

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2017-0757; FRL-9999-50-OAR]

RIN 2060-AT90

Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: This action proposes reconsideration amendments to the new source performance standards (NSPS). These amendments, if finalized, would remove sources in the transmission and storage segment from the source category, rescind the NSPS (including both the volatile organic compounds (VOC) and methane requirements) applicable to those sources, and rescind the methane-specific requirements (the “methane requirements”) of the NSPS applicable to sources in the production and processing segments. The U.S. Environmental Protection Agency (EPA) is also proposing, as an alternative, to rescind the methane requirements of the NSPS applicable to all oil and natural gas sources, without removing any sources from the source category. Furthermore, the EPA is taking comment on alternative interpretations of its statutory authority to regulate pollutants under the Clean Air Act (CAA), and associated record and policy questions.

DATES: *Comments.* Comments must be received on or before November 25, 2019. Under the Paperwork Reduction Act (PRA), comments on the information collection provisions are best assured of consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before October 24, 2019.

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OAR-2017-0757, at <https://www.regulations.gov/>, by any of the following methods:

- *Federal eRulemaking Portal:* <https://www.regulations.gov/> (our preferred method). Follow the online instructions for submitting comments.

- *Email:* a-and-r-docket@epa.gov. Include Docket ID No. EPA-HQ-OAR-2017-0757 in the subject line of the message.

- *Fax:* (202) 566-9744. Attention Docket ID No. EPA-HQ-OAR-2017-0757.

- *Mail:* U.S. Environmental Protection Agency, EPA Docket Center, Docket ID No. EPA-HQ-OAR-2017-0757, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.

- *Hand/Courier Delivery:* EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004. The Docket Center's hours of operation are 8:30 a.m.–4:30 p.m., Monday–Friday (except federal holidays).

Instructions: All submissions received must include the Docket ID No. for this rulemaking. Comments received may be posted without change to <https://www.regulations.gov/>, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the **SUPPLEMENTAL INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Ms. Amy Hambrick, Sector Policies and Programs Division (E143-05), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-0964; fax number: (919) 541-0516; and email address: hambrick.amy@epa.gov. For information about the applicability of the NSPS to a particular entity, contact Ms. Marcia Mia, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, WJC South Building (Mail Code 2227A), 1200 Pennsylvania Avenue NW, Washington, DC 20460; telephone number: (202) 564-7042; and email address: mia.marcia@epa.gov.

SUPPLEMENTARY INFORMATION:

Public hearing. The EPA will hold a public hearing on the proposal. Details will be announced in a separate **Federal Register** document.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2017-0757. All documents in the docket are listed in *Regulations.gov*. Although listed, some information is not publicly available, e.g., Confidential Business Information (CBI) 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. Publicly available docket materials are available either electronically in *Regulations.gov* or in hard copy at the EPA Docket Center, Room 3334, EPA WJC West Building, 1301 Constitution Avenue

NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2017-0757. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <https://www.regulations.gov/>, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <https://www.regulations.gov/> or email. This type of information should be submitted by mail as discussed below.

The EPA may publish any comment received to its public docket. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the Web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>.

The <https://www.regulations.gov/> website allows you to submit your comment anonymously, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through <https://www.regulations.gov/>, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any digital storage media you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or

viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at <https://www.epa.gov/dockets>.

Submitting CBI. Do not submit information containing CBI to the EPA through <https://www.regulations.gov/> or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on any digital storage media that you mail to the EPA, mark the outside of the digital storage media as CBI and then identify electronically within the digital storage media the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI directly to the public docket through the procedures outlined in *Instructions* above. If you submit any digital storage media that does not contain CBI, mark the outside of the digital storage media clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2017-0757.

Preamble acronyms and abbreviations. We use 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
BLM Bureau of Land Management
BSER best system of emission reduction
CAA Clean Air Act
CAIT Climate Analysis Indicators Tool
CBI Confidential Business Information
CCAC Climate and Clean Air Coalition
CFR Code of Federal Regulations
CH₄ methane
CO carbon monoxide
CO₂ carbon dioxide
CO₂ Eq. carbon dioxide equivalent
CVS closed vent system
EAV equivalent annualized value
EGU Electricity Generating Units
EIA Energy Information Administration
EPA Environmental Protection Agency
ESRL Earth System Research Laboratory
GAO Government Accountability Office
GHG greenhouse gases
GHGI greenhouse gas inventory
GHGRP Greenhouse Gas Reporting Program

HAP hazardous air pollutant(s)
H₂S hydrogen sulfide
ICR Information Collection Request
IR infrared
kt kilotons
MMT Million Metric Tons
NAAQS National Ambient Air Quality Standards
NAICS North American Industry Classification System
NEI National Emissions Inventory
NEMS National Energy Modeling System
NGL natural gas liquids
NOAA National Oceanic and Atmospheric Administration
NODA Notice of Data Availability
NO_x nitrogen oxides
NSPS new source performance standards
NTTAA National Technology Transfer and Advancement Act
OGI optical gas imaging
OMB Office of Management and Budget
PE professional engineer
PHMSA Pipeline and Hazardous Materials Safety Administration
PM particulate matter
PM_{2.5} PM with a diameter of 2.5 micrometers or less
PM₁₀ PM with a diameter of 10 micrometers or less
PRA Paperwork Reduction Act
PV present value
REC reduced emissions completion
RFA Regulatory Flexibility Act
RIA Regulatory Impact Analysis
SC-CH₄ social cost of methane
SCF significant contribution finding
SIP state implementation plan
SO₂ sulfur dioxide
tpy tons per year
TSD technical support document
UMRA Unfunded Mandates Reform Act
UNFCCC United Nations Framework Convention on Climate Change
U.S. United States
VOC volatile organic compounds
WRI World Resources Institute

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I. Executive Summary

A. Purpose and Summary of the Regulatory Action

Since the inception of the CAA, with its aim to promote the "public health

and welfare and the productive capacity” of the nation’s population, the EPA has focused on air emissions from the oil and natural gas industry.^{1 2} For nearly 40 years, the EPA has issued regulations under CAA section 111 to limit emissions from the oil and natural gas industry, while accounting for costs and other factors as instructed by Congress in the statute.³ In this action, the EPA is recognizing its responsibilities under that section, performed in accordance with the statute and with national policy objectives. As such, the EPA here is proposing to amend its 2012 and 2016 rules affecting the industry, titled, respectively, “Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews; Final Rule” (“2012 NSPS OOOO”) ⁴ and “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule” (“2016 NSPS OOOOa”).⁵ Those rules established NSPS for VOC emissions from the oil and natural gas industry, and the 2016 rule also established NSPS for greenhouse gases (GHGs), in the form of limitations on methane, for that industry.⁶ The amendments that the EPA is proposing are intended to continue existing protections from emission sources within the regulated source category, while removing regulatory duplication.

As directed by the President in March 2017, the EPA has reviewed the 2012 NSPS OOOO and 2016 NSPS OOOOa with attention to whether the rules “unduly burden the development of domestic energy resources beyond the degree necessary to protect the public interest,” and if so, appropriately “suspend, revise, or rescind” regulatory requirements.^{7 8} From this review, the EPA is now proposing to determine that some of the requirements under those rules are inappropriate because they affect sources that are not appropriately identified as part of the regulated source

category, and some of the requirements under the 2016 NSPS OOOOa are unnecessary insofar as they impose redundant requirements. Accordingly, the EPA is acting to rescind those requirements while maintaining health and environmental protections from appropriately identified emission sources within the regulated source category.⁹

Specifically, the EPA is co-proposing two potential actions: a primary proposal and an alternative proposal. The primary proposal contains two steps. In the first step, the EPA is proposing to revisit its 2012 and 2016 interpretations of, and its 2016 revision to, the regulated source category to cover sources in the transmission and storage segment, and to rescind the NSPS requirements applicable to those sources. Having reexamined the transmission and storage segment, the EPA has determined that the purported revision in 2016 of the pre-existing source category (which the EPA now proposes to conclude was originally intended to include only the production and processing segments) was not appropriate. Because the transmission and storage segment constitutes a separate source category from the production and processing segments, the EPA could have listed it for regulation under CAA section 111(b) only by making a significant contribution and endangerment finding as required by the statute, which the EPA never did. Accordingly, under the first step of the primary proposal, the EPA proposes to rescind the standards applicable to sources in the transmission and storage segment of the oil and gas industry.

As the second step, the EPA is proposing to rescind the methane requirements of the NSPS applicable to sources in the production and processing segments. The EPA proposed to conclude that those methane requirements are entirely redundant with the existing NSPS for VOC and, thus, establish no additional health protections. Indeed, due to the identical emission source control technologies for methane and VOC, the EPA, when establishing the 2016 NSPS OOOOa, found no need for any changes to the existing NSPS requirements for VOC when that rule explicitly examined regulation of methane emissions.

⁹ We note that the EPA is addressing certain specific reconsideration issues—fugitive emissions requirements at well sites and compressor stations, well site pneumatic pump standards, and the requirements for certification of closed vent systems (CVS) by a professional engineer (PE)—in a separate proposal. See Docket ID Item No. EPA-HQ-OAR-2010-0505-7730 and 82 FR 25730.

Rescinding the applicability to methane emissions of the 2016 NSPS OOOOa requirements, while leaving the applicability to VOC emissions in place, will not affect the amount of methane emission reductions that those requirements will achieve.

Under the alternative proposal, the EPA is proposing to rescind the methane requirements of the NSPS applicable to all oil and natural gas sources in the source category as it is currently constituted, without undoing the 2012 and 2016 interpretations or expansion of the source category to include sources in the transmission and storage segment. The rationale for rescinding the methane requirements under this alternative proposal is the same as noted immediately above, that is, that they are entirely redundant with the existing NSPS for VOC.

Both the primary and alternative proposal rely on the EPA’s previous interpretation of the requirement in CAA section 111(b)(1)(A) under which the EPA needs to make a finding that a source category “causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare” when it lists the source category, but that thereafter, when it regulates pollutants emitted from the source category, it needs only a rational basis to do so. The EPA proposes to retain that interpretation of this statutory provision. However, in section VI.A of this preamble, the EPA takes comment on an alternative interpretation, under which the Agency is required to make the significant-contribution finding each time that it regulates a pollutant from the source category. In section VI.B of this preamble, the EPA takes comment on whether, under this alternative interpretation, it made a valid finding in the 2016 NSPS OOOOa that methane emissions from the Crude Oil and Natural Gas Production source category met this statutory standard. In section VI.C of this preamble, the EPA takes comment on its proposed identification of certain factors which would inform its judgment, should it make a new determination whether methane emissions from the source category meet this statutory standard.

The EPA solicits public comment on all aspects of this proposal.

B. Costs and Benefits

The EPA has projected the cost savings, emissions increases, and forgone benefits that may result from rescinding requirements from sources in the transmission and storage segment (*i.e.*, the primary proposal). The projected cost savings and forgone

¹ 42 U.S.C. 7401(b)(1).

² 44 FR 49222 (August 21, 1979) (listing “Crude Oil and Natural Gas Production” under CAA section 111 as a source category subject to standards of performance).

³ 50 FR 26122 (June 24, 1985) (promulgating NSPS that address certain VOC emissions); 50 FR 40158 (October 1, 1985) (promulgating NSPS that address certain sulfur dioxide (SO₂) emissions).

⁴ 77 FR 49490 (August 16, 2012).

⁵ 81 FR 35824 (June 3, 2016).

⁶ Docket ID No. EPA-HQ-OAR-2010-0505.

⁷ Executive Order 13783, “Promoting Energy Independence and Economic Growth,” section 1(c) (March 28, 2017).

⁸ 82 FR 16331 (April 4, 2017) (notice of review of 2016 NSPS OOOOa pursuant to Executive Order 13783, signed by the EPA Administrator).

benefits are presented in the regulatory impact analysis (RIA) supporting this proposal. The primary proposal action also rescinds methane requirements from sources in the production and processing segments and leaves the VOC regulations in place. As the methane control options are redundant with VOC control options, there are no expected cost or emissions effects from removing the methane requirements in the production and processing segments

with respect to these sources. Similarly, there are no expected cost or emissions impacts under the alternative proposed option of rescinding the methane requirements for all affected sources for the same reason: Methane control options on all sources are redundant with VOC control options. The RIA estimates impacts for the analysis years 2019 through 2025. All monetized impacts of these amendments are presented in 2016 dollars. All sources in

the transmission and storage segment that are affected by the 2016 NSPS OOOOa, starting at the promulgation of the 2016 NSPS OOOOa, are sources that are affected by this action.

II. General Information

A. Does this action apply to me?

Categories and entities potentially affected by this action include:

TABLE 1—INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS ACTION

Category	NAICS code ¹	Examples of regulated entities
Industry	211120 211130 221210 486110 486210	Crude Petroleum Extraction. Natural Gas Extraction. Natural Gas Distribution. Pipeline Distribution of Crude Oil. Pipeline Transportation of Natural Gas.
Federal government	Not affected.
State/local/tribal government	Not affected.

¹ North American Industry Classification System (NAICS).

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that the EPA is now aware could potentially be affected by this action. Other types of entities not listed in the table could also be affected by this action. To determine whether your entity is affected by this action, you should carefully examine the applicability criteria found in the final rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the **FOR FURTHER INFORMATION CONTACT** section, your air permitting authority, or your EPA Regional representative listed in 40 CFR 60.4 (General Provisions).

B. What should I consider as I prepare my comments to the EPA?

This action proposes to revise certain aspects of the 2012 NSPS OOOO and 2016 NSPS OOOOa rule. In this proposed action, we seek comment on only the specific proposals or comment solicitations in this proposed action. We do not seek comment on and we are not opening for reconsideration and review any other aspects of the NSPS in 40 CFR part 60, subparts OOOO and OOOOa and related rulemakings at this time.

C. How do I obtain a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of the proposed action is available on the internet. Following signature by the

Administrator, the EPA will post a copy of this proposed action at <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry>. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at this same website. A redline version of the regulatory language that incorporates the proposed changes in this action is available in the docket for this action (Docket ID No. EPA-HQ-OAR-2017-0757).

III. Background

A. Oil and Natural Gas Industry and Its Emissions

This section generally describes the structure of the oil and natural gas industry, the production, processing, as well as transmission and storage segments, and types of sources in each segment and the industry's emissions. This information is part of the basis of the regulatory approach that the EPA proposes here, which more accurately reflects the industry's differing segments and eliminates redundant and unnecessary regulatory burden, while maintaining protection for human health and the environment.

1. Oil and Natural Gas Industry—Structure

For purposes of developing 40 CFR part 60, subparts OOOO and OOOOa, the EPA characterized the oil and natural gas industry operations as being generally composed of four so-called segments: (1) Extraction and production of crude oil and natural gas (“oil and

natural gas production”), (2) natural gas processing, (3) natural gas transmission and storage, and (4) natural gas distribution.^{10 11} It should be noted that the EPA regulates oil refineries as a separate source category; accordingly, for purposes of this proposed rulemaking, for crude oil, the EPA’s focus is on operations from the well to the point of custody transfer at a petroleum refinery, while for natural gas, the focus is on all operations from the well to the customer.

The oil and natural gas production segment include the wells and all related processes used in the extraction, production, recovery, lifting, stabilization, and separation or treatment of oil and/or natural gas (including condensate). There are two basic types of wells, both of which are located on well “pads”: Oil wells and natural gas wells. Oil wells comprise two types, oil wells that produce crude oil only and oil wells that produce both crude oil and natural gas (commonly referred to as “associated” gas). Production components located on the well pad may include, but are not limited to, wells and related casing heads; tubing heads; and “Christmas tree” piping, pumps, compressors,

¹⁰ The EPA previously described an overview of the sector in section 2.0 of the 2011 Background Technical Support Document to 40 CFR part 60, subpart OOOO, located at Docket ID Item No. EPA-HQ-OAR-2010-0505-0045, and section 2.0 of the 2016 Background Technical Support Document to 40 CFR part 60, subpart OOOOa, located at Docket ID Item No. EPA-HQ-OAR-2010-0505-7631.

¹¹ While generally oil and natural gas production includes both onshore and offshore operations, 40 CFR part 60, subpart OOOOa addresses onshore operations.

heater treaters, separators, storage vessels, pneumatic devices, and dehydrators. Production operations include well drilling, completion, and recompletion processes, including all the portable non-self-propelled apparatuses associated with those operations.¹²

Other sites that are part of the production segment include “centralized tank batteries,” stand-alone sites where oil, condensate, produced water, and natural gas from several wells may be separated, stored, or treated. The production segment also includes the low pressure, small diameter, gathering pipelines and related components that collect and transport the oil, natural gas, and other materials and wastes from the wells to the refineries or natural gas processing plants.

Of these products, crude oil and natural gas undergo successive, separate processing. Crude oil is separated from water and other impurities and transported to a refinery via truck, railcar, or pipeline. As noted above, the EPA treats oil refineries as a separate source category, accordingly, for present purposes, the oil component of the production segment ends at the point of custody transfer at the refinery.¹³

The separated, unprocessed natural gas is commonly referred to as field gas and is composed of methane, natural gas liquids (NGL), and other impurities, such as water vapor, hydrogen sulfide (H₂S), carbon dioxide (CO₂), helium, and nitrogen. Ethane, propane, butane, isobutane, and pentane are all considered NGL and often are sold separately for a variety of different uses. Natural gas with high methane content is referred to as “dry gas,” while natural gas with significant amounts of ethane, propane, or butane is referred to as “wet gas.” Natural gas typically is sent to gas processing plants to separate NGLs for use as feedstock for petrochemical plants, burned for space heating and cooking, or blended into vehicle fuel. The composition of field gas varies across basins in the U.S.¹⁴ For example, the Appalachian region is

predominately dry gas and northern mid-continent (North Dakota) region is primarily wet gas.

The natural gas processing segment consists of separating certain hydrocarbons (HC) and fluids from the natural gas to produce “pipeline quality” dry natural gas. The degree and location of processing is dependent on factors such as the type of natural gas (*e.g.*, wet or dry gas), market conditions, and company contract specifications. Typically, processing of natural gas begins in the field and continues as the gas is moved from the field through gathering and boosting stations to natural gas processing plants, where the complete processing of natural gas takes place. Natural gas processing operations separate and recover NGL or other non-methane gases and liquids from field gas through one or more of the following processes: Oil and condensate separation, water removal, separation of NGL, sulfur and CO₂ removal, fractionation of NGL, and other processes, such as the capture of CO₂ separated from natural gas streams for delivery outside the facility. In some “dry gas” areas, the field gas, with naturally higher methane content, may go from the well site directly into the transmission and storage segment without processing in a gas processing plant. However, there is still the need to remove liquids that naturally condense as the gas moves through the pipeline. Also, depending on the economics of NGLs as a product, there may be some amount of separation or extraction that occurs in transmission and storage using a “dew point skid” or what is commonly referred to as a “straddle plant” to meet specifications for the receiving pipeline. The EPA solicits comment on how commonly this type of processing occurs in the transmission and storage segment and whether we should—and how we might—differentiate a facility in which this type of processing occurs from a “natural gas processing plant,” as that term is currently defined in NSPS OOOOa. For example, the rule defines a “natural gas processing plant” to include a facility that extracts NGLs from field gas, where field gas is feedstock gas entering the natural gas processing plant. 40 CFR 60.5430a. If the field gas moves directly from the production segment into transmission and storage facilities, without passing through a natural gas processing plant, it would continue to be considered “field gas,” and if extraction of NGLs from such gas subsequently occurs in a transmission or storage facility, that facility would be

considered a “natural gas processing plant.”

Once natural gas processing is complete, which the EPA understands generally to occur at natural gas processing plants, the resulting product is the pipeline quality natural gas that is ready for end use. The pipeline quality natural gas, which is comprised of 95 to 98 percent methane,¹⁵ does not undergo any more phase changes after processing is complete; instead, this final product leaves processing operations and is transmitted to storage and/or distribution to the end user.

Pipelines in the natural gas transmission and storage segment can be interstate pipelines, which carry natural gas across state boundaries or intrastate pipelines, which transport the gas within a single state. Basic components of the two types of pipelines are the same, though interstate pipelines may be of a larger diameter and operated at a higher pressure. To ensure that the natural gas continues to flow through the pipeline, the natural gas must periodically be compressed, by increasing its pressure. Compressor stations perform this function and are usually placed at 40- to 100-mile intervals along the pipeline. At a compressor station, the natural gas enters the station, where it is compressed by reciprocating or centrifugal compressors.

Another part of the transmission and storage segment are aboveground and underground natural gas storage facilities. Storage facilities hold natural gas for use during peak seasons. The main difference between underground and aboveground storage sites is that storage takes place in storage vessels constructed of non-earthen materials in aboveground storage. Underground storage of natural gas typically occurs in depleted natural gas or oil reservoirs and salt dome caverns. One purpose of this storage is for load balancing (equalizing the receipt and delivery of natural gas). At an underground storage site, typically other processes occur, including compression, dehydration, and flow measurement.

The distribution segment is the final step in delivering natural gas to customers.¹⁶ The natural gas enters the distribution segment from delivery points located on interstate and intrastate transmission pipelines to business and household customers. The delivery point where the natural gas leaves the transmission and storage

¹² The 2016 NSPS OOOOa rule defines reduced emissions completion (REC) to be a well completion following fracturing or refracturing where gas flowback that is otherwise vented is captured, cleaned, and routed to the gas flow line or collection system, re-injected into the well or another well, used as an on-site fuel source, or used for other useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.

¹³ See 40 CFR part 60, subparts J and Ja and 40 CFR part 63, subparts CC and UUU.

¹⁴ Memorandum to U.S. EPA from Eastern Research Group. “Natural Gas Composition.” November 13, 2018. Docket ID No. EPA-HQ-OAR-2017-0757.

¹⁵ <https://www.epa.gov/natural-gas-star-program/overview-oil-and-natural-gas-industry>.

¹⁶ The distribution segment is not regulated under 40 CFR part 60, subpart OOOOa.

segment and enters the distribution segment is a local distribution company's custody transfer station, commonly referred to as the "citygate." Natural gas distribution systems consist of thousands of miles of piping, including mains and service pipelines to the customers. If the distribution network is large, compressor stations may be necessary to maintain flow; however, these stations are typically smaller than transmission compressor stations. Distribution systems include metering stations, which allow distribution companies to monitor the natural gas as it flows through the system.

2. Oil & Natural Gas Industry—Emissions

The oil and natural gas industry emit, in varying concentrations and amounts, a wide range of pollutants, including VOC, SO₂, nitrogen oxides (NO_x), H₂S, carbon disulfide, and carbonyl sulfide. The oil and natural gas industry also emit GHG, such as methane and CO₂. Emissions can occur in all segments of the natural gas industry. As natural gas moves through the system, emissions primarily result from intentional

venting through normal operations, routine maintenance, unintentional fugitive emissions, and system upsets. Venting can occur through equipment design or operational practices, such as the continuous bleed of gas from pneumatic controllers (that control gas flows, levels, temperatures, and pressures in the equipment) or venting from well completions during production. In addition to vented emissions, emissions can occur from leaking equipment (also referred to as fugitive emissions) in all parts of the infrastructure, including major production and processing equipment (e.g., separators or storage vessels) and individual components (e.g., valves or connectors). Emissions from the crude oil portion of the industry result primarily from field production operations, such as venting of associated gas from oil wells, oil storage vessels, and production-related equipment such as gas dehydrators, pig traps, and pneumatic devices.

Emissions of both methane and VOC occur through the same emission points and processes. The technologies available to capture and/or control both

pollutants from these emission sources are the same, and in their function, those technologies do not select between VOC and methane emissions. The industry has profit incentives to capture and sell emissions of natural gas (and methane), and multiple states have programs in place to control assorted emissions from the industry.

The next section provides estimated emissions of methane, VOC, and SO₂ from oil and natural gas industry operation sources.

a. Methane emissions in the U.S. and from the oil and natural gas industry. Official U.S. estimates of national level GHG emissions and sinks are developed by the EPA for the U.S. GHG Inventory (GHGI) to comply with commitments under the United Nations Framework Convention on Climate Change. The U.S. GHGI, which includes recent trends, is organized by industrial sectors. The oil and natural gas production, and natural gas processing and transmission sectors emit 29 percent of U.S. anthropogenic methane. Table 2 below presents total U.S. anthropogenic methane emissions for the years 1990, 2008, and 2017.

TABLE 2—U.S. METHANE EMISSIONS BY SECTOR
[Million metric ton carbon dioxide equivalent (MMT CO₂ Eq.)]

Sector	1990	2008	2017
Oil and Natural Gas Production, and Natural Gas Processing and Transmission and Storage	191	195	190
Oil and Natural Gas Production, and Natural Gas Processing	134	163	158
Oil and Natural Gas Transmission and Storage	57	32	32
Landfills	180	125	108
Enteric Fermentation	164	174	175
Coal Mining	96	76	56
Manure Management	37	58	62
Other Oil and Gas Sources	44	18	13
Wastewater Treatment	15	15	14
Other Methane Sources ¹⁷	57	52	47
Total Methane Emissions	785	712	665

Emissions from the Inventory of United States Greenhouse Gas Emissions and Sinks: 1990–2017 (published April 11, 2019), calculated using global warming potential (GWP) of 25.

Note: Totals may not sum due to rounding.

Table 3 below presents total methane emissions from natural gas production through transmission and storage and

petroleum production, for years 1990, 2008, and 2017, in MMT CO₂ Eq. (or

million metric tonnes carbon dioxide equivalent) of methane.

TABLE 3—U.S. METHANE EMISSIONS FROM NATURAL GAS AND PETROLEUM SYSTEMS
[MMT CO₂ Eq.]

Sector	1990	2008	2017
Oil and Natural Gas Production and Natural Gas Processing and Transmission (Total)	191	195	190
Natural Gas Production	71	114	110
Natural Gas Processing	21	11	12
Natural Gas Transmission and Storage	57	32	32

¹⁷ Other sources include rice cultivation, forest land, stationary combustion, abandoned oil and gas

wells, abandoned coal mines, mobile combustion,

composting, and several sources emitting less than 1 MMT CO₂ Eq. in 2017.

TABLE 3—U.S. METHANE EMISSIONS FROM NATURAL GAS AND PETROLEUM SYSTEMS—Continued
[MMMT CO₂ Eq.]

Sector	1990	2008	2017
Petroleum Production	41	38	37

Emissions from the Inventory of United States Greenhouse Gas Emissions and Sinks: 1990–2017 (published April 11, 2019), calculated using GWP of 25.

Note: Totals may not sum due to rounding.

b. VOC and SO₂ emissions in the U.S. and from the oil and natural gas industry. Official U.S. estimates of national level VOC and SO₂ emissions are developed by the EPA for the National Emissions Inventory (NEI), for which states are required to submit

information under 40 CFR part 51, subpart A. Data in the NEI may be organized by various data points, including sector, NAICS code, and Source Classification Code. The oil and natural gas sources emit 5.7 and 1.8 percent of U.S. VOC and SO₂,

respectively. Tables 4 and 5 below present total U.S. VOC and SO₂ emissions by sector, respectively, for the year 2014, in kilotons (kt) (or thousand metric tons).

TABLE 4—U.S. VOC EMISSIONS BY SECTOR
[kt]

Sector	2014
Biogenics—Vegetation and Soil	38,672
Oil and Natural Gas Production, and Natural Gas Processing and Transmission	3,172
Fires—Wildfires	2,466
Fires—Prescribed Fires	1,980
Mobile—On-Road non-Diesel Light Duty Vehicles	1,965
Solvent—Consumer & Commercial Solvent Use	1,621
Mobile—Non-Road Equipment—Gasoline	1,536
Other VOC Sources ¹⁸	4,238
Total VOC Emissions	55,651

Emissions from the 2014 NEI, Version 2 (released February 2018).

Note: Totals may not sum due to rounding.

TABLE 5—U.S. SO₂ EMISSIONS BY SECTOR
[kt]

Sector	2014
Fuel Comb—Electric Generation—Coal	3,155
Fuel Comb—Industrial Boilers, Internal Combustion Engines—Coal	335
Mobile—Commercial Marine Vessels	175
Industrial Processes—Not Elsewhere Classified	137
Industrial Processes—Chemical Manufacturing	133
Oil and Natural Gas Production, and Natural Gas Processing and Transmission	84
Other SO ₂ Sources ¹⁹	787
Total SO₂ Emissions	4,805

Emissions from the 2014 NEI, Version 2 (released February 2018).

Note: Totals may not sum due to rounding.

