



**COMMENTS TO U. S. ENVIRONMENTAL PROTECTION AGENCY**

**REGARDING**

**RECONSIDERATION OF THE NSPS**

**FOR OIL & GAS INDUSTRY'S METHANE**

**60 CFR PART 0000(A) OF CLEAN AIR ACT**

**EPA-HQ-OAR-2017-0483**

**FRL-9984-43-OAR RIN 2060-AT54**

**Document Number 2018-20961**

**December 17, 2018**

*and Relevant to EPA's*

*Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units;  
Revisions to Emission Guideline Implementing Regulations; and Revisions to New Source Review  
Program*

*Commonly Called the Affordable Clean Energy Rule or ACE Rule*

*(Oct. 31, 2018)*

*Docket Number EPA-HQ-OAR-2017-0355*

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## Introduction

Theresa Pugh Consulting, LLC is a consulting firm representing public power (locally owned or governmental) electric utilities, oil and gas industry companies, pollution monitoring technology, and manufacturing companies interested in natural gas supply, pipeline safety and electric reliability. Theresa Pugh has 30 years' experience before U. S. EPA on behalf of a number of industries. She is a non-paid advisor to North American Electric Reliability Corporation (NERC) and one of the contributing authors of the NERC Single Point of Disruption Study (SPOD) on bulk electric and natural gas infrastructure, Nov. 2017. These comments are submitted by Theresa Pugh based upon years of regulatory advocacy before U. S. EPA. These comments do not purport to reflect the individual views of any electric utility clients or co-generators.

Theresa Pugh Consulting met with EPA technical and senior staff on OOOO(a) reconsideration of the rule to discuss related Affordable Clean Energy Rule (ACE) on September 25, 2018. These comments are to augment those initial discussions and preliminary materials provided to the docket in the ACE rule.

With one exception, the comments address the midstream pipeline delivery or gas transmission process and not upstream oil and gas methane leak detection and repairs. See page 10 for comments addressing low production parties.

## Reconsideration of Rule is Justified and Consistent with Executive Orders and Administration's Call for Common Sense Solutions

Commenter supports regulatory reform and revisions to existing regulations under a reconsideration processes conducted under proper notice and comment. This reconsideration follows the requirements for notice and comment (including public comments) Administrative Procedures Act and shows good cause there should be no opposition to a revised rule. In this case, it is possible that some of the topics offered in these comments offer new information or evidence of the relationship between oil and gas regulations to address methane leaks [Section OOOO(a)] and power sectors being regulated for CO<sub>2</sub> that justify reconsideration. Administrative Procedures Act states:

[T]he agency must show that there are good reasons for the new policy. But it need not demonstrate to a court's satisfaction that the reasons for the new policy are better than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better, which the conscious change of course adequately indicates.

EPA should recognize that former President Obama issued Executive Order 13563 that requires "retrospective analyses of existing rules" as an important component to improve regulation and regulatory review. In that executive order, similar to the Executive Orders issued by President Trump, agencies were encouraged to "modify, streamline, expand or repeal" significant

regulations<sup>1</sup> that are “outmoded, ineffective, insufficient or excessively burdensome”. In this case, the actions of Congress and three Presidents may be called upon as justification to allow some variability in the timing for compliance deadlines.

Commenter has no opposition to slight adjustments made for oil and gas sector compliance dates where conformity, capital expenditures, manpower in rural locations or where weather impedes repairs based upon arbitrary deadlines. Reconsideration process is also consistent with broader policy objectives expressed in Administration’s Executive Order 13783 and 13807.

However, because of the relationship between the increasing reliance upon natural gas for the electric power sector, commenter recommends a very skilled and narrow adjustment to methane leak and repair compliance dates to ensure that there is no indirect and unexpected downtimes or natural gas delay or curtailment delays for natural gas-fired power plants. Concern are higher where power sector is served by any **one** of: natural gas pipeline, natural gas storage, or critical compressor station due to fugitive methane leaks that are not large enough to be adequately regulated by state or Pipeline and Hazardous Materials Safety Administration (PHMSA)’s leak regulations.

