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U.S. Environmental Protection Agency
EPA Docket Center (EPA/DC)
Mail Code 28221T
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460
Attention: Docket Number EPA-HQ-OAR-2016-0204

Re: ONE Future Comments on Proposed Information Collection Request for Oil and Gas Facilities.

Dear Docket Clerk:
Our Nation's Energy Future Coalition, Inc. (ONE Future) appreciates the opportunity to comment on the Environmental Protection Agency's (EPA or the Agency) proposed information collection request (ICR) for oil and gas facilities.[1]
ONE Future is a unique coalition of leading companies with operations in one or more of the following four principal segments of the natural gas industry: (1) oil and natural gas production and gathering; (2) natural gas processing; (3) natural gas transmission and storage; and (4) natural gas distribution. ONE Future is a non-profit 501(c)(6) trade group that is focused exclusively on improving the management of methane emissions from the wellhead to the burner tip. By bringing together companies from every segment of the natural gas value chain, we aim to deploy innovative solutions to operational and policy challenges that will deliver better results to our customers, increase value to our shareholders, and improve the environment.
On January 14, 2015, the Obama Administration and EPA had announced its methane strategy to achieve methane reductions of 40-45% of 2012 levels by 2025. In the accompanying press release[2], the Whitehouse communicated "[a]chieving the Administration's goal would save up to 180 billion cubic feet of natural gas in 2025". Besides conveying that it will propose regulations

[1] Proposed Information Collection Request; Comment Request; Information Collection Effort for Oil and Gas Facilities, Federal Register /Vol. 81, No. 107, June 3, 2016, EPA–HQ–OAR–2016–0204; FRL–9946–70–OAR.
[2] https://www.whitehouse.gov/the-press-office/2015/01/14/fact-sheet-administration-takes-steps-forward-climate-action-plan-anno-1

for new and modified emission sources, the Administration communicated that to fully attain "the Administration's goal will require additional [voluntary] action, particularly with respect to existing sources of methane emissions." On March 2, 2015[3], the Administration restated that "[a]chieving this goal would save up to **180 billion cubic feet** of wasted natural gas in 2025." ONE Future's flexible and performance-based approach to management of methane emissions has been proposed as an option[4] under the EPA Methane Challenge Program, a centerpiece to the Obama Administration's efforts to meet its 180 billion cubic feet reduction goal in 2025. We believe that orienting our activities toward this specific and measurable outcome ensures a sustained focus on identifying the opportunities for emissions abatement that yield the greatest benefit for the least cost. It provides individual companies the flexibility to choose the methods they employ to most cost-effectively and efficiently achieve their goal – whether by deploying an innovative technology, modifying a work practice, or in some cases, replacing a high-emitting asset with a low-emitting asset. The EPA has worked to develop a rigorous and transparent emissions accounting protocol that defines the supplemental technical information required by ONE Future Methane Challenge participants.

ONE Future believes strongly that the flexible, performance-based approach we have proposed will accomplish deeper emission reductions among participants more quickly, and at a lower cost, than a one-size-fits-all mandatory program. Considering the industry profile (1.3 million oil and gas wells, 5000+ gathering/boosting facilities, 668 processing facilities, over 1,800 transmission facilities, over 400 storage and 111 LNG facilities) and millions of "affected sources", we do not believe technology-based approaches as finalized in the NSPS OOOOa regulations can be implemented in any practical manner. Therefore, we strongly encourage EPA to ensure that the ICR be designed in a manner that is policy-neutral and provide the necessary information for rational decisions to select the optimum policy considering all options available. Our comments on the proposed ICR are summarized below and detailed comments accompany this letter.

1. EPA should design the ICR to be policy-neutral.
2. EPA should extend the period to respond to the Part 1 (operator survey) and Part 2 (detailed facility survey).
3. The EPA should exclude Low-Emitting Facilities from the ICR.
4. EPA should carefully evaluate emission control experiences and cost-estimates to account for regional variations.

[3] Source: https://www.whitehouse.gov/energy/climate-change , March 2, 2015
[4] Natural Gas STAR Methane Challenge Program: Proposed Framework, July 25, 2015

We appreciate the opportunity to provide comments on behalf of the ONE Future Coalition. If you have any questions, please feel free to reach me at (832) 397-8501.

Richard Hyde

Richard Hyde
Executive Director
ONE Future Coalition

cc: Brenda Shine, EPA; Peter Tsirigotis, EPA; Joseph Goffman

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COMMENTS ON THE PROPOSED ICR

RECOMMENDATION 1: EPA SHOULD DESIGN THE ICR TO BE POLICY-NEUTRAL

The ICR process is being conducted by the EPA "pursuant to section 114 of the Clean Air Act, as amended ("CAA" or "the Act"), to ***assist the Administrator of EPA in developing emissions standards for existing oil and gas facilities pursuant to section 111 (d)*** of the Act." We believe EPA should maintain a neutral and open minded approach to the development of regulations for existing facilities under §111(d) of the Clean Air Act (CAA) and employ the ICR process to gather the breadth of information to make optimum policy choices that will account for impacts to the economy, environment and energy security of the nation.