Table 6 below presents total VOC and SO₂ emissions from oil and natural gas production through transmission and

storage, for the year 2014, in kt (or thousand metric tons).

TABLE 6—U.S. VOC AND SO₂ EMISSIONS FROM NATURAL GAS AND PETROLEUM SYSTEMS
[kt]

Sector	VOC	SO ₂
Oil and Natural Gas Production and Natural Gas Processing and Transmission (Total)	3,172	84
Oil and Natural Gas Production	3,143	48
Natural Gas Processing	14	36

¹⁸ Other sources include remaining sources emitting less than 1,000 kt VOC in 2014.

¹⁹ Other sources include remaining sources emitting less than 100 kt SO₂ in 2014.

TABLE 6—U.S. VOC AND SO₂ EMISSIONS FROM NATURAL GAS AND PETROLEUM SYSTEMS—Continued
[kt]

Sector	VOC	SO ₂
Natural Gas Transmission and Storage	16	1

Emissions from the 2014 NEI, Version 2 (published February 2018), in kt (or thousand metric tons).

Note: Totals may not sum due to rounding.

B. Statutory Background

CAA section 111 authorizes and directs the EPA to prescribe NSPS applicable to certain new stationary sources (which are defined by the statute to include newly constructed sources) and also existing sources that undergo “modification” within the meaning of CAA section 111(a)(4)).²⁰ As the first step to regulation, the CAA initially directed the EPA to publish by March 31, 1971, and “from time to time thereafter [to] revise,” a list of categories of stationary sources and to include on that list each category of stationary sources for which the Administrator has made a “judgment” that the emission of air pollutants from sources within such category “causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.”²¹ The EPA has listed and regulated more than 60 stationary source categories under CAA section 111.²² The EPA listed the source category at issue here, “Crude Oil and Natural Gas Production” in 1979.²³

Once the EPA has listed a source category, the EPA proposes and then promulgates “standards of performance” for new sources in the category, which includes sources that have yet to be constructed and those existing sources that undergo “modification.”²⁴ In addition, the EPA’s regulations provide that new sources also include an existing source that undertakes a reconstruction.

Under CAA section 111(b), the EPA must promulgate a “standard of performance” that new, modified, and reconstructed sources are to meet. CAA section 111(a)(1) defines a “standard of performance” as “a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction (BSER) which (taking into account [cost and other factors]) the Administrator determines has been adequately demonstrated.”

This definition makes clear that the standard of performance must be based on “the best system of emission reduction . . . adequately demonstrated” (BSER).

The U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) has had occasion over the years to speak to the definition of “standard of performance” and its component terms.²⁵ By its terms, the definition of “standard of performance” under CAA section 111(a)(1) provides that the emission limits that the EPA promulgates must be “achievable” by application of a “system of emission reduction” that the EPA determines to be the “best” that is “adequately demonstrated,” “taking into account . . . cost . . . nonair quality health and environmental impact and energy requirements.”

With respect to the cost factor, the D.C. Circuit has stated that the EPA may not adopt a standard the cost of which would be “unreasonable.”²⁶ The D.C. Circuit has indicated that the EPA has substantial discretion in its consideration of cost under CAA section 111(a). Moreover, CAA section 111(a) does not provide specific direction regarding what metric or metrics to use in considering costs, again affording the EPA considerable discretion in choosing a means of cost consideration.²⁷

²⁵ See 80 FR 64537 (discussing legislative history); *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375 (D.C. Cir. 1973); *Essex Chemical Corp. v. Ruckelshaus*, 486 F.2d 427, (D.C. Cir. 1973); *Portland Cement Ass’n v. EPA*, 665 F.3d 177 (D.C. Cir. 2011). See also *Delaware v. EPA*, 785 F.3d 1 (D.C. Cir. 2015).

²⁶ *Sierra Club v. Costle*, 657 F.2d 298, 343 (D.C. Cir. 1981). See “Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program,” Proposed Rule, 83 FR 44746, 44758 (August 31, 2018) (discussing D.C. Circuit caselaw).

²⁷ See, e.g., *Husqvarna AB v. EPA*, 254 F.3d 195, 200 (D.C. Cir. 2001) (where CAA section 213 does not mandate a specific method of cost analysis, the EPA may make a reasoned choice as to how to analyze costs).

C. What is the regulatory history and litigation background regarding performance standards for the oil and natural gas industry?

1. 1979 Listing of Source Category

Subsequent to the enactment of the CAA of 1970, the EPA took action to develop standards of performance for new stationary sources as directed by Congress in CAA section 111. By 1977, the EPA had promulgated NSPS for a total of 27 source categories, while NSPS for an additional 25 source categories were then under development.²⁸ However, in amending the CAA that year, Congress expressed dissatisfaction that the EPA’s pace was too slow. Accordingly, the 1977 CAA Amendments included a new subsection (f) in section 111, which specified a schedule for the EPA to list additional source categories under CAA section 111(b)(1)(A) and prioritize them for regulation under CAA section 111(b)(1)(B).

In 1979, as required by CAA section 111(f), the EPA published a list of source categories, which included “Crude Oil and Natural Gas Production,” for which the EPA would promulgate standards of performance under CAA section 111(b). See Priority List and Additions to the List of Categories of Stationary Sources, 44 FR 49222 (August 21, 1979) (“1979 Priority List”). That list included, in the order of priority for promulgating standards, source categories that the EPA Administrator had determined, pursuant to CAA section 111(b)(1)(A), contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. See 44 FR 49223 (August 21, 1979); see also 49 FR 2636–37 (January 20, 1984).

2. 1985 NSPS for VOC and SO₂ Emissions From Natural Gas Processing Units

On June 24, 1985 (50 FR 26122), the EPA promulgated NSPS for the source category that addressed VOC emissions from equipment leaks at onshore natural gas processing plants (40 CFR part 60, subpart KKK). On October 1, 1985 (50 FR 40158), the EPA promulgated NSPS

²⁰ CAA section 111(b)(1)(A).

²¹ *Id.*

²² See generally, 40 CFR part 60, subparts D–MMMM.

²³ 44 FR 49222 (August 21, 1979).

²⁴ CAA section 111(b)(1)(B).

²⁸ See 44 FR 49222 (August 21, 1979).

for the source category to regulate SO₂ emissions from onshore natural gas processing plants (40 CFR part 60, subpart LLL).

3. 2012 NSPS OOOO Rule and Related NSPS Rules

a. Regulatory action. In 2012, pursuant to its duty under CAA section 111(b)(1)(B) to review and, if appropriate, revise NSPS, the EPA published the final rule, “Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution,” 77 FR 49490 (August 16, 2012) (40 CFR part 60, subpart OOOO) (“2012 NSPS OOOO”). This rule updated the SO₂ standards for sweetening units and VOC standards for equipment leaks at onshore natural gas processing plants. In addition, it established VOC standards for several oil and natural gas-related operations emission sources not covered by 40 CFR part 60, subparts KKK and LLL, including natural gas well completions, centrifugal and reciprocating compressors, natural gas operated pneumatic controllers, and storage vessels. Using information available at the time, the EPA also evaluated methane emissions and reductions during the 2012 NSPS OOOO rulemaking as a potential co-benefit of regulating VOC emissions.

In 2013, 2014, and 2015 the EPA amended the 2012 NSPS OOOO rule in order to address implementation of the standards. “Oil and Natural Gas Sector: Reconsideration of Certain Provisions of New Source Performance Standards,” 78 FR 58416 (September 23, 2013) (2013 NSPS OOOO) (concerning storage vessel implementation); “Oil and Natural Gas Sector: Reconsideration of Additional Provisions of New Source Performance Standards,” 79 FR 79018 (December 31, 2014) (“2014 NSPS OOOO”) (concerning well completion); “Oil and Natural Gas Sector: Definitions of Low Pressure Gas Well and Storage Vessel,” 80 FR 48262 (August 12, 2015) (“2015 NSPS OOOO”) (concerning low pressure gas wells and storage vessels).

The EPA received petitions for both judicial review and administrative reconsiderations for the 2012, 2013, and 2014 NSPS OOOO rules. The EPA denied reconsideration for some issues, see “Reconsideration of the Oil and Natural Gas Sector: New Source Performance Standards; Final Action,” 81 FR 52778 (August 10, 2016), and, as noted below, granted reconsideration for other issues. All related litigation is currently stayed pending the reconsideration process.

4. 2016 NSPS OOOOa Rule and Related Amendments

a. Regulatory action. On June 3, 2016, the EPA published a final rule titled “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Final Rule,” at 81 FR 35824 (40 CFR part 60, subpart OOOOa) (“2016 NSPS OOOOa”).^{29 30} The 2016 NSPS OOOOa rule established NSPS for sources of GHG and VOC emissions for certain equipment, processes, and operations across the oil and natural gas industry. The 2016 NSPS OOOOa addresses the following emission sources:

- Sources that were unregulated under the 2012 NSPS OOOO (hydraulically fractured oil well completions, pneumatic pumps, and fugitive emissions from well sites and compressor stations);
- Sources that were regulated under the 2012 NSPS OOOO for VOC emissions, but not for GHG emissions (hydraulically fractured gas well completions and equipment leaks at natural gas processing plants); and
- Certain equipment that is used across the source category, for which the 2012 NSPS OOOO regulates emissions of VOC from only a subset (pneumatic controllers, centrifugal compressors, and reciprocating compressors), with the exception of compressors located at well sites.

On March 12, 2018, the EPA finalized amendments of certain aspects of the 2016 NSPS OOOOa requirements for the collection of fugitive emission components at well sites and compressor stations, specifically (1) the requirement that components on a delay of repair must conduct repairs during unscheduled or emergency vent blowdowns, and (2) the monitoring survey requirements for well sites located on the Alaska North Slope.

For further information on the 2016 NSPS OOOOa rule, see 81 FR 35824 (June 3, 2016) and for further information on the 2018 NSPS OOOOa amendments, see 83 FR 10628 (March 12, 2018). The associated public docket for both actions is Docket ID No. EPA–HQ–OAR–2010–0505.

²⁹ While the June 3, 2016, rulemaking also included final amendments to 40 CFR part 60, subpart OOOO, we are not proposing at this time to amend 40 CFR part 60, subpart OOOO.

³⁰ The 2016 NSPS OOOOa rule resulted from a series of directives from then President Obama targeted at reducing GHG, including methane: The President’s *Climate Action Plan* (June 2013); the President’s *Climate Action Plan: Strategy to Reduce Methane Emissions* (“Methane Strategy”) (March 2014); and the President’s directive to address, and if appropriate, propose and set standards for methane and ozone-forming emissions from new and modified sources in the sector (January 2015).

b. Petitions to reconsider. Following promulgation of the 2016 NSPS OOOOa rule, the Administrator received five petitions for reconsideration of several provisions. Copies of the petitions are provided in Docket ID No. EPA–HQ–OAR–2010–0505.³¹ As noted below, the EPA has granted reconsideration of several issues in the 2016 NSPS OOOOa rule, proposed revisions to the final rule based on the reconsideration and addressed broad implementation issues that stakeholders had brought to the EPA’s attention.

c. Litigation. Several states and industry associations challenged the 2016 NSPS OOOOa rule in the D.C. Circuit, alleging, among other things, that the EPA acted arbitrarily and capriciously and in excess of statutory authority. See, e.g., *West Virginia v. EPA*, 16–1264, State Petitioners’ Nonbinding Statement of the Issues to be Raised. These cases were consolidated. In addition, on January 4, 2017, the challenges to the 2016 NSPS OOOOa rule were consolidated with the challenges to the 2012 NSPS OOOO rule (as amended by the 2013 NSPS OOOO and 2014 NSPS OOOO rules), under *American Petroleum Institute v. EPA*, case No. 13–1108 (D.C. Cir.). ECF Dkt #1654072. On May 18, 2017, the D.C. Circuit issued an order granting a motion by the EPA to hold in abeyance the consolidated litigation over the 2012 NSPS OOOO rule (as amended by the 2013 NSPS OOOO and 2014 NSPS OOOO rules) and the 2016 NSPS OOOOa rule, and requiring the EPA to file status reports every 60 days informing the Court and parties regarding what action it has or will be taking regarding those rules. *Id.*, ECF Dkt. #1675813.

D. Other Notable Events

On March 28, 2017, newly elected President Donald Trump issued Executive Order 13783 titled “Promoting Energy Independence and Economic Growth” (hereinafter “Executive Order”). The purpose of the Executive Order is to facilitate the development of domestic energy resources—including oil and gas—and to reduce unnecessary regulatory burdens associated with the development of those resources. Specifically, the Executive Order establishes the policy of the U.S. that executive departments and agencies “immediately review existing regulations that potentially burden the

³¹ See Docket ID Item Nos.: EPA–HQ–OAR–2010–0505–7682, EPA–HQ–OAR–2010–0505–7683, EPA–HQ–OAR–2010–0505–7684, EPA–HQ–OAR–2010–0505–7685, EPA–HQ–OAR–2010–0505–7686.

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.” *Id.*, Section 1(c). The Executive Order specifically instructs the EPA, among other things, to “review” the 2016 NSPS OOOOa rule as well as “any rules and guidance issued pursuant to it, for consistency with th[is] policy” *Id.*, Section 7. The Executive Order further provides that “if appropriate, [the Agency] shall, as soon as practicable, suspend, revise, or rescind the guidance, or publish for notice and comment proposed rules suspending, revising, or rescinding those rules.” *Id.*

In accordance with the Executive Order, also on March 28, 2017, the EPA Administrator signed a **Federal Register** document announcing that the Agency is “reviewing the 2016 Oil and Gas New Source Performance Standards (Rule), 81 FR 35824 (June 3, 2016), and, if appropriate, will initiate proceedings to suspend, revise, or rescind it.” The EPA further explained that: “If the EPA’s review concludes that suspension, revision, or rescission of this Rule may be appropriate, the EPA’s review will be followed by a rulemaking process that will be transparent, follow proper administrative procedures, include appropriate engagement with the public, employ sound science, and be firmly grounded in the law.” *Id.*, page 3. This notice was published in 82 FR 16331 (April 4, 2017).

On April 18, 2017, the EPA issued a letter granting reconsideration of the fugitive emissions requirements at well sites and compressor stations. On June 5, 2017, the EPA issued a notice granting reconsideration of additional issues, specifically the well site pneumatic pumps standards and the requirements for certification by a PE. See “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources; Grant of Reconsideration and Partial Stay,” 82 FR 25730 (June 5, 2017).

In addition, in the same June 5, 2017, document of action in which it granted reconsideration of additional issues, the EPA also issued, under CAA section 307(d)(7)(B), a 90-day partial stay of the 2016 NSPS OOOOa rule, pending the reconsiderations. Specifically, the EPA stayed the provisions for fugitive emissions requirements, well site pneumatic pump standards, and certification of CVS by a PE (40 CFR sections 60.5393a(b) through (c), 60.5397a, 60.5410a(e)(2) through (5) and

(j), 60.5411a(d), 60.5415a(h), 60.5420a(b)(7), (8), and (12), and (c)(15) through (17)). 82 FR 25730. Environmental groups challenged this stay, and on July 3, 2017, the D.C. Circuit vacated the stay on grounds that it did not meet the CAA section 307(d)(7)(B) criteria. See *Clean Air Council v. EPA*, 862 F.3d 1 (D.C. Cir. 2017).

On June 16, 2017, the EPA published a proposed stay of the same three requirements of the 2016 NSPS OOOOa rule for 2 years. “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements,” 82 FR 27645 (June 16, 2017).

On November 8, 2017, the EPA issued a Notice of Data Availability (NODA) for the proposed 2-year stay of the 2016 NSPS OOOOa rule. In this NODA, the EPA provided, among other things, additional information on several topics raised by stakeholders and solicited comment on the information presented, including the legal authority to issue a stay and the technological, resource, and economic challenges with implementing the fugitive emissions requirements, well site pneumatic pump standards, and the requirements for certification of CVS by a PE. “Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements,” 82 FR 51788 (November 8, 2017). The EPA also solicited comment on other avenues to address these issues other than issuing a stay.

As previously discussed, on March 12, 2018, the EPA finalized amendments of certain aspects of the requirements for the collection of fugitive emission components at well sites and compressor stations, specifically (1) the requirement that components on a delay of repair must conduct repairs during unscheduled or emergency vent blowdowns and (2) the monitoring survey requirements for well sites located on the Alaska North Slope. 83 FR 10628. These narrow amendments to the 2016 NSPS OOOOa rule were in response to comments the EPA received on the proposed stays and NODA and address significant and immediate compliance concerns.

On October 15, 2018, the EPA granted reconsideration of additional issues in the 2016 NSPS OOOOa rule, proposed revisions to that rule based on the reconsideration, and addressed broad implementation issues that stakeholders had brought to the EPA’s attention. 83 FR 52056.

E. Related State and Federal Regulatory Actions

Several states and federal agencies currently regulate the oil and natural gas industry. The scope of state requirements ranges from general reporting requirements to quantitative emissions limits and restrictions on venting and flaring. For example, Colorado requires that dehydrators, liquids unloading operations, and pneumatic controllers achieve specific emission reductions, in addition to regular monitoring of storage vessels and fugitive emissions. In Texas, well site requirements vary based on specific site-wide VOC emissions, but standard requirements exist for storage vessels, pneumatic controllers, and fugitive emissions. North Dakota has restrictions on venting and flaring. Ohio has general permit programs for well sites and compressor stations; the state also regulates dehydrators, engines, flares, fugitive emissions, and storage vessels at both well sites and compressor stations, in addition to requirements for compressors, truck loading, and pigging operations. Pennsylvania has a general permit program for compressor stations and a permit exemption program for well sites. The compressor station permit includes requirements for engines, compressors, storage vessels, fugitive emissions, and dehydrators. The permit exemption program includes requirements for well completions, engines, fugitive emissions, storage vessels, and flares. The EPA describes state fugitive emissions program requirements in the memorandum titled “Equivalency of State Fugitive Emissions Programs for Well Sites and Compressor Stations to Proposed Standards at 40 CFR part 60, subpart OOOOa,” located at Docket ID No. EPA–HQ–OAR–2017–0483. Additional information can be found in a memorandum³² written by the Bureau of Land Management (BLM) in support of the “Waste Prevention, Production Subject to Royalties, and Resource Conservation; Rescission or Revision of Certain Requirements,” see 83 FR 7924.

In addition to states, certain federal agencies regulate the oil and natural gas industry. For example, on November 18, 2016, the BLM promulgated new regulations to reduce waste of natural gas from venting, flaring, and leaks during oil and natural gas production on onshore federal and Indian (other than Osage Tribe) leases.³³ On September 28, 2018, the BLM finalized amendments to their 2016 rule in order to reduce

³² See Docket ID Item No. BLM–2018–0001–0004.

³³ 81 FR 83008 (November 18, 2016).

compliance burden and maintain consistency with BLM's existing statutory authorities.³⁴ The BLM's revised 2018 rule discourages excessive venting and flaring by placing volume and time limits on royalty-free venting and flaring during production testing, emergencies, and downhole well maintenance and liquids unloading. Additionally, BLM's rule incentivizes the beneficial use of gas by making gas used for operations and production purposes royalty free. More detailed information can be found at BLM's website: <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/methane-and-waste-prevention-rule>.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is responsible for regulating and ensuring the safe and secure movement of materials to industry and consumers by all modes of transportation, including pipelines. While PHMSA's regulations are focused on safety, there is likely a corresponding environmental co-benefit from their rules. For example, the PHMSA's Office of Pipeline Safety ensures safety in the design, construction, operation, maintenance, and incident response of the U.S.' approximately 2.6 million miles of natural gas and hazardous liquid transportation pipelines. When pipelines are maintained, the likelihood of environmental releases like leaks are reduced.³⁵ More detailed information can be found at the PHMSA's website: <https://www.phmsa.dot.gov/>.

IV. Summary and Rationale of Proposed Actions

As directed by the President, the EPA has reviewed the 2012 NSPS OOOO and 2016 NSPS OOOOa with attention to whether the rules “unduly burden the development of domestic energy resources beyond the degree necessary to protect the public interest” and, if so, whether it is appropriate to “suspend, revise, or rescind” regulatory requirements.^{36 37} This proposal follows that review, and the EPA is proposing revisions to those requirements while maintaining health and environmental

protections for emission sources within the regulated source category.³⁸

Specifically, the EPA is proposing to revise the source category to remove the transmission and storage segment entirely and rescind the NSPS requirements applicable to sources within the transmission and storage segment. This proposed action is based on the EPA's proposed determination that its 2012 and 2016 rulemakings that interpreted or expanded the source category to includes sources in the transmission and storage segment were improper in that regard. Further, the EPA is proposing to rescind the methane requirements of the NSPS applicable to sources within the production and processing segments because they are entirely redundant of the existing NSPS for VOC.³⁹ Those requirements, thus, provide no additional health protections and are unnecessary. Indeed, due to the identical emissions profiles and source control technologies for methane and VOC, the EPA, when establishing the 2016 NSPS OOOOa to regulate methane, found no need for any changes to the existing NSPS requirements for VOC. Rescinding the requirements of the 2016 NSPS OOOOa applicable to methane emissions, while leaving in place the requirements applicable to VOC emissions, will not affect the amount of methane reductions that are achieved in the production and processing segments, but it will provide for greater clarity by simplifying the rule. Rescission of the requirements applicable to methane emissions will also obviate the need for the development of emission guidelines under CAA section 111(d) and 40 CFR part 60, subpart B to address methane emissions from existing sources within the crude oil and natural gas production industry.

As an alternative to this first set of proposed actions, the EPA is proposing to rescind the methane requirements of the 2016 NSPS OOOOa applicable to all oil and natural gas sources without removing any sources from the source category.

A. Revision of the Source Category To Remove Transmission and Storage Segment

Under CAA section 111(b)(1)(A), the EPA must “publish . . . a list of categories of stationary sources, emissions from which, in the judgment of the Administrator, cause[], or contribute[] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.” Further, CAA section 111(b)(1)(A) directs that “from time to time thereafter” the EPA “shall revise” this “list” of categories of stationary sources. Following the “inclusion of a category of stationary sources in a list,” the EPA then proposes and promulgates “standards of performance for new sources within such category.” CAA section 111(b)(1)(A). Thereafter, the EPA “shall . . . review and, if appropriate, revise such standards.” CAA section 111(a)(1)(B).

CAA section 111(b)(1)(A) does not include any specific criteria for determining the reasonable scope of a given “category” of “stationary sources” beyond the requirement that the Administrator make a finding that, in his or her “judgment,” emissions from the “category of sources . . . cause[], or contribute[] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.” Accordingly, the EPA is afforded some measure of discretion in determining at the outset the scope of a source category.

In 1978, the EPA published “Priorities for New Source Performance Standards Under the Clean Air Act Amendments of 1977.”⁴⁰ The purpose of this document was to implement the requirements of CAA section 111(f) to develop and apply a methodology for identifying, establishing, and prioritizing the source categories that should be considered first for in-depth analysis prior to NSPS promulgation under CAA section 111. For purposes of the 1978 analysis, the EPA aggregated emissions from “oil and gas production fields” and “natural gas processing” as part of the “Crude Oil and Natural Gas Production Plant” source category. The EPA identified this aggregated source category as a source of HC and SO₂ emissions. When the EPA finalized the priority list in 1979, it slightly revised the name of the source category as “Crude Oil and Natural Gas Production.” 49 FR 49222 (August 21, 1979).

⁴⁰ Priorities for New Source Performance Standards Under the Clean Air Act Amendments of 1977. April 1978. EPA-450/3-78-019.

³⁴ 83 FR 49184.

³⁵ See Final Report on Leak Detection Study to PHMSA, December 10, 2012. <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/technical-resources/pipeline/16691/leak-detection-study.pdf>.

³⁶ Executive Order 13783, “Promoting Energy Independence and Economic Growth,” section 1(c) (March 28, 2017).

³⁷ 82 FR 16331 (April 4, 2017) (Notice of review of 2016 NSPS OOOOa pursuant to Executive Order 13783, signed by the EPA Administrator).

³⁸ We note that the EPA is addressing certain specific reconsideration issues—fugitive emissions requirements at well sites and compressor stations, well site pneumatic pump standards, and the requirements for certification of CVS by a PE—in a separate proposal. See Docket ID Item No. EPA-HQ-OAR-2010-0505-7730 and 82 FR 25730.

³⁹ Section VI of this preamble takes comment on alternative questions of statutory interpretation and associated potential record determinations which, if the EPA were to adopt them, might provide an additional or alternative basis for both the primary and the alternative proposal.

In 1985, the EPA promulgated two rulemakings establishing NSPS for the Crude Oil and Natural Gas Production source category. These were 40 CFR part 60, subpart KKK—Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants (50 FR 26124, June 23, 1985); and subpart LLL—Standards of Performance for SO₂ Emissions from Onshore Natural Gas Processing (50 FR 40160, October 1, 1985). When it first proposed 40 CFR part 60, subpart KKK, the EPA noted that the “category ‘Crude Oil and Natural Gas Production’ ranks 29th on the list of 59 source categories,” and that the “crude oil and natural gas production industry encompasses the operations of exploring for crude oil and natural gas products, removing them from beneath the earth’s surface, and processing these products for distribution to petroleum refineries and gas pipelines.”⁴¹ The EPA repeated that description of the identified source category when it first proposed 40 CFR part 60, subpart LLL, explaining that the “crude oil and natural gas production industry encompasses not only processing of the natural gas (associated or not associated with crude oil) but operations of exploration, drilling, and subsequent removal of the gas from porous geologic formations beneath the earth’s surface.”⁴²

In 2012, the EPA reviewed the VOC and SO₂ standards and at the same time established new requirements for stationary sources of VOC emissions that had not been regulated in the 1985 rulemaking (e.g., well completions, pneumatic controllers, storage vessels, and compressors). 40 CFR part 60, subpart OOOO—Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or Before September 18, 2015, (77 FR 49542, August 16, 2012). In the preamble of the 2011 proposal for that 2012 NSPS OOOO final rule, the EPA interpreted the 1979 listing as indicating that “the currently listed Oil and Natural Gas source category covers all operations in this industry (*i.e.*, production, processing, transmission, storage and distribution).” 76 FR 52738, 52745 (August 23, 2011). Further, the EPA stated that “[t]o the extent there are oil and gas operations not covered by the currently listed Oil and Natural Gas source category. . . ., we hereby modify the category list to include all operations in the oil and natural gas

sector.” *Id.* at 52745. The stated basis for that proposed decision was that “[s]ection 111(b) of the CAA gives the EPA the broad authority and discretion to list and establish NSPS for a category that, in the Administrator’s judgment, causes or contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.” *Id.* at 52745. No additional discussion of this listing position was provided in the 2011 proposal.

In the 2012 final rulemaking, the EPA promulgated NSPS for emission sources in the production, processing, and transmission and storage segments, 77 FR 49490, 49492 (August 16, 2012), and stated that “[t]he listed Crude Oil and Natural Gas Production source category covers, at a minimum, those operations for which we are establishing standards in this final rule.” *Id.* at 49496. In responding to comments, the EPA took the position that it was not actually revising the source category to include emission sources in the transmission and storage segment, but rather, was interpreting the 1979 listing to be “broad,” and interpreting the 1985 rulemaking as “view[ing] this source category listing very broadly,” *Id.* at 49514, so that, in the EPA’s view, the source category was already sufficiently broad to include that segment.⁴³

In 2016, the EPA promulgated new NSPS (40 CFR part 60, subpart OOOOa) for the Crude Oil and Natural Gas Production source category (81 FR 35824, June 3, 2016). As the EPA did in the 2012 NSPS OOOO rule, the EPA took the position that the 1979 listing was broad enough to encompass the transmission and storage segment and that the 1985 rulemakings confirmed that broad listing. The EPA stated that the inclusion of the transmission and storage segment into the original 1979 source category was warranted because equipment and operations at production, processing, transmission and storage facilities are a sequence of functions that are interrelated and necessary for getting the recovered gas ready for distribution. Nevertheless, the EPA recognized that the scope of the prior listing may have had some

ambiguity. Accordingly, “as an alternative,” the EPA finalized a revision of the category to broaden it, so that “[a]s revised, the listed oil and natural gas source category includes oil and natural gas production, processing, transmission, and storage.” (81 FR 35840).

