

**Something in the Air:
Federal Environmental
Regulation & Its Impact On
Upstream and Midstream
Operations**

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Overview

- Clean Power Plan and impact on natural gas development
- Proposed rule to regulate new sources of methane emissions
- Proposed rule on aggregation/single source determination

Clean Power Plan – What EPA Released

- A set of final Clean Air Act (CAA) rules to regulate carbon dioxide emissions from power plants
 - A final rule setting performance standards for new, modified, and reconstructed emission sources under CAA section 111(b)
 - A final rule establishing emission guidelines to reduce carbon dioxide emissions from existing fossil fuel-fired power plants under CAA section 111(d) (Clean Power Plan)
 - Proposed model state rules and a proposed federal plan

Clean Power Plan – Legal Foundation

- Greenhouse gases, including CO₂, are pollutants that EPA can regulate under the CAA (decided by Supreme Court in 2007 in *Mass. v. EPA*, 549 U.S. 497)
- EPA made a finding that greenhouse gas concentrations in the atmosphere endanger public health and the environment
- CAA section 111(b) – requires EPA to identify categories of stationary sources that cause/contribute to air pollution, and for each source category, EPA must establish “standards of performance” for new sources in the category

Clean Power Plan – Legal Foundation (cont'd)

- Standard of performance defined as a standard for emissions that reflects the degree of emission limitation achievable through the application of the “best system of emission reduction” (BSER) that EPA determines has been adequately demonstrated
- CAA section 111(d) – EPA must establish procedures for states to submit a plan to establish standards of performance for existing sources; under EPA’s 111(d) regulations, EPA identifies BSER and develops an emission “guideline” for emission reductions achievable through application of BSER; states must be at least as stringent as EPA’s guidelines
- How EPA defines BSER drives the minimum stringency of state standards for existing sources

Clean Power Plan – Existing Sources – 111(d) Rule

- The CPP sets carbon dioxide emissions performance rates for existing power plants that reflect BSER
- EPA identified three “building blocks” as BSER and calculated performance rates for coal-fired units and for natural gas combined cycle (NGCC) units
 - Natural gas-fired stationary combustion turbines:
771 lbs CO₂/MWh net

Clean Power Plan – Existing Sources – 111(d) Rule (Cont'd)

- EPA translated those rates into a state goal – measured in mass and rate – based on each state’s mix of power plants in 2012
- States have the ability to develop their own plans to set forth how they will achieve compliance, using either the subcategory-specific performance rates, the state rate goal, or the state mass goal
- States are provided the option of developing an “emissions standards” plan, or a broader “state measures” plan (which must also include a “backstop” of federally enforceable emissions standards)

Clean Power Plan – Existing Sources – BSER Building Blocks

- The rates that EPA established cannot be met by any existing affected facility through any combination of technological or operational measures at the source
- EPA defines BSER to include measures beyond the fence line – redispatch, investment in renewables, and emission reduction credit trading
- Building Block #1 – improved efficiency at coal-fired power plants (equipment upgrades, boiler chemical cleaning, cleaning air preheater coils)
- Building Block #2 – shifting generation from higher-emitting coal-fired steam units to lower-emitting natural gas power plants (increase generation at existing NGCC units)
 - NGCC utilization target set to 75% of summer capacity

Clean Power Plan – Existing Sources – BSER Building Blocks (Cont'd)

- Building Block #3 – shifting generation to clean energy renewables (increased generation from new renewable generating capacity – solar, wind, etc.)
- EPA says that all building blocks are “available to all affected units, either through direct investment or operational shifts or through emissions trading”
- Significant legal questions on whether EPA can go beyond the emitting source and the fenceline in defining BSER; will be addressed in upcoming litigation

Clean Power Plan – Existing Sources – Timing

- State plan due for EPA review by September 6, 2016, with EPA approval/disapproval within 12 months
 - Extension to September 6, 2018 if adequate initial plan submitted by 2016 deadline
- Interim compliance period runs from 2022 – 2029 (extended from 2020 – 2029 in proposed rule)
 - States may adopt “glidepath” schedule of phased interim standards (2022-2024; 2025-2027; 2028-2029)
- Final compliance – all final emission rates and state goals must be met by 2030 – a 32% emission reduction in CO₂ compared to 2005 levels