#### Reconsideration of Endangerment Determination

No review of EPA’s Endangerment Determination<sup>2</sup> for Public Welfare is needed.

#### Section 111 and 112 and Ever the Twain Shall Meet

Historically industries have been regulated under Section 111 and 112.

#### Why EPA’s OOOO(a) Rulemaking Process Matters to the Electric Utility Sector and the Relevance Regulating Electric Utility Sector

State air authority agencies should be given flexibility in the electric utility’s 111(d) rulemaking on what determines the “remaining useful life” of the electric power plant’s coal-fired unit. For some electric utilities the remaining useful life is a simple decision based upon electric demand and how much electric demand can be met through Demand Side Management, Combined Heat & Power with industrial/commercial customers, replacement with natural gas or combined renewables with natural gas for peaking. Currently electric load is flat in most states and at most electric utilities. This may change over the next few years—although EIA has predicted electric load to remain flat for at least ten years. Perhaps the greatest unknown is the future of electrified vehicles to replace liquid fuel vehicles. This commenter has no expertise on electric vehicles and when, or if, they will be commonly used by consumers and indirectly increase electricity demand.

For some electric utilities planning to replace older coal-fired plants with natural gas the “remaining useful life” might be affected by the permit approval by FERC or states for the **natural gas infrastructure** (mostly pipelines and compressor stations) to deliver the natural gas to the electric sector. This did not seem like a significant issue in 2013-2015 when EPA was considering the NSPS regulation for the electric utility sector. Nor did it seem as significant

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<sup>1</sup> Executive Order 13771 issued January 30, 2017

<sup>2</sup> December 7, 2009.

when EPA first proposed a methane NSPS for the oil and gas sector in 2015. At that time the focus was on the tremendous new volume of natural gas supply and changes in the electric market. Since 2015 it has become increasingly difficult for any parties (upstream, midstream, downstream and electric utilities) to know with certainty that natural gas pipelines and compressor stations will get FERC certificate of need approval, state Public Utility Commission approval, and pass all relevant state permitting agencies. Recent delays in building gas infrastructure to serve the power sector are often caused by challenges at the state or Federal level under National Environmental Protection Act (NEPA), Clean Water Act Section 404, challenges to right of way authority, allegations about noise<sup>3</sup>, or other complaints. Moving forward, there will be an increased relationship between the readiness of the natural gas infrastructure delivery system to the power sector—regardless of the overall abundant supply of natural gas in North America.

This commenter asks EPA to give consideration to the interconnectedness between its OOOO(a) final NSPS rule when placing deadlines on detecting and correcting or repairing methane leaks in the final rule. The final ACE rule will address power sector’s NSPS for carbon dioxide (CO<sub>2</sub>) by requiring heat rate improvements. Over time some power plant owners will determine that it is time to retire older coal plants and replace with more efficient and better ramping natural gas-fired plants. In some circumstances, the decision will be mostly influenced by the price of natural gas and the ability to ramp with intermittent wind or solar generation that will soon exceed 30% in many states. During this process of switching between coal and natural gas the readiness of the gas delivery infrastructure is key. Coal plant closures and the timing of a new NGCC plant may be offered to state agencies under the NSPS 111(d)’s “remaining useful life of the plant” discussions. In some cases, the electric utilities may be in a “wait and see mode” to determine if the pipelines needed to delivery gas to the new power plant have been permitted by all relevant agencies and successfully to meet the start date for operation. Perhaps state agencies will expect verification of plans to build gas pipelines or sign firm contracts to show sincerity if more time is needed or for leniency in the 111(d) process. In some cases, the plan for coal-fired power plant shut down may need to be submitted confidentially to state agencies as some power companies seek to negotiate best financial terms with multiple gas providers and do not want public notice of this shut down timing during negotiations.



There is a “handshake” or connection between these two rulemakings and U. S. EPA and states need to consider that methane leak repairs on new compressor stations and new pipelines might have some impact when serving existing power plants if the timing for repairs are not scheduled properly (i.e. during shoulder season for both segments of the energy sector). Further, it is not clear from this reviewer of the proposed OOOOa

reconsideration if the new commencement date for pipelines and compressor stations was triggered from the original September 18, 2015 date or from October 15, 2018 date. EPA should make that date clear in Final rule and to communicate that to North Electric Reliability Corporation (NERC) and to state pipeline inspectors through direct communication to National Association of Pipeline Safety Regulatory (NAPSR).