The EPA has reviewed the original 1979 listing of the Crude Oil and Natural Gas Production source category and the associated background materials and now proposes to find that its 2012 and 2016 interpretation of the 1979 listing—*i.e.*, that the 1979 listing included natural gas transmission and storage—was erroneous. The preamble accompanying the 1979 listing, which identified the source category as “Crude Oil and Natural Gas Production,” gave no indication that a source category ostensibly focused on “production” also included those sources associated with post-production operations such as transmission and storage. As explained in greater detail below, to the extent there was ambiguity, the issue was resolved in 1984, when the EPA, in proposing the first standards of performance for sources within the Crude Oil and Natural Gas Production source category (*i.e.*, 40 CFR part 60, subpart KKK), described the category as “encompass[ing] the operations of exploring for crude oil and natural gas products, removing them from beneath the earth’s surface and processing these products for distribution to petroleum refineries and gas pipelines.”⁴⁴ This description, by its express terms, establishes that sources in the transmission and storage segment were not included in the Crude Oil and Natural Gas Production source category as listed in 1979. Therefore, the EPA is proposing to disavow its erroneous interpretation from 2012 and 2016, and instead propose that the source category does not include natural gas transmission and storage. Following are details of our rationale for this action.

As noted above, the 1978 “Priorities for New Source Performance Standards Under the Clean Air Act Amendments of 1977” analysis aggregated the emissions from “oil and gas production fields” and “natural gas processing” as part of what was then labeled as the “Crude Oil and Natural Gas Production Plants” source category. This aggregated source category was identified as a source of HC and SO₂ emissions. The EPA listed the “Stationary Pipeline Compressor Engines” source category separately, which included emissions specific to engines used at compressor stations (*i.e.*, NO_x, SO₂ and carbon

⁴¹ 49 FR 2637 (January 20, 1984).

⁴² 49 FR 2658 (January 20, 1984).

⁴³ In the 2012 NSPS OOOO rulemaking, the EPA referred to the distribution segment of the oil and natural gas industry, which entails transporting natural gas to the end user, 76 FR 52738, 52745 (August 23, 2011) (proposed rule); 49514, 77 FR 49493 (Table 2) (August 16, 2012) (final rule). However, in the 2016 NSPS OOOOa rule, the EPA clarified that the scope of the Oil and Natural Gas Production and Processing source category includes the transmission and storage segment, but not the distribution segment. In addition, the EPA has never treated any sources in the distribution segment as subject to the requirements of NSPS OOOO or OOOOa.

⁴⁴ 49 FR 2637; *see also* 49 FR 2658.

monoxide (CO)). EPA-450/3-78-019 (April 1978).

The revised priority list that the EPA promulgated in 1979 and its associated support document, “Revised Prioritized List of Source Categories for Promulgation,”⁴⁵ included the aggregated “Crude Oil and Natural Gas Production Plants” source category. The support document also included a separate study of “stationary pipeline compressor engines” emissions. The record makes clear that, at the time, the EPA was distinguishing between oil and natural gas production plants and natural gas processing on the one hand, and stationary pipeline compressor engines on the other, and that it intended to promulgate separate standards for HC and SO₂ emissions from those two source categories. EPA-450/3-79-023 (March 1979). The record for the 1979 action indicates that, at the time, the EPA clearly considered the “Crude Oil and Natural Gas Production” source category to include but be limited to production and processing operations. In addition, the record makes clear that the EPA also considered stationary pipeline compressor engines to be part of a separate source category.⁴⁶ Other parts of the record indicate that the EPA intended to promulgate standards separately for HC and SO₂ emissions from those two sets of sources. EPA-450/3-79-023 (March 1979). In contrast, the record does not specifically address the transmission and storage segment.

As has already been noted, in 1984–85, the EPA developed the first two NSPS for the source category (40 CFR part 60, subparts KKK and LLL) by establishing standards to address VOC and SO₂ emissions for sources in the production and processing segments alone, and in so doing, indicated that it considered the scope of the source category to be limited to those segments. Specifically, the EPA promulgated standards at 40 CFR part 60, subpart KKK for onshore natural gas processing plants in 1985, which were the first standards promulgated for the source category. In the 1984 proposal preamble,

the EPA clarified the scope of the source category as follows:

The crude oil and natural gas production industry encompasses the operations of exploring for crude oil and natural gas products, drilling for these products, removing them from beneath the earth’s surface, and processing these products from oil and gas fields for distribution to petroleum refineries and gas pipelines.

49 FR 2636.

Thus, in the sentence just quoted, the EPA explicitly defined the source category as encompassing the natural gas operations up to the point of distribution to gas pipelines, that is, up to the storage and transmission segment, and in that manner, indicated that this segment was not included in the source category. (Similarly, in the same sentence, the EPA defined the scope of the source category as encompassing oil operations up to the point of distribution to petroleum refineries, which are a separate source category.) In this manner, the EPA indicated that the Crude Oil and Natural Gas Production source category includes operations from well sites (exploration, drilling, and removal) and natural gas processing plants (processing). While gathering and boosting compressor stations were not specified, it is reasonable to conclude that they are also included because they are located between two covered sites, the well site and the processing plant. However, to reiterate, subsequent operations, such as transmission, storage, and distribution were not included. Thus, the EPA is now proposing to find that its earlier view that the original listing in 1979 of the Crude Oil and Natural Gas Production source category already included the transmission and storage segment was in error, as the record of the 1979 listing action, and subsequent rulemaking actions by the EPA, described above, make clear.

As noted above, we had stated in the 2016 NSPS OOOOa rule our view that the “1979 listing of [the Crude Oil and Natural Gas Production] source category provides sufficient authority for this action,” but we then added that, “to the extent that there is ambiguity in the prior listing, the EPA hereby finalizes, as an alternative, its proposed revision of the category listing to broadly include the oil and natural gas industry.”⁴⁷ “As revised,” we went on to say, “the listed oil and natural gas category includes oil and natural gas production, processing, transmission, and storage.”⁴⁸ As discussed next, the EPA is further proposing to find that this “alternative”

approach—i.e., “revising” the previously-established Crude Oil and Natural Gas Production source category to include sources within the storage and transmission segment—was in error.

While CAA section 111(b)(1)(A) and (B), respectively direct the EPA to “revise,” where warranted, both the “list of source categories” and the “standards of performance” that the EPA has promulgated, nothing in CAA section 111 expressly authorizes or directs the EPA to “revise” a “source category,” by altering its scope, once the EPA has listed that source category. However, the EPA has inherent authority to reconsider, repeal, or revise past decisions to the extent permitted by law so long as the Agency provides a reasoned explanation. See *Motor Vehicle Manufacturers Association of the United States v. State Farm Mutual Automobile Insurance Co.*, 463 US 29, 56–57 (1983) (“an agency changing its course must supply a reasoned analysis,” quoting *Greater Boston Television Corp. v. FCC*, 143 F.2d 841, 842 (D.C. Cir.)). The CAA complements the EPA’s inherent authority to reconsider prior rulemakings by providing the Agency with broad authority to prescribe regulations as necessary. See 42 U.S.C. 7601(a). See *Clean Air Council v. Pruitt*, 862 F.3d 1, 8–9 (D.C. Cir. 2017) (“[a]gencies obviously have broad discretion to reconsider a regulation at any time”). Even so, the EPA proposes that the authority to revise the scope of a source category must be exercised only within reasonable boundaries and cannot be employed in such a way as to result in an unreasonable expansion of an existing source category, i.e., one that purports to expand a source category to cover a new set of sources that are sufficiently unrelated to the sources in the pre-existing category that they constitute a separate source category for which the EPA is required to make a new contribute-significantly-and-endangerment finding as a prerequisite to regulating them. Otherwise, expanding the source category by including new sources could be used to circumvent that requirement. The EPA proposes to conclude that the 2016 expansion of the source category to include sources in the transmission and storage segment did, in fact, exceed the reasonable boundaries of its authority to revise source categories.

In the 2016 NSPS OOOOa rule, the EPA purported to “support” its “revision” of the source category by making the “requisite finding under section 111(b)(1) that, in the Administrator’s judgment, this source

⁴⁵ U.S. EPA. “Revised Prioritized List of Source Categories for NSPS Promulgation.” March 1979. EPA-450/3-79-023.

⁴⁶ The EPA promulgated NSPS for stationary spark ignition internal combustion engines under the “Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.” (40 CFR part 60, subpart JJJJ; 73 FR 3568, 3569, January 18, 2008). These standards applied to engines located at compressor stations at natural gas transmission and storage facilities, as well as engines located in other industry sectors.

⁴⁷ 81 FR 35833.

⁴⁸ *Id.* (footnote omitted).

category, *as defined above*, contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.”⁴⁹ The EPA is now proposing to find that this approach was erroneous.

Specifically, we are proposing that the EPA was required to make a finding that the *transmission and storage segment in and of itself* “contributes significantly to air pollution which may reasonably be anticipated to endanger public health or welfare,” not simply that the source category, “as defined above”—*i.e.*, defined to include “oil and natural gas production, processing, transmission, and storage”⁵⁰—“contributes significantly.” Nowhere in the course of promulgating the 2016 NSPS OOOOa rule did the EPA make a finding that sources in the transmission and storage segment, in themselves, “contribute[] significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.” The EPA avoided making such a finding by purporting to have “revised” the source category by including that transmission and storage segment and then proceeding to find that the expanded source category “contributes significantly.”⁵¹

This approach, the EPA now proposes to find, was not appropriate. Had the EPA chosen to revise the source category *list* to include the “transmission and storage” segment as a separate source category, it could have done so only after making a finding that emissions from sources within that source category “cause[], or contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.” Thus, if transmission and storage sources are sufficiently distinct from production and processing sources such that it would not be appropriate to include them in the Crude Oil and Natural Gas source category via revising of that source category, then the EPA could promulgate NSPS for them only if it first listed them as a separate source category, a step that the EPA has not taken.⁵²

The EPA proposes to determine that transmission and storage sources are, in fact, sufficiently distinct from production and processing sources that the EPA erred when, in the 2016 NSPS OOOOa rule, it purported to revise the source category to include sources in the transmission and storage segment. Specifically, the EPA proposes to determine that its determination in the 2016 NSPS OOOOa rule that equipment and operations at production, processing, and transmission and storage facilities are a sequence of

approaches, ranging from making a significant contribution finding for the newly added sources, making such a finding for the newly expanded source category, and not making such a finding at all. *Compare* “Standards of Performance for New Stationary Sources; Priority List—Final Rule,” 47 FR 31875, 31876 (July 23, 1982), “Standards of Performance for New Stationary Sources; Priority List—Proposed Amendment,” 45 FR 76427, 26427–28 (November 18, 1980) (expanding the “asphalt roofing source category” to include “asphalt blowing stills and storage tanks at asphalt processing facilities and petroleum refineries,” explaining that “[i]t is . . . reasonable to treat the asphalt processing and roofing manufacture industry as a single category of sources” because the processing and refinery sources are sites for “initial steps in the preparation of asphalt for roofing manufacture” and “[t]he emissions, processes, and applicable controls for blowing stills and asphalt storage tanks at oil refineries and asphalt processing plants are the same as those at asphalt roofing plants,” determining that the added sources “contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare”) *with* “Standards of Performance for New Stationary Sources; Industrial-Commercial-Institutional Steam Generating Units—Final Rule,” 51 FR 42794, 42794–95 (November 25, 1986) (expanding the source category of “industrial fossil fuel-fired steam generators” to “cover all steam generators, including both fossil and nonfossil fuel-fired steam generators, as well as steam generators used in industrial, commercial, and institutional applications,” explaining that “fossil and nonfossil fuel-fired industrial, commercial, and institutional steam generating units should be classified together as one source category . . . [because they] emit similar pollutants, fire the same fuels, and may employ the same emission control techniques [and] [t]heir impacts on human health are similar,” determining that the source category as expanded “is a significant contributor and an appropriate source category for regulation,” and adding that “[t]here is no requirement that each subcategory of a listed category . . . also be significant contributors”) *and* “Standards of Performance for New Stationary Sources, Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) Constructed After July 23, 1984—Proposed Rule,” 49 FR 29698, 29700 (July 23, 1984), “Standards of Performance for New Stationary Sources: Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)—Final Rule,” 52 FR 11420, 11420 (April 8, 1987) (expanding the “synthetic organic chemical manufacturing industry” (SOCMI) source category to include “storage vessels emitting VOC’s located at plants other than SOCMI plants, such as liquid bulk storage terminals,” explaining that those facilities “store the same or similar liquids as those at SOCMI plants and . . . can be controlled with the same effectiveness, the same costs . . . and the same control technology as storage vessels located at SOCMI plants,” not making any determination concerning significant contribution).

functions that are interrelated and necessary for getting the recovered gas ready for distribution, was unreasonable. We now propose that the transmission and storage operations are distinct from production and processing operations because the natural gas that enters the transmission and storage segment has different composition and characteristics than the natural gas that enters the production and processing segments.

The primary operations of the production and processing segments are the exploration of crude oil and natural gas products beneath the earth’s surface, drilling wells that are used to extract these products, and processing the crude oil and field gas for distribution to petroleum refineries and gas pipelines. As stated previously in this section, the EPA described this source category’s operations similarly when proposing 40 CFR part 60, subpart KKK in 1984. 49 FR 2637. The primary purpose of these segments is to remove impurities from the extracted product. At a well site (production segment), crude oil and natural gas are extracted from the ground. Some processing can take place at the well site, such as the physical separation of gas, production fluids, and condensate. The separated gas (“field gas”) is then sent through gathering pipelines to the natural gas processing plant (processing segment). At the processing plant, the field gas is converted to sales gas or pipeline quality gas. This involves several steps including the extraction of natural gas liquids (*e.g.*, a mixture of propane, butane, pentane) from the field gas, the fractionation of these natural gas liquids into individual products (*e.g.*, liquid propane), or both extraction and fractionation. The final natural gas that exits the processing plant is sales gas, which is predominantly methane, as discussed above. In these segments, the field gas has physically changed such that it is a usable product.

Analysis of the composition of gas on a nationwide basis in the various industry segments confirms the different character of the segments. In 2011 and subsequently in 2018, the EPA conducted an analysis of the composition, expressed in percent volume, of natural gas based on the methane, VOC, and hazardous air pollutant (HAP) content across the various industry segments.^{53 54} For

⁵³ Memorandum to Bruce Moore, U.S. EPA from Heather Brown, EC/R. “Composition of Natural Gas for use in the Oil and Natural Gas Sector Rulemaking.” July 2011. Docket ID Item No. EPA–HQ–OAR–2010–0505–0084.

⁴⁹ 81 FR 35833 (emphasis added).

⁵⁰ *Id.*

⁵¹ See 80 FR 35837–35840 (explaining “how GHG, VOC and SO₂ emissions” from the source category *as revised* to include the oil and natural gas production, processing, transmission, and storage segments, and not the transmission and storage segment itself, “are ‘air pollution’ that may reasonably be anticipated to endanger public health and welfare.”).

⁵² In prior actions to expand a previously listed source category to include additional sources when the Agency considers the newly added sources to be logically connected to the sources already in the source category, the EPA has taken different

example, in 2011, the nationwide composition for the production segment, which included wells and unprocessed natural gas, consisted of approximately 83 percent methane, 4 percent VOC, and less than 1 percent HAP. In contrast, the transmission segment, which included pipeline and sales gas (*i.e.*, post processing), consisted of approximately 93 percent methane, 1 percent VOC, and less than 0.01 percent HAP. In 2018, the EPA reviewed new studies available and found similar results. The nationwide composition for the production segment consisted of approximately 88 percent methane and 4 percent VOC. In addition, the EPA determined the data was insufficient to include HAP in the final analysis. Limited updated natural gas composition data were available for the transmission and storage segment. These differences in the gas composition demonstrate that the emissions profile is different following gas processing; however, the EPA recognizes that these numbers are nationwide and that variations can occur from basin-to-basin within each segment. The fact that the original listing was specific to VOC and SO₂ emissions and that emissions of these pollutants are lower downstream of the natural gas processing plant further support our interpretation that the 1979 listing included only the production and processing segments.

The operations of the transmission and storage segment differ from production and processing because in the former, the natural gas does not undergo changes in composition, except for some limited removal of liquids that condensed during the temperature and pressure changes as the gas moves through the pipeline. Therefore, the natural gas that enters the transmission and storage segment has approximately the same composition and characteristics as the natural gas that leaves the segment for distribution. The segment includes natural gas transmission compressor stations, whose primary operation is to move the natural gas through transmission pipelines by increasing the pressure. Dehydration, which can also occur at compressor stations, is a secondary operation used when the natural gas has collected water during transmission. At storage facilities, natural gas is injected into underground storage for use during peak seasons.⁵⁵ When demand

increases, the natural gas is extracted from the underground storage, dehydrated to remove water that has entered during storage, compressed, and moved through distribution pipelines. It is the EPA's understanding that processing of field gas generally occurs within the production and processing segments. Operators within the transmission and storage segment typically do not operate within the production and processing segments and vice-versa.

These distinct differences in the operations, the physical transformation of the field gas to sales gas, and the physical movement of sales gas through pipelines establish that two separate categories are necessary. This distinction is similar to the distinction the EPA has made between other source categories with segments that handle the production and processing of a material and subsequent transport of the product. One example is the petroleum industry. In that industry, crude oil is produced through the extraction of material at well sites from beneath the earth's surface. Crude oil is then transferred to refineries where it undergoes chemical and physical changes that result in various formulations of gasoline. The refined gasoline is transmitted by pipeline, ship, barge, or rail to bulk gasoline terminals that store the product in large above ground tanks until it is loaded for transport to distribution networks. The segments of the petroleum industry are also demarcated by product composition, the physical, and in the case of the petroleum industry, chemical transformation of crude oil to refined gasoline products such as gasoline, jet aircraft fuels, diesel fuel, motor oil, kerosene, asphalt, and sulfur. Production facilities,⁵⁶ refineries,⁵⁷ and bulk gasoline terminals⁵⁸ all have operational differences, and the EPA placed them in three different source categories. Those operational differences are similar to the operational differences between the production and processing segments and the transmission and storage segment at issue in this proposal.

It should be noted that in the 2016 NSPS OOOOa rule, the EPA justified including the transmission and storage segment in the Crude Oil and Natural

Gas source category partly because some similar equipment (*e.g.*, storage vessels, pneumatic pumps, compressors) is used across the industry. While that is true, the differences in the operations of, and the emission profiles of, the different segments are more significant and support our proposal to exclude the transmission and storage segment from the source category. A review of 2016 NSPS OOOOa compliance reports from sources in the EPA Regions (3, 6, 8, 9, and 10) with the greatest oil and natural gas activity indicates that there were no storage vessels emitting more than 6 tons per year (tpy) VOC reported in the transmission and storage segment.⁵⁹ This supports our understanding that VOC emissions are lower in the transmission and storage segment and supports our understanding that any gas processing that occurs in the transmission and storage segment generally is limited to removing liquids that condensed during the temperature and pressure changes as the gas moves through the pipeline.

In summary, the EPA has not identified information from the original source category listing that indicates the transmission and storage segment was included in the Crude Oil and Natural Gas Production source category. In fact, in 1985, the date of the first standards that the EPA promulgated for the source category, the EPA clearly indicated that the source category was limited (and should be limited) to the production and processing segments. Further, there are distinct differences in operations and differences in the emissions profiles between the production and processing segments and the transmission and storage segment. We are, therefore, proposing to exclude transmission and storage sources from the Crude Oil and Natural Gas Production source category.

B. Rescission of the NSPS for Sources in Transmission and Storage Segment

A prerequisite for the EPA to promulgate an NSPS applicable to new sources is that the new sources must be in a source category that the EPA has listed under CAA section 111(b)(1). For the reasons stated in section IV.A immediately above, the EPA is proposing to rescind as improper the 2012 and 2016 rules' interpretations or extension of the source category to encompass sources in the transmission and storage segment. Under the proposed rescission, transmission and storage sources would not be contained

⁵⁴ Memorandum to U.S. EPA from Eastern Research Group. "Natural Gas Composition." November 13, 2018. Docket ID No. EPA-HQ-OAR-2017-0757.

⁵⁵ Storage can also take place in above ground storage vessels; however, it is our understanding

that these are more commonly used after the city gate, which has not been included in the source category at any point.

⁵⁶ U.S. EPA. "Revised Prioritized List of Source Categories for NSPS Promulgation." March 1979. EPA-450/3-79-023.

⁵⁷ 38 FR 15406 (May 4, 1973); 39 FR 9315 (March 8, 1974).

⁵⁸ 45 FR 83126 (December 12, 1980); 48 FR 37578 (August 18, 1983).

⁵⁹ These reports have since been made available for public viewing at <https://www.foiaonline.gov/foiaonline/action/public/submissionDetails?trackingNumber=EPA-HQ-2018-001886&type=request>.

within a listed source category. Accordingly, the promulgation of NSPS for transmission and storage sources was contrary to law, and as a result, the EPA is also proposing to rescind the NSPS in OOOO and OOOOa for emission sources in the transmission and storage segment. Specifically, we are proposing to rescind the requirements for compressor affected facilities located downstream of the natural gas processing plant; pneumatic controllers located downstream of the natural gas processing plant; storage vessel affected facilities located downstream of the natural gas processing plant; and the affected facility that is the collection of fugitive emission components located at a compressor station.

C. Status of Sources in Transmission and Storage Segment

If this proposal is finalized, the transmission and storage segment will revert to the status of a segment of the oil and natural gas industry not listed as a source category under CAA section 111(b)(1)(A) and, thus, will not be subject to regulation under CAA section 111(b) (for new sources) or CAA section 111(d) (for existing sources that emit certain air pollutants). The emission sources in the transmission and storage segment will be in the same position as emissions sources in other industries that the EPA has not listed as a source category under CAA section 111(b)(1)(A).

In the future, the EPA may evaluate these emissions more closely and determine whether the transmission and storage segment should be listed as a source category under CAA section 111(b)(1)(A).⁶⁰

D. Rescission of the Applicability to Methane of the NSPS for Production and Processing Segments

As the second of the two steps of its primary proposal, the EPA also is proposing to rescind the methane requirements of the NSPS applicable to

sources in the production and processing segments. The EPA is proposing to find that, in the specific circumstances presented here, the EPA lacked a rational basis to establish standards of performance for methane emissions from the production and processing segments because those requirements are entirely redundant with the existing NSPS for VOC, establish no additional health protections, and are, thus, unnecessary. Rescinding the applicability to methane emissions of the 2016 NSPS OOOOa requirements, while leaving the applicability to VOC emissions in place, will not affect the amount of methane reductions that those requirements will achieve, given the 2016 NSPS OOOOa compliance monitoring assurances, including technologies and frequency of monitoring.

It is rational for the EPA to determine that requirements that are redundant to other requirements are not necessary because they do not result in emission reductions beyond what would otherwise occur. For example, in its 1977 proposed NSPS for Lime Manufacturing Plants, the EPA proposed (and later promulgated) NSPS for particulate matter (PM) from lime plants, but not SO₂, and explained that the particulate controls would have the effect of adequately controlling SO₂. 42 FR 22506, 22507 (May 3, 1977). See *National Lime Assoc. v. EPA*, 627 F.2d 416, 426 n.27 (D.C. Cir. 1980) (quoting statements in the EPA's proposal). In effect, the EPA recognized that SO₂ requirements would be redundant to PM requirements, and, for that reason, declined to impose SO₂ requirements.⁶¹

The current NSPS requirements as applied to methane are redundant with the NSPS requirements as applied to VOC. Indeed, for each emission source in the source category subject to the NSPS, the requirements overlap completely. To understand this, it is important to recognize the emissions profile and control technology for these emission sources. Each emission source in the source category emits methane and VOC as co-pollutants through the same emission points and processes. The requirements of the NSPS, including the emission limits, required controls or changes in operations, monitoring, recordkeeping, reporting,

and all other requirements, apply to each emission source's emission points and processes and, therefore, to each emission source's methane and VOC emissions, in precisely the same way. The capture and control devices that the emission sources use to meet the NSPS requirements are the same for these co-pollutants and are not selective with respect to either VOC or methane emissions (though the concentration of VOC and methane in the gas emitted from any particular source will vary across types of affected facilities and geographic basins).⁶²

As a result, rescinding the applicability of the NSPS requirements to methane emissions will have no impact on the amount of methane emissions. Each affected facility in the production and processing segments will remain subject to the same NSPS requirements for VOC to which it was subject prior to the rescission, and those requirements will have the same impact in reducing the emission source's methane emissions as before the rescission of the methane requirements.

For example, the requirements for the collection of fugitive emissions components located at a well site include the periodic monitoring for fugitive emissions using an optical gas imaging (OGI) instrument. This instrument provides real-time visual images of HC gas emissions by using spectral wavelength filtering and an array of infrared (IR) detectors to visualize the IR absorption of HC and other gaseous compounds. As the gas absorbs radiant energy at the same waveband that the filter transmits to the detector, the motion of the gas is imaged. Since VOC and methane emissions can be imaged within the same waveband, the OGI instrument does not allow differentiation or speciation of the content of the emissions. Once a fugitive emission is identified with OGI, it must be repaired. Therefore, the same components are monitored and repaired, regardless of the content of the emissions from the affected facility. Thus, the proposed rescission of the applicability to methane will not change the applicability of the fugitive emissions requirements. The same is true for the other NSPS requirements.

Other examples include the requirements for pneumatic controllers, pneumatic pumps, and compressors.

⁶⁰ Methane emissions from the transmission and storage segment are 32 MMT CO₂ Eq. (1,295 kt methane) per the Inventory of United States Greenhouse Gas Emissions and Sinks: 1990–2017 (published April 11, 2019), which amounts to 5 percent of United States methane emissions and 0.5 percent of total U.S. GHG emissions on a CO₂ equivalent basis (using a GWP of 25 for methane). With respect to VOC emissions, the transmission and storage segment emitted 16,252 tons in 2014, which amounts to just 0.51 percent of national VOC emissions from that year. With respect to SO₂ emissions, there were 663 tons emitted from the transmission and storage segment in 2014, or just 0.79 percent of national SO₂ emissions. For HAP emissions, the transmission and storage segment emitted 1,143 tons in 2014, or just 0.01 percent of national HAP emissions for that year.

⁶¹ Similarly, the EPA declined to propose NSPS for (i) nitrogen oxides because they are emitted in low concentrations or (ii) carbon dioxide because, among other things, regulation would produce little environmental benefit. 42 FR 22507. These rationales for not proposing controls for air pollutants are similar to the redundancy rationale—in all cases, the essential point is that any controls would not result in meaningful emission reductions.

⁶² Similarly, the capture and control technologies used to reduce VOC and methane emissions are also effective in reducing each source's emissions of volatile HAP. Please note that while co-control is a favorable result, 40 CFR part 60, subpart OOOOa does not apply to HAP emissions from the source category.

Pneumatic controllers are automated instruments used for maintaining a process condition such as liquid level, pressure, pressure differential, and temperature. Pneumatic controllers make use of the available high-pressure natural gas to operate or control a valve. Natural gas may be released from these “gas-driven” pneumatic controllers with every valve movement and continuously from the valve control pilot. Continuous bleed pneumatic controllers can be classified into two types based on their emissions rates: (1) High-bleed controllers and (2) low-bleed controllers. Replacing high-bleed controllers with low-bleed controllers (or no-bleed and non-gas-driven controllers) non-selectively reduces methane and VOC emissions. Pneumatic pumps are devices that use gas pressure to drive a fluid by raising or reducing the pressure of the fluid by means of a positive displacement, a piston or a set of rotating impellers. Gas powered pneumatic pumps are generally used at oil and natural gas production sites where electricity is not readily available (Gas Research Institute/EPA, 1996) and can be a significant source of methane and VOC emissions. Routing pneumatic pump emissions to a pre-existing on-site control device, which combusts the gas, reduces methane and VOC emissions non-selectively. Emissions from compressors occur when natural gas leaks around moving parts in the compressor. In a reciprocating compressor, emissions occur when natural gas leaks around the piston rod when pressurized natural gas is in the cylinder. Over time, during operation of the compressor, the rod packing system becomes worn and will need to be replaced to prevent excessive leaking from the compression cylinder. Replacement of the compressor rod packing, replacement of the piston rod, and the refitting or realignment of the piston rod reduces methane and VOC emissions non-selectively. Emissions from centrifugal compressors depend on the type of seal used: Either “wet,” which uses oil circulated at high pressure, or “dry,” which uses a thin gap of high-pressure gas. The use of dry gas seals substantially reduces emissions. Routing emissions to the combustion device is also an option for reducing emissions from centrifugal compressors. In either case, the use of dry seals or combustion device reduces methane and VOC non-selectively. The proposed rescission of applicability to methane will not change the applicability of these requirements or that methane will be reduced as a co-reduction of VOC.

