHG emissions exceed this threshold by a sufficient magnitude to warrant an SCF without more ado, the EPA has also, for completeness, analyzed EGU emissions under a secondary criteria framework, which also demonstrates the propriety of the SCF.

DATES: The final rule is effective on **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2013-0495. All documents in the docket are listed on the <https://www.regulations.gov/> website. Although listed, some information is not publicly available, e.g., Confidential Business Information or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. With the exception of such material, publicly available docket materials are available electronically through <https://www.regulations.gov/>. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. For further information on EPA Docket Center services and the current status, please visit us online at <https://www.epa.gov/dockets>.

FOR FURTHER INFORMATION CONTACT: For questions about this final action, contact Mr. Christopher Werner, Sector Policies and Programs Division (D243-01), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5133; fax number: (919) 541-4991; and email address: werner.christopher@epa.gov.

SUPPLEMENTARY INFORMATION:

Preamble acronyms and abbreviations. The EPA uses multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

AEO	Annual Energy Outlook
BSER	best system of emission reduction
°C	degrees Celsius
CAA	Clean Air Act
CFR	Code of Federal Regulations
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
D.C. Cir.	United States Court of Appeals for the District of Columbia Circuit
DOE	Department of Energy

EGU	electric utility generating unit
EIA	U.S. Energy Information Administration
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
GHG	greenhouse gas
HAP	hazardous air pollutant(s)
HFC	hydrofluorocarbon
km	kilometers
M	million
N ₂ O	nitrous oxide
NAICS	North American Industry Classification System
NGCC	natural gas combined cycle
NO _x	nitrogen oxides
NSPS	new source performance standards
OMB	Office of Management and Budget
PC	pulverized coal
PFC	perfluorocarbon
PM	particulate matter
SF ₆	sulfur hexafluoride
SO ₂	sulfur dioxide
U.S.	United States
U.S.C.	United States Code

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- L. Congressional Review Act (CRA)

I. General Information

A. Does this action apply to me?

Categories and entities potentially impacted by this rule include sources subject to new source performance standards (NSPS) requirements under section 111 of the CAA. While this rule informs all NSPS source categories, the EPA is finalizing a SCF specific to electric generating units regulated under 40 CFR part 60, subpart TTTT. The North American Industry Classification System (NAICS) code for the industrial, federal government, and state/local government electric generating units is 221112. The NAICS code for tribal government electric generating units is 921150.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this final action is available on the Internet. Following signature by the EPA Administrator, the EPA will post a copy of this final action at <https://www.epa.gov/stationary-sources-air-pollution/nsps-ghg-emissions-new-modified-and-reconstructed-electric-utility>. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the final rule and key technical documents at this same website.

C. Judicial Review

Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of this final rule is available only by filing a petition for review in the United States Court of Appeals for the District of Columbia Circuit (the D.C. Circuit) by **[INSERT DATE 60 DAYS AFTER DATE**

OF PUBLICATION IN THE FEDERAL REGISTER]. Moreover, under section 307(b)(2) of the CAA, the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by the EPA to enforce these requirements. The Administrator has determined that this action is subject to section 307(d) of the CAA (42 U.S.C. 7607(d)(1)(V)). Section 307(d)(7)(B) of the CAA further provides that “[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review.” This section also provides a mechanism for the EPA to convene a proceeding for reconsideration “[i]f the person raising an objection can demonstrate to the EPA that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment, (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule.” Any person seeking to make such a demonstration to us should submit a Petition for Reconsideration to the Office of the Administrator, U.S. Environmental Protection Agency, Room 3000, WJC South Building, 1200 Pennsylvania Ave. NW, Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW, Washington, DC 20460.

II. Executive Summary

A. What is the purpose of this regulatory action?

In Executive Order 13783 (Promoting Energy Independence and Economic Growth), all executive departments and agencies, including the EPA, were directed to “immediately review existing regulations that potentially burden the development or use of domestically produced energy resources and appropriately suspend, revise, or rescind those that unduly burden the development of domestic energy resources beyond the degree necessary to protect the public

interest or otherwise comply with the law.”¹ Moreover, the Executive Order directed the EPA to undertake this process of review with regard to the “Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units,” 80 FR 64510 (October 23, 2015) (2015 Rule).

In a document signed the same day as Executive Order 13783 and published in the **Federal Register** at 82 FR 16330 (April 4, 2017), the EPA announced that, consistent with the Executive Order, it was initiating a review of the 2015 Rule and providing notice of a forthcoming proposed rulemaking consistent with the Executive Order. After due deliberation, the EPA issued a proposed rulemaking, “Review of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units—Proposed Rule,” 83 FR 65424 (December 20, 2018) (2018 Proposal). Here the EPA is finalizing a rulemaking with respect to whether GHG emissions from EGUs contribute significantly to dangerous air pollution, in reliance on a methodology articulated herein for determining whether GHG emissions from other NSPS source categories contribute significantly to dangerous air pollution. Any action regarding the proposal to revise the standards of performance, including the underlying determinations of the BSER, for new, reconstructed, and modified coal-fired EGUs, including certain technical issues, is beyond the scope of this final rule and comments received on the 2018 Proposal will be addressed in a separate future action.

B. What is the summary of the major provisions in this action?

The EPA is finalizing a pollutant-specific SCF for GHG emissions from EGUs. That finding is based on an emissions threshold framework for determining significance, as well as secondary criteria to be applied in certain circumstances, for other NSPS source categories.

C. What are the costs and benefits?

¹ Executive Order 13783, Section 1(c), 82 FR 16093, March 31, 2017.

In 2015, the EPA promulgated “Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units,” 80 FR 64510 (October 23, 2015) (2015 Rule). When the EPA promulgated the 2015 Rule, it took note of both utility announcements and U.S. Energy Information Administration (EIA) modeling and, based on that information, concluded that even in the absence of this rule, (1) existing and anticipated economic conditions are such that few, if any, coal-fired EGUs will be built in the foreseeable future, and that (2) utilities and project developers are expected to choose new generation technologies (primarily natural gas combined cycle (NGCC)) that would meet the final standards and also renewable generating sources that are not affected by these final standards. *See* 80 FR 64515 (October 23, 2015). The EPA, therefore, projected that the 2015 Rule would “result in negligible CO₂ emission changes, quantified benefits, and costs by 2022 as a result of the performance standards for newly constructed EGUs.” *Id.* The Agency went on to say that it had been “notified of few power sector new source performance standards (NSPS) modifications or reconstructions.” Based on that additional information, the EPA said it “expects that few EGUs will trigger either the modification or the reconstruction provisions” of the 2015 Rule. *Id.* at 64516.

The EPA has concluded that the projections described in the 2015 Rule remain generally correct.² In the period of analysis,³ the EPA expects there to be few, if any, newly constructed, reconstructed, or modified sources that will trigger the provisions the EPA is promulgating in this action. Consequently, the EPA projects that there will be no significant changes in carbon dioxide (CO₂) emissions or in compliance costs as a result of this final rule.

III. Summary of Previous Rulemaking Actions

² In the reference case for the most recent Annual Energy Outlook (AEO2020), the EIA projected no additions of new planned or unplanned coal capacity through 2050 (www.eia.gov/aeo2020; Table 9. Electricity Generating Capacity).

³ Standards developed under the NSPS program must, by statutory requirement, be reviewed, at least, every 8 years.

On December 20, 2018, the EPA published a proposal to revise certain parts of the 2015 Rule; “Review of Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units.” 83 FR 65424 (2018 Proposal). The majority of that proposal was dedicated to the issue of the best system of emission reduction (BSER) for newly constructed, modified, and reconstructed coal-fired EGUs. Comments received on that issue are not being addressed in this rule and will be addressed in any future EPA action. In that proposal, the EPA solicited comment on whether to make a pollutant-specific significant contribution determination for GHG emissions from EGUs, 83 FR 65432 n. 25, which is the subject of this action.

IV. Pollutant-Specific Significant Contribution Finding (SCF)

A. Background

CAA section 111(b)(1)(A) states that “[The Administrator] shall include a category of sources in such list if in his judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.”

In the 2015 Rule, the EPA promulgated standards for GHG (measured CO₂ emissions) from fossil fuel-fired steam generating EGUs and combustion turbines, a pollutant that the Administrator had not considered when he listed the categories of those sources - fossil fuel-fired steam generators⁴ and stationary gas turbines.⁵ *See* 80 FR 64510. Similarly, in 2016, the EPA promulgated an NSPS for GHG (measured by methane (CH₄) emissions) from oil and gas sources, a pollutant that the Administrator had not considered when he listed the category for those sources - the Crude Oil and Natural Gas Production source category.⁶ *See* 81 FR 35824 (June 3, 2016) (2016 Oil & Gas Rule).

⁴ *See* “List of Categories of Stationary Sources,” 36 FR 5931 (March 31, 1971) (listing source category); “Standards of Performance for New Stationary Sources,” 36 FR 24376 (December 31, 1971) (promulgating NSPS for source category).

⁵ *See* “Standards of Performance for New Stationary Sources; Gas Turbines,” 44 FR 52792 (September 10, 1979) (listing and promulgating NSPS for source category).

⁶ *See* “Priority List and Additions to the List of Categories of Stationary Sources,” 49 FR 49222 (August 21, 1979) (listing source category); “Standards of Performance for New Stationary Sources; Equipment Leaks of VOC From

In each rule, the EPA interpreted CAA section 111(b) to require that an SCF and endangerment finding be made only with respect to the source category, at the time the EPA lists the category, and to authorize the EPA to promulgate NSPS for GHG, as long as the EPA provides a rational basis for doing so. However, in each rule, the EPA acknowledged that some stakeholders had argued that the EPA first needed to make a pollutant-specific SCF, that is, a finding that GHG from the source category contributes significantly to dangerous air pollution. In each rule, the EPA stated that it disagreed with those stakeholders, but nevertheless, in the alternative, did make a pollutant-specific SCF for GHG, supported by the same reasons that the EPA had used to determine that it had a rational basis to regulate GHG. *See* 80 FR 64529 through 64531 (2015 EGU Rule); 81 FR 35840 through 35843 (2016 Oil & Gas Rule).

In the 2018 Proposal, in which the EPA proposed to revise the 2015 Rule, the EPA solicited comment on whether to adopt the interpretation that it was required to make an SCF for GHG from the EGU source category before it could promulgate an NSPS for CO₂. Some commenters stated that the EPA must make pollutant-specific findings of endangerment and significant contribution in order to establish an NSPS for that pollutant. These commenters explained that in their view, CAA section 111(b)(1)(A) requires the EPA to make two specific findings: (1) the specific “air pollution” to be regulated is “reasonably ... anticipated to endanger public health or welfare;” and (2) the specific source category “causes or contributes significantly to” that air pollution. Commenters asserted that CAA section 111(b)(1)(A) is not ambiguous in this respect, and, therefore, the Agency’s interpretation in the 2015 Rule directly contradicts the plain language of that section.