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<sup>3</sup> Noise at compressor stations is regulated by both FERC and local implementation of sound under Clean Air Act.

## North American Electric Reliability Corporation (NERC)'s Observations:

For many new and existing gas-fired power plants there are multiple pipelines to serve natural gas from local underground storage to the power plants. Redundancies in gas transmission routing is good from a delivery perspective—no differently than having coal delivery options by more than one railroad or barge company. However, not all gas-fired power plants have redundancies in gas storage or gas pipeline transmission (transportation).

North American Electric Reliability Corporation (NERC)'s November 2017 study<sup>4</sup> offers documentation, diagrams, charts, and maps showing that there are many operational connections. While it is easy to assume there is no connection between the two energy segments (provider of gas and power sector as a customer of gas), there is a clear connection. If anything, NERC's report shows a more conservative view of the connection between the two sectors because NERC only looks at bulk electric reliability. NERC does not study localized and intermittent service disruptions of electric service when there are force majeure events for smaller utilities or for one natural gas fired unit owned by a larger utility with a fleet of units which to select and use.

Commenter observes that EPA staff working on both NSPS OOOO(a) and ACE may discuss NERC's 2017 study with NERC staff and see confidential maps developed by Argonne National Lab for NERC to demonstrate how many power plants are currently served by only one pipeline, one compressor station with no redundancies, or a single storage location in direct proximity to the power plant. While the reconsideration of deadlines in OOOO(a) may be appropriate, perhaps it is NOT wise to lengthen compliance times for leak identification and repair for those gas pipelines and compressor stations that serve a power plant with no additional service redundancies until additional redundancies have been installed.

The September 13, 2018 pipeline explosion events in Boston suburbs demonstrate the relationship between electric power distribution and natural gas transmission even if the tragedy was relatively localized with no loss of bulk electric—and caused by a natural gas local distribution company. The September explosions were caused by over-pressurization<sup>5</sup> on Columbia Gas (MA) forced National Grid to shut off electric service to many thousands of homes in three communities for safety reasons for more than 24 hours. While the weather was mild in September and the electricity was restored to the homes within approximately three days, this event demonstrates that the two sectors will be more intrinsically connected in the future. National Grid's generation portfolio was untouched by the natural gas explosions but the state required a curtailment of electricity for up to three days. One can only imagine how difficult it would have been to move many thousands of people to emergency response shelters after 5:00 PM if the tragic accident, requires the local electric utility to shut down electricity for

<sup>4</sup> [https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_SPOD\\_11142017\\_Final.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf)

<sup>5</sup> NTSB Preliminary Accident Report for Merrimack, MA pipeline explosions <https://www.nts.gov/investigations/AccidentReports/Pages/PLD18MR003-preliminary-report.aspx>; October 12, 2018