Furthermore, any fugitive detection and measurement approach currently approved or approved under the Alternative Means of Emissions Limitations that speciates emissions, would still identify fugitive emissions as defined by any visible emissions observed using OGI and require repair. That is, the NSPS requirements as applied to VOC will reduce methane in the same amounts as those requirements, as applied to methane, would as long as OGI with current levels of sensitivity to methane continue to be used. The EPA is aware that several new technologies are under development that would detect speciated fugitive emissions from oil and natural gas operations. We solicit comment on these new technologies and the need to evaluate the current fugitive emission detection technology specifications to determine that the level of control remains as protective.

As the EPA noted in the proposal for the 2016 NSPS OOOOa rule, the EPA has discretion to determine which pollutants emitted from a listed source category warrant regulation. The EPA has historically considered, among other things, the amount of the pollutant and “ha[s] ‘historically declined to propose standards for a pollutant [that] is emit[ted] in low amounts. . . .’” 80 FR 56599 (quoting 75 FR 54970, 54997 (September 9, 2010)).⁶³ In the case of the Oil and Natural Gas source category, there are no methane emissions from the sources subject to the NSPS beyond those emissions already subject to control by the provisions to control VOC in the NSPS. Accordingly, there is no need to add NSPS requirements applicable to methane.^{64 65}

⁶³ This discussion assumes that the EPA will retain the statutory interpretation set forth in the 2016 NSPS OOOOa rule of its authority under CAA section 111 to add new regulations to previously-regulated source categories, and that it will not adopt the alternative statutory interpretation on which it solicits comment in section VI.A below.

⁶⁴ In the 2016 NSPS OOOOa final rule, the EPA stated: While the controls used to meet the VOC standards in the 2012 NSPS also reduce methane emissions incidentally, in light of the current and projected future GHG emissions from the oil and natural gas industry, reducing GHG emissions from this source category should not be treated simply as an incidental benefit to VOC reduction; rather, it is something that should be directly addressed through GHG standards in the form of limits on methane emissions under CAA section 111(b) based on direct evaluation of the extent and impact of GHG emissions from this source category and the emission reductions that can be achieved through the best system for their reduction. The standards detailed in this final action will achieve meaningful GHG reductions and will be an important step towards mitigating the impact of GHG emissions on climate change. 81 FR 35841.

After further consideration, the EPA proposes to come to a different conclusion about the need for methane requirements, for the reasons discussed in this section and below.

The EPA recognizes that in proposing to rescind one set of standards in part for its redundancy with another set, the EPA is choosing to rescind the applicability of those standards to methane emissions and not VOC emissions, rather than vice-versa. Rescinding the methane-specific standards is reasonable because the requirements for VOC and correspondingly, sources’ compliance with those requirements, are longer established than those for methane. As described earlier, the EPA regulated VOC first, beginning in 1985 and continuing in 2012, and then added regulation of methane for some sources in 2016.

Additionally, redundancy is not uniform across affected facilities in the sector. Some sources, such as storage vessels, are subject only to VOC requirements and not methane requirements. For those sources, it cannot be said that regulation of VOC is redundant to regulation of methane because the EPA has not regulated methane from them. For these reasons, in choosing between the two requirements, the EPA considers it appropriate and less disruptive to rescind the methane standards.

V. Rationale for Alternative Proposal To Rescind the Methane Standards for All Sources in the Oil and Gas Source Category Without Revising the Source Category

A. Alternative Proposed Action To Rescind the Methane Standards

In this action, the EPA is proposing in the alternative to rescind the methane

⁶⁵ The EPA notes that removing the applicability of the NSPS to methane emissions does not alter the basis for the applicability of the NSPS to VOC emissions for affected sources in the source category, which for some affected sources have been regulated since the 2012 NSPS OOOO rule. To determine BSE, the EPA assesses a set of factors, which include the amount of emissions reduction, costs, energy requirements, non-air quality impacts, and the advancement of particular types of technology or other means of reducing emissions, and retains discretion to weight the factors differently in any case. In the 2016 NSPS OOOOa, the EPA gave primary weight to the amount of emission reductions and cost. The EPA describes this analysis in depth in the 2015 NSPS OOOOa proposal at 80 FR 56618–56620 and 80 FR 56625–56627. For the source types in the production and processing segments, the NSPS requirements, considered on a VOC-only basis, are cost effective (relatively low cost and relatively high emissions reductions). See memorandum titled “Draft Control Cost and Emission Changes under the Proposed Amendments to 40 CFR part 60, subpart OOOOa Under Executive Order 13783,” in the public docket for this action. The EPA provides this information for the benefit of the public and is not reopening the above-described determination in the 2016 NSPS OOOOa that the VOC-only requirements for sources in the production and processing segments meet the requirements of CAA section 111.”

requirements in the 2016 NSPS OOOOa without any action that would address the scope of the industry segments covered by these requirements or to alter the VOC requirements applicable to those industry segments. In contrast to the proposal discussed above in section IV, this alternative proposal does not affect the scope of the source category, including the types of sources included in the source category. Thus, this alternative proposal would not eliminate sources in the transmission and storage segment from the source category. This alternative proposal is based on the rationale described below.

B. Rationale for Rescinding the Methane Standards

Under this alternative proposal, the EPA's basis for proposing to rescind the applicability to methane of the NSPS for all sources in the source category is essentially the same as the EPA's basis for proposing the same action for sources in the production and processing segments, described in section IV above. Briefly, the EPA is proposing to rescind the methane requirements applicable to the source category because they are wholly redundant with the existing VOC requirements.^{66 67} Section VI of this

preamble takes comment on alternative questions of statutory interpretation and associated potential record determinations which, if the EPA were to adopt them, might provide an additional or alternative basis for both the primary and the alternative proposal.

VI. Solicitation of Comment on Significant Contribution Finding for Methane

As noted above, the primary and alternative proposals set forth in this notice rely on the EPA's previous position, which it took in the 2016 NSPS OOOOa rule, that (1) CAA section 111 does not require the Agency to make a pollutant-specific determination that the Crude Oil and Natural Gas Production source category's emissions of methane cause or contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare, as a prerequisite to promulgating an NSPS for methane; and (2) in the alternative, if CAA section 111 were interpreted to require such a determination for the 2016 NSPS OOOOa rule, the source category's emissions do cause or contribute significantly to air pollution that may reasonably be expected to endanger public health or welfare.⁶⁸ Although the determination that CAA section 111(b)(1)(A) requires is commonly referred to as an "endangerment finding," it entails two separate elements: (1) A finding that certain air pollution may reasonably be anticipated to endanger public health or welfare, and (2) a finding that the source category's emissions of air pollutants cause or contribute significantly to that air pollution. This section focuses on

the latter element, which we refer to as the "significant contribution finding" (SCF). It should also be noted that in prior contexts in which the EPA has made these findings with regard to GHG, including the 2016 NSPS OOOOa rule, the EPA has considered the "air pollution" that may reasonably be anticipated to endanger public health or welfare to be the elevated concentration in the atmosphere of six well-mixed gases (of which, CO₂ and methane are emitted in the largest quantities); and the EPA has considered the "air pollutants" that may cause or contribute to that air pollution to be the same six GHG. *See* 81 FR 35843. In the 2016 NSPS OOOOa rule, for convenience, the EPA sometimes referred to the "air pollutants" as methane, in recognition of the fact that methane is the largest quantity of GHG emitted by the Oil and Natural Gas source category. We take the same approach and use the same terminology in this rulemaking.

In this proposal, the EPA proposes to retain its current interpretation that it is not required to make a pollutant-specific SCF, for the same reasons that it noted in the 2016 NSPS OOOOa rule. 81 FR at 35841–43. However, the EPA solicits comment on whether it should revise its positions in the 2016 NSPS OOOOa rule concerning the requirement to make a pollutant-specific SCF under CAA section 111(b), as well as, in light of the statutory term "significantly contributes to," the level of contribution that methane from oil and natural gas sources makes to GHG air pollution. In particular, in subsections A, B, and C of this section, the EPA solicits comment on (A) whether CAA section 111 requires the EPA to make a pollutant-specific SCF for GHG emissions (again, primarily methane) from the source category as a prerequisite to regulating those emissions; (B) if so, whether the SCF for methane emissions from the source category that the EPA made in the alternative in the 2016 NSPS OOOOa rule properly satisfied that requirement; and (C) what criteria are appropriate for the EPA to consider in making a SCF, both as a general matter and with particular reference to GHG emissions generally and to methane emissions from this source category most particularly. Further, the EPA solicits comment on whether, should we determine (1) that it was necessary as a matter of law for the EPA to have made a pollutant-specific SCF finding for GHG emissions (or, if the statute does not compel that interpretation, whether that is a reasonable interpretation); and (2) that the SCF for methane emissions

⁶⁶ As noted above, in the 2015 proposal for the 2016 NSPS OOOOa rule, we justified regulating methane emissions on grounds that "reducing methane emissions from this source category cannot be treated simply as an incidental benefit to VOC reduction," 80 FR 56599, but our current view is that what is important is that the VOC requirements will assure that the methane emissions reductions occur. In addition, as noted above, the cost effectiveness of the VOC requirements for sources in the production and processing segments supports retaining those requirements for those sources, and we are not reopening our determination in the 2016 OOOOa NSPS that, on a VOC-only basis, the requirements for sources in the production and processing segments meet CAA section 111 requirements. The same is true for the sources in the transmission and storage segment under this alternative proposal. We consider VOC emissions regulation alone to qualify as NSPS based on the BSER. As we noted with respect to sources in the production and processing segments, removing the applicability of the NSPS to methane emissions does not alter the basis for the applicability of the NSPS to VOC emissions for affected sources in the source category, which for some affected sources have been regulated since the 2012 NSPS OOOO rule. To determine BSER, the EPA assesses a set of factors, which include the amount of emissions reduction, costs, energy requirements, non-air quality impacts, and the advancement of particular types of technology or other means of reducing emissions; this assessment requires the EPA to exercise discretion in weighing these factors against each other. In the 2016 NSPS OOOOa, the EPA gave primary weight to the amount of emission reductions and cost. The EPA describes this analysis in depth in the 2015 proposal at 80 FR 56616 to 56645. The EPA provides this information for the benefit of the public and is not reopening the above-described VOC-only BSER determination for the production, processing, transmission, and storage segments made in the 2016 NSPS OOOOa.

⁶⁷ 80 FR 56616 to 56645, 83 FR 52056, and memorandum titled "Draft Control Cost and Emission Changes under the Proposed Amendments to 40 CFR part 60, subpart OOOOa Under Executive Order 13783," in the public docket for this action.

⁶⁸ In the 2016 NSPS OOOOa rule, the EPA stated: Some commenters have argued that the EPA is required to make a new endangerment finding before it may set limitations for methane from the oil and natural gas source category. We disagree. . . . Moreover, even if CAA section 111 required the EPA to make an endangerment finding as a prerequisite for this rulemaking, then, the information and conclusions described above . . . should be considered to constitute the requisite finding (which includes a finding of endangerment as well as a cause-or-contribute significantly finding). More specifically, . . . [t]he facts [that the EPA marshaled in support of the 2009 Endangerment Finding] have only grown stronger and the potential adverse consequences of GHG to public health and the environment more dire [since 2009]. The facts also demonstrate that the current methane emissions from oil and natural gas production sources and natural gas processing and transmission sources contribute substantially to nationwide GHG emissions. 81 FR at 35843.

from the source category that the EPA made in the alternative in the 2016 NSPS OOOOa rule did not properly satisfy that requirement, those determinations, in and of themselves, would either compel us or authorize us to repeal the 2016 NSPS OOOOa rule.

A. Requirement for Pollutant-Specific Significant Contribution Finding

As noted earlier, CAA section 111(b)(1) sets out a multi-step process for the EPA to promulgate NSPS. First, the EPA is required to list a source category if “in [the Administrator’s] judgment it causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare.” CAA section 111(b)(1)(A). Then, the EPA is required to propose and then promulgate “standards of performance for new sources within such category.” CAA section 111(b)(1)(B). A “standard of performance” is defined as “a standard for emissions of air pollutants” that the EPA is required to calculate through a particular methodology. CAA section 111(a)(1). The EPA has interpreted these provisions to require that it make a SCF for the combined air pollutant emissions, taken as a whole, from the source category in order to list the source category, and then to require it to promulgate standards of performance for the emissions once it has listed the source category, but not require it to make pollutant-specific SCFs as another prerequisite to promulgating those standards of performance. 80 FR 64529–31 (Electricity Generating Units (EGU) CO₂ NSPS rule), 81 FR 35841–42 (2016 NSPS OOOOa rule).

The EPA articulated this interpretation of CAA section 111(b)(1)(A) during the course of two rulemakings to promulgate NSPS for GHG, completed in 2015–2016, but commenters called it into question. In those rulemakings, the EPA promulgated, for the first time, NSPS for GHG, primarily CO₂, from fossil-fuel fired EGUs (including steam-generating boilers and combustion turbines), “Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units—Final Rule,” 80 FR 64510, 64530 (October 23, 2015) (EGU CO₂ NSPS rule),⁶⁹ and methane from the Crude Oil and Natural Gas Production source category, 81 FR 35843 (the 2016 NSPS

OOOOa rule). In the proposal for the EGU CO₂ NSPS rule, the EPA took the position that it was not required to make a pollutant-specific SCF for CO₂ emissions from EGUs in order to promulgate an NSPS regulating those emissions. 79 FR 1430, 1452–55 (January 8, 2014). Commenters stated that under the EPA’s interpretation, the EPA would have the authority to promulgate an NSPS for a air pollutant that a source category emits in relatively small amounts (or, with respect to the endangerment finding, that is relatively benign in its effect on public health or welfare). This is because, under the EPA’s interpretation, once the Agency lists a source category, it proceeds to regulate a particular air pollutant emitted from the category without being required to make a SCF for the source category’s emissions of that air pollutant. *See generally* 81 FR 35843; 80 FR 64530. These concerns about the two GHG NSPS rulemakings are highlighted by the fact that when the EPA listed the source categories—EGU Steam-Generating Boilers in 1971, Combustion Turbines in 1977, and Crude Oil and Natural Gas Production in 1979—and first began to regulate them, the EPA did not mention GHG. Rather, the SCFs for the source categories did not identify the air pollutants, and the initial regulations—which were largely contemporaneous with the listing notices—concerned emissions of other air pollutants. *See* 36 FR 5931 (March 31, 1971), 36 FR 24876 (December 23, 1971) (EGU Steam-Generating Boilers; (PM, SO₂, NO_x); 42 FR 53657, 42 FR 53782 (October 3, 1977), (EGU Combustion Turbines; SO₂, NO_x); 44 FR 49222 (August 21, 1979) (Crude Oil and Natural Gas Production; HC and SO₂). Thus, there is no indication that the EPA considered GHG in listing the source categories.

In both the EGU CO₂ NSPS rule and the 2016 NSPS OOOOa rule, the EPA asserted that CAA section 111 authorizes it to regulate a source category’s emissions of an air pollutant without a pollutant-specific SCF as long as the EPA has a “rational basis” for doing so. The EPA based this view on previous rulemakings, in which the EPA had declined to promulgate NSPS for certain air pollutants from various source categories on grounds that the amounts of emissions of those air pollutants were so small that regulating them would not be rational, and on D.C. Circuit caselaw.⁷⁰ In the EGU CO₂ NSPS

rule and the 2016 NSPS OOOOa rule, the EPA went on to determine that it did have a rational basis for regulating CO₂ and methane, respectively, which consisted of assessing the amount of emissions of the GHG from the source category in the light of various metrics, coupled with the fact that the EPA had previously determined, in the 2009 Endangerment Finding, that six well-mixed gases constitute GHG air pollution that may reasonably be anticipated to endanger public health and welfare under section 202(a) of the CAA. “Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act—Final rule,” 74 FR 66496 (December 15, 2009) (2009 Endangerment Finding). It should be noted that in both the EGU CO₂ NSPS rule and the 2016 NSPS OOOOa rule, the EPA also stated that, in the alternative, if it were required to make a pollutant-specific SCF for GHG (with a focus on CO₂ and methane, respectively), it was making that finding, citing the same information that it relied on for the rational basis determinations. *See* 80 FR 64529–31 (EGU CO₂ NSPS rule), 81 FR 35841–43 (2016 NSPS OOOOa rule) (both citing the 2009 Endangerment Finding).

In this action, we solicit comment on whether the interpretation of CAA section 111(b)(1)(A) that the EPA set forth in the 2016 NSPS OOOOa rule is correct, or instead whether that provision should be interpreted to require that the EPA make a SCF on a pollutant-specific basis for a source category as a prerequisite for regulating emissions of that pollutant from the

for not promulgating standards for NO_x, SO₂, and CO from lime plants.” *See* 81 FR 35842; *see also* 80 FR 64530. The discussion in *National Lime Assoc.* consisted of the Court’s observation, in setting forth the procedural history of the rulemaking at issue, that “[a]lthough lime plants were determined to be sources of nitrogen oxides, carbon monoxide and sulfur dioxide as well as particulates,” standards “were proposed and ultimately promulgated only with respect to particulate matter.” 627 F.2d at 426. In a footnote, the Court then quoted at length from a portion of the preamble to the proposed NSPS in which the EPA had “explained its decision not to propose standards” for those three pollutants. *Id.* at 426 n.27. The only place the phrase “rational basis” appears in *National Lime Assoc.* is located in a passage in which the Court rejects industry’s claim that the EPA had erred in its “determination that lime manufacturing plants ‘may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare.’” *Id.* at 431 n.48. Said the Court: “We think the danger of particulate emissions’ effect on health has been sufficiently supported in the Agency’s . . . previous determinations to provide a *rational basis* for the Administrator’s finding in this case.” *Id.* (emphases added). “Moreover,” the Court continued, “whatever its impact on public health, we cannot say that a dust ‘nuisance’ has no impact on *public welfare*.” *Id.* (emphasis added).

⁶⁹ In the EGU CO₂ NSPS rule, the EPA considered the “air pollutants” relevant for the SCF to be GHGs, but because CO₂ was the GHG emitted in the greatest quantity by EGUs, the EPA often described that finding as referring to CO₂. 80 FR 64531 and n.110; 64537.

⁷⁰ Specifically, in the 2016 NSPS OOOOa rule, the EPA stated that in *National Lime Assoc. v. EPA*, 627 F.2d 416 (D.C. Cir. 1980), the Court had “discussed, but did not review, the EPA’s reasons

source category. The EPA also solicits comment on whether (1) either its current interpretation or the alternative interpretation discussed in this subsection is the only permissible interpretation of the SCF provision, or (2) that provision is ambiguous and leaves room for the exercise of policy discretion on the EPA's part as to which circumstances call for a pollutant-specific SCF as a predicate for regulating an additional pollutant emitted from an already-listed source category, and, if the latter, whether GHG emissions in general or methane emissions from the oil and natural gas sector in particular present specific circumstances making a pollutant-specific SCF appropriate or required for this source category. If the provision is ambiguous, the benefits of assuring that only pollutants for which the EPA makes a SCF become subject to NSPS, as opposed to pollutants that, for example, may be emitted in relatively minor amounts, support interpreting the provision to require a pollutant-specific SCF.

The provisions in CAA section 111(b)(1)(A) that require the Administrator to “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,” when read in isolation and when compared to analogous text in other provisions of similar import elsewhere in the CAA, *e.g.*, section 202(a)(1) and other provisions noted below, does appear to contemplate that the EPA is required to make a SCF for the source category only when it is first added to the list. This was the basis for the EPA's position in the EGU CO₂ NSPS rule and the 2016 NSPS OOOOa rule that the Agency is not required to make a pollutant-specific SCF in order to regulate an additional pollutant from an already-listed source category.

However, even if the wording of the SCF does suggest that the EPA is required to make that finding only when listing a source category, the EPA is mindful that an Agency “[may] avoid a literal interpretation at Chevron step one . . . [by] show[ing] either that, as a matter of historical fact, Congress did not mean what it appears to have said, or that, as a matter of logic and statutory structure, it almost surely could not have meant it.” *Engine Mfrs. Ass'n v. EPA*, 88 F.3d 1075, 1089 (D.C. Cir. 1996).⁷¹ We solicit comment on whether

the discussion below provides either reasons that Congress “almost surely could not have meant” the SCF provision to mean what the EPA read it to mean in the 2016 NSPS OOOOa rule, evidence that “as a matter of historical fact Congress did not mean” that, or both—and, if so, whether the EPA is required to, or whether it would be reasonable for the EPA to, adopt an alternative interpretation of CAA section 111(b)(1)(A) under which the EPA is required to make a pollutant-specific SCF in order to regulate a particular pollutant emitted by a source category.

There are several reasons why this approach to interpreting CAA section 111(b)(1)(A) might be reasonable. The first is the potentially anomalous results that could occur under the EPA's current interpretation that CAA section 111(b)(1)(A) does not require a pollutant-specific SCF. For example, under the EPA's current interpretation, 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. It is clear that CAA section 111(b) requires the EPA, and CAA section 111(d) requires the states, to regulate on a pollutant-by-pollutant basis—CAA section 111(b)(1)(B) and (d)(1) require the EPA and the states, respectively, to promulgate for the affected sources “standards of performance,” which, as noted above, are defined in relevant part as “standard[s] for emissions of air pollutants”—as a result, it seems potentially anomalous not to require that the EPA make a SCF for those pollutants as a prerequisite for promulgating the standards of performance.

to apply’ to the case at hand [citation omitted]”; *U.S. v. Ron Pair Enterprises*, 489 U.S. 235, 242 (1989) (literal meaning of a statutory provision is not conclusive “in the ‘rare cases [in which] the literal application of a statute will produce a result demonstrably at odds with the intentions of the drafters’ . . . [in which case] the intention of the drafters, rather than the strict language, controls” [citation omitted]); *Watt v. Alaska*, 451 U.S. 259, 266 (1981) (“[t]he circumstances of the enactment of particular legislation may persuade a court that Congress did not intend words of common meaning to have their literal effect”).

Second, although the EPA's current interpretation that only a “rational basis” is needed to justify regulating emissions of an additional pollutant from an already-listed source category offers some protection against arbitrary or capricious decisions by the EPA, that type of determination appears to be largely undefined. CAA section 111(b)(1)(A) does not provide or suggest any criteria to define it. In the EGU CO₂ NSPS and 2016 NSPS OOOOa rules, the EPA did not describe any criteria for applying that approach, and in instances before then in which the EPA has relied on the “rational basis” approach, the EPA has done so to justify not setting standards for a given pollutant, rather than to justify setting a standard for a pollutant. 80 FR 64530. The EPA solicits comment on whether it is rational to interpret the SCF provision as setting a specific finding that needs to be made only one time (at the stage of source category listing), with the standard for the subsequent regulation of some other pollutant emitted from that source category defaulting to rational basis, a standard which applies to *any* action the EPA or, in fact, any agency, takes, *see* 5 U.S.C. 706(2)(A) (under the Administrative Procedure Act, agency decisions may be set aside if they are “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law”), or whether instead Congress “almost surely could not have meant” that.

Third, the other sections of the CAA, cited below, under which the EPA makes an endangerment and cause or contribute finding as a prerequisite for regulating emissions, do generally contemplate that the cause or contribute finding will be made on a pollutant-specific basis. The fact that Congress saw fit to frame the cause or contribute requirement on a pollutant-specific basis for other CAA provisions might reasonably be viewed as heightening the anomaly of interpreting CAA section 111(b)(1)(A) not to impose the same requirement. The EPA solicits comment on whether its current interpretation of the CAA section 111 SCF provision, as set forth in the 2016 NSPS OOOOa rule, correctly determined that this apparent anomaly is, in fact, a deliberate and significant variation on Congress's part, or whether instead Congress “almost surely could not have meant” that.

In addition, the legislative history of CAA section 111(b)(1)(A) contains several items that might be read to indicate that Congress did “as matter of historical fact” intend to require that the EPA make a pollutant-specific SCF as a prerequisite for regulating any particular pollutant emitted by a source category.

⁷¹ See, *e.g.*, *Logan v. U.S.*, 552 U.S. 23, 36–37 (2007) (“[s]tatutory terms, we have held, may be interpreted against their literal meaning where the words ‘could not conceivably have been intended

Congress added CAA section 111 when it amended the CAA in 1970. At that time, Congress drafted CAA section 111(b)(1) in much the same form as it appears today, explicitly requiring the endangerment finding, including the SCF, on the basis of the source category, although it phrased the finding somewhat differently: “[The Administrator] shall include a category of sources in such list if he determines it may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare.” 42 U.S.C. 1857c–6(b)(1)(A) (1970). At the same time, Congress added several other provisions that contemplated that the EPA would make endangerment or cause or contribute findings, and although Congress used somewhat different phrasing in some of those provisions, in each one, Congress framed the relevant finding on a pollutant-specific basis. See CAA section 108(a)(1)(A)–(B), 42 U.S.C. 1857c–3(a)(1)(A)–(B) (1970) (Administrator is required to publish a list “which includes each air pollutant which in his judgment has an adverse effect on public health or welfare” and “the presence of which in the ambient air results from numerous or diverse mobile or stationary sources”);⁷² CAA section 115(a), 42 U.S.C. 1857d(a) (1970) (Administrator is authorized to take action to address “pollution of the air in any State or States which endangers the health or welfare of any persons”); CAA section 202(a)(1), 42 U.S.C. 1857f–1(a)(1) (1970) (Administrator is required to regulate “the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment causes or contributes to, or is likely to cause or to contribute to, air pollution which endangers the public health or welfare”);⁷³ CAA section 211(c)(1), 42

U.S.C. 1857f–6(c)(1) (1970) (Administrator is authorized to regulate “any fuel or fuel additive for use in a motor vehicle or motor vehicle engine if any emission products of such fuel or fuel additive will endanger the public health or welfare”); CAA section 231(a)(2), 42 U.S.C. 1857f–9(a)(2) (1970) (Administrator is required to regulate “emissions of any air pollutant from any class or classes of aircraft or aircraft engines which in his judgment cause or contribute to or are likely to cause or contribute to air pollution which endangers the public health or welfare”).

In the 1970 CAA Amendments, Congress did not explain why it used language in CAA section 111 that suggested a SCF for the source category under CAA section 111 while using pollutant-specific language in the other provisions, but the reason appears to be that under CAA section 111, Congress tasked the EPA with determining, among the large numbers of highly diverse stationary sources in the U.S., which ones, grouped into which source categories, should be listed and subject to regulation. It was logical for Congress to constrain the EPA’s discretion by requiring that the EPA make a SCF for each source category that it sought to list. While it is true that in drafting CAA section 111(b)(1)(A), Congress did not explicitly require the EPA to make an additional, pollutant-specific SCF, it seems reasonable to think that Congress may have intended pollutant-specific SCF findings but conflated them with the required source-category SCF finding. Support for this interpretation may be found in the fact that under CAA section 111, a source category can cause or significantly contribute to air pollution only through emissions of its air pollutants, CAA section 111(b)(1)(B) requires the EPA to promulgate “standards of performance” for air pollutants, and CAA section 111(a)(1) defines a “standard of performance” as a “standard of emissions for air pollutants” (emphasis added). The EPA solicits comment on whether these provisions, read together with CAA section 111(b)(1)(A), are evidence that Congress intended the latter to require what is required in the other CAA provisions discussed here: A pollutant-specific finding. Certainly, interpreting CAA section 111(b)(1)(A) to require such a pollutant-specific finding would make it consistent with those other CAA provisions.

likely to cause or to contribute to, air pollution which endangers the health or welfare of any persons. . . .

In the 1977 CAA Amendments, Congress rephrased the text in each of the above-noted provisions to read as they do at present, which is generally the same phrasing as in CAA section 111(b)(1)(A) in relevant part, except that for the other provisions, Congress did not require the contribution component of the findings to be based on a “significant” contribution and, with the possible exception of CAA section 202(a), discussed below, Congress continued to focus the cause or contribute findings on air pollutants. The legislative history generally describes Congress’s purpose as providing, across all the relevant provisions, and consistent with the D.C. Circuit’s decision in *Ethyl Corp. v. EPA*, 541 F.2d 1 (D.C. Cir.) (*en banc*), cert. den. 426 U.S. 941 (1976), a uniform standard of proof that allows the Administrator to regulate pollutants based on the need to prevent harm before it occurs, rather than require the Administrator to delay regulating until after actual harm has been proven to have occurred. H.R. Rep. No. 94–1175 at 32–33 (1976).