Clean Power Plan – New Sources – 111(b) Rule

- For new and reconstructed baseload natural gas-fired units, EPA set an emission limit of 1,000 lbs CO₂/MWh
 - separate standards for non-baseload units and multi-fuel-fired units
- BSER is efficient NGCC technology for baseload natural gas-fired units, and clean fuels for non-baseload and multi-fuel-fired units
- No standards for modified natural gas-fired units
 - EPA expects that few existing natural gas-fired units will be modified and is concerned for the ability of units that modify to achieve the 1,000 lbs CO₂/MWh gross standard for new and reconstructed units

Clean Power Plan – Legal Vulnerabilities

- Litigation by some states and industry underway; most expected to launch in October following rule publication
- Does EPA have threshold legal authority?
- Does the CPP unlawfully displace state regulatory authority?
- Does EPA's BSER determination exceed the Agency's authority under section 111?
- Has EPA properly determined BSER – is it achievable?

Clean Power Plan – Impact on Natural Gas

- Final rule is more favorable to renewables over natural gas than proposed rule
- Natural gas is still going to play a key role in CPP implementation – Building Block #2 is a core component
 - Gas shift emission rate credit
- The existing source BSER performance rate is more stringent than EPA’s performance standard for new natural-gas fired plants
- Natural gas will need to fill the gap before adequate renewable infrastructure is developed

Proposed Methane Rule – Background

- According to EPA, methane is a significant GHG emitted in the US from human activities, and is more than 20 times as potent as carbon dioxide
- Oil & gas sources comprise one of the largest emitters of methane
- 2012 NSPS for VOCs – first federal air standards for hydraulically fractured natural gas wells
 - Reduction of methane was a co-benefit of the rule
- March 2014 – Climate Action Plan: Strategy to Cut Methane Emissions

Proposed Methane Rule – Background (Cont'd)

- January 2015 – White House’s methane emissions reduction framework for oil & gas sector
 - Goal of reducing emissions 40-45% below 2012 levels by 2025
 - The August 2015 proposed rulemaking is part of the White House framework
 - First regulation of greenhouse gases under the NSPS program for a sector other than utilities
- Same legal foundation as utilities NSPS for carbon dioxide – CAA Section 111

Proposed Methane Rule – Regulatory History

- In 1979, EPA listed crude oil and natural gas production as a source category for promulgation of NSPS (44 Fed. Reg. 49222)
- In 1985, EPA promulgated two NSPS for the oil & gas category that addressed (i) VOC emissions from leaking components at onshore natural gas processing plants and (ii) sulfur dioxide emissions from natural gas processing plants (50 Fed. Reg. 26122; 50 Fed. Reg. 40158) (40 CFR Part 60, Subpart KKK, Subpart LLL)
- In 2012, under Section 111(b) authority to review/revise NSPS, EPA promulgated an NSPS that updated the VOC standards for equipment leaks at onshore natural gas processing plants. Also established VOC standards for various operations not covered by Subpart KKK, including gas well completions, centrifugal and reciprocating compressors, pneumatic controllers, and storage vessels (40 CFR Part 60, Subpart OOOO), including amendments in 2013 and 2014 addressing implementation (78 Fed. Reg. 58416; 79 Fed. Reg. 79018)

Proposed Methane Rule – Regulatory History (Cont'd)

- In August 2015, proposed updates to the NSPS that set methane and VOC requirements for additional new and modified sources in the oil and gas industry –
http://www.epa.gov/airquality/oilandgas/pdfs/og_nsps_pr_081815.pdf -- 60-day comment period upon Federal Register publication
- EPA interprets its 1979 category listing to broadly cover all segments of the natural gas industry (production, processing, transmission, storage)