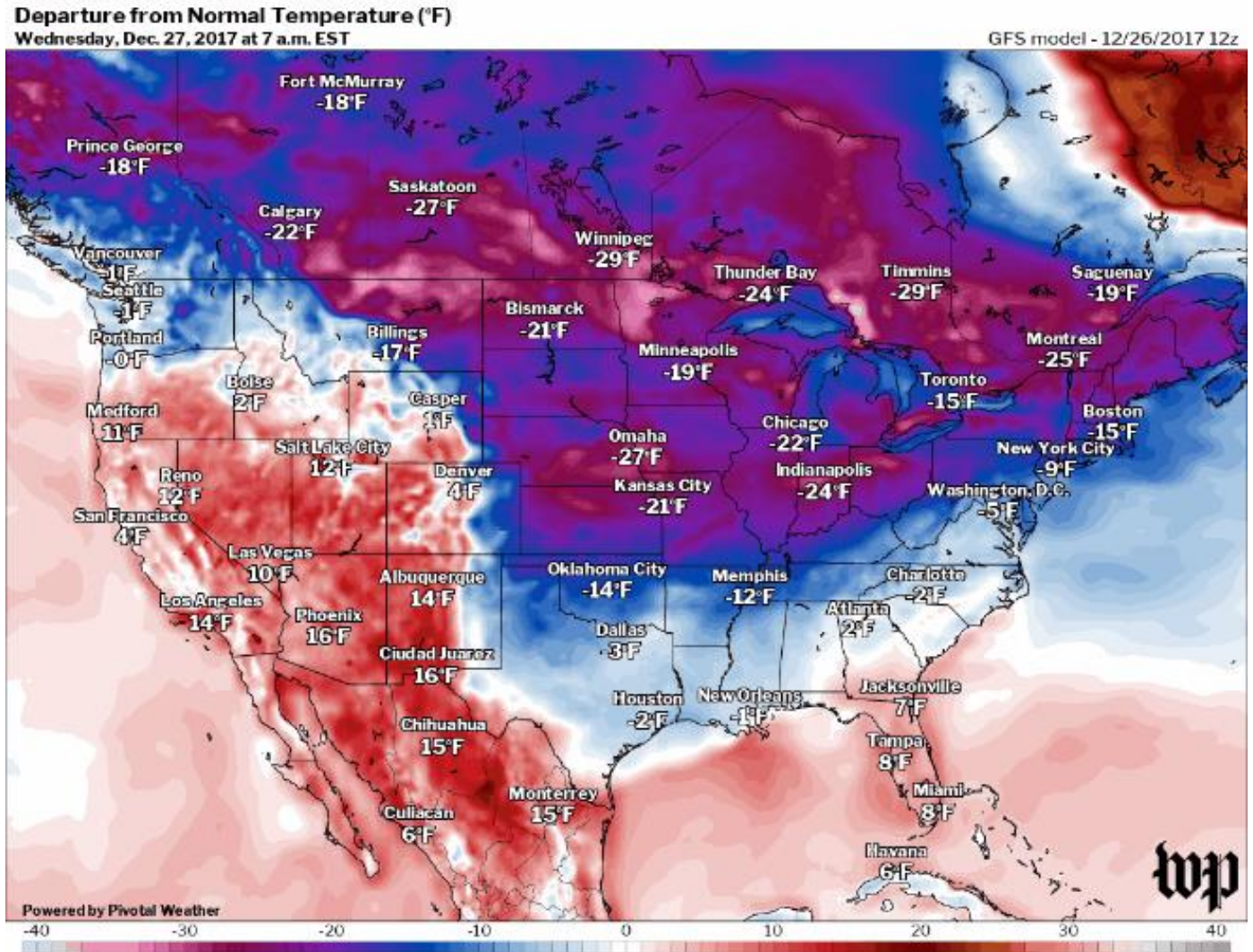
days or weeks. One also wonders about human safety or additional damage to homes if the event had happened between December 2017-Jan. 2018 when weather was as low as -5 degrees in some Boston locations.

To prove the point, see Washington Post's weather map from December 26, 2017 showing extreme cold temperatures that ultimately lasted for almost one week across most of the U. S. A power loss due to generation force majeure curtailment or a force majeure event on a leak repair for natural gas pipelines, compressor stations or even natural gas storage locations could be very dangerous for electric utilities during wintertime peak use. Perhaps the event might be less dangerous for summertime peak—but still very dangerous in states such as Arizona, Texas, South Carolina, Florida, etc. during summer electric peak. As NERC points out, many power plants do not have secondary fuels on site or are permitted to use oil during summer ozone season.

