EPA’s Methane Rule for the oil and gas industry

An overview of the EPA’s regulatory actions to reduce methane and volatile organic compound (VOC) emissions for new, modified and reconstructed sources.
What is the methane rule for oil and natural gas?

On 12 May 2016, the Environmental Protection Agency (EPA) issued three final rules for the oil and gas industry to reduce methane, VOCs and other toxic air pollutants such as benzene under the president’s Climate Action Plan: Strategy to Reduce Methane Emissions and the Clean Air Act. These build on the 2012 New Source Performance Standard (NSPS) requirements for VOCs to include methane, which is a key greenhouse gas (GHG) emitted by the industry. Methane is a key constituent of natural gas. In total, approximately one third of total methane emissions in the US come from oil and gas production.1

The methane rule focuses on climate benefits related to GHGs and is designed to yield VOC and hazardous air pollutant (HAP) reductions. This document summarizes those requirements and potential effects to the industry.

EPA’s 2016 actions to reduce methane and VOC emissions from the oil and natural gas industry include:

1. Reducing methane and VOCs from new and modified sources (updated NSPS for methane and VOCs)
2. Collecting information to develop regulations for existing sources (information collection request)
3. Clarifying and implementing permitting requirements (Source Determination Rule and Final Federal Implementation Plan for Minor New Source Review Program in Indian country)

Key requirements in the EPA actions to reduce methane and VOC emissions

<table>
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<th>Who is impacted</th>
<th>What is required</th>
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| Updated NSPS for methane and VOCs from new and modified sources | • Reduction of allowable methane emissions  
• Reduction of VOC emissions from additional sources not covered in the 2012 NSPS  
• Operators to find and repair leaks or “fugitive emissions,” which can be a significant source of both methane and VOC pollution, including:  
  ▶ A fixed schedule for monitoring leaks (i.e., quarterly, semiannually)  
  ▶ Alternative approaches for finding leaks  
  ▶ Owners/operators of hydraulically fractured wells to use a process known as a “green completion” to capture emissions within six months of publication in the Federal Register, and in the interim utilize combustion controls |
| Information Collection Request | The draft Information Collection Request will require the industry to provide a broad range of information on methane emission controls, including:  
• Emissions controls and equipment types, installation details and associated costs  
• Process or maintenance activities such as well and pipeline blowdowns, equipment malfunctions and flashing emissions from storage tanks  
• Owner/operator and facility-level data in two different surveys |
| Source Determination Rule and Final Federal Implementation Plan for Indian country | Equipment and activities used for onshore oil and natural gas production, and for natural gas processing that are applying for permits.  
Does not apply to offshore operations.  
The Source Determination Rule clarifies whether certain equipment and activities are a single source and/or “adjacent.” This determines the need for a permit and the type of permit required considering:  
• Industrial grouping  
• Control of same person/people  
• Location considering continuous or adjacent properties  
More specifically for Indian country except non-reservation areas, the EPA has implemented a Minor New Source Review Program known as the Federal Implementation Plan for preconstruction permits. It incorporates emission limits and federal air standards. |


Note: This document is a high level summary of the methane rule for the oil and gas industry. It should be used for general information regarding the rule’s implications to the various sectors and locations of the industry. It is not for legal advice.
The cost of compliance for the methane rule

The EPA has estimated that owners/operators will spend US $320 million through 2020 and US $530 million through 2025 on engineering compliance capital costs, which includes revenues from added natural gas product recovery.\(^2\) Other independent studies have estimated higher costs.\(^3\) For new, reconstructed or modified oil and gas operations, the updated NSPS requirements will require additional equipment, processes and monitoring and reporting, including:

Final standards of performance for GHGs and VOCs

Table 1 identifies sources by site types that have new methane or VOC standards in 2016, which may require additional process or equipment costs as suggested by the best system for emissions reduction (BSER).

BSER:\(^5\) the rule provides a pathway to comply with updated standards for the varying sources, including:

- Compressors (wet seal centrifugal, reciprocating) except for those located at well sites
- Pneumatic controllers at natural gas processing plants
- Pneumatic pumps
- Hydraulically fractured well completions

Fugitive emissions requirements:

operators are now required to find and repair leaks through conducting an initial survey and implementation of a leaks monitoring plan. The rule provides the following guidance for fugitive emissions:

- Sets a fixed schedule for monitoring leaks
- Allows an alternative approach for findings leaks
- Offers owners/operators the opportunity to use emerging, innovative technologies to monitor leaks
- Phases in requirements for using green completion to capture emissions from hydraulically fractured oil wells

Implementing the methane rule

Owners/operators and facilities will be required to implement new engineering controls, operations procedures and management of change tasks. Examples of these requirements by source include the following:\(^6\)

### Natural gas well sites

For fugitive emissions, operators will need to conduct an initial survey and implement a leaks monitoring plan utilizing optical gas imaging equipment or Method 21.\(^3\) The need for repairs found during these surveys must be made within 30 days unless it requires shutting down production. Operators that utilize pneumatic pumps driven by gas pressure to drive fluids will need to route methane/VOC emissions through a control device for 95% reduction, if technically feasible utilizing another available process onsite.

### Oil well sites

Wells that are hydraulically fractured are required to use a process called green completion, which recovers natural gas (and therefore, methane and VOCs) during flowback. There are several exceptions to this requirement (e.g., exploratory wells, low-pressure wells), and it allows a grace period of six months from 3 June, 2016 to adapt. Similar to natural gas wells, oil well sites are also required to implement fugitive emission controls and gas driven pneumatic pump engineering design updates.

### Natural gas process plants

For natural gas-driven pneumatic controllers, the rule sets a zero emissions limit and requires operators to notify EPA of construction, modification or reconstruction to these pumps. Required compressor updates to equipment and processes are covered by the 2012 NSPS, but now also include GHG standards. For fugitive emissions, plants are subject to leak detection and repair requirements covered by the 2012 NSPS.

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\(^1\)Source: https://www3.epa.gov/airquality/oilandgas/may2016/nsps-overview-fs.pdf.


\(^6\)Please note that this list is not complete and only serves as an example of activities owners/operators will be required to complete as a result of the methane rule.
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**ES-PERFORM services**

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EHS and sustainability risk services  
- Co-sourced or outsourced risk assessments and development of recommendations  
- Merger and acquisition EHS assessments and support

**How EY can help**

- Third party assessment of sources and emissions used in reporting  
- Design and implementation of controls or management of change processes to update equipment and procedures applicable to the rule  
- Internal audit of compliance program management at enterprise and facility levels

**ES-OPS**  
EHS and sustainability operational excellence services  
- EHS and sustainability process transformation  
- Identification and business case analysis of EHS and sustainability process improvement opportunities

**ES-DATA**  
EHS and sustainability data analytics and technical assistance  
- Data management and process improvement  
- Data analytics  
- IT effectiveness  
- IT transformation

**How EY can help**

- Systems development for managing, monitoring and reporting emissions  
- Assessment of current state versus compliance requirements for data reporting  
- Needs assessment, vendor selection and systems integration for optimized data