Other commenters stated that the EPA’s approach in the 2015 Rule, that it needs to determine only that it has a rational basis to regulate GHGs emitted by this source category as a prerequisite to regulation, is sound. They said in the context of CAA section 111, the SCF and

Onshore Natural Gas Processing Plants,” 50 FR 26124 (June 23, 1985), and “Standards of Performance for New Stationary Sources; Onshore Natural Gas Processing SO₂ Emissions,” 50 FR 40160 (October 1, 1985) (promulgating standards of performance).

endangerment finding are made with respect to the source category, and not as to specific pollutants. These commenters supported the conclusion in the 2015 Rule that the EPA possesses authority to regulate GHG emissions from fossil fuel-fired EGUs under CAA section 111 because there was no new evidence calling into question its determination that GHG air pollution may reasonably be anticipated to endanger public health and welfare and fossil fuel-fired EGUs have a high level of GHG emissions. The commenters stated that these considerations hew closely to the statutory factors that inform the decision whether to list a source category in the first place—namely, whether the category “causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare,” under CAA section 111(b)(1)(A). The commenters added that this approach, which closely parallels the listing analysis but does not require a formal endangerment finding or SCF, is legally sound. They also added that the statute is clear that a formal endangerment finding is required to initially list a sector to be regulated under CAA section 111; but it is also clear that such a finding is not required before regulating additional harmful pollutants from a previously-listed sector.⁷

Similarly, in a 2019 proposal to revise the 2016 Oil & Gas Rule, the EPA solicited comment on whether to adopt the interpretation that it was required to make an SCF for GHG from the Oil

⁷ Some commenters on the 2018 Proposal also said that, in the 2009 Endangerment Finding, the EPA specifically defined air pollution, as referred to in section 202(a) of the CAA, to be the mix of six well-mixed, long-lived, and directly emitted GHGs: CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. 74 FR 66497. They commented that the EPA needs to make, but has never made, a separate finding that CO₂ alone is reasonably anticipated to endanger the public health or welfare. The Agency disagrees with commenters. The air pollutant that the 2015 Rule regulates is GHG, and that air pollutant contributes to the same GHG air pollution that was addressed by the Endangerment Finding. The standards of performance adopted in the 2015 Rule take the form of an emission limitation on only one constituent gas of this air pollutant, CO₂. *See* 40 CFR 60.5515(a) (“The pollutants regulated by this subpart are greenhouse gases. The greenhouse gas standard in this subpart is in the form of a limitation on emission of carbon dioxide.”). This is reasonable, given that CO₂ is the constituent gas emitted in the largest volume by the source category and for which there are available controls that are technically feasible and cost effective. There is no requirement that standards of performance address each component of an air pollutant. CAA section 111(b)(1)(B) requires the EPA to establish “standards of performance” for listed source categories, and the definition of “standard of performance” in CAA section 111(a)(1) does not specify which air pollutants must be controlled. Moreover, as the EPA noted in the 2015 Rule, the information considered in the 2009 Endangerment Finding and its supporting record, together with additional discussion of GHG impacts in the 2015 Rule, makes clear that GHG air pollution may reasonably be anticipated to endanger public health or welfare. *See* 80 FR 64517, 64530 and 31. Because the 2015 Rule followed the same approach as in the 2009 findings and regulated the same pollutant as contributing to the same air pollution (to reiterate, both the air pollutant and the air pollution are GHG as the group of six well-mixed gases, including CO₂), it was not necessary to evaluate CO₂ separately. The EPA took the same position in the 2016 Oil & Gas Rule in response to a similar comment concerning CH₄. *See* 81 FR 35843.

and Gas source category before it could promulgate a CH₄ NSPS. Recently, the EPA completed the final rule to revise the 2016 Oil & Gas Rule, “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review: Final Rule,” 85 FR 57018 (September 14, 2020) (2020 Oil & Gas Rule). There, the EPA determined that a pollutant-specific SCF is required. In addition, the EPA further determined that the pollutant-specific SCF in the 2016 Oil & Gas Rule was invalid on grounds, in part, that the EPA had not established a threshold or criteria by which to determine whether an amount of emissions contributes significantly to dangerous air pollution, and to distinguish from an amount of emissions that simply contributes to dangerous air pollution. The EPA stated that section 111(b) of the CAA requires, or at least authorizes, a pollutant-specific SCF, and such an SCF must be based on defined criteria or thresholds. *Id.* at 57033-40.

B. What is a Significant Contribution Finding (SCF)?

1. Significant Contribution Finding and Key Comments Received

CAA section 111 directs the EPA to regulate, through a multi-step process, air pollutants from categories of stationary sources. CAA section 111(b)(1)(A) requires the initial action, which is that the Administrator must “publish ... a list of categories of stationary sources. He shall include a category of sources in such list if in his judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.” Therefore, the first action that the EPA must take, specified in CAA section 111(b)(1)(A), is to list a source category for regulation on the basis of a determination that the category contributes significantly to dangerous air pollution. This provision makes clear that although Congress designed CAA section 111 to apply broadly to source categories of all types wherever located, Congress also imposed a constraint: The EPA is authorized to regulate only sources that it finds cause or contribute significantly to air pollution that the EPA finds to be dangerous. Because CAA section 111(b)(1)(A) refers to air *pollution*, the EPA’s determination

that a source category should be listed for regulation can be based on all pollutants emitted by the category (*i.e.*, collective contribution), or for a specific pollutant.

After the EPA lists a source category, CAA section 111(b)(1)(B) then directs the EPA to propose regulations “establishing Federal standards of performance” for new sources within the source category, to allow public comment, and to “promulgate . . . such standards with such modifications as he deems appropriate.” CAA section 111(a)(1) defines the term “standard of performance” as “a standard for emissions of air pollutants which [the Administrator is required to determine through a specified methodology].” These provisions read together make clear that the standards of performance that CAA section 111(b)(1)(A) directs the Administrator to promulgate must concern air pollutants emitted from the sources in the source category. However, industrial sources of the type subject to CAA section 111(b)(1)(A) invariably emit more than one air pollutant, and neither CAA section 111(b)(1)(B) nor CAA section 111(a)(1), by their terms, specifies for which of those air pollutants the EPA must promulgate standards of performance.

In the past, the EPA has interpreted CAA section 111(b)(1)(B) to authorize it to promulgate standards of performance for any air pollutant that the EPA identified in listing the source category and any additional air pollutant for which the EPA has identified a rational basis for regulation. 81 FR 35843 (2016 Oil & Gas Rule); 80 FR 64510 (2015 Rule). Inherent in this approach is the recognition that CAA section 111(b)(1)(A) does not, by its terms, necessarily require the EPA to promulgate standards of performance for all air pollutants emitting from the source category. The EPA could list a source category on grounds that it emits numerous air pollutants that, taken together, significantly contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, and proceed to regulate each of those pollutants, without ever finding that each (or any) of those air pollutants by itself causes or contributes significantly to—or, in terms of the text of other provisions, causes or contributes to—air pollution that may reasonably be anticipated to endanger public health or welfare.

As described in the 2020 Oil and Gas Policy Rule, CAA section 111(b)(1)(A) does not provide or suggest any criteria to define the rational basis approach, the EPA has not articulated any criteria in its previous applications in the EGU CO₂ NSPS and the 2016 40 CFR part 60, subpart OOOOa rules, and in instances before those rules in which the EPA has relied on the “rational basis” approach, the EPA has done so to justify not setting a standard for a given pollutant, rather than to justify setting such a standard. 85 FR 77037, December 1, 2020. Thus, the rational basis test allows the EPA virtually unfettered discretion in determining which air pollutants to regulate. As a result, the rational basis standard creates the possibility that the EPA could seek to promulgate NSPS for pollutants that may be emitted in relatively minor amounts.

In contrast, CAA section 111(b)(1)(A) is clear that the EPA may list a source category for regulation only if the EPA determines that the source category “causes or contributes *significantly*” (emphasis added) to dangerous air pollution. As described in the 2020 Oil and Gas Policy Rule, in light of the stringency of this statutory requirement for listing a source category, it would be unreasonable to interpret CAA section 111(b)(1)(B) to allow the Agency to regulate air pollutants from the source category merely by making an administrative determination under the open-ended and undefined rational basis test. The EPA, therefore, determined it is logical to interpret CAA section 111(b)(1)(B) to require that the Agency apply the same degree of rigor in determining which air pollutants to regulate as it does in determining which source categories to list for regulation, and, therefore, must make a pollutant-specific SCF. *Id.*

Requiring a pollutant-specific SCF necessitates the establishment of a clearer framework for assessing which air pollutants merit regulatory attention that will require sources to bear control costs. The establishment of such a framework or criteria promotes regulatory certainty for stakeholders and consistency in the EPA’s identification of which air pollutants to regulate and reduces the risk that air pollutants that do not merit regulation will nevertheless become subject to regulation due to an unduly vague standard.

As previously described, CAA section 111(b)(1)(B) requires the EPA to establish an NSPS for a source category listed under CAA section 111(b)(1)(A). For a source category previously listed under CAA section 111(b)(1)(A), in order to subsequently promulgate an NSPS for a pollutant that the EPA did not evaluate the source category for at the time of listing, the EPA must make a pollutant-specific SCF for the reasons described above. As part of making an SCF, the EPA concluded in the 2020 Oil and Gas Policy Rule that, “a standard or an established set of a criteria, or perhaps both, are necessary to identify what is significant and what is not.” 85 FR 57039. The EPA did not finalize or take a position in the 2020 Oil and Gas Policy Rule on potential criteria, stating that it was deferring the identification of such criteria to a future rulemaking. *Id.* CAA section 111(b) itself does not specify what the criteria for a pollutant-specific SCF.

The “contributes significantly” provision in CAA section 111(b)(1)(A) is ambiguous as to what level of contribution is considered to be significant. *See* 84 FR 50267 and 50268, September 24, 2019 (citing *EPA v. EME Homer City Generation, L.P.*, 572 U.S. 489 (2014) (holding that a similar provision in CAA section 110(a)(2)(D)(i), often termed the “good neighbor” provision, is ambiguous)). Accordingly, the EPA has authority to interpret that provision. *Id.* at 50268. As noted above, the EPA reads CAA section 111(b)(1)(B) in light of CAA sections 111(b)(1)(A) and 111(a)(1) to incorporate the “contributes significantly” standard in connection with promulgating NSPS for particular air pollutants. The EPA has concluded that to allow the EPA to distinguish between a *contribution* and a *significant contribution* to dangerous pollution, some type of (reasonably explained and intelligible) standard and/or established set of criteria that can be consistently applied is necessary.