Thus, this commenter recommends that EPA's OOOOa rule should allow for the leak repairs on the gas transmission (pipelines) system to be coordinated during shoulder season and during times of other repairs to minimize disruptions to the gas delivery system. However, this commenter believes that leak detection and repairs on sole-source pipelines and compressor stations for power sector (including independent power producers, community aggregators and power islands at factories selling power to the market) should be required MORE frequently as EPA required in its 2016 rule. **For gas pipelines and compressor stations serving electric utility with no other delivery redundancies, the fugitive leak and repair obligations should remain the same as in the 2016 final rule.** Most power plants are not dependent upon only one pipeline but, where they are, leak detection and repairs schedules should be retained as under the prior rule unless redundancies are provided. Those redundancies could mean pipelines redundancies, local natural gas storage such as Liquefied Natural Gas (LNG), or permitting dual fuel if the generating unit has the ability to burn an alternative fuel (oil, biomass) for service for one week at peak. Redundancy does not mean being reliant upon line packing the pipeline for "storage" for power plants >50 MW. **Also, while firm, uninterruptible contracts are desirable for many reasons, firm contracts cannot prevent gas delivery disruptions—especially when the power plant has only one gas pipeline, one gas storage location and perhaps has a compressor station within 70 miles of the power plant with no alternative compressor stations.**

*(Continued on page 7)*

Map 1 Illustrating Winter 2017-2018 Temperature Issues Supporting Why the Gas Pipeline Infrastructure Readiness and Local Reliability Matters in ACE Proposed Rule