Proposed Methane Rule – Summary of Proposed Standards

- For some sources covered in proposed rule, there are VOC requirements currently in place under 2012 NSPS that are being expanded to include methane (see summary chart appended to end of slide deck); methane and VOC requirements are being proposed for sources with no current requirements
- Proposing to amend Subpart OOOO and create new Subpart OOOOa (Subpart OOOO applies to facilities constructed/modified/reconstructed after Aug. 23, 2011 and before date of publication of 2015 proposed rule; Subpart OOOOa applies to facilities constructed/modified/reconstructed after date of publication of 2015 proposed rule)
- Subpart OOOOa would include current VOC requirements in subpart OOOO as well as new provisions in proposed rule

Proposed Methane Rule – Summary of Proposed Standards (Cont'd)

- BSER for methane is the same as that for VOCs for all emission sources; thus no change to current requirements for sources addressed under 2012 NSPS
- Predicate rulemaking for regulating existing sources under 111(d) in the future

Proposed Methane Rule – Summary of Proposed Standards – Compressors

- EPA did not regulate compressors in the natural gas transmission segment in its 2012 VOC rules; now proposing requirements to control methane and VOCs from two types of compressors
- Centrifugal compressors – proposed rule requires a 95% reduction in VOC emissions from compressors with wet seal systems (flaring or routing captured gas back to compressor intake); dry seal systems are not covered by the proposed rule
- Reciprocating compressors – proposed rule requires replacement of rod packing systems with two options: every 26,000 hours of operation (monitoring/documenting operating hours) or every 36 months (no documentation of operating hours); alternative to changing rod packing is to route emissions from rod packing via a closed vent system to be reused/recycled by a process or piece of equipment

Proposed Methane Rule – Summary of Proposed Standards – Compressors (Cont'd)

- Proposed rule includes requirements for initial performance testing, recordkeeping, and annual reporting
- Compressors at well sites still excluded
- Same standards as those regulated under 2012 NSPS

Proposed Methane Rule – Summary of Proposed Standards – Pneumatic Controllers

- Expands coverage of 2012 NSPS to transmission and storage sources
- Proposal affects continuous bleed, gas-driven controllers (with a gas bleed rate greater than 6 scf/hour) that are located between the wellhead and the point where gas enters the transmission pipeline
- For controllers at natural gas compressor stations, the gas bleed limit is 6 scf/hour at an individual controller; low-bleed controllers at compressor stations with bleed rates less than 6 are not subject to the rule
- Exceptions for applications requiring high-bleed controllers for certain purposes (operational requirements, safety, etc.)
- Requirements for initial performance testing, recordkeeping, and annual reporting

Proposed Methane Rule – Summary of Proposed Standards – Pneumatic Pumps

- Newly covered source in the 2015 proposed rule
- Proposed standards require methane and VOC emissions from new/modified/reconstructed natural gas-driven chemical/methanol pumps and diaphragm pumps to be reduced by 95% if a control device is already available on site (routing emissions from the pump to the existing control device)
- Natural gas processing plants have to reach zero emissions, because electricity is widely available at plants to power the pumps

Proposed Methane Rule – Summary of Proposed Standards – Well Completions

- Expanding 2012 requirements to oil wells – proposing to require owners/operators of hydraulically fractured oil wells to capture the natural gas that currently escapes via green completion
- Proposed rule would not require green completions for new exploratory (wildcat) wells, delineation wells, or low pressure wells; also not required if not feasible to get gas to a pipeline
- Proposing that wells with a gas-to-oil ratio of less than 300 standard cubic feet of gas per barrel of oil would not be subject to green completion requirements
- Requirements unchanged for natural gas wells

Proposed Methane Rule – Summary of Proposed Standards – Fugitive Emissions from Well Sites and Compressor Stations

- New source category for well sites, production gathering & boosting stations, and natural gas compressor stations
- For well sites, the proposed standards would require locating and repairing sources of fugitive emissions (leaks); well sites that contain only wellheads or are low production are excluded
- Conduct survey with optical gas imaging within 30 days of well completion, followed by monitoring surveys twice a year
- Any leaks found in survey would have to be repaired within 15 days, unless repair would require shut down

Proposed Methane Rule – Summary of Proposed Standards – Fugitive Emissions from Well Sites and Compressor Stations (Cont'd)