A supporting basis for this conclusion can be found by looking at the EPA’s interpretation of the similarly worded “contribute significantly” provisions of CAA section 189(e), concerning major stationary sources of particulate matter with a diameter of 10 micrometers or less (PM₁₀). This provision requires that the control requirements applicable to

major stationary sources of PM₁₀ also apply to major stationary sources of PM₁₀ precursors “except where the Administrator determines that such sources [of precursors] do not contribute significantly to PM₁₀ levels which exceed the standard in the area.” As the EPA noted in the 2019 Oil and Gas Policy Rule proposal, in CAA section 189(e), Congress intended that, in order to be subject to regulation, the emissions must have a greater impact than a simple contribution not characterized as a significant contribution. However, Congress did not quantify how much greater. Therefore, the EPA developed criteria for identifying whether the impact of a particular precursor would “contribute significantly” to a NAAQS exceedance. 84 FR 50268. These criteria included numerical thresholds. *Id.* The EPA concluded similarly that, under CAA section 111(b), a standard or an established set of a criteria, or perhaps both, are necessary to identify what is significant and what is not.

These criteria help ensure that the EPA’s decision-making is well-reasoned and consistent. The EPA considers it particularly important to develop a set of criteria and/or a standard in order to determine when a *significant* contribution occurs, in order, as noted above, to distinguish it from a simple contribution. A contribution can be greater or lesser and remain a contribution, but a significant contribution determination necessarily involves a judgment about the degree of the contribution that rises to the level of significance. For such a judgment to be meaningful (and, of critical importance, to be understood by regulated parties and by the public), the Agency must identify the criteria it will use to determine significance.

2. Other Comments Received on the EPA’s Basis for Regulating GHG Emissions from EGUs

Comment: Commenters stated that the EPA must make the specific pollutant findings of endangerment and significant contribution that are required in listing a source category in order to establish a NSPS for that pollutant. Commenters stated they are not arguing that the EPA could not or should not make these findings. Rather, that the Clean Air Act (CAA) requires the EPA to make two specific findings: (i) the specific “air pollution” to be regulated is “reasonably ... anticipated to endanger public health or welfare”; and (ii) the specific source category “causes

or contributes significantly to” that endangering air pollution. CAA section 111(b)(1)(A). The commenters said section 111(b)(1)(A) is not ambiguous at all in this respect, and therefore the Agency’s interpretation in the 2015 Rule directly contradicts the plain language of this section. Additionally, they said that in the 2009 Endangerment Finding, the EPA specifically defined air pollution, as referred to in section 202(a) of the CAA, to be the mix of six long-lived and directly emitted GHGs: CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ (74 FR 66497, December 15, 2009). They commented that the EPA did not make a separate finding then, or now, that CO₂ alone is a danger to the public health or welfare and the EPA has argued that because CO₂ is the “dominant anthropogenic GHG,” it is not required to “make an endangerment finding with respect to a particular pollutant.” (*Id.*) They argued that this view does not satisfy the statutory standard and said the GHG endangerment determination in section 111(b)(1)(A) is fundamentally different than that in section 202(a) and other CAA sections, in part because it: (i) is source-category based; and (ii) requires a finding of significance.

These commenters stated that in the 2015 Rule, the EPA made three arguments as to why it believed it had met its statutory obligations. The commenters stated that none of these arguments are correct as a legal matter for the following primary reasons: (1) the EPA was wrong in claiming that new CO₂-specific findings were unnecessary, as the 2015 Rule was for a new category of electric utility generating unit (EGUs) emitting CO₂—a specific pollutant for which an endangerment finding had not been made. EPA’s prior listings of “steam generators” and “stationary gas turbines” covered only emissions of NO_x, SO₂, and particulate matter. Because EPA’s findings in earlier listings addressed different pollutants, those listings triggered and authorized only regulation of NO_x, SO₂, and particulate matter. *Cf. Nat’l Asphalt Pavement Ass’n v. Train*, 539 F.2d 775 (D.C. Cir. 1976). EPA has asserted the authority to regulate under section 111 any pollutant for which EPA believes it has a “rational basis” to regulate (see 83 FR 65432; 80 FR 64530). But this “rational basis” standard is not the one authorized by section 111; the endangerment and significant contribution standard governs section 111 regulation. EPA

cannot rewrite the statute to circumvent the endangerment and significant contribution standard that Congress prescribed for section 111 regulation.; (2) the EPA cannot rely on its 2009 finding regarding GHG emissions from automobiles which determined that “six well-mixed GHGs” in the “aggregate” endanger public health or welfare, as this “combined mix” is different air pollutant than the single pollutant controlled here (CO₂ alone). EPA has never found that CO₂ alone endangers public health or welfare, much less that CO₂ from fossil fuel-fired steam generating units (as opposed to motor vehicles) has that effect; and (3) the EPA’s attempt to rely on “information and conclusions” contained in the 2015 Rule does not satisfy the CAA. Simply identifying the evidence that might support a finding is not the same as completing the administrative process of distilling and analyzing that data in the context of the Agency’s statutory obligations and its failure to make the requisite findings of endangerment and significant contribution in the 2015 Rule violated the CAA. They said the CAA grants the EPA narrowly bounded authority to regulate stationary sources that emit pollutants that may reasonably be anticipated to endanger public health or welfare *for those pollutants* which led to the endangerment finding and to which the source category significantly contributes. The CAA does not grant the Agency unlimited authority to regulate any pollutant emitted by that source. Accordingly, before the EPA finalizes the 2018 Proposal, it must make a specific and supportable finding that CO₂ emissions from fossil fuel-fired EGUs pose a danger to public health and welfare. They said the EPA should reject its ill-founded “rational basis test” for imposing performance standards without endangerment and contribution findings. The Agency’s rational basis test is not in the CAA. They argued that section 111 never uses the term and the case law on which the EPA relied for this test addresses agency authority under a different statute, the Administrative Procedure Act (APA). The APA does not define the scope of the EPA’s authority to undertake this rulemaking.

Commenters added that as a textual matter, the endangerment requirement modifies, and relates back to, “air pollution,” not “sources”: The provision requires the EPA to determine

whether a source causes or contributes significantly to “air pollution which may reasonably be anticipated to endanger public health or welfare.” 42 United States Code (U.S.C.) section 7411(b)(1)(A). Only after the EPA determines that a pollutant poses a threat to “public health or welfare” must it inquire whether the particular category of sources “contributes significantly” to that pollution. *Id.* The idea that an endangerment finding is “one and done” on a source level also cannot be squared with the surrounding statutory requirements. Section 111(b)(1)(B) provides that the EPA may issue performance standards after a source category is listed pursuant to section 111(b)(1)(A). *Id.* section 7411(b)(1)(B). Yet by definition, a “standard of performance” is tied to specific pollutants for which an endangerment finding has been made. *Id.* section 7411(a)(1) (defining a “standard of performance” as “a standard for emissions of air pollutants). Commenters said that as such, the approach in the 2015 Rule would give the EPA unfettered authority to regulate any air pollutant emitted by a source regardless of whether it endangers health or welfare and the 2015 Rule’s approach of mixing and matching elements of endangerment findings would allow the EPA to impose stringent regulations on sources that do not “contribute significantly” to emissions of a pollutant. In summary, the commenters argued that if the EPA “retain[s]” the “statutory interpretation” of section 111 as set out in the 2015 Rule, 83 FR 65432 n. 25, it will once again be setting standards beyond the scope of its authority and it may be that the EPA can make the findings section 111(b)(1)(A) requires for CO₂ emissions from fossil-fuel-fired electricity generating units, but unless and until the EPA makes those determinations under the proper legal standard, the Proposed Rule will rest on a flawed foundation.

Commenters stated that the previous endangerment findings the EPA listed in the 2015 Rule did not relate to “fossil fuel-fired electricity generating units.” (80 FR 64527 nn.86 & 87). Rather, one related to “steam generators,” (36 FR 5931, March 31, 1971, -cited at 80 FR 64527 n.86), and the other to “stationary gas turbines,” (42 FR 53657. October 3, 1977, - cited at 80 FR 64527 n.87). The commenters stated that this failing should prevent the EPA’s ability to move

forward with proposed regulation because the Agency has not issued the required endangerment finding for the specific source category, it becomes irrelevant whether it may rely on that (nonexistent) finding to justify setting standards of performance for different emissions from sources in the category.

Commenters stated that in the 2016 subpart OOOOa rulemaking, the EPA established NSPS for CH₄ without making an endangerment finding for CH₄ emissions from oil and gas sources. Commenters and other industry groups filed comments pointing out the EPA's omission in failing to make a section 111(b) endangerment finding for the new pollutant subject to regulation under NSPS. By imposing NSPS requirements for a new pollutant without first establishing that that pollutant "may reasonably be anticipated to endanger public health or welfare" (*i.e.*, making an endangerment finding), commenters urged the EPA to reject and withdraw the interpretation that the EPA may skip the endangerment finding step in this context. The commenters further urged the EPA to clarify that a statutory prerequisite for regulation of a new pollutant under the NSPS program is an endangerment finding for that particular pollutant. Finally, and as a separate matter, the commenters urged the EPA to revisit the legal underpinnings for the subpart OOOOa standards as the commenters asserted the EPA did not follow the statutory prerequisites for the adoption of such standards. According to the commenters, those standards are illegal as being outside of the agency's authority, and as such should now be withdrawn.

Other commenters stated that the EPA's previous approach in the 2015 Rule to determining that it has a rational basis to regulate GHGs emitted by this source category is sound. The Agency has correctly not reopened this approach, nor has it proposed any alternatives to it. They said in the context of section 111, the endangerment finding is made with respect to the source category, and not as to specific pollutants (80 FR 64530). It would be unlawful for the Agency to finalize any alternative approach. In 2015, the EPA concluded that it possesses authority to regulate GHG emissions from fossil fuel-fired EGUs under section 111 for two

reasons: (1) there was no new evidence calling into question its determination that “GHG air pollution may reasonably be anticipated to endanger public health and welfare”; and (2) fossil fuel-fired EGUs have a “high level of GHG emissions.” These considerations hew closely to the statutory factors that inform the decision whether to list a source category in the first place—namely, whether the category “causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.” In fact, in 2015 the Agency confirmed that, even if it were required to issue endangerment and significant contribution findings under this provision in order to regulate GHGs emitted by EGUs, the same information that underpinned its rational basis conclusion would support such findings (80 FR 64530). This approach, which closely parallels the listing analysis but does not require formal endangerment or cause-or-contribute findings, is legally sound. The statute is clear that a formal endangerment finding is required to initially list a sector to be regulated under section 111—and is also clear that such a finding is not required before regulating additional harmful pollutants from a previously-listed sector. Because Congress did not provide specific criteria for regulating additional pollutants from a source category that is already listed under section 111, it is reasonable to look to the statutory factors that trigger regulation initially when deciding whether to require reductions of other pollutants. They said the statutory factors for listing a source category—the endangerment and cause-or-contribute findings—provide a floor for when EPA *must* regulate an additional pollutant from a listed source category under the rational basis inquiry. It would be irrational to fail to regulate an additional pollutant simply because a source category was already listed, if the same evidence regarding that pollutant would have triggered a formal listing of that source category had the source category not previously been listed. Thus, it would be arbitrary for the agency to decline to regulate a pollutant on the basis of considerations wholly unrelated to the harms that pollutant poses or the quantities in which it is emitted from a particular source category.