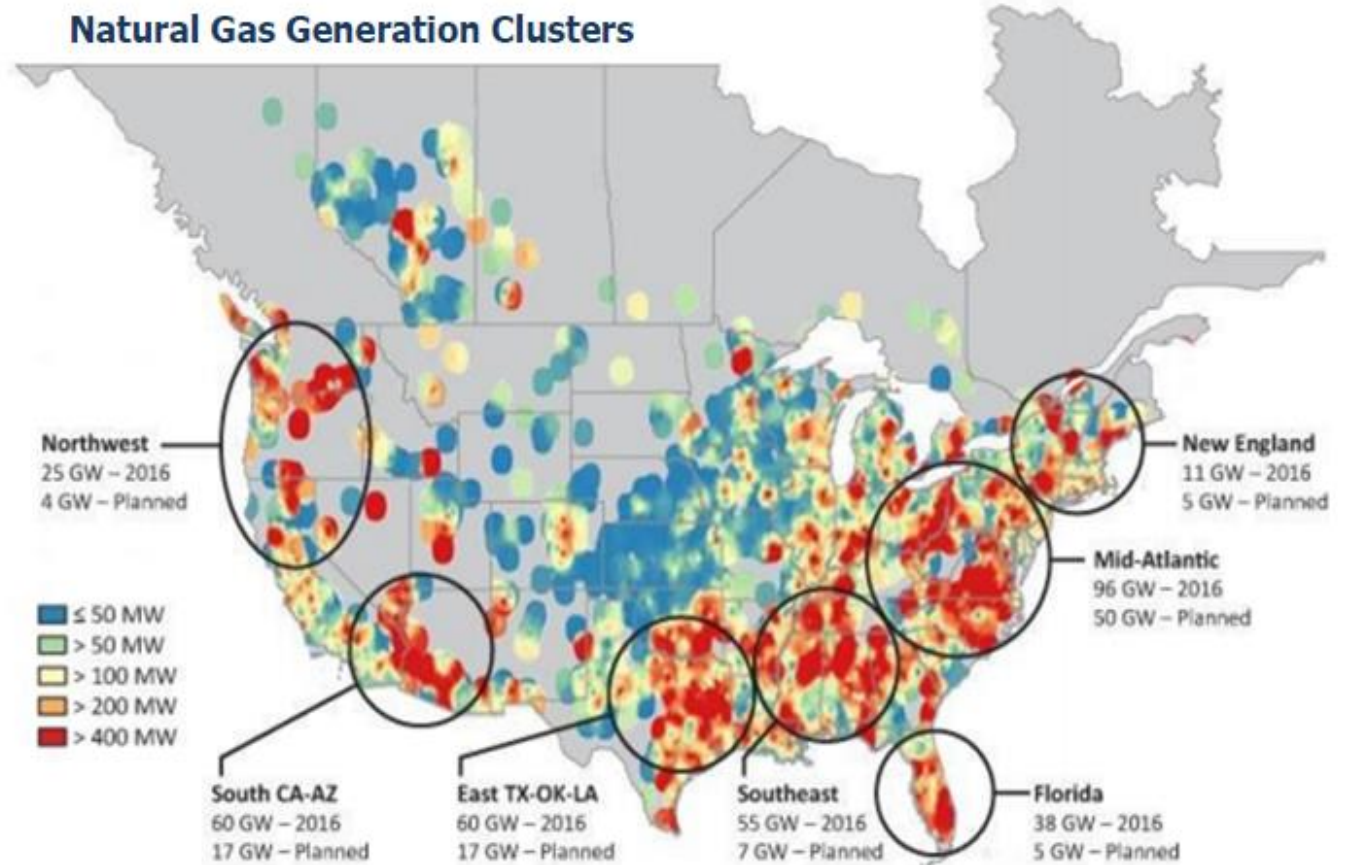


Source: Washington Post, “Unforgiving Cold Snap Will Engulf Eastern-Two-Thirds of the Nation Through New Year’s Day, December 26, 2017; Washington Post online, 1:57 PM

(Continued on page 8)

NERC Single Point of Disruption Study, November 2017 Illustrates Areas Where NERC Believes There Could be Localized Natural Gas Infrastructure Problems Resulting in Localized Electric Reliability Problems

Map 2

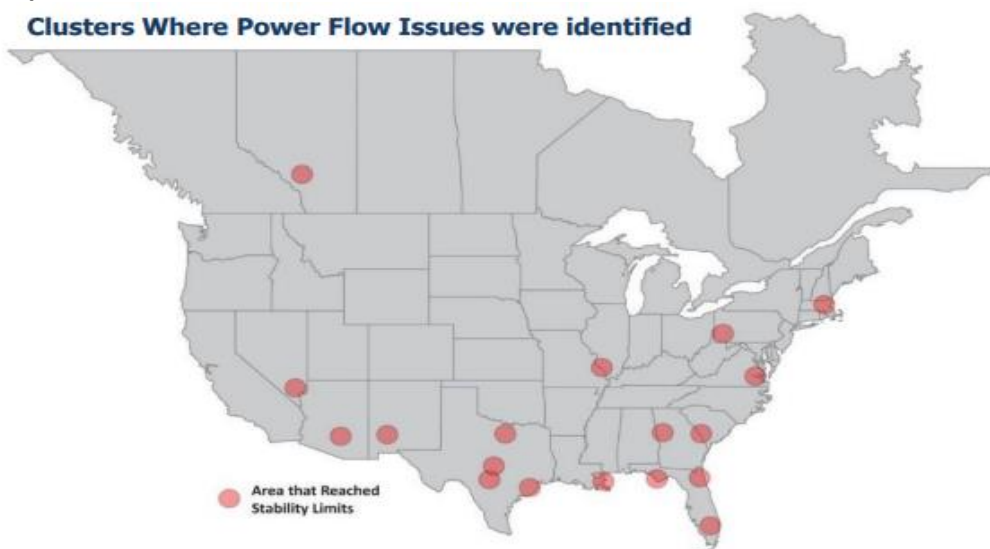


NERC, Special Reliability Assessment: Potential Bulk Power System Impacts Due to Severe Disruptions on the Natural Gas System, Page 17  
[https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_SPOD\\_11142017\\_Final.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf)

(Continued on page 9)



Map 3



NERC, Special Reliability Assessment: Potential Bulk Power System Impacts Due to Severe Disruptions on the Natural Gas System, Page 20  
[https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_SPOD\\_11142017\\_Final.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf)