Importantly, the legislative history of the 1977 SCF provisions can also be read as evidence that Congress understood at that time that the EPA was to make a pollutant-specific SCF under CAA section 111. The SCF provisions originated in the House bill, did not have a counterpart in the Senate bill, and were adopted by the Conference Committee as they appeared in the House bill. The Conference Report summarized the House bill as follows, in relevant part:

House bill

Provides a uniform standard of proof for EPA regulation of air pollutants which applies to the setting of . . . criteria for national ambient air quality standards under Section 108; . . . new stationary source performance standards under Section 111; . . . new auto emission standards under Section 202; . . . regulations of fuels and fuel additives under Section 211; aircraft emission standards under Section 231.

In all future rulemaking in these areas, the Administrator could regulate any air pollutant from those sources, the emissions of which “in his judgment cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.”

H.R. Rep. No. 95–564, at 183–84 (1977) (emphasis added). The emphasized language may be evidence that Congress, in fact, intended to require the EPA (or, indeed, understood that the EPA had always been required), in promulgating a pollutant-specific NSPS under CAA section 111, to make a pollutant-specific finding, as it does

⁷² This provision is similar to section 3(c)(2) of the CAA of 1963, Public Law 88–206 (December 17, 1963): Whenever [the Secretary of the Department of Health, Education, and Welfare] determines that there is a particular air pollution agent (or combination of agents), present in the air in certain quantities, producing effects harmful to the health or welfare of persons, the Secretary shall compile and publish criteria reflecting accurately the latest scientific knowledge useful in indicating the kind and extent of such effects which may be expected from the presence of such air pollution agent (or combination of agents) in the air in varying quantities.

⁷³ This provision is similar to section 202(a) of the CAA, as adopted in the Motor Vehicle Air Pollution Control Act of 1965, Public Law 89–271 (October 19, 1965): The Secretary shall by regulation, giving appropriate consideration to technological feasibility and economic costs, prescribe as soon as practicable standards, applicable to the emission of any kind of substance, from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause or contribute to, or are

under the other provisions mentioned in the Conference Report.

The House Committee Report included a similar statement in describing one of its purposes for rephrasing the various endangerment finding provisions: “To provide the same standard of proof for *regulation of any air pollutant, whether that pollutant comes from stationary or mobile sources*, or both, and to make the vehicle and fuel industries equally responsible for cleaning up vehicle exhaust emissions.” H.R. Rep. No. 94–1175, at 33 (1976) (emphasis added). The emphasized phrase could suggest that the House Committee drafters understood the SCF provision in CAA section 111(b)(1)(A) to concern the particular air pollutant subject to regulation (*i.e.*, the NSPS), like, at least for the most part, the other analogous provisions.⁷⁴

⁷⁴ It should be noted that in the 1970 and 1977 CAA Amendments, Congress added or amended several other provisions that included findings similar to the findings in CAA sections 108(a)(1)(A), 111(b)(1)(A), 115, 202(a), 211(c)(1), and 231(a)(2)(A). These provisions include the following, (as they read after the 1977 CAA Amendments and before any changes in the 1990 CAA Amendments): (1) CAA section 112 (added in 1970 CAA Amendments and revised in 1977 CAA Amendments; “hazardous air pollutant” is defined as, in relevant part, “an air pollutant . . . which in the judgment of the Administrator causes, or contributes to, air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness;” this definition was substantially revised in 1990 CAA Amendments); and (2) CAA section 211(c)(1)(A) (added in 1970 CAA Amendments and revised in 1977 CAA Amendments; the Administrator is authorized to regulate any fuel or fuel additive “if in the judgment of the Administrator any emission product of such fuel or fuel additive causes, or contributes, to air pollution which may reasonably be anticipated to endanger the public health or welfare”). In addition, in the 1990 CAA Amendments, Congress added several additional provisions that require findings that bear some similarity to the findings discussed above. See (1) CAA section 129(e) (Administrator or state is required to “require the owner or operator of any unit to comply with emission limitations or implement any other measures, if the Administrator or the state determines that emissions in the absence of such limitations or measures may reasonably be anticipated to endanger public health or the environment”); (2) CAA section 183(f)(1)(A) (Administrator is required to promulgate standards for VOC and any other air pollutant from loading and unloading of tank vessels “which the Administrator finds causes, or contributes to, air pollution that may be reasonably anticipated to endanger public health or welfare”); (3) CAA section 213(a)(1)–(3) (Administrator is required to (i) conduct a study to determine if emissions from nonroad engines and nonroad vehicles “cause, or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare;” (ii) determine whether emissions of certain pollutants from new and existing nonroad engines and vehicles “are significant contributors to ozone or carbon monoxide concentrations in more than 1 area which has failed to attain the national ambient air quality standards (NAAQS) for ozone or carbon monoxide;” and if so, (iii) promulgate

Other provisions Congress added into CAA section 111 during the 1977 CAA Amendments might also shed light on the meaning of the SCF provision. Congress was dissatisfied at what it perceived to be the slow pace of the EPA’s regulation under CAA section 111, and as a result, added provisions (which have continued in effect) that required the EPA to include on the list required under CAA section 111(b)(1)(A) the categories of major stationary sources not already on the list, and promulgate standards of performance for those categories on a specified schedule. CAA section 111(f)(1). Congress further directed the EPA to determine priorities for promulgating standards for the listed categories by considering, among other things, “the quantity of air pollutant emissions which each such category will emit, or will be designed to emit,” and “the extent to which each such pollutant may reasonably be anticipated to endanger public health or welfare.” CAA section 111(f)(2)(A)–(B) (emphasis added).⁷⁵ The emphasized text could be interpreted to indicate that Congress recognized the EPA’s ability to consider, under CAA section 111, the impacts of specific pollutants on public health or welfare. Further, the fact that the emphasized text is phrased in terms of “the extent to which each such pollutant” is determined by the EPA to “endanger public health or welfare,” rather than simply “whether each such pollutant may reasonably be anticipated to endanger public health or welfare,” might be reasonably construed as indicating that Congress presupposed that, in taking account of the “air pollutant emissions which each such category will emit, or will be designed to emit” for the purpose of prioritizing the establishment of standards of

regulations containing standards applicable to such emissions from those classes or categories of new nonroad engines and new nonroad vehicles “which in the Administrator’s judgment cause, or contribute to, such air pollution”) (CAA section 213(a)(4), which concerns different pollutants than under CAA section 213(a)(2)–(3), has requirements similar to the requirements of those provisions); (4) CAA section 615 (Administrator is required to regulate “[i]f, in the Administrator’s judgment, any substance, practice, process, or activity may reasonably be anticipated to affect the stratosphere, especially ozone in the stratosphere, and such effect may reasonably be anticipated to endanger public health or welfare”). For the most part, these provisions contemplate endangerment or cause or contribute findings, or similar determinations, for a pollutant, emissions, or substance, and for that reason, could support interpreting CAA section 111(b)(1)(A) to require a pollutant-specific SCF.

⁷⁵ In the 1990 CAA Amendments, Congress revised the provisions of CAA section 111(f)(1) directing the EPA to promulgate standards for listed categories and retained the provisions of CAA section 111(f)(2) for prioritizing.

performance for sources within each category, the EPA would only be establishing standards of “air pollutant emissions” that “may reasonably be anticipated to endanger.”⁷⁶

CAA section 122(a), also added in the 1977 CAA Amendments (and still in effect), could also shed light on the meaning of the SCF provision of CAA section 111(b)(1)(A). Section 122(a) of the CAA requires the Administrator “to determine whether or not emissions of radioactive pollutants . . . , cadmium, arsenic and polycyclic organic matter into the ambient air will cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health.” Further, “[i]f the Administrator makes an affirmative determination with respect to any such substance,” the Administrator is required, depending on the substance, to include it on the list published under CAA section 108 or 112, “or shall include each category of stationary sources emitting such substance in significant amounts in the list published under section 111(b)(1)(A). . . .” CAA section 122(a) (emphasis added). Here, too, the emphasized provisions could be interpreted to indicate that Congress expected the EPA to make pollutant-specific determinations under CAA section 111(b).

In addition, the EPA’s interpretation of the cause or contribute finding required under CAA section 202(a) could serve as a precedent for interpreting CAA section 111(b)(1)(A) as requiring a pollutant-specific SCF. CAA section 202(a)(1), as revised by the 1977 CAA Amendments, provides, in relevant part: “The Administrator shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment *cause, or contribute* to, air pollution which may reasonably be anticipated to endanger public health or welfare”) (emphasis added). 42 U.S.C. 7521(a)(1) (1977). The emphasized term, “cause, or contribute,” is plural, which could suggest that it refers to “any class or classes of new motor vehicles or new motor vehicle engines,” and thereby contemplates that the cause or contribute finding would be made based on the emissions, considered all

⁷⁶ It is perhaps significant, too, that Congress in CAA section 111(f)(2) tied the finding of “endangerment” not to “air pollution” that endangers, as is the case with respect to every section of the CAA where the concept of “cause or contribute to” is employed but, rather, to “each such pollutant.” This particular formulation is used nowhere else in the CAA and arguably suggests that Congress had a pollutant-specific SCF in mind.

together, from the source category, not on the basis of individual pollutants. However, the EPA has interpreted this provision to instruct the Administrator to make the cause or contribute finding on a pollutant-specific basis. *See* 74 FR 66496, 66506 (2009 Endangerment Finding). The EPA's interpretation of CAA section 202(a) to contemplate a pollutant-specific finding could support the reasonableness of interpreting CAA section 111(b)(1)(A) to contemplate the same thing.

In fact, it appears to be the case that the EPA in the past did so interpret CAA section 111(b)(1)(A) to require a pollutant-specific SCF as a prerequisite for regulating that pollutant. In the first guideline document the EPA issued under CAA section 111(d) (*i.e.*, for emissions from existing phosphate fertilizer plants), the EPA summarized CAA section 111(b)(1)(A) (as it read prior to revision in the 1977 CAA Amendments) as follows:

The Administrator first considers potential health and welfare effects of a designated pollutant in connection with the establishment of standards of performance for new sources of that pollutant under section 111(b) of the Act. *Before such standards may be established, the Administrator must find that the pollutant in question "may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare" [see section 111(b)(1)(A)]. Because this finding is, in effect, a prerequisite to the same pollutant being identified as a designated pollutant under section 111(d), all designated pollutants will have been found to have potential adverse effects on public health, public welfare, or both.*

"Final Guideline Document: Control of Fluoride Emissions from Existing Phosphate Fertilizer Plants," U.S. Environmental Protection Agency, EPA-450/2-77-005 (March 1977) at 2-1 (emphasis added). The emphasized statements reflect a straight-forward interpretation of CAA section 111(b) as requiring a pollutant-specific SCF as a pre-requisite to promulgating an NSPS for that pollutant. This very same language appears in each of the three guideline documents that the EPA subsequently issued pursuant to CAA section 111(d).⁷⁷ Although these

statements from the EPA stand in contrast to later EPA statements that characterize CAA section 111(b) as requiring that the SCF be made on the basis of the source category, they suggest uncertainty as to whether CAA section 111(b)(1)(A) should not be read to require a SCF for specific pollutants.⁷⁸

In light of the considerations described above, the EPA solicits comment on whether CAA section 111(b)(1)(A) should be interpreted to require it to make a pollutant-specific SCF as a prerequisite for promulgating an NSPS for that pollutant. CAA section 111(b)(1)(A)'s SCF provision, when read in isolation, may appear to require a SCF for the source category as a prerequisite for listing the source category. However, should the EPA instead conclude that Congress could not have intended that the EPA promulgate NSPS without a pollutant-specific SCF in light of, among other considerations, (1) the fact that Congress adopted at the same time and subsequently amended at the same time similarly phrased CAA provisions that do contemplate a pollutant-specific finding prior to regulation, (2) the inherent vagueness of the rational basis approach, and (3) the indications in the legislative history that Congress did intend that the EPA make a pollutant-specific SCF under CAA section 111?

It should be noted that requiring a pollutant-specific SCF need not result in duplicative SCFs (or duplicative associated endangerment findings), that is, the EPA would not need to make separate SCFs (and associated endangerment findings) for both the

guideline documents, the EPA had stated: [S]ection 111(d) requires control of existing sources of a pollutant if a standard of performance is established for new sources under section 111(b) and the pollutant is not controlled under sections 108-110 or 112. In general, this means that control under section 111(d) is appropriate when the pollutant may cause or contribute to endangerment of public health or welfare but is not known to be "hazardous" within the meaning of section 112 and is not controlled under sections 108-110. . . .

"State Plans for the Control of Certain Pollutants from Existing Facilities," 40 FR 53340 (November 17, 1975) (emphasis added).

⁷⁸ In another EPA document issued some 18 months after promulgation of the first set of standards of performance (for five source categories) in December 1971, the EPA provided a summary of the second group of standards (for a further seven source categories) for which rulemaking had then been initiated. In providing at the outset of that document what it called a "synopsis" of CAA section 111, the EPA stated that the "Section provides that, for purposes of establishing such standards, the Administrator may distinguish between types, sizes, and classes of sources; and that standards can be established for any pollutant that contributes to the endangerment of health and welfare." *See* Group II New Source Performance Standards, EPA Doc. 450S7001 (January 1973) (emphasis added).

source category and each pollutant emitted by the source category that the EPA seeks to regulate. Rather, in beginning to regulate pollutants from a previously unlisted source category, the EPA could identify any pollutant it seeks to regulate and, if appropriate, make a SCF (and associated endangerment finding) for that pollutant as emitted by that source category. Such a SCF would serve as the "cause[, or contribute] significantly to" finding both for listing the source category and for promulgating an NSPS for the pollutant.

The EPA recognizes it has proceeded under the implicit assumption that CAA section 111(b)(1)(A) does not require a pollutant-specific SCF through many NSPS rulemakings over a lengthy period. The EPA solicits comment on what the implications would be to the CAA section 111 program, including the current NSPS and CAA section 111(d) guideline documents and state plans, of interpreting CAA section 111(b)(1)(A) to require a pollutant-specific SCF. In this regard, the EPA notes that, for the most part, its past practice has been to list a source category and to propose NSPS for pollutants from the source category at the same time as, or shortly after the listing, and to finalize the NSPS shortly after that. It seems evident that those NSPS concerned pollutants that the EPA considered in listing the source category. The EPA solicits comment on whether, under those circumstances, the EPA could be considered to have made SCFs and endangerment findings for those pollutants, so that it would not be necessary to make those findings now. However, in some cases, the EPA promulgated NSPS for air pollutants that the EPA did not address in listing the source category or in the initial set of regulations promulgated at the same time, or shortly after, the EPA listed the source category. For example, the EGU CO₂ NSPS and the 2016 NSPS OOOOa rules addressed GHG pollutants that the EPA had not identified in the initial SCF it made for those source categories or in the rulemakings promulgating the initial NSPS for those source categories. The EPA solicits comment specifically on whether the considerations noted above indicate that CAA section 111(b)(1)(A) should be interpreted to require a pollutant-specific SCF as a prerequisite for promulgating an NSPS for a pollutant that the EPA did not identify when it made the initial source-category SCF or promulgated the initial regulations for the source category. In addition, the EPA solicits comment on whether, if CAA section 111(b)(1)(A) is interpreted to be ambiguous as to

⁷⁷ *See* "Final Guideline Document: Control of Sulfuric Acid Mist from Existing Sulfuric Acid Production Units," U.S. Environmental Protection Agency, EPA-450/2-77-0019 (September 1977) at 5-1; "Control of TRS Emissions from Existing Mills," U.S. EPA, EPA-450/2-78-003b (March 1979) at 2-1; "Primary Aluminum: Guidelines for Control of Fluoride Emissions from Existing Primary Aluminum Plants," U.S. EPA, EPA-450/2-78-049b (December 1979) at 2-1. Similarly, in its rulemaking establishing the regulatory process for emissions from existing sources under CAA section 111(d), which preceded the development of these

whether it requires a pollutant-specific SCF, the EPA could decide that it needs to make the SCF and associated endangerment findings for pollutants that, like GHG, it did not address when it listed the source category or shortly thereafter, but that it does not need to make those findings for pollutants that it did address at that time. Furthermore, the EPA solicits comment on whether, in light of the fact that CAA section 111(b)(1)(A) explicitly phrases the requisite finding in terms of “causes, or contributes *significantly* to, air pollution [that meets the endangerment criteria]” (emphasis added), there is any basis for interpreting the provision to require the EPA to make only a “cause or contribute” finding, of the type required under, for example, CAA section 202(a).

B. Significant Contribution Finding in 2016 NSPS OOOOa Rule

The EPA also solicits comment on whether, assuming it is required to make a SCF for methane emissions from the Oil and Natural Gas source category as a prerequisite to promulgating an NSPS for methane, the SCF it made in the 2016 NSPS OOOOa rule was an appropriate methane-specific finding.⁷⁹ At the outset, it should be noted that that SCF concerned emissions from the production, processing, transmission, and storage segments of the oil and natural gas industry. 81 FR 35841–43. In this proposed rulemaking, the EPA proposes to eliminate the transmission and storage segment from the source category. Accordingly, the appropriate SCF for methane from this source category would be limited to methane emissions from production and processing sources. The EPA solicits comment on whether the SCF in the 2016 NSPS OOOOa rule can be considered appropriate in light of the fact that it was based on a greater amount of emissions than are in the source category as proposed in this rulemaking.

In addition, we solicit comment on the question whether the SCF in the 2016 NSPS OOOOa rule can be considered appropriate given that nowhere in the course of developing and promulgating that rule did the EPA set forth the standard by which the “significance” of the contribution of the methane emissions from the source category (as revised) was to be

assessed.⁸⁰ Specifically, we ask for comment on whether, as a matter of law, under CAA section 111, the EPA is obligated to identify the standard by which it determines whether a source category’s emissions “contribute significantly,” and whether, if not so obligated, the EPA nevertheless fails to engaged in reasoned decision-making by not identifying that standard. *Cf. Motor Vehicle Mfrs. Assn. of United States, Inc. v. State Farm Mut. Automobile Ins. Co.*, 463 U. S. 29, 43 (1983) (“Normally, an agency rule would be arbitrary and capricious if the agency has . . . entirely failed to consider an important aspect of the problem.”).

C. Criteria for Making a Significant Contribution Finding Under CAA Section 111

The EPA also solicits comments on the appropriate criteria for it to use when determining whether a pollutant emitted from a source category significantly contributes to air pollution which may reasonably be anticipated to endanger in the context of CAA section 111. The EPA does not intend for these comments to inform the finalization of this rule, but rather to inform the EPA’s actions in future rules. Furthermore, the EPA is not asking for comment on the factors the Agency should consider in determining whether air pollution may reasonably be anticipated to endanger public health or welfare, but rather the factors that should be considered when determining under CAA section 111 whether a pollutant from a source category significantly contributes to that air pollution.

In subsection 1 of this section, the EPA discusses other contexts under the CAA in which it has interpreted and applied similar language to that governing the SCF determinations under CAA section 111(b)(1)(A). In subsection 2, the EPA identifies and solicits comment on specific elements of criteria that might govern SCF determinations. In subsection 3 of this section, the EPA provides background information concerning methane and GHG emissions that may be relevant for application of those criteria to those particular pollutants.

⁸⁰ In the 2016 NSPS OOOOa rule, the EPA averred that the “collective GHG emissions from the oil and natural gas source category are significant, whether the comparison is domestic . . . global . . . or when both the domestic and global GHG emissions comparisons are viewed in combination,” basing its position on data showing that the source category accounts for 32 percent of United States methane emissions, 3.4 percent of total United States GHG emissions, and 0.5 percent of all global GHG emissions.” See 81 FR 35840.

1. Legal Background for Selection of Criteria for Significant Contribution Finding

The phrase “contributes significantly” and the included terms “contributes” and “significantly” are not defined in any provision of the CAA or in EPA regulations. Accordingly, the EPA has substantial discretion in interpreting these terms and should receive deference for a reasonable interpretation of the provision. The U.S. Supreme Court, in *EPA v. EME Homer City Generation, L.P.*, 572 U.S. 489 (2014), recognized that a similar provision in CAA section 110(a)(2)(D)(i), often termed the “good neighbor” provision, is ambiguous and approved the EPA’s interpretation.⁸¹

The good neighbor provision requires states to prohibit emissions “in amounts which will contribute significantly to nonattainment” of the NAAQS in any other state. For regional pollutants like ozone and fine PM, where downwind air quality problems are caused by the collective contribution of numerous upwind sources across multiple states, the EPA has considered a variety of factors when determining whether sources in a particular state will “contribute significantly” under this statutory provision. The EPA has typically first used an air quality threshold to identify upwind states that contribute to and are, therefore, “linked” to a downwind air quality problem. *See, e.g.*, Cross-State Air Pollution Rule (CSAPR), 76 FR 48208, 48236 (August 8, 2011) (upwind states with impacts in a downwind area that meet or exceed 1 percent of the 1997 ozone, 1997 p.m. with a diameter of 2.5 micrometers or less (PM_{2.5}), and 2006 PM_{2.5} NAAQS are considered linked to downwind air quality problems); CSAPR Update, 81 FR 74504, 74518 (October 26, 2016) (applying threshold equivalent to 1 percent of the 2008 ozone NAAQS). The EPA has then used a multi-factor test considering both cost and air-quality factors to determine what portion of a linked state’s contribution to an air quality problem,

⁸¹ In an earlier case concerning the good neighbor provision, the D.C. Circuit noted that the term “significant” is ambiguous and may be subject to different meanings in different contexts. *Michigan v. EPA*, 213 F.3d 663, 677 (D.C. Cir. 2000). The D.C. Circuit has also observed that the term “contribute” is ambiguous. *Catawba County, N.C. v. EPA*, 571 F.3d 20, 38–39 (D.C. Cir. 2009). There, the Court interpreted the requirement under CAA section 107(d) that the EPA designate an area nonattainment if it does not meet the NAAQS or “contributes to ambient air quality in a nearby area that does not meet” the NAAQS. The Court concluded that the EPA has discretion in devising criteria or factors in determining the amount of emissions that it considers “contribute.”

⁷⁹ As noted in section VI.A. above, in the 2016 NSPS OOOOa rule, the air pollutant for which the EPA made the SCF was GHG, but because methane constitutes most of the GHG emitted from the Oil and Natural Gas source category, the EPA generally refers to methane as the subject of the SCF.

if any, is considered “significant” and, thus should be prohibited under the good neighbor provision. See CSAPR, 76 FR 48248–249; CSAPR Update, 81 FR 74519. In *EME Homer City Generation*, the Supreme Court affirmed the EPA’s approach of apportioning emission reduction responsibility based on which states can eliminate emissions most cost-effectively. 572 U.S. at 519 (explaining that “[e]liminating those amounts that can cost-effectively be reduced is an efficient and equitable solution to the allocation problem the Good Neighbor Provision compels the Agency to address.”).⁸²

The EPA has also considered the meaning of “contributes significantly” as it appears in CAA section 189(e). This provision requires that the control requirements applicable to major stationary sources of PM with a diameter of 10 micrometers or less (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.” Consistent with the D.C. Circuit’s decision in *NRDC v. EPA*, 706 F.3d 428 (D.C. Cir. 2013), this provision also applies to the regulation of sources of PM_{2.5} precursors in designated PM_{2.5} nonattainment areas.

The EPA has interpreted and applied CAA section 189(e) in its recent PM_{2.5}-state implementation plan (SIP) regulations, “Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements; Final Rule,” 81 FR 58010 (August 24, 2016) (PM_{2.5} SIP Requirements Rule); and provided additional information in a recent draft guidance document. U.S. EPA, Office of Air Quality Planning and Standards, “PM_{2.5} Precursor Demonstration Guidance,” EPA–454/R–19–004 (May 2019) (PM_{2.5} Precursor Guidance). The EPA noted that, although the phrase “contribute significantly” and its included terms, “contribute” and “significantly,” are ambiguous, Congress has provided some direction regarding the degree of contribution required by modifying the term “contribute” with the term

“significantly.” This indicates that Congress intended that, in order to be subject to regulation, the emissions must have a greater impact than a simple contribution not characterized as “significant[.]” 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. *Id.* at 10–13. First, the EPA identified concentration values, based on the amount of observed variability of ambient air quality levels, which would be used to determine whether a precursor “contributes” in a state’s analysis. The EPA specified numerical thresholds for the annual PM_{2.5} NAAQS (0.2 microgram per cubic meter (μg/m³)) and 24-hour PM_{2.5} NAAQS (1.5 μg/m³), so that any impact less than those amounts is considered insignificant. *Id.* at 17.

However, the EPA added that if the estimated air quality impact of precursor emissions exceeds the applicable threshold, that does not necessarily mean that the precursors’ contribution to those levels is “significant[.]” Rather, “the significance of a precursor’s contribution is to be determined ‘based on the facts and circumstances of the area.’” *Id.* at 18, (quotation is found in 40 CFR 51.1006(a) (various provisions) (the PM_{2.5} SIP Requirements Rule). The guidance goes on to list factors that may be relevant, including among others, the amount by which a precursor’s impact exceeds the recommended contribution threshold, the sources of PM_{2.5}, trends in precursor emissions, and the extent of the PM_{2.5} air pollution problem in a particular area. PM_{2.5} Precursor Guidance at 18.

In addition, we note that the EPA has previously made significance determinations in the context of section 213 of the CAA, related to certain stages of decisions regarding regulation of new nonroad engines and vehicles. CAA section 213 is the only provision of the CAA, apart from CAA section 111(b)(1), where Congress employed the modifier “significantly” in connection with language directing the Administrator to determine if air pollutant emissions from new and existing (in the case of emissions of CO, NO_x, and VOCs) nonroad engines and vehicles in the aggregate “contribute” to “air pollution which may reasonably be anticipated to endanger public health or welfare,” in CAA sections 213(a)(1), (2) and (4), before then directing and authorizing the EPA to promulgate standards applicable to classes and categories of just new nonroad engines and vehicles that emit pollutants contributing

(without employing a “significance” modifier) to such air pollution under CAA sections 213(a)(3) and (4). When the EPA first undertook rulemaking as directed by CAA section 213, it noted that “[s]ection 213(a) . . . provides no guidance as to what constitutes a ‘significant’ contribution.” See 58 FR 28811 (May 17, 1993). Thus, the EPA looked to “the legislative history and the scope of the [1990 CAA Amendments], the emission contribution of nonroad engines and vehicles, and a comparison of nonroad emissions to emissions from other regulated sources” in proposing to find that emissions from nonroad sources were indeed “significant.” *Id.*

In taking final action to promulgate the initial set of new nonroad engine and vehicle standards, the EPA responded to commenters who had “argued that EPA cannot make a significance determination without first defining a standard upon which to base that determination.” See 59 FR 31308 (June 17, 1994). The EPA did not disavow the need to justify a finding that contributions were significant, but it did object to the commenters’ apparent assertion that a “specific numerical standard for significance must be determined prior to considering whether nonroad emissions are significant.” *Id.* (emphasis added). The EPA noted that Congress in CAA section 213 “gave EPA wide discretion to determine whether the emissions of NO_x, VOC, and CO from nonroad engines and vehicles are significant contributors to ozone or CO concentrations,” and then pointed to the qualitative assessment the EPA had made based on the criteria it had identified in the proposed rule. *Id.*

Based on the reasoning of the caselaw described above and consistent with the EPA’s approach for similar CAA provisions, the EPA believes that “contributes significantly” under CAA section 111(b)(1)(A) is ambiguous, but that Congress has made clear that in order to be subject to regulation, the emissions must have a greater impact than a simple contribution. It is within the Agency’s discretion to identify additional qualitative or quantitative criteria or factors—ones that are related to the nature of the air pollutant, the source category, and the air pollution problem at issue—to determine whether a contribution is “significant,” as long as the Agency provides a reasoned basis to justify using such additional criteria or factors.⁸³ The EPA solicits comment on whether the examples discussed above, in which the EPA has construed

⁸² The good neighbor provision also instructs states to prohibit emissions which will “interfere with maintenance” of the NAAQS in downwind states, and the Supreme Court affirmed that this provision “entails a delegation of administrative authority of the same character as” the “contribute significantly” clause. *EME Homer City Generation*, 572 U.S. at 515 n.18. The EPA has, therefore, used the same two-step approach to identifying and apportioning emission reduction responsibility among upwind states linked to downwind areas that struggle to maintain the NAAQS.