Other commenters also stated that any effort to reverse the EPA's decision to regulate CO₂ from power plants would require, among other things, that the EPA fully contend with each step of the statutory and legal analysis of section 111 it undertook in the 2015 Rule, and explain why each of them has become invalid. They said promulgating a final rule contrary to the 2015 Rule without the requisite record-based, factual analysis and reasoned explanation would yield "an unexplained inconsistency in agency policy" that is arbitrary, capricious, and unlawful. Commenters stated that while the most comprehensive approach to sensible GHG regulation remains through congressional action, and while the CAA is far from the perfect tool for regulating GHGs, it is preferable to protracted legal battles and to the potential patchwork of judicial and regulatory outcomes. As a result, the Agency should retain the existing endangerment finding. They said that if the EPA fails to regulate GHG emissions from new coal-fired EGUs it would be wholly unreasonable and contrary to the endangerment finding.

Response: The EPA addressed the substance of these comments in a lengthy discussion in "Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review: Final Rule," 85 FR 57018, 57033-40, 57052-58 (September 14, 2020). That discussion is incorporated by reference here. That discussion further elaborates the rationale for EPA's determination that a pollutant-specific significant contribution determination is appropriate, and EPA's related determinations. That discussion also responds in full to the comments on the present rule.

It should be noted that in the 2015 Rule, EPA combined the steam generating source category and combustion turbine source category into a single source category for purposes of GHG emission regulation, 80 FR 64510, 64521-32 (October 23, 2015), and determined, in the alternative, that GHG emissions from the combined source category contribute significantly to dangerous air pollution. *Id.* at 64531. In today's rulemaking, the EPA is not revising the source category determination in the 2015 Rule and, by the same token, the significant contribution

finding that EPA is making in the present rulemaking for GHG emissions concerns emissions from the same, combined source category.

Comment: Commenters stated that if the Endangerment Finding is overturned, the electric power sector could be broadly exposed to tort and nuisance suits brought by citizens and states—as was the case prior to the EPA regulation of GHGs (*e.g.*, *American Electric Power Co. v. Connecticut*, 564 U.S. 610 (2011)). Accordingly, these efforts would create more uncertainty about the future of GHG regulations applicable to new EGUs—uncertainty that likely would not be resolved for years and could undermine any potential for generation owners and operators to consider new coal-based generation as a viable option. They said as a result, the Agency should retain the existing endangerment finding.

Response: The Agency has not proposed to overturn the existing Endangerment Finding and is not overturning it in this final rule.

Comment: Commenters stated that to the extent that emissions of CO₂ from new, modified, or reconstructed electric utility generating units are to be subjected by the EPA to regulation under the CAA, the proper path would be to regulate such emissions as part of a broader effort to regulate CO₂ emissions from “numerous or diverse” sources under sections 108-110 of the CAA. Alternatively, if the EPA is adamant in engaging in regulating such emissions under section 111(b), at the very least the EPA must complete a specific endangerment finding for CO₂ emissions from such facilities under the applicable criteria set forth in section 111(b), which the EPA has failed to do to date. Either way, commenters stated that the proposed rule amendment is beyond the legal authority of the CAA.

Response: EPA is making a pollutant-specific significant contribution finding in this action.

Comment: Commenters quoted the NSPS proposal as stating that “the Agency will consider comments on the correctness of the EPA’s interpretations and determinations, and whether there are alternative interpretations that may be permissible, either as a general matter or

specifically as applied to GHG emissions” (83 FR 65242, 65432 n.25). Commenters then stated that they filed a petition in 2017 contending that the EPA should commence a new rulemaking on the subject of the Agency’s 2009 endangerment finding. They provided the following arguments of the 2017 petition: 1) there had been no statistically significant atmospheric warming despite a continued increase in atmospheric CO₂ levels; 2) changes in global temperatures in recent decades were far from unusual; 3) new balloon and satellite data showed that the atmosphere was far less sensitive to CO₂ forcing than the climate models had predicted; and 4) there was mounting evidence that the EPA’s GHG rules would have no discernible climate impact. For these reasons, they said there was a need to reexamine both the three lines of evidence for the EPA’s endangerment finding as well as its underlying rationale. Regarding the proposal, the commenters stated that in addition to their still pending petition, they are providing new evidence for why the Agency should proceed with this petition and with similar petitions pending before it. They submitted references (titles, weblinks, and synopses) to nine research papers published since filing their initial petition which they argue add additional support. They stated that given the points and data outlined in this newer research, in addition to those set forth in their 2017 petition, the EPA should commence a new proceeding to reexamine its 2009 endangerment finding.

Response: The Agency is retaining the existing endangerment finding. The submitted material is out of scope for this rulemaking. With regards to the claim that EPA was soliciting comments on this subject, the footnote quoted by the commenters goes on to specifically outline examples of the kind of comments referred to: this further elaboration made clear that EPA was not soliciting comments on the science of climate change but rather regarding interpretation of statutory language and legal opinion as to whether the Agency would need to make an endangerment finding for previously listed source categories (“For example, the Agency will consider comments on the issue of whether it is correct to interpret the “endangerment finding” as a finding that is only made once for each source category at the time that the EPA lists the

source category or whether the EPA must make a new endangerment finding each time the Agency regulates an additional pollutant by an already-listed source category. Further, the EPA will consider comments on the issue of whether GHG emissions are different in salient respects from traditional emissions such that it would be appropriate to conduct a new “endangerment finding” with respect to GHG emissions from a previously listed source category. In addition, the EPA solicits comment on whether the Agency does have a rational basis for regulating CO₂ emissions from new coal-fired electric utility steam generating units and whether it would have a rational basis for declining to do so at this time” 83 FR 65242, 65432 n.25).

Comment: Commenters also said that the Agency suggestion in footnote 25 of the Proposal is unreasonable in that the Agency seems to presume that it might not be appropriate to regulate GHGs from new coal-fired power plants because the Agency projects that few such plants will be built in coming years. They said this approach asks the wrong question. The question should be whether there is a rational basis to regulate GHGs from power plants – not just new coal-fired plants. This is because, once new sources are regulated under section 111(b), the obligation to regulate existing sources under section 111(d) is triggered. If new sources in a source category could not be regulated under section 111(b), no sources in the category could be regulated. Commenters further stated that the EPA cannot reverse its position merely by asking for comments on whether it should adopt a new position diametrically opposed to both current law and the position it maintains in the Proposed Rule.

Commenters stated that using footnote 25 as a means of requesting public comment is misleading and violates administrative procedures. They said that it appears that the EPA is seeking rationale or justification to under the legal basis for this rule while claiming that is retaining its legal basis. The EPA cannot have it both ways: either EPA is using its legal basis, or it is looking for alternatives. If it is looking for alternatives, then EPA has not met its responsibilities under the Administrative Procedures Act for fair notice of the nature and scope of this rulemaking.

Commenters stated that in the endangerment finding footnote of the 2018 Proposal (83 FR 65432 n 25), the EPA suggests that it may consider whether it would have a rational basis to decline to regulate given that “no more than a few new coal-fired EGUs can be expected to be built.” The commenters said this suggestion is not legally or factually sound and does not provide a valid reason not to regulate GHGs from fossil fuel-fired EGUs under section 111. They said the statute is unambiguous: the EPA must consider pollution from both new and existing sources when deciding whether to regulate a pollutant within a source category. To the extent that the statute contains any ambiguity, a decision not to regulate based solely on projected levels of emissions from new sources would be disallowed as an impermissible construction. They argued that section 111(b) unambiguously expresses Congress’s concern with pollution emitted from a source category as a whole, not just new sources and 111(b) directs the Administrator to base decisions about whether to list a source category on an analysis of the entire category, including existing sources. Section 111(b)(1)(A) does not distinguish between “new” and “existing” sources but rather conveys Congress’s directive to address pollution across the source category.

The commenters also stated that Footnote 25 of the proposal raises the prospect that, on the question of regulating a pollutant from a listed source category, Congress inexplicably intended for the EPA to consider pollution from new sources only, irrespective of the harm caused by pollution from existing sources—and even though Congress directed the EPA to consider the air pollution from the sector as a whole, that plain language should be ignored. They said the Agency presents no support for this theory, which is contrary to both the clear terms and the evident objective of the statute. The commenters argued that Footnote 25’s suggested interpretation disregards statutory language in other ways as well. For example, section 111(b)(1) provides that the Administrator “shall include a category of sources in such list if in his judgment it *causes, or contributes significantly to*, air pollution which may reasonably be anticipated to endanger public health or welfare.” (42 U.S.C. section 7411(b)(1)(A)). Yet as of the date of

when the EPA determines to list a source category, there are no “new” sources in existence. Section 111(a)(2) provides: “The term “new source” means any stationary source, the construction or modification of which is commenced *after the publication of regulations (or, if earlier, proposed regulations) prescribing a standard of performance under this section* which will be applicable to such source.” (*Id.* section 7411(a)(2)). They said under section 111, listing *precedes* promulgation of standards. So, when the EPA decides whether to list a category, by definition it has not yet *proposed* section 111 standards for that category and because it has not proposed such standards, no sources qualify as “new” sources under section 111(a)(2). Basing a decision not to list (and therefore not to regulate) a source category solely on the absence of emissions from as yet nonexistent “new” sources—while ignoring sources that already exist and are emitting pollutants that threaten harm to public health and welfare—is not a tenable reading of the statutory language.

Response: In this rule, EPA takes the position that GHG emissions from new and existing EGUs contribute significantly to dangerous air pollution. While EPA proposed to retain the position that it stated in the 2015 Rule that a pollutant-specific significant contribution finding is not required, it solicited comment on whether such a finding is required, and that comment solicitation provided adequate notice.