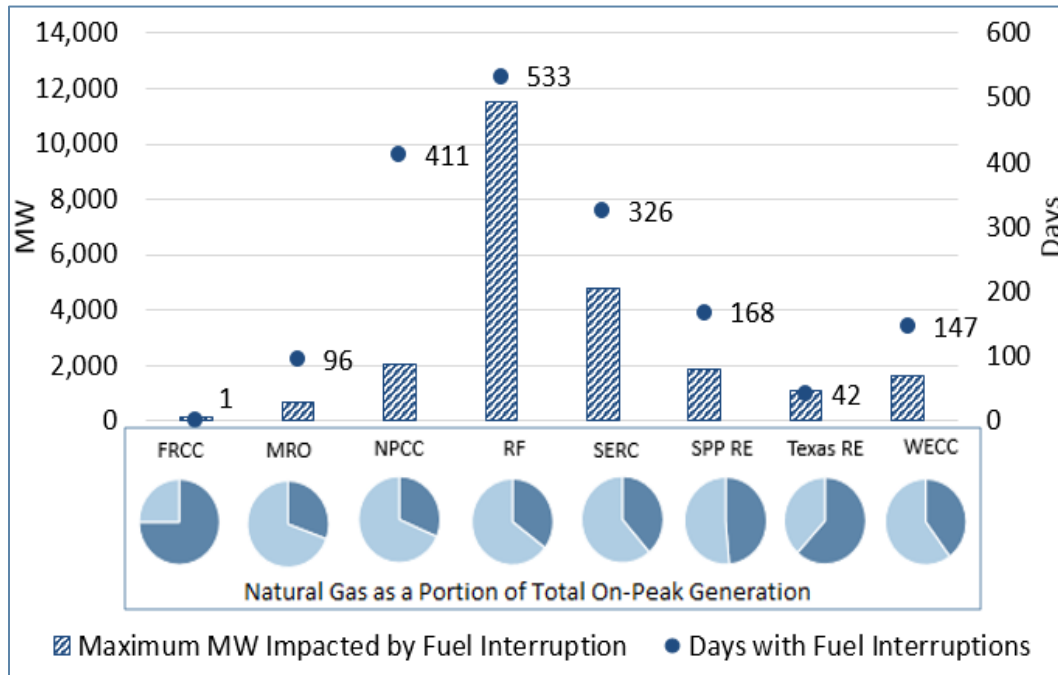
Further, should EPA implement 111(d) rulemaking on methane from the natural gas delivery system (transmission pipelines and compressor stations) for existing sources, the inter-relatedness of the two industry segments will be even more significant. Another way of seeing the potential local reliability issues when considering “remaining useful life of plant” is to review NERC’s Table 1.3 on page 7 from their Nov. 2017 report.

Table 1

<b>Table 1.3: Natural Gas Supply Characteristics by Area</b>			
<b>Region</b>	<b>Number of Generators with One Connection</b>	<b>Generation Capacity with One Connection (MW)</b>	<b>Number of Major Supply “Trunk” Lines Serving Area</b>
Northwest	16	4,963	24
Southern California and Arizona	20	11,430	13
East Texas, Louisiana, and Oklahoma	40	17,965	60
Southeast	68	46,124	35
Florida	38	31,049	7
Middle Atlantic	22	12,244	9
New England	35	13,103	6
Northeast	49	21,903	20

Source: NERC, Single Point of Disruption Study  
[https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC\\_SPOD\\_11142017\\_Final.pdf](https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf)

Table 2



Note that GADS database indicates days not hours or minutes of fuel disruption

**Source:**

NERC GADS Outages of Natural Gas Generation due to “Lack of Fuel”

[Technologies for Leak Detection and Leak Repairs Should be Expansive](#)

Commenter believes that U. S. EPA has been too narrow in its application of ways that companies may identify leaks and repair those leaks. The original proposed rule identified optical gas imaging. In the last four years there have been many new sensors and adjustments to existing Supervisory Control and Data Acquisition (SCADA). Commenter encourages EPA to have broadest technology terms to allow more effective and lower cost technologies, devices, and adaptations of existing sensors connected to SCADA (including through new algorithm and Artificial Intelligence) to identify the methane leaks. In time, artificial intelligence (AI) may also be used to identify methane and differentiate it from other methane in ambient air surrounding regulated facilities. In time, fugitive leak repairs may be addressed through technologies and devices not yet known. These types of emerging technological improvements should be allowed to be used as long as the system is verifiable.

