



EPA METHANE REGULATION AND LOW PRODUCTION WELLS

The Independent Petroleum Association of America (IPAA) represents the thousands of independent producers that develop 91 percent of the nation’s oil and natural gas wells. These companies account for 83 percent of America’s oil production, 90 percent of its natural gas and natural gas liquids (NGL) production, and support over 4.5 million American jobs.

Finding a Regulatory Pathway Based on Emission Data Where None Exists for Low Production Wells

Independent producers recognize the importance of environmentally sound regulations to manage industry emissions, including methane. IPAA supports voluntary efforts by industry to reduce methane emissions, like the Environmental Partnership. Our members are making constant improvements to the technology being used in the field to reduce, measure and report on emissions. Yet, more work needs to be done. IPAA has met and will continue to work with the Biden Administration as it considers initiatives to reduce methane and other greenhouse gas emissions.

In January 2021, the International Energy Agency released a regulatory roadmap and toolkit focused on “Driving Down Methane Leaks from the Oil and Gas Industry.” The roadmap details that, “understanding the nature and magnitude of your emissions will be critical to designing sound regulations.” **This is a primary tenet of what IPAA seeks to convey with the Biden Administration.** One key aspect of the independent component of the oil and natural gas production industry is its breadth – spanning from large publicly traded companies to small businesses and from large, high production wells to low production wells. These wells do not all have the same emissions profiles, and those different profiles should be considered in regulations.

Low production wells are those that produce 15 barrels/day (or 90 mcf/d) or less. The national average low production oil well is about 2.5 barrels/day and the low production natural gas well is about 24 mcf/d. Of the roughly one million active oil and natural gas wells in the United States, about 750,000 are low production wells, typically operated by small businesses. The regulatory structure applied to low production wells is significant because their viability is so dependent on their cost of operation.

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- ▶ IPAA supports voluntary efforts by industry to reduce methane emissions, like the Environmental Partnership. Our members are making constant improvements to the technology being used in the field to reduce, measure and report on emissions.
- ▶ IPAA has met and will continue to work with the Biden Administration as it considers initiatives to reduce methane and other greenhouse gas emissions.
- ▶ Industry seeks to find a regulatory pathway designed for the sources it regulates. Big new oil and natural gas wells and low producing older wells have differing emissions profiles – the Department of Energy is finalizing a study on low production wells this year that will provide that data for use in regulations.

The 2016 Environmental Protection Agency (EPA) New Source Performance Standards (NSPS) fugitive emissions regulations created a specific problem for low production wells. When EPA developed its fugitive emissions requirements, it generated its Best System of Emissions Reductions (BSER) technology based on large, hydraulically fractured well sites and its initial proposal applied only to these sites. However, in finalizing the fugitive emissions regulations, EPA expanded their scope to include low production wells, but it never revised the BSER requirements to reflect this broader application. The high production well Leak Detection and Repair (LDAR) program is economically infeasible for low production wells and provides minimal environmental benefits. EPA agreed to reconsider the low production well impact of its fugitive emissions program. In its 2020 revisions to the NSPS, the fugitive emissions program now provides an offramp when well sites fall below 15 barrels/day. The implications for low production wells are further compounded if the EPA regulatory program is based on managing methane. Under the Clean Air Act (CAA), the choice of regulating methane can trigger a nationwide existing facility regulation that would apply EPA BSER technology to the 750,000 low production wells currently in operation.

Industry does not question the need to cost effectively manage its emissions. Many independent producers participate in The Environmental Partnership that focuses on voluntary actions to reduce emissions — including fugitive emissions. Several are actively working with the Methane Emissions Technology Evaluation Center (METEC) at Colorado State University to develop improved technologies.

Industry seeks to find a regulatory pathway designed for the sources it regulates. The 2016 NSPS fugitive emissions program that was designed for large facilities should not be applied to low production well sites. The 2020 NSPS reconsideration moves to correct that error. EPA followed the path it used in its October 2016 Control Techniques Guidelines for low production wells when it excluded them from its model fugitive emissions program. There may be an appropriate low production well program — many states are addressing this issue. When EPA developed its NSPS regulations, it had no emissions profile for low production wells. No extensive profile yet exists. The Department of Energy initiated a study of low production well air emissions that should be completed in September 2021; it has been delayed by the COVID pandemic. If EPA needs to design a low production well program, it should utilize the emissions profile information now being developed by the Department of Energy and then focus on the most cost effective options to address the key sources.

For questions or more information, please contact the IPAA Government Relations team at 202.857.4722.

Background and Technical Information

Without its own information, EPA has been subjected to relying on external analyses. Many of these are developed by Keep It in the Ground environmental lobbying groups to support their agenda. However, even these do not justify the NSPS fugitive emissions regulations for low production wells.