Comment: Commenters stated that though the EPA notes that it is not proposing to revisit its 2009 endangerment finding for greenhouse gases, the proposed NSPS revisions request comment on whether recent and projected power sector trends present a rational basis to decline to regulate CO₂ emissions from the power sector. The suggested comment area, presented in footnote 25, cites power sector trend projections from the Energy Information Administration’s (EIA’s) 2018 Annual Energy Outlook and findings from the EPA’s proposed Affordable Clean Energy (ACE) rule as potential support for this position. Commenters also stated that the EIA’s 2018 Annual Energy Outlook does not indicate that power sector CO₂ emissions will decline significantly in the future. Instead, the estimates referenced by the EPA in the proposal project

that CO₂ emissions from the power sector will remain the single largest sector-based source of CO₂ emissions over the long term, totaling 1.72 billion tons in 2020, 1.71 billion tons in 2030, and 1.78 billion tons in 2050. Commenters said though the EPA found that the transportation sector overtook the power sector as the largest sector-based source of GHG emissions in 2017, the 2018 Annual Energy Outlook projects that power sector emissions will regain the top ranking in 2026 and maintain a lead over the transportation sector by growing modestly through 2050. Commenters stated while newer EIA projections that were unavailable at the time of the EPA's proposal indicate slightly lower power sector CO₂ emissions, EIA still projects significant and sustained power sector GHG emissions through 2050, not a steady decline. Commenters said a report from the Rhodium Group based on preliminary EIA data for 2018 and released a few weeks after the EPA's proposal estimates that power sector-related GHG emissions increased 3.4 percent in 2018, breaking a three-year trend of decreases. Commenters added still more recent EPA data reveals the same pattern. Commenters stated preliminary 2018 emissions data compiled by EPA's Clean Air Markets Division (CAMD), also released after the proposed NSPS revisions were published in the *Federal Register*, show power sector CO₂ emissions rising from 1.92 billion tons in 2017 to 1.93 billion tons in 2018. Commenters said prior to the 2018 release, EPA's CAMD data had shown flat or declining CO₂ emissions for every year since 2013.

Commenters stated it would be unlawful and arbitrary for the EPA to use declining power sector emissions as reason for not regulating. They argued that even if power sector emissions are declining—which is not at all clear—they are far higher than levels necessary to keep CO₂ concentrations from rising further, let alone to achieve the necessary net-zero balance. CO₂ pollution accumulates in the atmosphere, where it lingers for centuries, such that a year-to-year decline in emissions does not prevent atmospheric concentrations from continuing to rise, exacerbating the impacts of climate change. “[T]he urgency of reducing emissions now,” (80 FR 64520) which the EPA acknowledged in the 2015 Rule, has only increased in recent years. Commenters said reliance on recent emission trends is even more unfounded because U.S.

climate pollution significantly increased in 2018, including a 1.9 percent increase in power sector carbon pollution. Even before the 2018 data were available, U.S. Energy Information Administration (EIA) had recognized long-term market and economic uncertainty, which could potentially drive some shift back to coal generation. EIA projections now show that the general trend toward declining carbon pollution from the power sector is likely to flatten out in the early 2020s. Commenters stated standards that even if pollution levels were declining more steadily, that would not authorize the EPA to ignore its obligation to protect the public from what will continue to be a major threat to public health and the environment. The CAA is not concerned merely with whether pollution levels are currently below their historic peak. To the contrary, the Agency must ensure that pollution is controlled to the degree the statute requires—*i.e.*, in accordance with a standard of performance that reflects the best system of emission reduction (BSER) (42 U.S.C. section 7411(a)(1)).

The commenters also said that there may be other reasons why a developer would be willing to pay a premium to build a new coal-fired plant that the models do not consider (80 FR 64559-64562). Thus, it is unreasonable not to establish standards of performance on the assumption that coal-fired power plants will never again be built (or modified). They said that the Agency does not even consider the fact that the source category includes not only new sources but also existing sources that undergo certain “modifications,” and that such modified sources have significant CO₂ emissions.

Commenters said that by asking whether the Agency has a rational basis for regulating CO₂ emissions from new coal-fired EGUs “in light of” the projections cited in footnote 25, the EPA is setting itself up to conduct continual market evaluations for all the EPA regulations for which regulation is premised on a similar type of prerequisite determination. An interpretation of section 111 that leads to that result is unreasonable and impractical. They said that there is no indication in the CAA that Congress intended the Agency to undertake a continual market assessment of this nature.

Commenters stated that the endangerment finding footnote of the 2018 Proposal (83 FR 65432 footnote 25) contains a fatal factual deficiency in that it suggests that the rational basis finding might be reversed because “no more than a few new coal-fired EGUs can be expected to be built, which raises questions about whether new coal-fired EGUs contribute significantly to atmospheric CO₂ levels.” The commenters said that not only does this suggestion disregard the EPA’s 2015 acknowledgment that “the CO₂ emissions from even a single new coal-fired power plant may amount to millions of tons each year,” but it entirely ignores natural gas-fired power plants, which are also included in the source category. In making the 2015 determination, the EPA specifically observed that “the CO₂ emissions from even a single natural gas combined cycle (NGCC) unit may amount to one million or more tons per year.” They said natural gas-fired power plants continue to be built at a steady clip as evidenced by the first ten months of 2018 in which 14.9 gigawatts (GW) of natural gas-fired EGU capacity was added to the grid. New gas plants must be accounted for and by failing to do so, the Agency would forfeit any “rational connection between the facts found and the choice made,” and would fail to provide “a reasoned explanation . . . for disregarding facts and circumstances that underlay . . . the prior policy.” Each of those flaws would render the decision arbitrary and capricious. Commenters said that even if the EPA legally could regulate CO₂ emissions from new natural gas plants without regulating CO₂ emissions from new coal-fired power plants, the EPA should not do so because such partial regulation would provide an inadvertent subsidy to new coal-fired plants.

Response: In this rule, the EPA is determining that GHG emissions from EGUs contribute significantly to dangerous air pollution and is promulgating revised standards of performance for EGU GHG emissions. To the extent it is useful or necessary in this rulemaking for the EPA to further address whether long-term emission trends, or related considerations, are relevant for a significant contribution determination, the EPA does so elsewhere in this document.

C. Primary Criteria for Determining Significance

In this section, the EPA describes criteria for determining when GHG emissions from a source category contribute significantly to dangerous air pollution in response to comments submitted on this rule. The EPA indicated in the 2020 Oil and Gas Policy Rule that it would finalize these criteria in a separate rulemaking. 85 FR 57039.

1. GHG Emissions

The criteria discussed herein only apply to GHG in the context of the EPA's SCF under CAA section 111(b)(1)(B). This action does not discuss criteria for pollutants other than GHGs. Under this framework, the EPA is determining that the quantity of GHG emissions from a source category is the primary criterion in determining significance for purposes of regulation of GHGs from a source category under CAA section 111(b). Gross GHG emissions are important for this set of pollutants because GHGs are global long-lived pollutants and do not have the local, near-term ramifications found with other pollutants (*e.g.*, criteria pollutants). Unlike other pollutants where both the location and quantity of pollution emissions are factors in determining the impact of the emissions, GHGs' impact (*i.e.*, climate change) is based on a cumulative global loading and the location of emissions is not nearly as important a factor as it is for assessing local, near-term impacts associated with criteria pollutants. It is for this reason that, when the EPA is assessing GHGs impact in contributing significantly to air pollution which may reasonably be anticipated to endanger public health and welfare, the quantity of emissions should be the primary criterion that the EPA should evaluate.

The GHG emissions are the best, but not necessarily only, indicator of significance because the quantity of emissions emitted from a source category correlates directly with impacts. Calculations using the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC model) to investigate the impact of including or eliminating a single sector's emissions from 2020 through 2100 have shown that the magnitude of emissions from that single sector is very close to being linearly related to the projected temperature change in 2100 resulting from eliminating that sector's emissions. This is consistent with the results of a number

of peer reviewed publications in the past decade: *e.g.*, Matthews *et al.* found that the temperature change is roughly proportional to the total quantity of CO₂ emissions over a wide range of potential scenarios.⁸

A threshold of GHG emissions from the source category compared to the rest of the U.S. GHG emissions (*i.e.*, the percent of total U.S. GHG emissions) can be used to demonstrate significance. Emissions can be large enough from a source category that the evaluation of GHG emissions in isolation is sufficient for making a finding of significance for the source category. Conversely, the EPA believes that some source categories are sufficiently small in GHG emissions that a finding of insignificance can be made by only evaluating the GHG emissions from the source category. For many source categories, the evaluation of GHG emissions alone will be sufficient for determining whether there is significant contribution.

It should be noted that under section 111(b)(1)(A), the EPA is required to make a significance finding on a category-by-category basis. That provision requires the Administrator to list “a category of sources” for regulation if he determines that “*it* causes or contributes significantly to” dangerous air pollution. Section 111(b)(1)(A) (*emphasis. added*). As a result, the text of 111(b)(1)(A) compels or is at least best read to require the EPA to make the significance determination for a particular source category on the basis of the emissions (or other relevant attributes) of that particular source category. In contrast, the EPA may not combine source categories that individually would not meet the significance criteria and determine that, when combined, the source categories do meet the significance criteria.⁹

2. Using a Threshold in Significance Determination

⁸ H. Damon Matthews, Nathan P. Gillett, Peter A. Stott & Kirsten Zickfeld, The Proportionality of Global Warming to Cumulative Carbon Emissions. *Nature* 459, 829-832 (2009), available at <https://www.nature.com/articles/nature08047>.

⁹ By the same token, as the EPA explained in the 2020 Oil & Gas Rule, there are limits to the EPA’s ability to expand a source category to include other sources. As the EPA stated in that rule, “the authority to revise the scope of a source category must be exercised within reasonable boundaries and cannot be employed in a way that results in an unreasonable expansion of an existing source category.... [T]he EPA is not authorized to expand the scope of a listed source category to cover a new set of sources that are not sufficiently related to the sources in the pre-existing category....” 85 FR 57027.

Under this framework, the EPA is determining a threshold for the evaluation of significance of GHG emissions from source categories. The use of a clear threshold provides certainty regarding the EPA's process and allows the regulated entities to have insight into how the EPA will make determinations on significance for their respective source category. The threshold introduced in this rulemaking is a reflection of the EPA's best understanding of the landscape of the U.S. GHG emissions from stationary sources. The EPA is introducing a methodology to evaluate significance with respect to the U.S. GHG emissions that can be applied for any source category, and that application of the methodology is only being directly applied to the EGU source category in this action as further introduction of this approach. It is important to note that a significance determination for the U.S. GHG emissions will be needed before the EPA may regulate any other source category under CAA section 111(b) for GHG emissions.