- Proposed rule includes incentives for minimizing leaks
- Seeking comment on whether corporate-wide leak detection and repair programs could be deemed to meet requirements of rule
- Seeking comment on using EPA Method 21 as alternative to optical gas imaging (portable VOC monitoring equipment)

Proposed Aggregation Rule – Background

- For decades, EPA has used guidance to help states and companies determine how to classify stationary emission sources under the CAA major source permitting programs
- “Major sources” must obtain and comply with major source operating permits (Title V permits); construction of major sources are subject to more stringent requirements under EPA’s New Source Review (NSR) programs
- EPA guidance applied “functional dependence” or “functionally related” as a factor to determine whether two or more emissions sources were “adjacent” and part of the same stationary source
- Aggregation of adjacent sources could result in a group of minor air emission sources being grouped together and triggering major source permitting requirements

Proposed Aggregation Rule – Background (Cont'd)

- In 2012, the Sixth Circuit struck down EPA's broad definition of "adjacency" in the context of aggregation in the oil & gas sector (*Summit Petroleum Corp. v. EPA*, 690 F.3d 733 (6th Cir. 2012))
- EPA attempted to limit the reach of the *Summit* decision with a policy directive to limit the decision to the states in the Sixth Circuit, but the D.C. Circuit vacated the policy directive in 2014 (*National Environmental Development Association's Clean Air Project v. EPA*, 752 F.3d 999 (D.C. Cir. 2014))
- EPA chose rulemaking course, resulting in 2015 proposed rule

Proposed Aggregation Rule

- EPA is proposing to clarify how properties in the oil & gas sector are determined to be adjacent to assist states and permit applicants in making consistent source determinations for the sector –
http://www.epa.gov/airquality/oilandgas/pdfs/sd_prop_081815.pdf
- EPA is proposing two options for determining whether two or more properties are “adjacent” for defining “stationary source” in the PSD and NNSR programs and “major source” for Title V program
 - EPA’s preferred option would define “adjacent” for the oil & gas sector in terms of proximity
 - Equipment/activities would be considered adjacent if they are located on the same site or are on sites that are within a short distance (1/4 mile) of each other
 - Alternative option is to define “adjacent” in terms of proximity or functional interrelatedness
 - The definition would consider equipment or activities adjacent if they are near each other or if they are related by function (such as being connected by a pipeline)

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**Sources covered by the 2012 NSPS for VOCs and
the 2015 Proposed NSPS for Methane and VOCs, by site**

Location and Equipment/Process Covered	Required to Reduce Emissions Under EPA Rules	Rules that Apply		
		2012 NSPS for VOCs*	2015 proposed NSPS for methane	2015 proposed NSPS for VOCs
Natural Gas Well Sites				
Completions of hydraulically wells	✓	•	•	
Compressors	<i>Not covered</i>			
Equipment leaks	✓		•	•
Pneumatic controllers	✓	•	•	
Pneumatic pumps	✓		•	•
Storage tanks	✓	•		
Oil Well Sites				
Completions of hydraulically fractured wells	✓		•	•
Compressors	<i>Not covered</i>			
Equipment leaks	✓		•	•
Pneumatic controllers	✓	•	•	
Pneumatic pumps	✓		•	•
Storage tanks	✓	•		
Production Gathering and Boosting Stations				
Compressors	✓	•	•	
Equipment leaks	✓		•	•
Pneumatic controllers	✓	•	•	
Pneumatic pumps	✓		•	•
Storage tanks	✓	•		
Natural Gas Processing Plants				
Compressors	✓	•	•	
Equipment leaks	✓	•	•	
Pneumatic controllers	✓	•	•	
Pneumatic pumps	✓		•	•
Storage tanks	✓	•		
Natural Gas Compressor Stations (Transmission & Storage)				
Compressors	✓		•	•
Equipment leaks	✓		•	•
Pneumatic controllers	✓		•	•
Pneumatic pumps	✓		•	•
Storage tanks	✓	•		

* Note: Sources already subject to the 2012 NSPS requirements for VOC reductions that also would be covered by the proposed 2015 methane requirements would not have to install additional controls, because the controls to reduce VOCs reduce both pollutants