## Single Comment to Address Upstream Low Production



1. EPA asked for comments on low production for methane leak detection and repair (reporting) costs.

Commenter cannot provide leak detection, repair and pipeline investment costs and defers to the professional societies and advocacy organizations on these details. However, commenter has personal experience in Texas' conventional oil and gas or non-conventional production. Unlike conventional oil and gas, shale oil and gas are not as easy to estimate production based upon drilling reports. Like liquid beverage with pressure in an enclosed bottle or can, the volume might appear larger on the first opening as the liquid comes rushing out. In fact, decline rates take a few weeks (perhaps months) to gauge properly. **Decline rates mean a great deal in new shale production as to whether the producer wants to invest in any long-stranding economic commitments—whether that is to bring in production water from offsite, build pipelines to gather or processing facilities, etc.** There are many wonderful aspects to having enormous new shale production options in North America. However, the decline rate on each shale area can vary wildly. **EPA should have a reasonable solution to allow sufficient time for producers to determine what is viable before having to invest in frequent leak detection and repair processes.**

Commenter defers to upstream industry experts but can observe that many new shale formations have producers that need as long as 12-18 months to review production reports and watch for decline rate and related price volatility in natural gas commodities. Commenter recommends that EPA give low-production wells as long as 18 months to determine whether they will actually produce from those wells before installing methane leak/repair and reporting obligations. **Requiring methane leak/leak repair costs could inadvertently strangle off new production that is “on the bubble”.** Many larger companies undertaking methane recovery where this allows them to recover methane for sale into market and these companies may drive lower cost methane leak and repair technologies. But not all independent, low volume production parties have the manpower, capital and large variety of options available to larger corporations with large fleets of drilling and production equipment, proximity to gathering/processing facilities, etc. Commenter recommends that upstream producers all be regulated but that smaller or low production facilities have more time for making decision on investing in and implementation of methane leak identification and leak repairs. Obviously, the amount of time should not economically disadvantage the larger, corporate producers but give a bit of flexibility to low production well owners. It is a delicate balancing act to select the right timing for additional time. Pugh believes that up to 18 months is fair because the economic market of natural gas between \$50-55/bbl (West Texas) and < \$3.00/mcf natural gas price is inherently “on the bubble” for producers. These prices have dominated many investment decisions over the last three years.

- **EPA asks in related question, who should qualify for being called “low production” facilities.** The fairest way to define low production is to use the IRS definition used for standard tax purposes.
- **How to avoid a “loophole for producers to avoid methane leak and repair obligations”**  
The best way to avoid a loophole allowing producers too much time to avoid methane leak and methane repair obligations is to require the final OOOO(a) obligations to kick in at 18 months or less time if producer’s associated gas meets production reporting requirements to U. S. EIA or state oil and gas regulatory agency.

## Conclusion

Methane can still be regulated to meet the requirements for NSPS under Section OOOO(a) without wasting time to review the endangerment determination or review downstream uses of oil and gas under any CO<sub>2</sub>e or Social Cost of Methane economic review within this regulation. There is no reason to delay the effectiveness date of a final rule in 2019 beyond the standard sixty-day compliance time given that the industry has had almost two years under the prior rule.

EPA can make modest changes in the reconsideration process resulting in a rule that can reduce methane emissions and provide sensible ways to reduce fugitive methane emissions from compressor stations and pipelines.

**EPA staff working on both the OOOO(a) regulation and the ACE regulation for power sector should become familiar with the interconnection between the two sectors.** OOOOa regulation should reduce fugitive methane leaks but not creating more opportunities for downtime in natural gas infrastructure delivering product to a market that will have both summer and winter peaking season and hours. **Further, those power plants served by only one compressor stations or by one pipeline that fugitive emission leak detection and repairs are made slightly more frequently than for other pipelines with multiple redundancies for environmental reliability, and public safety purposes.** When redundancies are built, the frequency should be adjusted. While this commenter might prefer that pipeline regulations are primarily the purview of PHMSA, this commenter has no opposition to addressing fugitive emissions from gas transmission systems since not all pipeline leaks are covered by PHMSA. Nor is it clear if all states have similar pipeline safety requirements to address fugitive leaks or larger leaks that would require state regulatory action equal to those intrastate pipelines regulated by PHMSA.

EPA should seek to communicate with NERC and relevant parties at PHMSA on this rulemaking given recent developments demonstrating the relationship between the gas transmission system and gas fired power plants and industrial gas consumers. **It is clear that EPA, NERC, FERC, state pipeline/storage regulatory agencies and PHMSA need to enhance their communications on specific regulatory options and policies.**