As Table 1, below, makes clear, there are at least two natural breakpoints between groups of emitting source categories. The first natural breakpoint is between EGUs and all other source categories. EGUs stand out as by far the largest stationary source of the U.S. GHG emissions, emitting over 25 percent of all the U.S. GHG emissions. Based on available data, the next largest source category, Oil and Natural Gas, emits just under 3 percent of U.S. GHG emissions. Two other source categories, Boilers and Petroleum Refineries, also fall between 2.5 percent and 3.0 percent of U.S. emissions. Between 1.5 percent and 2.5 percent of U.S. GHG emissions there is another natural breakpoint and all of the remaining source categories fall below 1.5 percent of the U.S. GHG emissions. Note that source category emissions in Table 1 are an estimate of what the Agency currently understands about the emissions from CAA section 111 source categories. If the EPA were to do a rulemaking and a significance determination for a specific source category, the EPA would do a thorough analysis of the available and attributable GHG emissions data to ensure appropriate determinations and assessments.

**TABLE 1. EXAMINATION OF GHG EMISSIONS FROM LARGE STATIONARY
SOURCES OF GHG EMISSIONS**

% of Total US GHG Emissions	Emissions in that Range (MMT CO ₂ e)*	Source Categories Affected at Different Thresholds	Percent of US GHG Emissions from Stationary Sources Covered at Given Threshold
Above 25%	>1670 MMT	EGUs (1778 MMT/27% of total US GHG Emissions, 3.6% of Global emissions)	43%
3% to 25%	200 MMT-1670 MMT	No categories identified	43%
2.5% to 3.0%	167-200 MMT	Oil/Gas Production and Processing [^] ; Refineries; Boilers	56%
2.0% to 2.5%	134-167 MMT	No categories identified	56%
1.5% to 2.0%	100-134 MMT	No categories identified	56%
1.0% to 1.5%	67-100 MMT	Landfills [†] ; Iron and Steel	60%

* MMT CO₂e = Million metric tons of carbon dioxide equivalent

[^] Note that the oil and gas production and processing GHG emissions are very close to the 3% value and thus there is a possibility that this source category may be above the threshold in the near term.

[†] Note that the Landfills source category has already been regulated under CAA section 111 and the level of the emissions in Table 1. reflects reductions in GHG emissions as a result of that regulation as a co-benefit.

The EPA is introducing a threshold of 3 percent of U.S. GHG emissions to evaluate a source category's emissions to determine significance for purposes of CAA section 111(b). The EPA is also determining that source categories that are less than this value (*i.e.*, 3 percent or less) are necessarily insignificant without consideration of any other factors. The reasoning for choosing this threshold is presented later in this document.

The EPA acknowledges that, when interpreting other CAA provisions, the EPA has used different thresholds to define "significant contribution," but it is appropriate to select a threshold based on the nature of the problem being addressed. For example, to address the problem of interstate transport under CAA section 111(a)(2)(D)(i)(I) -- which concerns criteria pollutants, *i.e.*, pollutants that affect the NAAQS -- the EPA selected a threshold of 1 percent based on analysis of air quality modeling specific to the criteria pollutant at issue. 76 FR 48208, 48236 (August 8, 2011) (Cross-State Air Pollution Rule (CSAPR)). For criteria pollutants, both the location and quantity of emissions are factors in determining their impact. In contrast, the impact of GHGs (*e.g.*, climate change) is based on a cumulative global loading, and the location of

emissions is not nearly as important a factor as it is for assessing local impacts associated with criteria pollutants. Because GHGs do not have the local near-term impacts that criteria pollutants tend to have, a larger value is appropriate to use in determining significance as it still addresses the health and welfare impacts of GHG emissions without specifically evaluating local near-term impacts, which is analytically unreasonable to do given the global nature of GHGs. While the 3 percent threshold will be applied against domestic emissions, source categories exceeding that threshold represent a much smaller fraction of global GHG emissions.¹⁰

By determining a threshold, the EPA is setting a clear indication of how source categories will be evaluated for significance based on GHG emissions. For those source categories that are below the 3 percent threshold, the EPA would make a determination (through future rulemaking) of insignificance. This means that if a source category collectively emits 3 percent or less of the total U.S. GHG emissions, it will be considered to be insignificant. For those source categories that are above the threshold, a more detailed evaluation of other criteria can be used to make a determination of significance. This is described in section IV.D below. It is important for the EPA to make this clear indication as it allows source categories and the general public a level of transparency as to how the EPA will be evaluating source categories for significance. The threshold in this action will provide a degree of certainty regarding whether a source category will later be found significant or insignificant based on the threshold.¹¹

After evaluating the two natural break points in GHG emissions, the EPA determined that 3 percent of the U.S. GHG emissions was the best threshold for determining significance. As noted above, there is currently only one source category above this threshold, EGUs, and the

¹⁰ The EPA recognizes that in the 2016 Oil & Gas Rule, it determined that GHG emissions from the oil and natural gas source category contribute significantly to dangerous air pollution, in part, on the grounds that those emissions exceeded the total amount of emissions from various foreign countries. 81 FR 35824, 35840 (June 3, 2016). The EPA believes that its current approach of identifying a threshold for significance based on a percentage of U.S. emissions is better reasoned than the 2016 Oil & Gas Rule's approach of drawing comparisons to the absolute emissions of other countries.

¹¹ The EPA does not currently have a comprehensive inventory of the U.S. GHG emissions for all of the NSPS source categories. For the EPA to make determinations of significance for a source category, a more comprehensive emissions profile of a source category should be used. The EPA will make determinations of significance for other source categories in the future.

evaluation of significance for the EGU source category has been a topic explored and discussed by the Agency in great detail over the course of the last decade.¹² Just below the 3 percent threshold are three source categories: Oil and Natural Gas, Petroleum Refineries, and Industrial-Commercial-Institutional Steam Generating Units (*i.e.*, “Boilers”). There are no other source categories with GHG emissions between 1.5 percent and the 3 percent. By using a threshold of 3 percent of the U.S. GHG emissions (*i.e.*, only including EGUs above the threshold), the EPA will effectively be covering 43 percent of the U.S. stationary source GHG emissions via regulation of a single source category. If the EPA were to instead set a threshold between the other identified breakpoint – between 1.5 percent and 2.5 percent of U.S. GHG emissions – the EPA observes that this threshold would lead to a relatively modest increase in the stationary source U.S. GHG emissions that would be regulated of an additional 13 percent (for a total of 56 percent of U.S. stationary source GHG emissions).¹³ In addition, regulation of the additional source categories that comprise 13 percent of U.S. emissions would eliminate only a portion of those emissions. With an even lower threshold of significance set at 1.0 percent of U.S. GHG emissions, there would be significantly more source categories covered (about 10 based on the EPA estimates) above the threshold but likely would include an even more modest increase in stationary source GHGs that would cover 60 percent of U.S. stationary source GHGs. Under this framework, the EPA is basing a decision to apply a threshold of 3 percent on the relative contribution of regulating source categories that contribute significantly to the overall impact of climate change. To that end, the temperature impact associated with the hypothetical elimination of all source categories above a 3 percent threshold corresponds to a hypothetical global mean temperature reduction of 0.049 degrees Celsius (°C) (approximately 0.1 degree Fahrenheit, the calculated effect in 2100 of removing 1,780 million metric tons (MMT) of CO₂ emissions each

¹² See 79 FR 34960 and 80 FR 64510.

¹³ Note that one of those “next three largest” source categories is oil and natural gas. In the recently finalized policy package, the EPA found that regulation of GHGs from this source category is unnecessary as it is currently being controlled by regulation of volatile organic compounds. See 85 FR 57018, 57030 (September 14, 2020).

year from 2020 through 2100) from source categories above that threshold (*i.e.*, just EGUs). Eliminating the next largest source category (*i.e.*, Oil and Gas Processing and Production) would only generate an additional hypothetical global mean temperature reduction of less than 0.01°C and even smaller source categories correspondingly contribute less to global temperature. The EPA is making the decision that the threshold for a significance determination for U.S. GHG emissions to be in the form of a percentage. A percentage is a metric that measures the relative contribution to the whole and, in this action, the EPA believes that it is appropriate to measure and evaluate significant contribution of U.S. GHG emissions as a relative contribution to the whole of GHG emissions in the U.S. The EPA is determining that a threshold in the form of a percentage is both reasonable and more appropriate for making the significance determination in this rule based on a percent's relative nature. This is important because the trajectory of U.S. GHG emissions is trending down. As overall emissions decrease over the course of time, a source category's relative contribution to GHGs may not have changed or may have even increased based on GHG reductions in other source categories and sectors. A relative percentage threshold recognizes that the EPA may later determine a source category is significant based on these circumstances, because a source category's emissions may eventually exceed the threshold even though it is currently below the threshold. Accordingly, a percentage threshold allows the EPA, over time, to always focus on the source categories with the potential to have the greatest impact. The framework on which EPA bases its decision today is, therefore, amenable to future use, which augurs in favor of the framework's use to make today's finding.

The EPA is introducing in this action that a threshold in the form of a percentage is both reasonable and more appropriate for making a significance determination for GHGs based on a percent's relative nature. A tonnage threshold is a static metric that would not change over time. As previously described, the trajectory of U.S. GHG emissions is trending down. As emissions decrease over the course of time, it is likely that source categories that were once above any static threshold will fall below such a threshold. Even though a source category may reduce

overall U.S. GHG emissions, that source category's relative contribution to GHGs may not have changed or may have even increased based on GHG reductions in other source categories and sectors. Additionally, if emissions do decrease over time, the use of a tonnage threshold potentially results in no source category meeting the criteria for significance, even if collectively the U.S. GHG emissions continue to pose a danger to public health or welfare.

It should be noted that the U.S. GHG emissions of the EGU source category are more than an order of magnitude larger than the emissions threshold in the framework, representing 43 percent of U.S. stationary source GHG emissions. The EPA believes that it is possible for source categories with GHG emissions substantially larger than the threshold to be deemed significant on the basis of the primary criterion alone (*i.e.*, magnitude of emissions) and without consideration of the secondary criteria described elsewhere in this notice.

3. Tiers of Source Categories Based on GHG Emissions

As noted previously, the primary criterion in evaluating the significance of a source category is, again, the relative magnitude of the U.S. GHG emissions. The EPA believes that NSPS source categories may be grouped into three tiers on the basis of magnitude of the U.S. GHG emissions, as follows:

(1) *Source category with GHG emissions substantially above the threshold.* This

source category has emissions of a large enough magnitude that a determination of significance can be made on the basis of the magnitude of emissions alone. As discussed later in this document, this tier is comprised solely of the EGUs source category; in other words, EGUs do not require consideration of the secondary criteria in order to determine significance.

(2) *Source categories with an intermediate magnitude of the U.S. GHG emissions*

(i.e., those with emissions above the threshold but less than the quantity emitted by the EGU source category). For source categories with emissions above the threshold, evaluation of the magnitude of the U.S. GHG emissions

is inconclusive. Rather, a significance determination requires an examination of the source category's magnitude of emissions combined with a more detailed look at the secondary criteria discussed elsewhere in this document.