Environmental groups rely on a number of studies to make their arguments regarding the justification for controlling oil and natural gas production emissions. Several are described below with regard to low production wells. More detail on these and others are available in comments submitted by independent producers to the regulatory docket (Independent Producer Response/Supplemental Comments filed June 17, 2019, to Docket ID No. EPA-HQ-OAR2017-0483.)

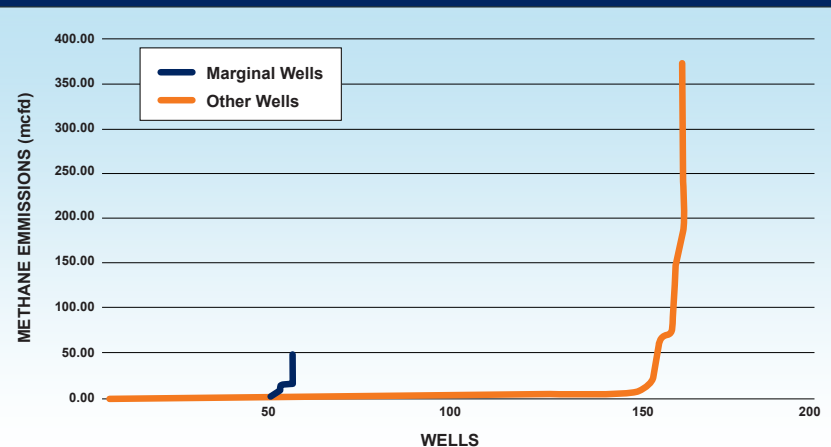
Importantly, most of the emissions data collected at operating sites are done remotely without an understanding of the activities on the site, without knowledge of whether the emission was a fugitive release or a permitted release when a tank was being filled. Sampling was generally ten minutes to an hour, but the value would then be extrapolated to a daily rate and assumed to be constant for the year. While none of these studies were designed to address low production wells, almost all contained some low production well site information.

Economic Analysis of Methane Emission Reduction Opportunities in the U.S.

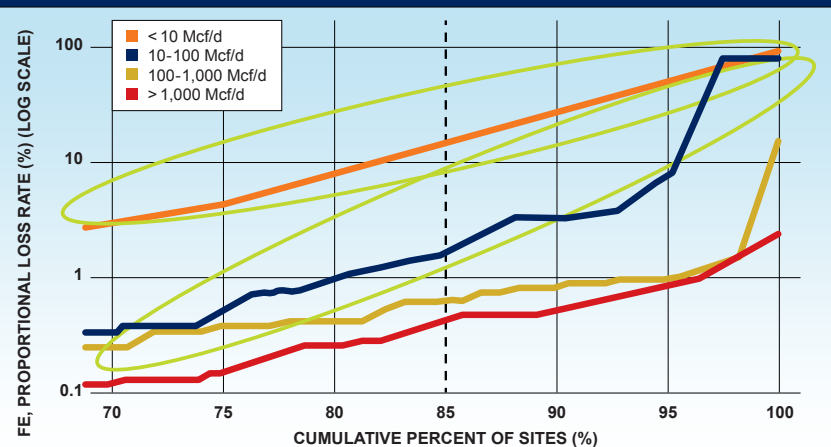
Onshore Oil and Natural Gas Industries (ICF Study) — Using the basis in this study, the potential recovery of methane would be 9 mcf/y for the national average low production well (24 mcf/d) and 2.2 mcf/y for the average Pennsylvania low production well (6 mcf/d). The gross and net cost effectiveness values would be \$222.89/mcf and \$221.22/mcf for the national wells and \$911.81/mcf and \$910.15/mcf for the Pennsylvania wells, respectively. Natural gas currently sells for about \$2.50/mcf at the well site.

Quantifying Cost-effectiveness of Systematic Leak Detection and Repair Programs Using Infrared Cameras (Carbon Limits) — For well sites and well batteries, the Carbon Limits study concludes that NSPS LDAR programs are not cost effective at 85 percent of these sites — a percentage that exceeds the share of natural gas production facilities that are low production wells.

Waste Not: Common Sense Ways to Reduce Methane Pollution from the Oil and Natural Gas Industry (Waste Not) — Its information is largely restatements of the information from the ICF and Carbon Limits reports. The only intriguing



SOURCE: DATA FROM EDF-COMMISSIONED STUDY, "TOWARD A FUNCTIONAL DEFINITION OF METHANE SUPER-EMITTERS"



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These two graphs show the nature of the manipulation. The top graph shows emissions from wells and compares low production (marginal wells) in context with large wells. The bottom graph shows how the information was manipulated by excluding the zero emissions wells and changing the basis from emissions to a unique "percentage of production" basis.

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element of its recommendations is the realization that a fugitive emissions program needs to differentiate its requirements based on the production volumes of the facility.