⁸³ See PM_{2.5} Precursor Guidance at 12.

and applied statutory language similar to the term “contributes significantly” in CAA section 111(b)(1)(A),⁸⁴ suggest factors that it may be appropriate for the EPA to consider when construing and applying that term in the context of CAA section 111, including, but not limited to, whether the consideration of cost-effectiveness in the interstate transport context may suggest that the EPA should or has discretion to consider whether CAA section 111(b) provides a cost-effective basis to assess a source category’s contribution to a particular air-pollution problem as part of the EPA’s determination whether that source category significantly contributes to that air pollution problem.

2. Elements of Criteria for Significant Contribution Finding Under CAA Section 111

First, the EPA solicits comment on what information the Agency should consider when quantifying the emissions of the pollutant in question from the source category. In section VI.C.3, we detail the historical, current, and projected methane emissions from various source categories. To what extent should the SCF rely primarily on the most recent emission inventories, and to what extent should historical trends and future projections inform the Administrator’s finding? For example, consider the case of minimal current day emissions, but projections of rapid emission growth; or, conversely, substantial current emissions, but projections of a rapid decline in emissions even in the absence of new rulemakings. In turn, should the SCF evaluate the significant contribution of new sources potentially subject to regulation under CAA section 111(b) as well as existing sources potentially subject to subsequent regulation under CAA section 111(d)?⁸⁵ Similarly, for a source category in which new sources are not expected in the future, should the Administrator independently evaluate significant contribution from existing sources? Finally, in the case of the 2016 NSPS OOOOa rule, should the EPA consider only methane emissions or also account for CO₂ emissions and any other GHG that may be emitted from the source category?

Second, the EPA is soliciting comment on the total universe of emissions to which the emission of the pollutant in question from the source category in question should be compared. If the source category emits primarily a single gas (e.g., methane), should the emissions from that source category be compared against methane emissions (see Table 7, column 3 of this preamble) or against all GHG emissions (see Table 7, column 4 of this preamble)? How should natural emissions be considered in this comparison (see VI.C.3.a.i of this preamble)? Should the comparison be to domestic emissions (see Table 7 of this preamble) or to global emissions (see Table 8 of this preamble)? Or should multiple comparisons be made, as in VI.C.3 of this preamble? In making a SCF, should the Administrator evaluate the efficacy of regulation for new and/or existing sources? The EPA also welcomes comment on appropriate and well-vetted sources to use for domestic, global, and natural emissions.

Third, the EPA is soliciting comment on whether the Administrator should determine a threshold for significant contribution under CAA section 111(b)(1)(A) (above which, the emissions of the pollutant from the source category would be determined to significantly contribute, and below which, they would not), and which factors the Administrator should consider in determining that threshold. Is there a simple percentage criterion that holds across pollutants and source categories (i.e., a source category responsible for X percent of any pollutant is deemed to “significantly contribute” to the air pollution caused by that pollutant), or would it depend on, for example, the number of source categories that emit that pollutant (and the relative emissions from the source category whose emissions are the subject of the SCF determination in question, as compared to emissions from those other source categories); the nature of the pollutant; and/or the nature of the air pollution to which that pollutant may contribute (i.e., should the EPA address the question whether emissions of criteria and other traditional air pollutants, which cause air pollution primarily due to direct exposure, ambient regional concentration, and/or intermediate-range transport, “significantly contribute” to air pollution in a different manner than it should address the question whether emissions of GHG “significantly contribute” to climate change)?

Finally, the EPA is soliciting comment on the implications of the fact

that methane in the atmosphere serves as a precursor to tropospheric ozone, as noted in previous EPA rules (see 81 FR 35837). Are there legal implications resulting from this contribution of methane to a criteria pollutant? For example, as discussed above, the EPA is proposing that the regulation of VOC from new sources under CAA section 111(a) does not trigger the application of CAA section 111(d) to existing sources in the same source category because VOC are a precursor to tropospheric ozone.⁸⁶ Does the fact that methane is also a precursor to ozone indicate that regulation of methane from new sources under CAA section 111(b) would not trigger the application of CAA section 111(d) to existing sources in the same source category for the same reason? If EPA is precluded from regulating existing sources of a pollutant under CAA section 111(d), should that factor be evaluated in a SCF? What considerations are relevant for pollutants that contribute to multiple different kinds of pollution (methane as both a GHG and an ozone precursor, CO₂ as both a GHG and a contributor to ocean acidification, NO_x as a precursor to both PM_{2.5} and ozone)? In this regard, the EPA notes that the definition of “air pollutant” at CAA section 302(g) provides that the term “includes any precursors to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for which the term ‘air pollutant’ is used.”

The Agency welcomes comments on any and all aspects of these questions.

3. Background Concerning Methane and GHG Emissions

a. Methane Emissions

i. Natural and anthropogenic emissions of methane. Methane is emitted from a variety of natural and anthropogenic sources and activities. Globally, it is estimated that around 60 percent of methane emissions are from anthropogenic activities, and 40 percent are from natural activities (Saunio et al., 2016). Anthropogenic sources include natural gas and petroleum systems, enteric fermentation, solid waste disposal, coal mining, and other sources. Natural sources include wetlands, natural biomass burning, geologic seepage, termites, oceans, and permafrost.

In a 2018 report, the National Academy of Sciences noted a number of complex factors related to methane that

⁸⁴ In this solicitation of comment, the EPA is not soliciting comment on, or re-opening, any aspect of the rulemakings that contained those examples.

⁸⁵ To date, the EPA has evaluated the emissions from the source category, which includes existing sources, in making the SCF determination, and the D.C. Circuit has upheld that industry-wide approach. See *Nat’l Lime Ass’n v. EPA*, 627 F.2d 416, 433 n.48 (D.C. Cir. 1980); *Nat’l Asphalt Pavement Ass’n v. Train*, 539 F.2d 775, 779–82 (D.C. Cir. 1976).

⁸⁶ It is worth noting that while EPA has excluded methane and some related pollutants from the definition of VOC, methane is chemically a VOC.

may be relevant to a pollutant-specific SCF for domestic oil and natural gas production, processing, transmission, or storage:

Methane comes from numerous anthropogenic activities and natural processes (Figure 1.3), and notably, there is no single dominant source, but rather many significant sources. This configuration of sources forces a broader view of emissions for this gas, as opposed to many other significant GHGs whose anthropogenic sources tend to be dominated by a single source type such as from the combustion of fossil fuel.

The U.S. methane budget (emissions and removal processes) cannot be considered in isolation from the global methane budget because U.S. emissions account for only about one-tenth of global emissions. Consequently, atmospheric methane abundance over the United States is significantly influenced by sources located outside of the United States, even though there may be large responses due to strong local emissions. The atmospheric residence time for methane is about a decade; hence emitted methane is redistributed globally, and methane emissions from the United States influence global concentrations.

About 60 percent of total global methane emissions are thought to be from anthropogenic sources and about 40 percent from natural sources (Saunio et al., 2016). Anthropogenic sources encompass a wide range of human activities, including food and energy production and waste disposal. Livestock (through fermentation processes in their digestive system that generate methane and manure management), rice cultivation, landfills, and sewage account for 55–57 percent of global anthropogenic emissions. Emissions from production of fossil fuels, including petroleum, natural gas, and coal, are estimated to account for 32–34 percent (Saunio et al., 2016), with the remainder from biomass, biofuel burning, and minor industrial processes.⁸⁷

Global atmospheric methane concentrations have increased by about 164 percent since 1750, from a pre-industrial value of about 700 parts per billion (ppb) to 1,849 ppb in 2017 (National Oceanic and Atmospheric Administration (NOAA)/Earth System Research Laboratory (ESRL), 2018).

In section III.A.2.a, Table 2 presents total U.S. anthropogenic methane emissions for the years 1990, 2008, and 2017. In the U.S., the largest

anthropogenic sources of methane are natural gas and petroleum systems, enteric fermentation, and landfills. Methane emissions are 10 percent of total U.S. GHG emissions in CO₂ equivalent. Methane emissions have decreased by 15 percent since 1990, and by 7 percent since 2008. Table 3 above presents total methane emissions from natural gas and petroleum systems, and the associated segments of the sector, for years 1990, 2008, and 2017, in MMT CO₂ Eq.

ii. Trends. As seen in Figure 1, methane emissions from the oil and natural gas production, natural gas processing, and natural gas transmission and storage segments together decreased by 2 percent between 2008 and 2017. Methane emissions from the production and processing segments together decreased by 3 percent over the same time period, while methane emissions from transmission and storage increased by 1 percent. These trends also took place during periods of substantial increases in oil and natural gas production.

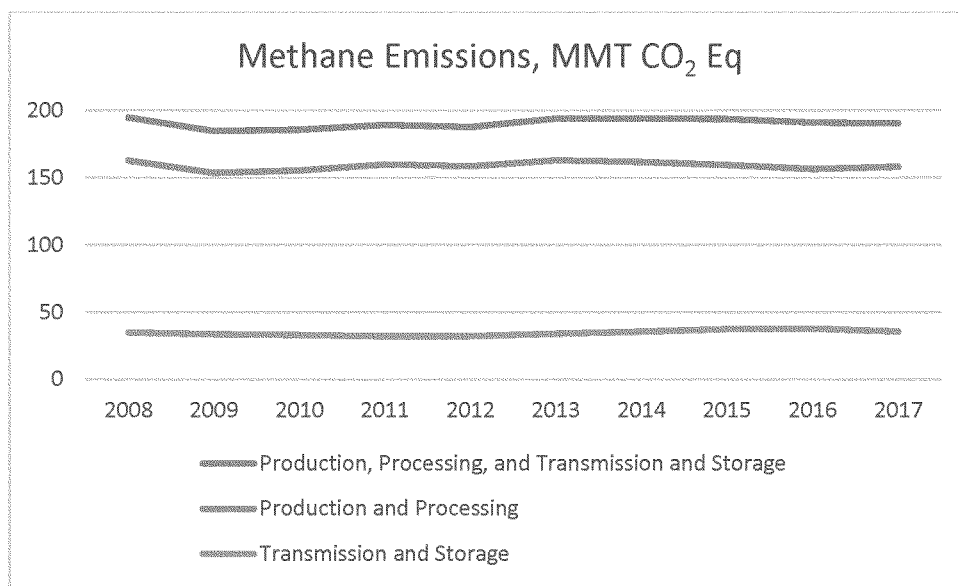


FIGURE 1. METHANE EMISSIONS FROM THE INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 2008-2017 (PUBLISHED APRIL 11, 2019)

Oil and natural gas production segment trends are impacted by decreases in oil and natural gas exploration emissions (91 percent from 2008 to 2017), primarily due to

decreases in hydraulically fractured well completions without RECs and a decrease in the number of well completions. Production emissions outside of the exploration subcategory

increased by 8 percent over the time frame, primarily due to increased emissions from gathering and boosting stations. In the processing segment, emissions increased by 9 percent over

⁸⁷ Improving Characterization of Anthropogenic Methane Emissions in the United States (2018), <https://www.nap.edu/read/24987/chapter/3#26>.

the time period, due primarily to an increase in emissions from compressor engine exhaust, caused by an increase in engine capacity per plant. Over the same time frame, oil production increased 35 percent and natural gas production increased 87 percent.

The increase in methane emissions in the transmission and storage segment from 2008–2017 was driven by an increase in emissions from compressor engine exhaust and station venting. Over the same time frame, natural gas consumption increased by 16 percent.

iii. Projections. According to the latest Energy Information Administration

(EIA) Annual Energy Outlook report,⁸⁸ from 2017 to 2050, dry natural gas and crude oil and lease condensate production (which impact the production and processing segments emissions) are projected to increase by 60 percent and 26 percent, respectively, while natural gas consumption (which impacts transmission and storage emissions) is projected to grow by 29 percent.

b. U.S. oil and natural gas production and natural gas processing and transmission and storage GHG emissions relative to total U.S. GHG

*emissions.*⁸⁹ Relying on data from the U.S. GHGI, we compared U.S.: (1) Oil and natural gas production and natural gas processing and transmission GHG emissions, (2) oil and natural gas processing GHG emissions; and (3) transmission and storage GHG emissions to total U.S. GHG emissions as an indication of the role these segments play in the total domestic contribution to the air pollution that is causing climate change. In 2017, total U.S. GHG emissions from all sources were 6,472 MMT CO₂ Eq.

TABLE 7—COMPARISONS OF U.S. OIL AND NATURAL GAS EMISSIONS TO TOTAL UNITED STATES GHG EMISSIONS

	2017 CH ₄ emissions (MMT CO ₂ eq)	Share of total U.S. CH ₄ (%)	Share of total U.S. GHG (%)
U.S. Oil & Gas Production and Natural Gas Processing & Transmission and Storage	190	29	3
U.S. Oil & Gas Production and Natural Gas Processing	158	24	2
U.S. Gas Transmission and Storage	32	5	1

Emissions from the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017 (published April 11, 2019), calculated using methane (CH₄) GWP of 25.

c. U.S. oil and natural gas production and natural gas processing and transmission and storage GHG emissions relative to total global GHG emissions. For additional background

information and context, we used 2014 emissions data from the World Resources Institute (WRI) to make comparisons between U.S. oil and natural gas production and natural gas

processing and transmission and storage (and subsets thereof) emissions and the emissions inventories of entire countries and regions.

TABLE 8—COMPARISONS OF UNITED STATES OIL AND NATURAL GAS EMISSIONS TO TOTAL GLOBAL GHG EMISSIONS

	2014 CH ₄ emissions (MMT CO ₂ eq)	Share of global CH ₄ (%)	Share of global GHG (%)
U.S. Oil & Gas Production and Natural Gas Processing & Transmission and Storage	194	2.1	0.4
U.S. Oil & Gas Production and Natural Gas Processing	162	1.8	0.3
U.S. Gas Transmission and Storage	32	0.4	0.1

Emissions from the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017 (published April 11, 2019), calculated using CH₄GWP of 25.

Note: Totals may not sum due to rounding.

Recent trends in global GHG emissions suggest that the proportion of U.S. methane emissions, including emissions from oil and natural gas production, processing, transmission, and storage, is likely to represent a smaller share in the future.

VII. Implications for Regulation of Existing Sources

The EPA recognizes that by rescinding the applicability of the NSPS, issued under CAA section 111(b), to methane emissions for the sources in the Crude Oil and Natural Gas Production source category that are

currently covered by the NSPS, existing sources of the same type in the source category will not be subject to regulation under CAA section 111(d). The EPA discusses the implications of this and other relevant issues below. In subsection A below, we explain our legal interpretation of CAA section 111(d)(1) and propose that promulgating an NSPS for VOC emissions from new sources in the Crude Oil and Natural Gas Production source category under CAA section 111(b) does not trigger the application of CAA section 111(d) existing sources in the source category. In subsection B below, we explain why

the lack of regulation of existing sources under CAA section 111(d) will not mean a substantial amount of lost emission reductions. That is because we expect that many existing sources will retire or become subject to regulation under CAA section 111(b) because they will undertake modification or reconstruction. In addition, existing sources already have market incentives to reduce methane emissions, participate in voluntary programs to do so, and in many cases are subject to state requirements to do so.

⁸⁸ [https://www.eia.gov/outlooks/aeo/data/browser/#/?id=1-AEO2019&cases=ref2019&](https://www.eia.gov/outlooks/aeo/data/browser/#/?id=1-AEO2019&cases=ref2019&sourcekey=0)

sourcekey=0. Reference scenario. Accessed April 12, 2019.

⁸⁹ The U.S. and global figures in this subsection refer to anthropogenic emissions.

A. Existing Source Regulation Under CAA Section 111(d)

CAA section 111(d) authorizes the regulation of existing sources in a source category for particular air pollutants to which a standard of performance would apply if those existing sources were new sources. By legal operation of the terms of CAA section 111(d), certain existing sources in the Crude Oil and Natural Gas Production source category will no longer be subject to regulation under CAA section 111(d) as a result of this proposed rule. Under CAA section 111(d)(1)(A), CAA section 111(d) applies only to air pollutants for which air quality criteria have not been issued, which are not on the EPA's list of air pollutants issued under CAA section 108(a) (generally, the list of air pollutants subject to the NAAQS, and which are not HAP emitted from a source category regulated under CAA section 112. *See* 42 U.S.C. 7411(d)(1)(A) (CAA section 111(d) applies to "any air pollutant (i) for which air quality criteria have not been issued or which is not included on a list published under section 7408(a) of this title or emitted from a source category which is regulated under section 7412 of this title"). As noted above, sources in the Crude Oil and Natural Gas Production source category emit VOC, methane, and HAP. The CAA section 112 exclusion in CAA section 111(d)(1)(A) eliminates HAP from the type of air pollutant that, if subjected to a standard of performance for new sources, would trigger the application of CAA section 111(d). In addition, as discussed below, the EPA proposes that VOC do not qualify as the type of air pollutant that, if subjected to a standard of performance for new sources, would trigger the application of CAA section 111(d). On the other hand, the EPA has, to date, assumed that methane, if subjected to a standard of performance for new sources, would trigger the application of CAA section 111(d). Accordingly, given this assumption, the EPA recognizes that rescinding the applicability of the NSPS to methane emissions for the sources in the Crude Oil and Natural Gas Production source category that are currently covered by the NSPS will mean that existing sources of the same type in the source category will not be subject to regulation under CAA section 111(d). This is a legal consequence that results from the application of the CAA section 111 requirements.

Further, VOC do not qualify as the type of air pollutant that, if subjected to a standard of performance for new

sources, would trigger the application of CAA section 111(d). As noted above, the pollutants excluded from regulation under CAA section 111(d) include pollutants which have been included on the EPA's CAA section 108(a) list. VOC are not expressly listed on the EPA's section CAA section 108(a) list, but they are precursors to ozone and PM, both of which are listed CAA section 108(a) pollutants. The definition of "air pollutant" in CAA section 302(g) expressly provides that the term "air pollutant" includes precursors to the formation of an air pollutant "to the extent that the Administrator has identified such precursor or precursors for the particular purpose for which the term 'air pollutant' is used." Based on this "particular purpose" phrasing, it is appropriate to identify VOC as a listed CAA section 108(a) pollutant for the particular purpose of applying the CAA section 108(a) exclusion in CAA section 111(d) for the following reasons: first, VOC are regulated under the CAA's NAAQS/SIP program as a result of the listing of ozone and PM on the CAA section 108(a) list, because VOC are precursors to those two listed pollutants. Indeed, ozone levels in the ambient air are the result of photochemical reactions of precursors (VOC and NOX), as opposed to being directly emitted from sources.

Accordingly, the statutory provisions directed at attaining the NAAQS for ozone explicitly direct the control of VOC and emissions controls that result from the listing of ozone under CAA section 108(a) apply to the precursors of ozone, such a VOC. *See, e.g.,* CAA sections 182(b)(1), 182(b)(2), 182(c)(2)(B). Similarly, the EPA has recognized that "[i]n most areas of the country, PM_{2.5} precursors are major contributors to ambient PM_{2.5} concentrations." 73 FR 28321, 28325/2 (May 16, 2008). In such areas of the country, VOC are, thus, controlled for purposes of reducing ambient PM_{2.5} concentrations. *See, e.g.,* U.S. EPA, Office of Air Quality Planning and Standards, "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program," April 17, 2018.

Second, excluding VOC from regulation under CAA section 111(d) makes sense within the CAA's three-part structure for addressing emissions from stationary sources. As the EPA has discussed in past rulemakings, the CAA—sets out a comprehensive scheme for air pollution control, addressing three general categories of pollutants emitted from stationary sources: (1)

Criteria pollutants (which are addressed in CAA sections 108–110); (2) hazardous pollutants (which are addressed under CAA section 112); and (3) "pollutants that are (or may be) harmful to public health or welfare but are not or cannot be controlled under sections 108–110 or 112." "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units: Final Rule," 80 FR 64661, 64711 (October 23, 2015) (quoting 40 FR 53340 (November 17, 1975)). Within this three-part structure, CAA section 111(d) is properly understood as a "gap-filling" measure to address pollutants that are not addressed under either the NAAQS/SIP provisions in CAA sections 108–110 or the HAP provisions in CAA section 112. Because VOC are regulated as precursors to ozone and PM_{2.5} under CAA sections 108–110, they are properly excluded from regulation under CAA section 111(d) because the "gap-filling" function of CAA section 111(d) is not needed.

Third, reading the phrase "included on a list published under [CAA section 108(a)]" as including precursors is consistent with the provision in CAA section 112(b)(2) that restricts what pollutants may be listed as CAA section 112 HAP. CAA section 112(b)(2) provides, in pertinent part:

No air pollutant which is listed under section 7408(a) of this title may be added to the list under this section, except that the prohibition of this sentence shall not apply to any pollutant which independently meets the listing criteria of this paragraph and is a precursor to a pollutant which is listed under section 7408(a) of this title or to any pollutant which is in a class of pollutants listed under such section.

The "except" phrasing of this sentence suggests that air pollutants which are "listed under section 7408(a)" can be read to include precursors to the pollutant that is listed under CAA section 108(a). Otherwise, pollutants that are described in the second part of the sentence (pollutants that meet the listing criteria and are precursors to a CAA section 108(a) pollutant) would not be an exception to the prohibition in the first part of the sentence.

Finally, the fact that precursors are not always treated as CAA section 108(a) listed pollutants under all contexts across the CAA does not undermine the conclusion that they should be excluded under the CAA section 108(a) exclusion in CAA section 111(d). As the CAA section 302(g) definition expressly states, the scope of "air pollutant" is considered based on the "particular purpose" for which the term "air pollutant" is used. The EPA

has long recognized that the “particular purpose” clause in CAA section 302(g) “indicates that the Administrator has discretion to identify which pollutants should be classified as precursors for particular regulatory purposes.” 73 FR 28326/1 (May 16, 2008) (“Thus, we do not necessarily construe the Act to require that the EPA identify a particular precursor as an air pollutant for all regulatory purposes where it can be demonstrated that various programs under the Act address different aspects of the air pollutant problem. Likewise, we do not interpret the Act to require that the EPA treat all precursors of a particular pollutant the same under any one program when there is a basis to distinguish between such precursors within that program.”).

B. Limited Impact of Lack of Regulation of Existing Oil and Gas Sources Under CAA Section 111(d)

In this subsection, we explain the several reasons why the lack of regulation of existing sources under CAA section 111(d) will have limited environment impact.

1. Potential Applicability of 40 CFR Part 60, Subpart OOOOa to Current Existing Sources

The EPA notes that the 2016 NSPS OOOOa rule includes a definition and approach to determining new source applicability that is very broad, and in the specific context of the oil and natural gas production industry, can be anticipated to result in wide applicability of the NSPS to existing sources due to the frequency with which such sources can be reasonably expected to engage in “modification” activity. One consequence is the expected reduction of methane emissions from existing sources notwithstanding the proposed alternative actions set forth here. Further, the EPA believes that it is reasonable to expect that the number of existing sources may decline over time due to obsolescence or to shut down and removal actions, which would mitigate the environmental impacts of lack of direct existing source regulation under CAA section 111(d), and as noted below, the EPA is soliciting comment to determine the rate at which this decline can be expected to occur.

The EPA is in the process of examining the rate of turnover of existing facilities, including the rate at which existing facilities are replaced with new facilities, are modified, or shut down. The EPA has reviewed indirect turnover information from three different sources. First, the EPA assessed the GHGI to identify the

activity counts for pneumatic controllers, compressors, tank throughput, and well completions.⁹⁰ Second, the EPA reviewed activity counts from DrillingInfo for well completions.⁹¹ Third, the EPA reviewed a number of compliance reports for the approximate first reported compliance year since the promulgation of the 2016 NSPS OOOOa rule. The EPA determined that the available information may be indicative of trends for some sources whereas, for other sources, no conclusions can yet be drawn. The following section presents the information available to the EPA from which it appears possible to identify trends. We solicit information and data to help evaluate the rate at which existing sources decline over time, through modification, obsolescence, shutdown, replacement to new source status or otherwise. Specifically, we are requesting information regarding affected facility useful life in hours or years (*i.e.*, expected years of operation before replacement) and affected facilities that commenced new construction, modification, or reconstruction over a time period (*e.g.*, 2016, 2017, and 2018). The following paragraphs present the information currently available to the EPA by source.

a. Pneumatic controllers. The count of high-bleed pneumatic controllers in the oil and natural gas production segment declined 74 percent from 2011 to 2017. The count of low-bleed pneumatic controllers also declined (by 41 percent), while intermittent-bleed increased (by 52 percent). Over the same period, the overall count of pneumatic controllers in this segment decreased by 3 percent. This indicates that high-bleed and low-bleed controllers have been replaced by intermittent bleed controllers. The rapid pace at which high- and low-bleed controllers

⁹⁰ The GHGI includes national estimates of various types of activity data, some of which correspond approximately to the 2016 NSPS OOOOa facility categories. The EPA looked at the change in facilities between 2011 and 2017 in order to isolate the effect of the 2012 NSPS OOOO rule to understand turnover of affected facilities. The EPA recognizes uncertainty in this use of data from the GHGI and the EPA will need additional information to assess the identified data gaps for purposes of identifying trends.

⁹¹ The DrillingInfo database includes information on oil and natural gas wells, production, well completions, and associated data. This is relevant to potential turnover for purposes of well completion and fugitive emissions requirements. DrillingInfo records show the extent to which currently producing wells have had a completion in recent years, or the ratio of completions to total producing wells. The EPA recognizes uncertainty in data from this source and will need additional information to assess the identified data gaps for purposes of identifying trends.

declined while intermittent-bleed controllers increased suggests that pneumatic controllers had a high rate of turnover or were replaced before the end of their useful life. This data shows a relatively small number of remaining existing high-bleed pneumatic controllers relative to a few years ago. The EPA solicits data and information on the turnover rate of pneumatic controllers.

b. Compressors. The count of wet seal centrifugal compressors at processing plants was 343 in both 2011 and 2017.⁹² The EPA expects the dry seal control option to be the most common control strategy due to its low cost. For comparison, the number of dry seal compressors at processing plants changed from 281 to 339 (or 21 percent), an increase of 58. At the same time the number of processing plants increased by 61. The EPA solicits data and information on the turnover rate of wet seal centrifugal compressors.

c. Storage vessels. Natural gas production throughput at large condensate storage vessels without controls decreased by 33 percent from 2011 to 2017. The growth is slower than the growth in natural gas production throughput of all other types of condensate storage vessels (large tanks with flares and vapor recovery units (VRU), and small tanks with and without flares), which was 41 percent. Oil production throughput at large storage vessels without controls increased by 18 percent from 2011 to 2017. The growth is slower than the growth in oil production throughput of all other types of storage vessels (large tanks with flares and VRUs, and small tanks with and without flares), which was 92 percent. In general, if many existing storage vessels were being replaced, becoming subject to 2016 NSPS OOOOa and then installing controls, we may expect production throughput at large uncontrolled storage tanks to decline, with corresponding increases at controlled tanks. The EPA solicits data and information on storage vessel production throughput and the turnover rate of affected facilities.

d. Well completions. Based on the GHGI, the ratio of natural gas well completions to total producing natural gas wells from 2011 to 2017 has decreased, from 2.4 to 1.1 percent. The ratio of oil well completions to total producing oil wells has remained at approximately 3 percent from 2011 to 2017. If wells had a relatively short

⁹² New or modified wet seal centrifugal compressors are subject to control requirement under NSPS OOOO and OOOOa while dry seal centrifugal compressors are not.

production lifetime, we would expect a high ratio of completions to total producing wells. The 2 percent ratio indicates that a relatively small number of wells are completed each year. Based on a preliminary analysis of the DrillingInfo database, approximately one-third of total producing oil and gas wells in 2014 had a completion in the prior 10 years, while two-thirds of producing oil and gas wells had no completion records for at least 10 years. If the EPA assumes that future completion activity follows these trends, then after 2016 NSPS OOOOa well site fugitive requirements have been in place for 10 years (2016 through 2025), we might expect completions at about one-third of wells (from the perspective of having had a completion after the effective date of the 2016 NSPS OOOOa). The EPA solicits data and information regarding the proportion of wells that have undergone a completion during a shorter time period (e.g., less than 10 years) and that would imply that most well sites are subject to 2016 NSPS OOOOa. The EPA solicits comment on how we should characterize wells sharing well sites (e.g., if only half of wells have had a recent completion, it would be possible for half the wells to not be subject to 2016 NSPS OOOOa, or potentially all wells could be subject to 2016 NSPS OOOOa, if wells without a recent completion always share a well site with newer wells).

e. Compliance reports. The EPA reviewed all NSPS OOOOa compliance reports that had been submitted to the Agency through November 21, 2017, in order to identify information to use to develop a rate at which existing facilities become new or modified.⁹³ Information in these compliance reports indicates the number of various types of facilities subject to the NSPS during the

given time range. The reports included 2,991 well sites, encompassing 697 storage vessels, five pneumatic controllers, 663 pneumatic pumps, and 2,091 instances of fugitive emissions monitoring. 130 compressor stations were included in the reports, encompassing 148 reciprocating compressors and 94 instances of fugitive emissions monitoring. In addition, 38 natural gas processing plants were included, encompassing one pneumatic controller and 32 reciprocating compressors. The reports included both new and existing facilities, which we can disaggregate in part by subtracting our previous estimates of the number of “new” facilities from these counts which include both new and modified. A high rate of turnover (e.g., a high rate of facilities performing modification(s) which caused them to become subject to the 2016 NSPS OOOOa) would imply that a large number of facilities should be submitting compliance reports. Thus, the general proportions of the number of facilities in the compliance reports versus the total population indicates how quickly facilities became subject to the NSPS during this period. Due to various uncertainties, we are unable to develop a rate at which existing sources become subject to the NSPS OOOOa. The EPA solicits comment on ways to use this information to predict turnover trends.