(3) *Source categories with a small magnitude of GHG emissions (i.e., those with emissions below the threshold).* Source categories with a small magnitude of emissions will be deemed insignificant based on evaluation of the primary criterion alone, without detailed consideration of any secondary criteria.

D. Secondary Criteria for Determining Significance

As described above, the EPA is determining that the U.S. GHG emissions from a source category are the primary and most important criterion for making a determination of significance for a source category. However, there may be instances where the U.S. GHG emissions from a source category do not give a comprehensive enough picture to make a determination of significance. The threshold that the EPA has described above in Section IV.B would provide a clear indication that the U.S. GHG emissions from source categories below that threshold are necessarily insignificant. However, under this framework, for any source category that is above that threshold, there are other source-category specific considerations that should be evaluated in addition to GHG emissions when making a determination of significance.¹⁴ For that reason, the EPA will consider other, secondary, criteria in the evaluation of significance for certain source categories. These other criteria are described in the subsequent subsections. It is important for the EPA to consider secondary criteria in the evaluation of significance for certain source categories because the criteria provide unique context to the source category beyond the information provided by the magnitude of the source category's GHG emissions.

¹⁴ Although there is no source category other than EGUs above the 3% threshold, because the threshold is a percentage and as previously described, other source categories may move into this tier as overall GHG emissions decrease and other source category emissions increase.

1. Evaluation and Context of GHG Emissions

Under the introduced framework, the evaluation of the magnitude of the U.S. GHG emissions from a source category is a substantial indicator of whether a source category is significant, but in the specific instance of source categories that have greater GHG emissions than the threshold, an evaluation based on the magnitude of the U.S. GHG emissions may be inconclusive. Within the introduced framework, there are other emissions-based metrics that must be evaluated to clarify and make a significance determination for these source categories.

a. *Source Category Trends*

An important criterion that can help illuminate and contextualize a significance determination is an evaluation of the trends in emissions and number of designated facilities within a source category. Primarily, the EPA is evaluating whether a source category is on a trajectory of the U.S. GHG emission decline. If the source category, as a whole, is decreasing its GHG emissions, an explanation for why it is on the decline may aid in making a significance determination. In one scenario, if the source category is decreasing emissions because the source category is declining in production or other output (*e.g.*, due to decreasing demand for goods or other market conditions, due to relocation overseas, or due to the cumulative effect of regulations), it may lend towards an insignificance determination as the emissions are already declining and expected to continue to decline even without further regulation. In a separate scenario, if a source category's GHG emissions are declining due to increased efficiency and updated technology, it may lend towards a determination of significance. This would allow the EPA the ability to regulate the source category in order to ensure that efficiency and technology improvements become standard across the source category through both an NSPS (111(b) regulation) for new, modified and reconstructed sources and an emission guidelines (111(d) regulation) for existing sources.

In a scenario in which the EPA were to find a source category to be growing in either emissions or number of designated facilities (or both), it could lend towards that source category

being found to be significant. This would allow EPA to regulate and mitigate emissions from new, modified and/or reconstructed designated facilities within that source category under CAA section 111(b) (*i.e.*, via a NSPS).

If the EPA were to evaluate the trend in the number of designated facilities and emissions of a source category, it might show a static number of existing facilities with a constant or slightly increasing quantity of the U.S. GHG emissions. In this scenario, there may be little utility in determining significance for that source category and consequentially developing a NSPS as there are little to no emissions that would be subject to such a standard. However, creating a NSPS for a source category and pollutant is a necessary predicate to regulating existing sources under CAA section 111(d). Hence, in the scenario of a static number of existing facilities, a finding of significance for the source category may be warranted as it would allow eventual regulation of a group of existing source categories. Under this framework, the EPA expects the prospect of regulating a source category under CAA section 111(d) for existing sources to be a compelling reason for determining significance.

b. Source Category Emissions with Global Context

Another important criterion that the EPA considers, as a secondary factor, is the relative contribution of GHG emissions from the U.S. in a specific source category compared to worldwide emissions of similar sources. As previously described, Section 111(b)(1)(A) of the CAA states that the Administrator shall include source categories that contribute significantly to endangerment of health and welfare. When evaluating a global pollutant such as GHGs, the EPA views the impact of domestic emissions from domestic sources as a more germane consideration when determining whether a pollutant contributes significantly to endangerment of health or welfare. Because every ton of GHG contributes to the global problem, a domestic ton will still have some impact in the U.S. Accordingly, it is reasonable for the EPA to evaluate whether a source category is well-regulated internationally and whether the U.S. emissions from that sector make up a relatively large share of GHG emissions on a worldwide scale, as such evaluation in

turn would inform whether U.S. emissions are significantly contributing to domestic impacts. If the emissions from the U.S. are comparatively a large contribution to source category/sector emissions worldwide, it may lend towards a finding of significance for the source category based on the U.S.'s substantial global contribution to the source category. If, however they are relatively small, it would suggest less benefit from the EPA regulation of that source category.

The EPA also considers, as one of the secondary criteria, an evaluation of whether a source category is vulnerable to being trade exposed (*i.e.* whether the source category is constrained in the sources' ability to pass through carbon costs due to actual or potential international competition). The EPA evaluates whether regulation of the source category would create a financial incentive for that source category/industry to move into, or increase production in, another country. This could be manifested as either a shift in production to facilities internationally or a complete closure of existing designated facilities in the U.S. It is not the EPA's intention in regulating source categories to drive production from the U.S. to other countries, and there is an environmental concern in pushing industries to other international locations. This concern is based on the potential for these new international emissions to increase compared to the corresponding displaced U.S. emissions.¹⁵ While this is always a concern for the EPA in the regulation of industry within the U.S., it even more pronounced with the consideration of GHG emissions. As discussed, previously, the U.S. GHG emissions are a global pollutant that also have domestic impacts. As such, if a smaller quantity of domestic GHG emissions would be displaced, due to a regulation, by a greater quantity of international GHG emissions it may support a finding of insignificance for a given source category. This would occur if the U.S. sources are already significantly lower emitting in GHG emissions than sources in other countries. It should also be noted that source categories whose sources in the U.S. make

¹⁵ If U.S. production shifted overseas to a jurisdiction that has laxer environmental regulations, for a global pollutant such as mercury or GHGs, there could be both increased local environmental and health impacts at the new overseas location and domestic impacts to the U.S. resulting from the increased U.S. GHG emissions.

up a relatively smaller proportion of the world's emissions from corresponding international sectors may be particularly vulnerable to being trade exposed as there is likely a greater international capacity to absorb the displaced U.S. production.

Given the global nature of GHG emissions, assessing and understanding the estimated potential net emissions impact of GHG control technologies provides useful context in which to consider the significance of a given set of GHG emissions. In addition, there may also be value in evaluating and considering the technology with the associated source category (*i.e.*, intrinsic to the process of the source category) - a prime example of reductions associated with this evaluation might be assessing the likely impacts of efficiency improvements. From a public welfare and human health perspective, targeting source categories that provide the largest overall possible scope for emissions reductions could be an intrinsic part of determining the significance of a given magnitude of emissions. Thus, the EPA is determining that it is appropriate in a given instance to consider feasible technologies (including efficiency improvements) for further context in the Agency's determination of significance of a source category's overall emissions. Here, the magnitude of GHG emissions from EGUs coupled with the reductions available through efficiency improvements supports the EPA's determination of significance.

d. Temporal Evaluation of Criteria

As introduced in this framework, the evaluation of the secondary criteria is not intended to be performed in isolation. Rather, the EPA considers the weight of evidence of all the factors (both primary and secondary) to make an informed and comprehensive decision as to whether a source category that exceeds the 3-percent threshold contributes significantly to the U.S. GHG emissions. The consideration of criteria also has a temporal consideration to a significance determination. A source category's determination can be reevaluated in the future as the status and criteria described here may have changed for that source category. For example, the technology to adequately regulate GHGs from a source category may not be readily available at

this time, but in the future that technology may become more broadly available causing the EPA to then make a SCF.

E. Significant Contribution Finding for EGUs

As noted above, the Agency is finalizing a determination that GHG emissions from EGUs¹⁶ contribute significantly to dangerous air pollution. The primary criterion in determining whether to make a SCF is the magnitude of GHG emissions from a given source category. It is readily apparent that EGUs emit a uniquely large amount of GHGs compared to all other categories of stationary sources. The EPA made this clear in the 2015 Rule, quoted above, and reiterated it in the 2020 Oil & Gas Rule: “the unique CO₂ emissions profile of fossil fuel-fired EGUs should be noted: the volume of emissions from EGUs dwarfs the amount of GHG emissions from every other source category.” 85 FR 57039, n.49.

Although GHG emissions from EGUs have fallen since the EPA promulgated the 2015 Rule, they still remain uniquely large among stationary source categories. The EPA’s Inventory of U.S. Greenhouse Gas Emissions¹⁷ indicates that, as of 2018, the Electric Power sector directly emitted 1,778.5 MMT of GHGs.¹⁸ This amount was more than twice the amount of GHGs emitted by all other industrial sources combined and more than all other industrial, commercial, and residential stationary combustion sources combined.¹⁹ In addition, direct GHG emissions from EGUs account for approximately 27 percent of total U.S. GHG emissions and 43 percent of U.S. stationary source emissions. The direct GHG emissions from EGUs account for approximately 4 percent of total worldwide GHG emissions and are greater than the emissions of

¹⁶ For this purpose, EGUs include the affected sources in the combined source category for boilers and turbines. In the 2015 Rule, the EPA “combine[d] the two categories of EGUs—steam generators and combustion turbines—into a single category of fossil fuel-fired EGUs for purposes of promulgating standards of performance for CO₂ emissions.” 80 FR 64529 (2015 Rule).

¹⁷ See Table 3-9, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018, Report 430-R-20-002, April 13, 2020, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2018>.

¹⁸ The global warming potential (GWP) of a greenhouse gas is defined as the ratio of the accumulated radiative forcing within a specific time horizon relative to that of the reference gas CO₂. Total GHG emissions are the GWP-weighted emissions of all GHG emissions and reported in million metric tons of CO₂ equivalent (MMT CO₂e.).

¹⁹ See Table 3-9, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018, Report 430-R-20-002, April 13, 2020, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2018>.

all but four countries.²⁰ These facts confirm that at current emission levels, EGUs have measurable impacts on both the U.S. contribution to GHG emissions and the worldwide total GHG emissions and continue to be uniquely large stationary source emitters of GHGs. It should be noted that if domestic EGUs no longer emitted any GHG emissions, there would be a measurable impact on worldwide GHG emissions and between 2020 and 2100, there would be a reduction in the projected increase in global temperatures by 0.049 degrees Celsius (°C).