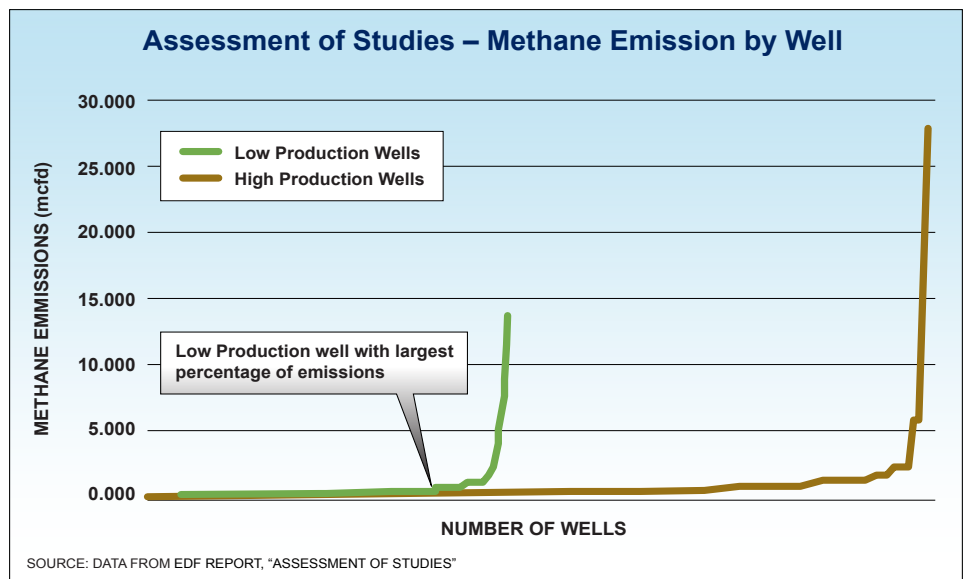
Toward a Functional Definition of Methane Super-Emitters: Application to Natural Gas Production Sites (Super-Emitters) — This study was commissioned by the EDF and clearly demonstrates the outcome-based purpose of the effort. It represents an effort to carefully cull data from other efforts and recast it as a new analysis to create the impression that low production wells are “super-emitters”. It manipulates data to twist reality for the purpose of convincing EPA and others to regulate low production wells.

Aerial Surveys of Elevated Hydrocarbon Emissions from Oil and Gas Production Sites (Lyon 2016) — Of the 8220 well pads sampled, 4195 were low production wells, averaging 4.1 barrels of oil equivalent/day. Of these, 57 had measurable emissions (1.3 percent). Of these, 37 had tank vent emissions, 8 had tank hatch emissions and 2 had both tank vent and hatch emissions. The remaining 10 (0.2 percent) had emissions from dehydrators, separators, trucks unloading oil from tanks, and unlit or malfunctioning flares. These emissions are not clarified regarding whether the emissions would be considered as fugitive or whether they are from allowable vents or normal operations (e.g., truck unloading). However, it does clearly call into question the benefits of the NSPS LDAR fugitive emission program to address the small percentage of low production wells that would be dealing with non-tank emissions.

Methane Emissions from Conventional and Unconventional Natural Gas Production Sites in the Marcellus Shale Basin (Omara Marcellus 2016) — This report has 18 low production wells. The sampling information shows that 11 of them were characterized by having storage tank emissions from vents or hatches. Their average production rate was 13.79 mcf/d with calculated emissions of 1.63 mcf/d or 0.067 lbs/day. Translating this value to annual emissions results in a calculated value of 0.012 tons/year (tpy). This is approximately 0.3 percent of the threshold for regulation under EPA’s Control Techniques Guidelines for oil and natural gas production facilities.

Assessment of methane emissions from the U.S. oil and gas supply chain (Assessment of Studies) — This EDF report was released with great fanfare during the 2018 World Gas Conference to create the appearance of new data showing methane emissions from the oil and natural gas industry value chain. The report purports to show that emissions are far higher than those reported in the EPA Green House Gases Inventory. The environmentalists then refer to this report as a linchpin of its arguments for changes to the NSPS, particularly regarding the fugitive emissions program with a special focus on low production wells. However, the report hinges on assumptions that emissions form a classic statistical bell curve. If the emissions are not a bell curve, the entire framework for the Assessment of Studies report becomes suspect. Studies show that facility emissions are characterized by “fat tails” where a few pieces of equipment produce the emission and that most wells are low emitting as the graph below shows. Consequently, looking at the nature of the site emissions data, there is little to suggest it is a bell curve. These inadequacies and others undermine the validity of the basis for arguing that the Assessment of Studies provides a basis for the fugitive emissions LDAR programs in the NSPS, particularly in their application to low production wells.

Delving into the details of these reports demonstrates the importance of fully understanding the nature of oil and natural gas emissions. For low production wells, it creates a perspective that most emissions are more likely to come from storage vessels. Managing storage vessel emissions does not require a complex, expensive NSPS type of LDAR program.



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