The EPA has also considered multiple factors unrelated to federal regulatory requirements that achieve methane emissions reductions. First, market incentives exist for the oil and natural gas industry to capture as much of its primary product as is cost effective, and that capture reduces methane emissions. Second, firms in the oil and natural gas industry participate in several voluntary programs to reduce emissions. Third, many of the top oil and natural gas-producing states have developed or are developing regulations that require emissions reductions. We believe these factors also should be considered for the universe of existing facilities and that

they point away from any need to regulate existing sources under CAA section 111(d). The EPA presents below background information and data on each of these factors.

2. Market Incentives

As methane is the primary constituent of natural gas, an important commodity, operators have market incentives to reduce emissions and the loss of valuable product to the atmosphere. Absent regulation, the incentive to maximize the capture of natural gas is the market price obtained by the operator producing the natural gas. Assuming financially rational-acting producers, standard economic theory suggests that oil and natural gas operators will incorporate all cost-effective production improvements of which they are aware without government intervention. Depending on the future trajectories of natural gas prices and the costs of natural gas capture, these market incentives speak to the question of whether, even in the absence of specific regulatory requirements applicable to methane emissions from existing sources, meaningful emission decreases can nevertheless be projected to occur.

As shown in Figure 2 below, as technology, expertise, infrastructure, and regulation in the oil and natural gas industry has improved, less natural gas has been lost to unproductive uses such as venting and flaring. Figure 2 shows how the gross withdrawals⁹⁴ of natural gas has generally increased in the U.S. over the past 80 years while the fraction of this withdrawn natural gas lost to venting and flaring has generally been decreasing over the same time frame.

⁹⁴ U.S. EIA defines gross withdrawals of natural gas as “[f]ull well-stream volume, including all-natural gas plant liquids and all nonhydrocarbon gases, but excluding lease condensate. Also includes amounts delivered as royalty payments or consumed in field operations.” Available at: https://www.eia.gov/dnav/ng/TblDefs/ng_sum_sndm_tbldef2.asp. Accessed October 30, 2018.

⁹³ These reports have since been made available for public viewing at <https://www.foiaonline.gov/foiaonline/action/public/submissionDetails?trackingNumber=EPA-HQ-2018-001886&type=request>.

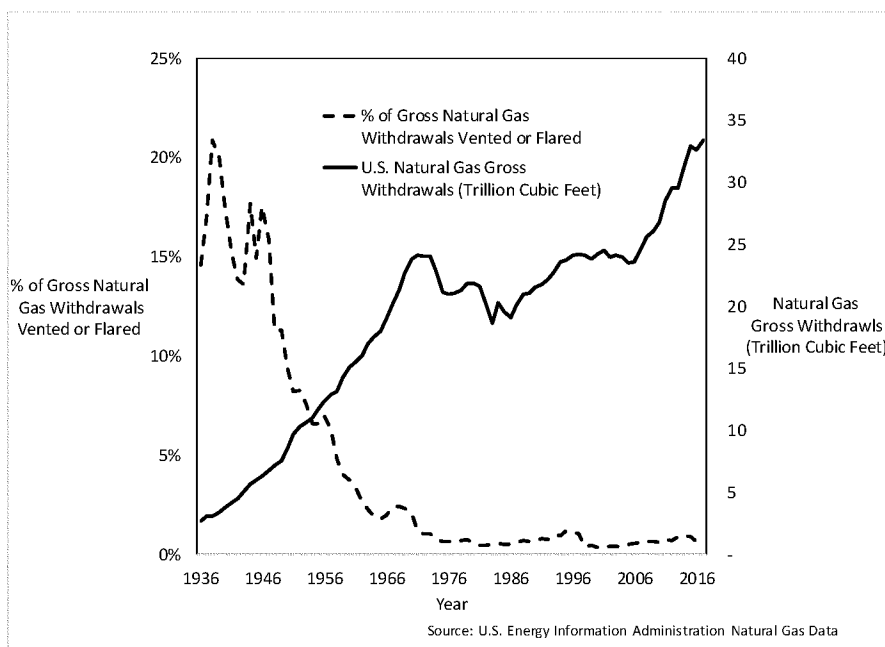


FIGURE 2. VENTED AND FLARED NATURAL GAS COMPARED TO GROSS NATURAL GAS WITHDRAWALS VENTED IN THE U.S., 1936-2017⁹⁵

In 2004, the Government Accountability Office (GAO) noted that the venting and flaring data collected by the U.S. EIA was limited in several ways, including that the data is voluntarily and inconsistently

reported.⁹⁶ With that caveat in mind, while this figure does not depict a precise relationship between natural gas production and methane emissions, the figure highlights the point that the productive inefficiency of losing natural gas to venting and flaring has been reduced greatly over this long period of time, likely the product of operators learning to improve returns on costly drilling and production investments by capturing more of the product coming

out of the ground, as well as to improve the health, safety, and environmental performance of their operations.

Regarding the relationship of methane emissions and natural gas production, while overall natural gas gross withdrawals have increased about 50 percent from 1990 to 2016, aggregate methane emissions from the NSPS OOOOa-relevant industry segments have stayed relatively flat (Figure 3). This trend indicates decreasing aggregate methane emissions intensity for these segments over this period (Figure 3).

⁹⁵ U.S. EIA data on natural gas gross withdrawals available at: https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_FGW_mmcf_a.htm. Accessed October 30, 2018. U.S. EIA data on vented and flared natural gas available at: https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_VGV_mmcf_a.htm. Accessed October 30, 2018.

⁹⁶ Available at: <https://www.gao.gov/assets/250/243433.pdf>. Accessed October 30, 2018.

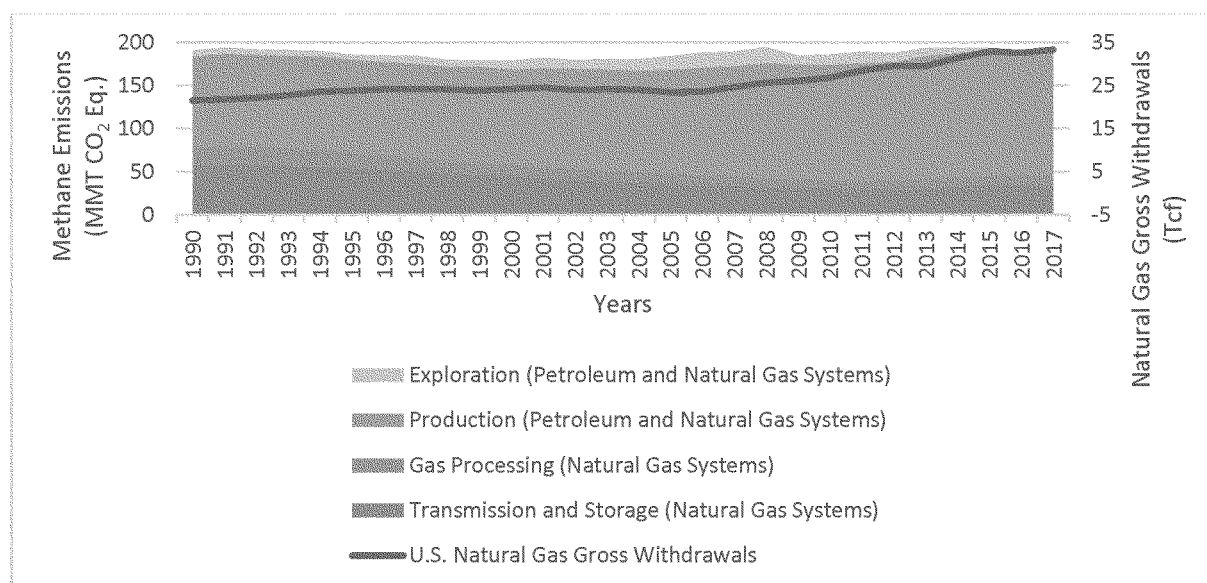


FIGURE 3. NET EMISSIONS OF METHANE EMISSIONS (FROM 2018 GHGI) and U.S. NATURAL GAS GROSS WITHDRAWALS (FROM U.S. EIA NATURAL GAS DATA), 1990 TO 2016.⁹⁷

The EPA solicits comment on whether sufficient market incentives exist to offset the costs of emissions capture such that total methane emissions will trend downward under these incentives.

3. Voluntary Programs

Separate from regulatory requirements, owners and operators of facilities in the oil and natural gas industry participate in voluntary programs that reduce their methane emissions. Specifically, many owners and operators of facilities participate in the EPA partnership programs Natural Gas STAR Program and the Methane Challenge Program. Owners and operators also participate in voluntary programs unaffiliated with the EPA voluntary programs, such as the Environmental Partnership⁹⁸ and the Climate and Clean Air Coalition (CCAC) Oil & Gas Methane Partnership. Firms might participate in voluntary environmental programs for a variety of reasons, including attracting customers, employees, and investors who value more environmental-responsible goods and services; finding approaches to

improve efficiency and reduce costs; and reducing pressures for potential new regulations or helping shape future regulations.^{99 100}

The Natural Gas STAR Program started in 1993 and seeks to achieve methane emission reductions through cost-effective best practices and technologies. Partner companies document their voluntary emission reduction activities and report their accomplishments to the EPA annually. Natural Gas STAR includes over 100 partners across the natural gas value chain and has eliminated nearly 1.39 trillion cubic feet of methane emissions since 1993.

The Methane Challenge Program, started in 2016 and designed for companies that want to adopt more ambitious actions for methane reductions, expands the Natural Gas STAR Program through specific, ambitious commitments; transparent reporting; and company-level recognition of commitments and progress. This program includes more than 50 companies from all segments of the industry—production, gathering and

boosting, transmission and storage, and distribution.

The Environmental Partnership is comprised of various companies of different sizes and includes commitments to replace all high-bleed pneumatic controllers with low-bleed controllers (*i.e.*, controllers with a bleed rate less than 6 standard cubic feet per hour) within 5 years, require operators to be on-site or nearby when conducting liquids unloading and require initial monitoring for fugitive emissions at all sites within 5 years, with repairs completed within 60 days of fugitive emissions detection.

The CCAC Oil and Gas Methane Partnership is a technical partnership between oil and natural gas companies, the Environmental Defense Fund, the EPA Natural Gas STAR Program, and the Global Methane Initiative that provides technical documents on a wide variety of opportunities for reducing methane emissions and requires annual progress reports from its participants. Yearly data on the progress being made by participants is available on the CCAC website.¹⁰¹

While the GHGI already accounts for these voluntary reductions, the adoption of control technologies and emission reduction practices of participating companies reporting to the EPA's programs, the EPA understands it takes time for newly launched voluntary efforts to demonstrate reductions. The

⁹⁷ Methane emissions from Table 3.5–2 (Petroleum Systems) and Table 3.6–1 (Natural Gas Systems) in U.S. EPA. 2018. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2016. EPA 430–R–18–003. Available at: <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016>. Accessed October 31, 2018. U.S. EIA data on natural gas gross withdrawals available at: https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_FGW_mmcf_a.htm. Accessed October 31, 2018.

⁹⁸ <https://theenvironmentalpartnership.org/>.

⁹⁹ Borck, J.C. and C. Coglianese (2009). "Voluntary Environmental Programs: Assessing Their Effectiveness." *Annual Review of Environment and Resources* 34(1): 305–324.

¹⁰⁰ Brouhle, K., C. Griffiths, and A. Wolverton. (2009). "Evaluating the role of EPA policy levers: An examination of a voluntary program and regulatory threat in the metal-finishing industry." *Journal of Environmental Economics and Management*. 57(2): 166–181.

¹⁰¹ <http://ccacoalition.org/en/content/oil-and-gas-methane-partnership-reporting>.

EPA also understands that not all sources participate in voluntary programs, although participation may increase over time. The EPA solicits data and information that the EPA can use to evaluate the aggregate present impact and potential future impact of oil and natural gas industry participation in voluntary programs.

4. State Regulatory Programs

Several major oil and natural gas producing states have established regulations on oil and natural gas sector emissions. These states include California (CA), Colorado (CO), Montana (MT), New Mexico (NM), North Dakota (ND), Ohio (OH), Pennsylvania (PA),

Texas (TX), Utah (UT), and Wyoming (WY).¹⁰² In 2018 within the U.S., these states contributed about 71 percent of crude oil production¹⁰³ and 69 percent of natural gas production.¹⁰⁴ A comparison of sources covered by state rules, regulated pollutants, and the regulatory status of the transmission and storage segment, is presented in Table 9.

TABLE 9—COMPARISON OF STATE OIL AND NATURAL GAS REGULATIONS

	CA	CO	MT	ND	NM	OH	PA	TX	UT	WY
Source										
Storage Vessels	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes.
Reciprocating Compressors	Yes ...	Yes ...	No	No	No	Yes ...	Yes ...	No	No	No.
Centrifugal Compressors	Yes ...	Yes ...	No	No	No	Yes ...	Yes ...	No	No	No.
Pneumatic Controllers	Yes ...	Yes ...	No	No	No	Yes ...	Yes ...	No	Yes ...	Yes.
Pneumatic Pumps	Yes ...	Yes ...	No	No	No	Yes ...	Yes ...	No	No	Yes.
Equipment Leaks at Natural Gas Processing Plants ..	Yes ...	Yes ...	No	No	No	No	Yes ...	Yes ...	No	No.
Fugitive Emissions at Well Sites	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes ...	Yes.
Fugitive Emissions at Compressor Stations	Yes ...	Yes ...	No	No	No	Yes ...	Yes ...	No	No	Yes.
Methane Standards	Yes ...	Yes ...	No	No	No	No	Yes ...	No	No	No.
Transmission and Storage Segment	Yes ...	Yes ...	No	No	No	Yes ...	Yes ...	No	No	Yes.

While not all of these states cover all emission sources covered by the NSPS OOOO and OOOOa, all have requirements for storage vessels and fugitive emissions at well sites, two of the largest emission sources within the oil and natural gas industry. Select aspects of the fugitive emissions programs for these states were evaluated as potential alternative standards to changes to 2016 NSPS OOOOa that the EPA proposed by notice dated October 15, 2018, 83 FR 52056. The states with programs proposed to be included as alternative fugitive standards include CA, CO, OH, and PA for both well sites and compressor stations, and TX and UT for well sites only.¹⁰⁵ Alaska, Oklahoma, and West Virginia incorporate NSPS OOOO and OOOOa by reference into state rules.

Three states, including CA, CO, and PA, regulate methane emissions explicitly.¹⁰⁶ California requires emissions from storage vessels emitting more than 10 tpy of methane to be routed to a vapor control system. In addition, CA does not allow for pneumatic pumps to vent methane emissions to the atmosphere. Colorado requires certain HC destruction efficiencies for storage vessels, as well as general requirements to design operations so that HC emissions are minimized. Pennsylvania's General Permits 5 and 5A require various

emission sources emitting over 200 tpy of methane to control their emissions by 95 percent. These emission sources include dehydrators, storage vessels, pigging operations, and tanker truck load-out operations. In addition, the definition of "fugitive emission component" within these permits explicitly includes those components that have the potential to emit methane. The permits require quarterly instrument monitoring for compressor stations and unconventional well sites. While other states only regulate VOC, measures that reduce VOC will also reduce methane. The EPA solicits comment describing what other states are doing to reduce methane emissions from the oil and natural gas industry, and, more broadly, whether there are enough consistent state requirements in place that will meaningfully reduce emissions should the primary proposal be finalized. Additionally, the EPA does not current have the capability to produce state-level projections of sources in transmission and storage that are potentially affected by this action. Because of this, we are unable to perform any quantitative analysis of state programs with similar requirements. As a result, the EPA also solicits information that will help the Agency project potentially-affected facilities in the transmission and storage segment at the state level.

VIII. Impacts of This Proposed Rule

A. What are the air impacts?

The EPA estimated the change in emissions that will occur due to the implementation of the primary and alternative options in this proposal for the analysis years of 2019 through 2025. The EPA estimates impacts beginning in 2019 to reflect the year implementation of this proposal. The EPA estimates impacts through 2025 to illustrate the accumulating effect of this rule, if finalized as proposed, over a longer period. The EPA does not estimate impacts after 2025 for reasons including limited information, as explained in the RIA. The RIA estimates for 2025 include sources newly affected in 2025 as well as the accumulation of affected sources from 2016 to 2024 that are also assumed to be in continued operation in 2025, thus, incurring compliance costs and emission reductions in 2025.

The RIA presents results relative to two alternative baselines for this action. The first baseline includes the March 12, 2018 Amendments final package and the October 15, 2018 proposed revisions and is referred to as the "2018 Proposed Regulatory" baseline. The second baseline includes the March 12, 2018 Amendments final package but excludes the potential impacts of the October 15, 2018 proposed revisions and is referred to as the "Current Regulatory" baseline.

¹⁰² This list does not differentiate which states are covering existing and/or new sources. We note that states may define existing and new sources differently than the EPA.

¹⁰³ <https://www.eia.gov/state/rankings/#/series/46>.

¹⁰⁴ <https://www.eia.gov/state/rankings/#/series/47>.

¹⁰⁵ <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/proposed-improvements-2016-new-source>.

¹⁰⁶ Colorado includes requirements on methane emissions in the form of HC.

A more detailed description of the alternative baselines is presented in Section 1.2 of the RIA.

The EPA estimated that over the 2019 to 2025 time frame, relative to the 2018 Proposed Regulatory baseline, the primary proposal would increase methane emissions by about 350,000 short tons, VOC emissions by about 9,700 tons, and 290 tons of HAP from facilities affected by this review. Under the Current Regulatory baseline, the EPA estimated that over the 2019 to 2025 time frame, the primary proposal would increase methane emissions by about 370,000 short tons VOC emissions by about 10,000 tons, and 300 tons of HAP from facilities affected by this review.

Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no expected emission impacts from rescinding the methane requirement, relative to either of the 2018 Proposed Regulatory or the Current Regulatory baselines.

The EPA solicits comment on the assumptions used in the memorandum titled "Draft Control Cost and Emission Changes under the Proposed Amendments to 40 CFR part 60, subpart OOOOa Under Executive Order 13783.

B. What are the energy impacts?

Energy impacts in this section are those energy requirements associated with the operation of emissions control devices. Potential impacts on the national energy economy from the rule are discussed in the economic impacts section. Under the primary proposal, there would be little change in the national energy demand from the operation of any of the environmental controls proposed in this action. The alternative proposal would lead to no changes in compliance activities and, as a result, would not produce any energy impacts. This conclusion is independent of the choice of baseline used in the analysis supporting this action.

C. What are the compliance costs?

Under the 2018 Proposed Regulatory baseline, the EPA estimates the present value (PV) of compliance cost savings of the primary proposal over 2019–2025, discounted back to 2016, will be \$104 million (in 2016 dollars) using a 7 percent discount rate and \$133 million using a 3 percent discount rate, not including the forgone producer revenues associated with the decrease in the recovery of saleable natural gas. The equivalent annualized value (EAV) of these cost savings are \$18 million per year using a 7 percent discount rate and

\$21 million per year using a 3 percent discount rate. In this analysis, the EPA uses the 2018 Annual Energy Outlook (AEO) projection of natural gas prices to estimate the value of the change in the recovered gas at the wellhead. After accounting for the change in these revenues, the estimate of the PV of compliance cost savings of the proposed review over 2019–2025, discounted back to 2016, are estimated to be \$81 million using a 7 percent discount rate, and \$103 million using a 3 percent discount rate; the corresponding estimates of the EAV of cost savings after accounting for the forgone revenues are \$14 million per year using a 7 percent discount rate, and \$16 million per year using a 3 percent discount rate.

Under the Current Regulatory baseline, the EPA estimates the present value (PV) of compliance cost savings of the primary proposal over 2019–2025, discounted back to 2016, will be \$122 million (in 2016 dollars) using a 7 percent discount rate and \$155 million using a 3 percent discount rate, not including the forgone producer revenues associated with the decrease in the recovery of saleable natural gas. The equivalent annualized value (EAV) of these cost savings are \$21 million per year using a 7 percent discount rate and \$24 million per year using a 3 percent discount rate. After accounting for the change in these revenues, the estimate of the PV of compliance cost savings of the proposed review over 2019–2025, discounted back to 2016, are estimated to be \$97 million using a 7 percent discount rate, and \$123 million using a 3 percent discount rate; the corresponding estimates of the EAV of cost savings after accounting for the forgone revenues are \$17 million per year using a 7 percent discount rate, and \$19 million per year using a 3 percent discount rate.

Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no expected changes in the cost or emissions from rescinding the methane requirements relative to either baseline used in the analysis supporting this action.

Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no expected changes in the cost or emissions from rescinding the methane requirements relative to either baseline used in the analysis supporting this action.

D. What are the economic and employment impacts?

The EPA used the National Energy Modeling System (NEMS) to estimate the impacts of the 2016 NSPS OOOOa on the U.S. energy system. The NEMS is a publicly-available model of the U.S. energy economy developed and maintained by the U.S. EIA and is used to produce the AEO, a reference publication that provides detailed projections of the U.S. energy economy.

The EPA estimated small impacts on crude oil and natural gas markets of the 2016 NSPS OOOOa rule over the 2020 to 2025 period. If finalized, the primary proposal would result in a decrease in total compliance costs. Therefore, the EPA expects that the primary proposal would partially reduce the impacts estimated for the 2016 NSPS OOOOa in the 2016 NSPS OOOOa RIA. The alternative proposal, if finalized, would lead to no cost impacts and no changes in the estimated impacts of the 2016 NSPS OOOOa rule. This conclusion is independent of the choice of baseline used in the analysis supporting this action.

Executive Order 13563 directs federal agencies to consider the effect of regulations on job creation and employment. According to the Executive Order, "our regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job creation. It must be based on the best available science." (Executive Order 13563, 2011). While a standalone analysis of employment impacts is not included in a standard benefit-cost analysis, such an analysis is of concern in the current economic climate given continued interest in the employment impact of regulations such as this proposed rule.

The EPA estimated the labor impacts due to the installation, operation, and maintenance of control equipment, control activities, and labor associated with new reporting and recordkeeping requirements in the 2016 NSPS OOOOa RIA. Under the primary proposal, the EPA expects there will be slight reductions in the labor required for compliance-related activities associated with the 2016 NSPS OOOOa requirements relating to the rescission of requirements in the transmission and storage segment of the oil and natural gas industry. Under the alternative proposal, the EPA expects no changes in labor-related compliance requirements associated with the 2016 NSPS OOOOa rule. These conclusions are independent

of the choice of baseline used in the analysis supporting this action.

E. What are the benefits of the proposed standards?

The EPA expects forgone climate and health benefits due to the increase in emissions resulting from the primary proposal which would remove requirements in the transmission and storage segment. Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no expected emissions impacts from rescinding the methane requirement; hence, there would be no forgone climate and health benefits resulting from the alternative option. These conclusions are independent of the choice of baseline used in the analysis supporting this action.

The EPA estimated the forgone domestic climate benefits from the increase in methane emissions associated with the action using an interim measure of the domestic social cost of methane (SC-CH₄). The SC-CH₄ estimates used here were developed under Executive Order 13783 for use in regulatory analyses until an improved estimate of the impacts of climate change to the U.S. can be developed based on the best available science and economics. Executive Order 13783 directed agencies to ensure that estimates of the social cost of GHG used in regulatory analyses “are based on the best available science and economics” and are consistent with the guidance contained in OMB Circular A–4, “including with respect to the consideration of domestic versus international impacts and the consideration of appropriate discount rates” (Executive Order 13783, Section 5(c)). In addition, Executive Order 13783 withdrew the technical support documents (TSDs) and the August 2016 Addendum to these TSDs describing the global social cost of GHG estimates developed under the prior Administration as no longer representative of government policy. The withdrawn TSDs and Addendum were developed by an interagency working group that included the EPA and other executive branch entities and were used in the 2016 NSPS OOOOa RIA.

Under the primary proposal, the EPA expects that the forgone VOC emission reductions will degrade air quality and are likely to adversely affect health and welfare associated with exposure to ozone, PM_{2.5}, and HAP, but we are unable to quantify these effects at this time. This omission should not imply that these forgone benefits do not exist, and to the extent that EPA were to

quantify these ozone and PM impacts, it would estimate the number and value of avoided premature deaths and illnesses using an approach detailed in the Particulate Matter NAAQS and Ozone NAAQS Regulatory Impact Analyses (U.S. EPA, 2012; U.S. EPA, 2015).

When quantifying the incidence and economic value of the human health impacts of air quality changes, the Agency often relies upon reduced-form techniques; these are often reported as “benefit-per-ton” values that relate air pollution impacts to changes in air pollutant precursor emissions (U.S. EPA, 2018). A small but growing literature characterizes the air quality and health impacts from the oil and natural gas industry, but does not yet supply the information needed to derive a VOC benefit per ton value suitable for a regulatory analysis (Fann, et al., 2018; Litovitz, et al., 2013; Loomis, et al., 2017).¹⁰⁷ Moreover, the Agency is currently comparing various reduced-form techniques, including benefit per ton approaches that quantify air quality benefits. Over the last year and a half, the EPA systematically compared the changes in benefits, and concentrations where available, from its benefit-per-ton technique and other reduced-form techniques to the changes in benefits and concentration derived from full-form photochemical model representation of a few different specific emissions scenarios.¹⁰⁸ The Agency’s goal was to better understand the suitability of alternative reduced-form air quality modeling techniques for estimating the health impacts of criteria pollutant emissions changes in the EPA’s benefit-cost analysis, including the extent to which reduced form models may over- or under-estimate benefits (compared to full-scale modeling) under different scenarios and air quality concentrations. The scenario-specific emission inputs developed for this project are currently available

¹⁰⁷ Fann, N., et al. (2018). “Assessing Human Health PM_{2.5} and Ozone Impacts from U.S. Oil and Natural Gas Sector Emissions in 2025.” *Environmental Science & Technology* 52(15): 8095–8103.

Litovitz, A., et al. (2013). “Estimation of regional air-quality damages from Marcellus Shale natural gas extraction in Pennsylvania.” *Environmental Research Letters* 8(1): 014017.

Loomis, J. and M. Haefele (2017). “Quantifying Market and Non-market Benefits and Costs of Hydraulic Fracturing in the United States: A Summary of the Literature.” *Ecological Economics* 138: 160–167.

¹⁰⁸ This analysis compared the benefits estimated using full-form photochemical air quality modeling simulations (CMAQ and CAMx) against four reduced-form tools, including: InMAP; AP2/3; EASIUR and the EPA’s benefit-per-ton.

online.¹⁰⁹ The study design and methodology will be thoroughly described in the final report summarizing the results of the project, which is planned to be completed by the end of 2019.

Relative to the 2018 Proposed Regulatory baseline, the PV of the estimated forgone domestic climate benefits over 2019–2025, discounted back to 2016, is \$13 million using a 7 percent discount rate and \$49 million using a 3 percent discount rate. The EAV of these estimated forgone climate benefits is \$2.2 million per year using 7 percent discount rate and \$7.7 million per year using a 3 percent discount rate. Under the Current Regulatory baseline, the PV of the estimated forgone domestic climate benefits over 2019–2025, discounted back to 2016, will be \$13 million using a 7 percent discount rate and \$52 million using a 3 percent discount rate. The EAV of these estimated forgone climate benefits is \$2.3 million per year using 7 percent discount rate and \$8.1 million per year using a 3 percent discount rate. These values represent only a partial accounting of domestic climate impacts from methane emissions and do not account for health effects of ozone exposure from the increase in methane emissions.