Because EGUs represent by far the largest stationary source of GHGs from combustion of fossil fuels, the EPA believes that this is the most appropriate place for the EPA, states, and sources to devote resources to reducing GHGs from stationary sources. Indeed, this uniquely large magnitude of emissions is the reason over the last 8 years, the Agency has devoted significant effort to determine how to best reduce GHGs from EGUs. Because EGUs are a relatively large U.S. source of emissions in an overall large pool of international EGU sources, regulation over time could help produce practices and technologies that have application to EGUs worldwide.

It is noteworthy that GHG emissions from EGUs are approximately an order of magnitude greater than the estimated emissions of the second largest stationary source category of GHGs attributed to combustion, industrial boilers. Because the magnitude of GHG emissions from EGUs is large compared to other stationary sources, this makes them clearly significant even without detailed consideration of other factors. As mentioned earlier, the EPA is also introducing a framework under which a source category that emits above a threshold of 3 percent of U.S. stationary source GHG emissions may contribute significantly to dangerous GHG air pollution. For those source categories above that threshold, the EPA is also determining that consideration of certain secondary criteria may, collectively, also inform the evaluation of whether a source category should be considered to significantly contribute. However, within this

²⁰ In 2016, worldwide GHG emissions were estimated to have been 49.4 gigaton (Gt) CO₂e. The GHG emissions of China, India, Russia, and Indonesia are 11,577, 3,235, 2,391, and 2,229 MMT CO₂e respectively. <https://www.wri.org/blog/2020/02/greenhouse-gas-emissions-by-country-sector>.

framework, that analysis of secondary criteria is not necessary in the case of EGUs, due to the overwhelmingly large emissions of the source category; it is clear that controlling GHG emissions from the EGU source category will be necessary to appropriately address dangerous air pollution. This conclusion is consistent with the EPA's 2018 Proposal where the Agency explained that if the EPA was required to evaluate significance, EGUs would be considered significant.

1. Secondary Criteria

The EPA is determining that the uniquely large GHG emissions from EGUs makes a finding of significant contribution and regulation appropriate by itself. Under the introduced framework, while the EPA does not think it is necessary to consider secondary criteria because of the uniquely large emissions from the EGU source category, as explained below, the EPA would make the same determination even if it did consider those criteria.

a. Source Category Trends

As mentioned earlier, an important criterion is the evaluation of the trends in emissions and number of designated facilities within a source category, such that the EPA can evaluate whether a source category is on a trajectory of U.S. GHG emission decline.

While electricity demand is projected to increase the U.S., due to the increased use of less carbon intensive generation technologies and more efficient generation, GHG emissions from the power sector are projected to remain relatively steady for the foreseeable future. However, EGUs are projected to remain the single largest stationary source of GHG emissions, and while the Agency expects few, if any, new coal-fired EGUs will be built to meet the demand for electricity, coal-fired EGUs are expected to continue to supply electricity and emit significant GHG emissions for the foreseeable future.²¹ The EGU source category also includes stationary

²¹ According to Table 8 of the Annual Energy Outlook (AEO) 2020, while coal fired generation will decline between 2019 and 2025 from 959 billion kWh to 709 billion kWh, generation from coal-fired EGUs is projected to subsequently remain relatively steady through 2050.

combustion turbines. The EPA expects new simple cycle and combined cycle combustion turbine EGUs will be built in the future and that the existing fleet of combustion turbines will continue to operate.²² Therefore, efficient generation technology could eventually become standard for all new and existing EGUs. Consequently, the EPA would consider the source category trends as supporting the regulation of GHG emissions from EGUs.

b. Source Category Emissions with Global Context

The EPA is also determining that it can consider, as a secondary criterion, the relative contribution of GHG emissions from the U.S. in the specific source category compared to worldwide emissions of similar sources. Accordingly, the EPA evaluates whether a source category is well-regulated internationally and whether the U.S. emissions from that sector make up a relatively large share of global GHG emissions, as such evaluation in turn would inform whether U.S. emissions are significantly contributing to domestic impacts. In this instance, this criteria points towards a finding of significance given that U.S. EGUs make up a sizeable portion (13 percent of the emissions) from EGUs worldwide.²³

As mentioned earlier in this notice, the EPA is also introducing that one of the secondary criteria is an evaluation of whether a source category is vulnerable to being trade exposed (*i.e.*, whether the source category is constrained in its ability to absorb regulatory costs due to actual or potential international competition). Concerns about international competition would not impact the Agency's decision to regulate EGUs because electricity must be transported over power lines and it is not as easy to relocate or shift production locations as it is for other source categories. The ability to locate generation in Mexico and Canada and transmit the power to the U.S. is limited because of constraints on existing transmission lines and the expense to build additional transmission capacity. The only additional transmission capacity currently being

²² According to Table 8 of the AEO 2020, natural gas fired generation is projected to increase from 1,322 billion kWh to 1,629 billion kWh.

²³ U.S. EGU emissions from the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018, Report 430-R-20-002, April 13, 2020, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2018>. Worldwide EGU emissions from the International Energy Agency estimates IEA (2020), CO₂ Emissions from Fuel Combustion, <https://www.iea.org/subscribe-to-data-services/co2-emissions-statistics>.

considered is for electricity generated from hydroelectric power in Canada to supply power to New England. Since this electricity has a low carbon intensity, it would not contribute to an overall increase in GHG emissions. Furthermore, the emission standards in this rule will not increase the costs of electricity from a new coal-fired EGU such that it might be financially advantageous to locate new production internationally to countries with less stringent regulations. If international competition were a concern, the Agency would compare the forecast GHG emissions from international sources (in this case, EGUs in Canada and Mexico) against the forecast GHG emissions from domestic sources (in this case domestic EGUs) in both the absence of and implementation of the NSPS. In addition, since few, if any, new coal-fired EGUs are forecast to be built in the U.S., the standards in this final rule will not impact electricity prices to end users to an extent that other industries would be incentivized to relocate internationally due to increased electricity costs. Therefore, domestic reductions in GHG emissions from regulating EGUs will not be offset by increased international GHG emissions. In contrast, for source categories that supply raw materials to other domestic source categories, the impact of international competition on those source categories and the resultant GHG impacts could be considered when determining an appropriate NSPS. It is conceivable that an overly stringent NSPS could result in an increase in global GHG emissions, if the increase in international emissions is greater than the reduction in domestic emissions.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected facilities?

This rule takes final action affecting fossil fuel-fired EGUs. These EGUs take two forms that are relevant for present purposes: steam generating units (utility boilers and gasification units) and stationary combustion turbines. Fossil fuel-fired steam generating units can burn natural gas, oil, or coal. However, coal is the dominant fuel for electric utility steam generating units. Coal-fired steam generating units are primarily either PC or fluidized bed (FB) steam

generating units.²⁴ At a PC steam generating unit, the coal is crushed (pulverized) into a powder to increase its surface area. The coal powder is then blown into a steam generating unit and burned. In a fossil fuel-fired steam generating unit using FB combustion, the solid fuel is burned in a layer of heated particles suspended in flowing air. Power can also be generated from coal or other fuels using gasification technology. An Integrated Gasification Combined Cycle (IGCC) unit gasifies coal or petroleum coke to form a synthetic gas (or syngas) composed of carbon monoxide (CO) and hydrogen (H₂), which can be combusted in a combined cycle system to generate power. Stationary combustion turbines include both fossil fuel-fired simple cycle and combined cycle combustion turbine EGUs.

B. What are the air quality impacts?

The EPA does not anticipate that this final rule for fossil-fuel-fired EGUs will result in significant CO₂ emission changes.

C. What are the energy impacts?

This final rule for fossil-fuel-fired EGUs is not anticipated to have an effect on the supply, distribution, or use of energy.

D. What are the cost impacts?

The EPA does not believe that this final rule for fossil-fuel-fired EGUs will have compliance costs associated with it.

E. What are the economic impacts?

The EPA does not anticipate that this final rule for fossil-fuel-fired EGUs will result in economic or employment impacts. Likewise, the EPA believes this rule will not have any impacts on the price of electricity, employment or labor markets, or the U.S. economy.

F. What are the benefits?

²⁴ Fossil fuel-fired utility steam generating units (*i.e.*, boilers) are most often operated using coal as the primary fuel. However, some utility boilers use natural gas and/or fuel oil as the primary fuel.

The EPA does not anticipate emission changes resulting from the final rule for fossil-fuel-fired EGUs.

VI. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at <https://www.epa.gov/laws-regulations/laws-and-executive-orders>.

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.

B. Executive Order 13771: Reducing Regulations and Controlling Regulatory Costs

This action is not expected to be an Executive Order 13771 regulatory action. There are no quantified cost estimates for this final rule because the EPA does not anticipate this action to result in costs or cost savings.

C. Paperwork Reduction Act (PRA)

This action does not impose any new information collection burden under the PRA. OMB has previously approved the information collection activities contained in the existing parts 75 and 98 regulations and has assigned OMB control numbers 2060-0626 and 2060-0629, respectively.

D. 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. The EPA expects there to be few, if any, new, modified, or

reconstructed coal-fired EGUs. As such, this final rule would not impose significant requirements on those sources, including any that are owned by small entities. The EPA has, therefore, concluded that this action will have no net regulatory burden for all directly regulated small entities.

E. 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. This action imposes no enforceable duty on any state, local, or tribal governments or the private sector.

F. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

G. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175. It would neither impose substantial direct compliance costs on tribal governments, nor preempt Tribal law. The EPA is aware of three coal-fired EGUs located in Indian Country but is not aware of any EGUs owned or operated by tribal entities. The EPA notes that this action would affect only existing sources such as the three coal-fired EGUs located in Indian Country if those EGUs were to take actions constituting modifications or reconstructions as defined under the EPA's NSPS regulations. However, as previously stated, the EPA expects there to be few, if any, new, reconstructed, or modified EGUs. Thus, Executive Order 13175 does not apply to this action.

Consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, the EPA offered consultation with tribal officials during the development of this action; however, the Agency did not receive a request for consultation. The EPA held meetings with tribal

environmental staff during the public comment period to inform them of the content of the proposed rule and to encourage them to submit comments on the proposed rule.

H. 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 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 or safety risk.

I. 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 and has not otherwise been designated as a significant energy action by the Administrator of the Office of Information and Regulatory Affairs (OIRA). This final action is not anticipated to have impacts on emissions, costs, or energy supply decisions for the affected electric utility industry.

J. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

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

The EPA believes that this action does not have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specific in Executive Order 12898 (59 FR 7629, February 16, 1994), because it does not affect the level of protection provided to human health or the environment. As previously stated, the EPA expects that few, if any, coal-fired EGUs would be affected by this action.

L. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a “major rule” as defined by 5 U.S.C. 804(2).

Andrew Wheeler,
Administrator

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