IX. 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 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. In addition, the EPA prepared an RIA of the potential costs associated with the primary and alternative proposals in this action. The RIA available in the docket describes in detail the empirical basis for the EPA’s assumptions and characterizes the various sources of uncertainties affecting the estimates below.

¹⁰⁹ The scenario-specific emission inputs developed for this project are currently available online at: <https://github.com/epa-kpc/RFMEVAL>. Upon completion and publication of the final report, the final report and all associated documentation will be online and available at this URL.

The RIA presents results relative to two alternative baselines for this action. The first baseline includes the March 12, 2018 Amendments final package and the October 15, 2018 proposed revisions and is referred to as the “2018 Proposed Regulatory” baseline. The second baseline includes the March 2018 Amendments final package but excludes the potential impacts of the October 15, 2018 proposed revisions and is referred to as the “Current Regulatory” baseline. A more detailed description of the alternative baselines is presented in Section 1.2.2 of the RIA.

Table 10 shows the present value and equivalent annualized value results of the cost and benefits analysis for the primary proposal for 2019 through 2025 relative to the 2018 Proposed Regulatory baseline discounted back to 2016 using a discount rate of 7 percent. The table also shows the total increase in

emissions from 2019 through 2025 from the primary proposal relative to the 2018 Proposed Regulatory baseline. When discussing net benefits, we modify the relevant terminology to be more consistent with traditional net benefits analysis. In the following table, we refer to the cost savings as presented in section 2 of the RIA, and in section VII.C above, as the “benefits” of this proposed action and the forgone benefits as presented in section 3 of the RIA, and in section VIII.E above, as the “costs” of this proposed action. Total cost savings are cost savings less the forgone value of product recovery. The net benefits are the benefits (total cost savings) minus the costs (forgone domestic climate benefits).

Table 10 shows the present value and equivalent annualized value results of the cost and benefits analysis for the primary proposal for 2019 through 2025

relative to the 2018 Proposed Regulatory baseline discounted back to 2016 using a discount rate of 7 percent. The table also shows the total increase in emissions from 2019 through 2025 from the primary proposal relative to the 2018 Proposed Regulatory baseline. When discussing net benefits, we modify the relevant terminology to be more consistent with traditional net benefits analysis. In the following table, we refer to the cost savings as presented in Section 2 of the RIA, and in section VII.C above, as the “benefits” of this proposed action and the forgone benefits as presented in Section 3 of the RIA, and in section VIII.E above, as the “costs” of this proposed action. Total cost savings are cost savings less the forgone value of product recovery. The net benefits are the benefits (total cost savings) minus the costs (forgone domestic climate benefits).

TABLE 10—SUMMARY OF THE PRESENT VALUE AND EQUIVALENT ANNUALIZED VALUE OF THE MONETIZED FORGONE BENEFITS, COST SAVINGS, AND NET BENEFITS OF THE PRIMARY PROPOSAL FROM 2019 THROUGH 2025 RELATIVE TO THE 2018 PROPOSED REGULATORY BASELINE

[Millions of 2016\$]

	Present value	Equivalent annualized value
Benefits (Total Cost Savings)	\$81	\$14
<i>Cost Savings</i>	104	18
<i>Forgone Value of Product Recovery</i>	23	4.0
Costs (Forgone Domestic Climate Benefits)	13	2.2
Net Benefits	69	12
Non-monetized Forgone Benefits	Non-monetized climate impacts from increases in methane emissions. Health effects of PM _{2.5} and ozone exposure from an increase of 9,700 tons of VOC from 2019 through 2025. Health effects of HAP exposure from an increase of 290 tons of HAP from 2019 through 2025. Health effects of ozone exposure from an increase of 350,000 short tons of methane from 2019 through 2025. Visibility impairment. Vegetation effects.	

Estimates may not sum due to independent rounding.

Table 11 shows the present value and equivalent annualized value results of the cost and benefits analysis for the primary proposal for 2019 through 2025

relative to the Current Regulatory baseline, discounted back to 2016 using a discount rate of 7 percent. The table also shows the total increase in

emissions from 2019 through 2025 from the primary proposal relative to the Current Regulatory baseline.

TABLE 11—SUMMARY OF THE PRESENT VALUE AND EQUIVALENT ANNUALIZED VALUE OF THE MONETIZED FORGONE BENEFITS, COST SAVINGS, AND NET BENEFITS OF THE PRIMARY PROPOSAL FROM 2019 THROUGH 2025 RELATIVE TO THE CURRENT REGULATORY BASELINE

[Millions of 2016\$]

	Present value	Equivalent annualized value
Benefits (Total Cost Savings)	\$97	\$17
<i>Cost Savings</i>	122	21
<i>Forgone Value of Product Recovery</i>	25	4.4

TABLE 11—SUMMARY OF THE PRESENT VALUE AND EQUIVALENT ANNUALIZED VALUE OF THE MONETIZED FORGONE BENEFITS, COST SAVINGS, AND NET BENEFITS OF THE PRIMARY PROPOSAL FROM 2019 THROUGH 2025 RELATIVE TO THE CURRENT REGULATORY BASELINE—Continued

[Millions of 2016\$]

	Present value	Equivalent annualized value
Costs (Forgone Domestic Climate Benefits)	13	2.3
Net Benefits	83	14
Non-monetized Forgone Benefits	Non-monetized climate impacts from increases in methane emissions. Health effects of PM _{2.5} and ozone exposure from an increase of 10,000 tons of VOC from 2019 through 2025. Health effects of HAP exposure from an increase of 300 tons of HAP from 2019 through 2025. Health effects of ozone exposure from an increase of 370,000 short tons of methane from 2019 through 2025. Visibility impairment. Vegetation effects.	

Estimates may not sum due to independent rounding.

Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no expected cost or emissions

impacts from rescinding the methane requirement. As a result, Table 12 depicts this “no-change” in impacts result relative to the 2018 Proposed

Regulatory baseline. The no-change in impacts result also applies relative to the Current Regulatory baseline, as shown in Table 13.

TABLE 12—SUMMARY OF THE PRESENT VALUE AND EQUIVALENT ANNUALIZED VALUE OF THE MONETIZED FORGONE BENEFITS, COST SAVINGS, AND NET BENEFITS OF THE ALTERNATIVE PROPOSAL FROM 2019 THROUGH 2025 RELATIVE TO THE 2018 PROPOSED REGULATORY BASELINE

[Millions of 2016\$]

	Present value	Equivalent annualized value
Benefits (Total Cost Savings)	\$0	\$0
Costs (Forgone Domestic Climate Benefits)	0	0
Net Benefits	0	0
Non-monetized Forgone Benefits	No change	

Estimates may not sum due to independent rounding.

TABLE 13—SUMMARY OF THE PRESENT VALUE AND EQUIVALENT ANNUALIZED VALUE OF THE MONETIZED FORGONE BENEFITS, COST SAVINGS, AND NET BENEFITS OF THE ALTERNATIVE PROPOSAL FROM 2019 THROUGH 2025 RELATIVE TO THE CURRENT REGULATORY BASELINE

[Millions of 2016\$]

	Present value	Equivalent annualized value
Benefits (Total Cost Savings)	\$0	\$0
Costs (Forgone Domestic Climate Benefits)	0	0
Net Benefits	0	0
Non-monetized Forgone Benefits	No change	

Estimates may not sum due to independent rounding.

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

This action is expected to be an Executive Order 13771 deregulatory action. Details on the estimated cost savings of this proposed rule can be

found in the EPA’s analysis of the potential costs and benefits associated with this action.

C. Paperwork Reduction Act (PRA)

The information collection requirements in this rule have been

submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by the EPA has been assigned the EPA ICR number 2604.01 and OMB Control

Number 2060–NEW. The information collection requirements are not enforceable until OMB approves them.

A summary of the information collection activities previously submitted to the OMB for the final action titled “Standards of Performance for Crude Oil and Natural Gas Facilities for Construction, Modification, or Reconstruction” (2016 NSPS OOOOa) under the PRA, and assigned OMB Control Number 2060–0721, can be found at 81 FR 35890. You can find a copy of the information collection request (ICR) in the 2016 NSPS OOOOa docket (EPA–HQ–OAR–2010–0505–7626). The EPA subsequently proposed reconsideration (October 15, 2018, 83 FR 52056.) to revise the information collection activities of 2016 NSPS OOOOa (EPA ICR number 2523.02). You can find a copy of the revised ICR (EPA ICR number 2523.02) in the 2018 NSPS OOOOa docket (EPA–HQ–OAR–2017–0483). In this rule, the EPA is proposing to further revise the October 15, 2018, NSPS OOOOa reconsideration proposal ICR based on those proposed amendments as a result of the EPA’s review under Executive Order 13783 (EPA ICR number 2523.04). These proposed changes (2019 NSPS OOOOa E.O. 13783 Review Proposal) would reduce the burden on the regulated industry associated with reporting and recordkeeping requirements of the rescinded requirements.

Burden associated with this rule (2019 NSPS OOOOa E.O. 13783 Review Proposal):

Respondents/affected entities: Oil and natural gas operators and owners.

Respondent’s obligation to respond: Mandatory.

Estimated number of respondents: 3,648.

Frequency of response: Varies depending on affected facility.¹¹⁰

Total estimated annual burden: 230,285 hours. Burden is defined at 5 CFR 1320.3(b).

Total estimated annual cost: \$14,177,438 (2016\$) includes \$0 in annualized capital or operation & maintenance costs.

This represents a burden reduction of 2 percent compared to the burden estimated for the 2016 NSPS OOOOa. This represents a burden reduction of 16 percent compared to the 2018 NSPS OOOOa Reconsideration Proposal amendments. Submit your comments on the Agency’s need for this information, the accuracy of the provided revised

burden estimates, and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB’s Office of Information and Regulatory Affairs via email to *OIRA_submissions@omb.eop.gov*, Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than October 24, 2019. The EPA will respond to any ICR-related comments in the final rule.

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. This is a deregulatory action, and the burden on all entities affected by this proposed rule, including small entities, is the same or reduced compared to the 2016 NSPS OOOOa. See the discussion in section VIII of this preamble and the RIA for details. The EPA has, therefore, concluded that this action will not increase regulatory burden for all directly regulated small entities.

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no enforceable duty on any state, local, or tribal governments 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 will not have substantial direct effects on tribal governments, on

the relationship between the federal government and Indian tribes, or on the distribution of power and responsibilities between the federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this action.

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

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866. The 2016 NSPS OOOOa, as discussed in the RIA,¹¹¹ was anticipated to reduce emissions of methane, VOC, and HAP, and some of the benefits of reducing these pollutants would have accrued to children. The primary proposal is expected to decrease the impact of the emissions reductions estimated from the 2016 NSPS OOOOa on these benefits, as discussed in Chapter 1 of the RIA. Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no changes in the level of environmental protection produced by the 2016 NSPS OOOOa emissions impacts from rescinding the methane requirement.

The proposed action does not affect the level of public health and environmental protection already being provided by existing NAAQS and other mechanisms in the CAA. This proposed action does not affect applicable local, state, or federal permitting or air quality management programs that will continue to address areas with degraded air quality and maintain the air quality in areas meeting current standards. Areas that need to reduce criteria air pollution to meet the NAAQS will still need to rely on control strategies to reduce emissions. The EPA does not believe the decrease in emission reductions projected under the primary proposal of this action will have a disproportionate adverse effect on children’s health.

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. The basis for this determination can be found in the 2016 NSPS OOOOa (81 FR 35894).

¹¹⁰ The specific frequency for each information collection activity within this request is shown in Tables 1a–1d of the Supporting Statement in the public docket.

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 proposed action is unlikely to have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994). The 2016 NSPS OOOOa was anticipated to reduce emissions of methane, VOC, and HAP, and some of the benefits of reducing these pollutants would have accrued to minority populations, low-income populations, and/or indigenous peoples. The primary proposal is expected to decrease the impact of the emission reductions estimated from the 2016 NSPS OOOOa on these benefits. These communities may experience forgone benefits as a result of this action, as discussed in Chapter 1 of the RIA. Under the alternative proposal, because the methane control options are redundant with VOC control options, there are no changes in the level of environmental protection produced by the 2016 NSPS OOOOa emissions impacts from rescinding the methane requirement.

The proposed action does not affect the level of public health and environmental protection already being provided by existing NAAQS and other mechanisms in the CAA. This proposed action does not affect applicable local, state, or federal permitting or air quality management programs that will continue to address areas with degraded air quality and maintain the air quality in areas meeting current standards. Areas that need to reduce criteria air pollution to meet the NAAQS will still need to rely on control strategies to reduce emissions.

The EPA believes that this proposed action is unlikely to have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, and/or indigenous peoples. The EPA notes that the potential impacts of the primary proposal are not expected to be experienced uniformly, and the distribution of avoided compliance costs associated with this action depends on the degree to which costs would have been passed through to consumers.

List of Subjects in 40 CFR Part 60

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

Dated: August 28, 2019.

Andrew R. Wheeler,
Administrator.

For the reasons set out in the preamble, EPA proposes to amend 40 CFR part 60 as follows:

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

- 1. The authority citation for part 60 continues to read as follows:

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

Subpart OOOO—Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or Before September 18, 2015

- 2. Revise the heading of subpart OOOO to read as set forth above.
■ 3. Section 60.5365 is amended by revising paragraph (e) to read as follows:

§ 60.5365 Am I subject to this subpart?

* * * * *

(e) Each storage vessel affected facility, which is a single storage vessel located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels, except as provided in paragraphs (e)(1) through (4) of this section. The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production prior to the applicable emission determination deadline specified in this section. The determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a Federal, State, local or tribal authority.

* * * * *

- 4. Section 60.5420 is amended by revising paragraph (c)(5)(iv) to read as follows:

§ 60.5420 What are my notification, reporting, and recordkeeping requirements?

* * * * *

(c) * * *

(5) * * *

(iv) For storage vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), records indicating the number of consecutive days that the vessel is located a between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. If a storage vessel is removed from a site and, within 30 days, is either returned to or replaced by another storage vessel at the site to serve the same or similar function, then the entire period since the original storage vessel was first located at the site, including the days when the storage vessel was removed, will be added to the count towards the number of consecutive days.

* * * * *

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

- 5. Revise § 60.5360a to read as follows:

§ 60.5360a What is the purpose of this subpart?

(a) This subpart establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. The effective date of the rule is August 2, 2016.

(b) [Reserved]

- 6. Section 60.5365a is amended by revising paragraphs (b) through (d), the introductory text of paragraph (e) and paragraph (j) to read as follows:

§ 60.5365a Am I subject to this subpart?

* * * * *

(b) Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

(c) Each reciprocating compressor affected facility, which is a single reciprocating compressor that is located

between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

(d)(1) For the oil production segment (between the wellhead and the point of custody transfer to an oil pipeline), each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

(2) For the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

(3) For natural gas processing plants, each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller.

(e) Each storage vessel affected facility, which is a single storage vessel that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section. The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput, as defined in § 60.5430a, determined for a 30-day period of production prior to the applicable emission determination deadline specified in this subsection. The determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a Federal, state, local or tribal authority.

* * * * *

(j) The collection of fugitive emissions components at a compressor station as defined in § 60.5430a, that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment, is an affected facility. For purposes of § 60.5397a, a “modification” to a compressor station occurs when:

- (1) An additional compressor is installed at a compressor station; or
- (2) One or more compressors at a compressor station is replaced by one or

more compressors of greater total horsepower than the compressor(s) being replaced. When one or more compressors is replaced by one or more compressors of an equal or smaller total horsepower than the compressor(s) being replaced, installation of the replacement compressor(s) does not trigger a modification of the compressor station for purposes of § 60.5397a.

■ 7. Section 60.5375a is amended by revising the section heading and the introductory text to read as follows:

§ 60.5375a What VOC standards apply to well affected facilities?

If you are the owner or operator of a well affected facility as described in § 60.5365a(a) that also meets the criteria for a well affected facility in § 60.5365(a) of subpart OOOO of this part, you must reduce VOC emissions by complying with paragraphs (a) through (g) of this section. If you own or operate a well affected facility as described in § 60.5365a(a) that does not meet the criteria for a well affected facility in § 60.5365(a) of subpart OOOO of this part, you must reduce VOC emissions by complying with paragraphs (f)(3), (f)(4) or (g) of this section for each well completion operation with hydraulic fracturing prior to November 30, 2016, and you must comply with paragraphs (a) through (g) of this section for each well completion operation with hydraulic fracturing on or after November 30, 2016.

* * * * *

■ 8. Section 60.5380a is amended by revising the section heading, the introductory text and paragraph (a)(1) to read as follows:

§ 60.5380a What VOC standards apply to centrifugal compressor affected facilities?

You must comply with the VOC standards in paragraphs (a) through (d) of this section for each centrifugal compressor affected facility.

(a)(1) You must reduce VOC emissions from each centrifugal compressor wet seal fluid degassing system by 95.0 percent.

* * * * *

■ 9. Section 60.5385a is amended by revising the section heading, the introductory text and paragraph (a)(3) to read as follows:

§ 60.5385a What VOC standards apply to reciprocating compressor affected facilities?

You must reduce VOC emissions by complying with the standards in paragraphs (a) through (d) of this section

for each reciprocating compressor affected facility.

(a) * * *

(3) Collect the VOC emissions from the rod packing using a rod packing emissions collection system that operates under negative pressure and route the rod packing emissions to a process through a closed vent system that meets the requirements of § 60.5411a(a) and (d).

* * * * *

■ 10. Section 60.5390a is amended by revising the section heading and the introductory text to read as follows:

§ 60.5390a What VOC standards apply to pneumatic controller affected facilities?

For each pneumatic controller affected facility you must comply with the VOC standards, based on natural gas as a surrogate for VOC, in either paragraph (b)(1) or (c)(1) of this section, as applicable. Pneumatic controllers meeting the conditions in paragraph (a) of this section are exempt from this requirement.

* * * * *

■ 11. Section 60.5393a is amended by revising the section heading and the introductory text to read as follows:

§ 60.5393a What VOC standards apply to pneumatic pump affected facilities?

For each pneumatic pump affected facility you must comply with the VOC standards, based on natural gas as a surrogate for VOC, in either paragraph (a) or (b) of this section, as applicable, on or after November 30, 2016.

* * * * *

■ 12. Section 60.5397a is amended by revising the section heading and the introductory text to read as follows:

§ 60.5397a What fugitive emissions VOC standards apply to the affected facility which is the collection of fugitive emissions components at a well site and the affected facility which is the collection of fugitive emissions components at a compressor station?

For each affected facility under § 60.5365a(i) and (j), you must reduce VOC emissions by complying with the requirements of paragraphs (a) through (j) of this section. These requirements are independent of the closed vent system and cover requirements in § 60.5411a.

* * * * *

■ 13. Section 60.5398a is amended by revising the section heading, paragraph (a) and paragraph (d)(1)(xii) to read as follows:

§ 60.5398a What are the alternative means of emission limitations for VOC from well completions, reciprocating compressors, the collection of fugitive emissions components at a well site and the collection of fugitive emissions components at a compressor station?

(a) If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under § 60.5375a, § 60.5385a, and § 60.5397a, the Administrator will publish, in the **Federal Register**, a notice permitting the use of that alternative means for the purpose of compliance with § 60.5375a, § 60.5385a, and § 60.5397a. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

* * * * *

(d) * * *

(1) * * *

(xii) Operation and maintenance procedures and other provisions necessary to ensure reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under § 60.5397a.

* * * * *

■ 14. Amend § 60.5399a by revising paragraph (c) to read as follows:

§ 60.5399a What alternative fugitive emissions standards apply to the affected facility which is the collection of fugitive emissions components at a well site and the affected facility which is the collection of fugitive emissions components at a compressor station: Equivalency with state, local, and tribal programs?

* * * * *

(c) After notice and opportunity for public comment, the Administrator will determine whether the requested alternative fugitive emissions standard will achieve at least equivalent emission reduction(s) in VOC emissions as the reduction(s) achieved under the applicable requirement(s) for which an alternative is being requested, and will publish the determination in the **Federal Register**.

* * * * *

■ 15. Section 60.5400a is amended by revising the section heading and paragraph (c) to read as follows:

§ 60.5400a What equipment leak VOC standards apply to affected facilities at an onshore natural gas processing plant?

* * * * *

(c) You may apply to the Administrator for permission to use an alternative means of emission limitation that achieves a reduction in emissions of VOC at least equivalent to that

achieved by the controls required in this subpart according to the requirements of § 60.5402a.

* * * * *

■ 16. Section 60.5401a is amended by revising the section heading to read as follows:

§ 60.5401a What are the exceptions to the equipment leak VOC standards for affected facilities at onshore natural gas processing plants?

* * * * *

■ 17. Section 60.5402a is amended by revising the section heading, paragraph (a), and paragraph (d)(2) introductory text to read as follows:

§ 60.5402a What are the alternative means of emission limitations for VOC equipment leaks from onshore natural gas processing plants?

(a) If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under any design, equipment, work practice or operational standard, the Administrator will publish, in the **Federal Register**, a notice permitting the use of that alternative means for the purpose of compliance with that standard. The notice may condition permission on requirements related to the operation and maintenance of the alternative means.

* * * * *

(d) * * *

(2) The application must include operation, maintenance and other provisions necessary to assure reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved under the design, equipment, work practice or operational standard in paragraph (a) of this section by including the information specified in paragraphs (d)(1)(i) through (x) of this section.

* * * * *

■ 18. Section 60.5410a is amended by revising paragraph (a) introductory text, paragraph (b)(1), paragraph (d) introductory text, and paragraph (f) to read as follows:

§ 60.5410a How do I demonstrate initial compliance with the standards for my well, centrifugal compressor, reciprocating compressor, pneumatic controller, pneumatic pump, storage vessel, collection of fugitive emissions components at a well site, collection of fugitive emissions components at a compressor station, and equipment leaks and sweetening unit affected facilities at onshore natural gas processing plants?

* * * * *

(a) To achieve initial compliance with the VOC standards for each well completion operation conducted at your well affected facility you must comply with paragraphs (a)(1) through (4) of this section.

* * * * *

(b)(1) To achieve initial compliance with standards for your centrifugal compressor affected facility you must reduce VOC emissions from each centrifugal compressor wet seal fluid degassing system by 95.0 percent or greater as required by § 60.5380a(a) and as demonstrated by the requirements of § 60.5413a.

* * * * *

(d) To achieve initial compliance with VOC emission standards for your pneumatic controller affected facility you must comply with the requirements specified in paragraphs (d)(1) through (6) of this section, as applicable.

* * * * *

(f) For affected facilities at onshore natural gas processing plants, initial compliance with the VOC standards is demonstrated if you are in compliance with the requirements of § 60.5400a.

* * * * *

■ 19. Section 60.5412a is amended by paragraph (a)(1)(i) and paragraph (a)(2) to read as follows:

§ 60.5412a What additional requirements must I meet for determining initial compliance with control devices used to comply with the emission standards for my centrifugal compressor, and storage vessel affected facilities?

* * * * *

(a) * * *

(1) * * *

(i) You must reduce the mass content of VOC in the gases vented to the device by 95.0 percent by weight or greater as determined in accordance with the requirements of § 60.5413a(b), with the exceptions noted in § 60.5413a(a).

* * * * *

(2) Each vapor recovery device (e.g., carbon adsorption system or condenser) or other non-destructive control device must be designed and operated to reduce the mass content of VOC in the gases vented to the device by 95.0 percent by weight or greater as determined in accordance with the requirements of § 60.5413a(b). As an alternative to the performance testing requirements, you may demonstrate initial compliance by conducting a design analysis for vapor recovery devices according to the requirements of § 60.5413a(c).

* * * * *

■ 20. Section 60.5413a is amended by revising paragraph (d)(11)(iii) to read as follows:

§ 60.5413a What are the performance testing procedures for control devices used to demonstrate compliance at my centrifugal compressor and storage vessel affected facilities?

* * * * *

(d) * * *
(11) * * *

(iii) A manufacturer must demonstrate a destruction efficiency of at least 95 percent for THC, as propane. A control device model that demonstrates a destruction efficiency of 95 percent for THC, as propane, will meet the control requirement for 95 percent destruction of VOC (if applicable) required under this subpart.

* * * * *

■ 21. Section 60.5415a is amended by revising paragraph (b)(1) and paragraph (f) to read as follows:

§ 60.5415a How do I demonstrate continuous compliance with the standards for my well, centrifugal compressor, reciprocating compressor, pneumatic controller, pneumatic pump, storage vessel, collection of fugitive emissions components at a well site, and collection of fugitive emissions components at a compressor station affected facilities, and affected facilities at onshore natural gas processing plants?

* * * * *

(b) * * *

(1) You must reduce VOC emissions from the wet seal fluid degassing system by 95.0 percent or greater.

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(f) For affected facilities at onshore natural gas processing plants, continuous compliance with VOC requirements is demonstrated if you are in compliance with the requirements of § 60.5400a.

* * * * *

■ 22. Section 60.5420a is amended by revising paragraph (c)(5)(iv) to read as follows:

§ 60.5420a What are my notification, reporting, and recordkeeping requirements?

* * * * *

(c) * * *
(5) * * *

(iv) For storage vessels that are skid-mounted or permanently attached to something that is mobile (such as

trucks, railcars, barges or ships), records indicating the number of consecutive days that the vessel is located at a site in the oil and natural gas production segment or natural gas processing segment. If a storage vessel is removed from a site and, within 30 days, is either returned to the site or replaced by another storage vessel at the site to serve the same or similar function, then the entire period since the original storage vessel was first located at the site, including the days when the storage vessel was removed, will be added to the count towards the number of consecutive days.

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■ 23. Section 60.5421a is amended by revising the section heading to read as follows:

§ 60.5421a What are my additional recordkeeping requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?

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■ 24. Section 60.5422a is amended by revising the section heading to read as follows:

§ 60.5422a What are my additional reporting requirements for my affected facility subject to VOC requirements for onshore natural gas processing plants?

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■ 25. Section 60.5430a is amended by:

- a. Revising the definitions for *Compressor station*, *Crude oil and natural gas source category*, *Equipment*, and *Fugitive emissions component*; and
- b. Adding the definition for *First attempt at repair*.

The revisions and addition read as follows:

* * * * *

Compressor station means any permanent combination of one or more compressors that move natural gas at increased pressure through gathering pipelines. This includes, but is not limited to, gathering and boosting stations. The combination of one or more compressors located at a well site, or located at an onshore natural gas processing plant, is not a compressor station for purposes of § 60.5397a.

* * * * *

Crude oil and natural gas source category mean:

- (1) Crude oil production, which includes the well and extends to the point of custody transfer to the crude oil

transmission pipeline or any other forms of transportation; and

(2) Natural gas production and processing, which includes the well and extends to, but does not include, the point of custody transfer to the natural gas transmission and storage segment.

* * * * *

Equipment, as used in the standards and requirements in this subpart relative to the equipment leaks of VOC from onshore natural gas processing plants, means each pump, pressure relief device, open-ended valve or line, valve, and flange or other connector that is in VOC service or in wet gas service, and any device or system required by those same standards and requirements in this subpart.

* * * * *

First attempt at repair means, for the purposes of fugitive emissions components, an action taken for the purpose of stopping or reducing fugitive emissions of VOC to the atmosphere. First attempts at repair include, but are not limited to, the following practices where practicable and appropriate: Tightening bonnet bolts; replacing bonnet bolts; tightening packing gland nuts; or injecting lubricant into lubricated packing.

* * * * *

Fugitive emissions component means any component that has the potential to emit fugitive emissions of VOC at a well site or compressor station, including valves, connectors, pressure relief devices, open-ended lines, flanges, covers and closed vent systems not subject to §§ 60.5411 or 60.5411a, thief hatches or other openings on a controlled storage vessel not subject to §§ 60.5395 or 60.5395a, compressors, instruments, and meters. Devices that vent as part of normal operations, such as natural gas-driven pneumatic controllers or natural gas-driven pumps, are not fugitive emissions components, insofar as the natural gas discharged from the device's vent is not considered a fugitive emission. Emissions originating from other than the device's vent, such as the thief hatch on a controlled storage vessel, would be considered fugitive emissions.

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