In January 2015, the Obama Administration specified an overarching goal of reducing methane emissions from the oil and gas sector by 40 to 45 percent below 2012 levels by the year 2025.[5] Our analysis indicates that a reduction goal of 40-45% equates to emission reductions of between 77 and 86 million metric tons of carbon dioxide equivalent (CO_{2e}) emissions by 2025.[6] During that period, the EIA projects natural gas production growth of nearly 27 percent.[7] Prior to announcing its intent to regulate existing oil and gas facilities through the §111(d) of the Clean Air Act (CAA), the EPA announced the Methane Challenge, as well as major components of the Strategy to Reduce Methane Emissions, including the following regulatory actions:

- The NSPS OOOOa Rule, which EPA estimates will result in methane emission reductions equivalent to 11 million metric tons of carbon dioxide[8];
- EPA's draft Control Techniques Guidelines (CTGs) for reducing VOC emissions from existing equipment and processes in the oil and natural gas industry, which EPA estimates will result in methane emission reductions equivalent to 5.5 million metric tons of carbon dioxide equivalents[9];
- BLM's Venting and Flaring rule which is estimated to result in 3.8 million metric tons methane reductions as carbon dioxide equivalents[10]; and
- PHMSA's future rule for addressing the sector, for which no emission reduction estimates are currently available.

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[5] The White House, "FACT SHEET: Administration Takes Steps Forward on Climate Action Plan by Announcing Actions to Cut Methane Emissions" January 15, 2015. Accessed on November 2, 2015 at: https://www.whitehouse.gov/the-press-office/2015/01/14/fact-sheet-administration-takes-steps-forward-climate-action-plan-anno-1

[6] Source: https://www.whitehouse.gov/energy/climate-change ("[A]chieving this goal would save up to 180 billion cubic feet of wasted natural gas in 2025. " Accessed on November 2, 2015. Our calculations indicate that 180 bcf of natural gas is equivalent to approximately 86 million metric tons of CO_2. (Utilizing a Global Warming Potential of 25 and assuming a factor of 19.2 g methane/scf of natural gas.")

[7] U.S. Energy Information Administration, "Annual Energy Outlook 2015", *Table: Natural Gas Supply, Disposition, and Prices*. Accessed on November 2, 2015 at: http://www.eia.gov/beta/aeo/#/?id=13-AEO2015&cases=ref2015

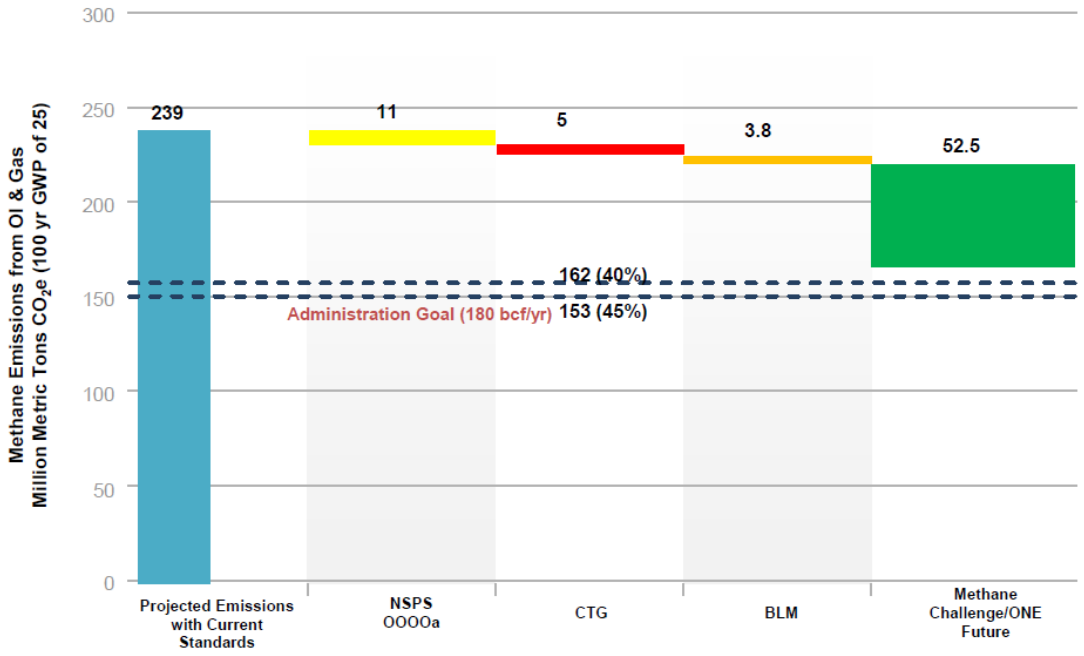
[8] EPA, "EPA's Actions to Reduce Methane Emissions from the Oil and Natural Gas Industry: Final Rules and Draft Information Collection Request," May 12, 2016.

[9] *Id.*

[10] Table 12, 2025 estimated reductions of 168,000 methane (short tons), ENVIRONMENTAL ASSESSMENT Waste Prevention, Production Subject to Royalties, and Resource Conservation, DOI-BLM-WO310-2015-XXX-EA

From these projections, and as shown in Figure 1, we conclude that a majority of the methane emission reductions associated with meeting the Administration's 40-45% goal are expected to be achieved via voluntary programs such as Methane Challenge. Actions such as the EPA Methane Challenge can yield a potential reduction of about 166 million metric tons CO_{2e} per year by 2025, leaving a gap of about 4-14[11] million tons of reduction from its stated 40-45% goals respectively.

Figure 1: Methane Emissions Reduction Goals and Methane Gap (million metric tons of methane as CO_{2e})



Historically, regulatory agencies have approached environmental problems with a prescriptive approach that mandates the adoption of specific technologies, practices or procedures for all facilities or operations of a certain type. While a prescriptive approach may sometimes be effective in reducing the targeted pollutant — the prescriptive approach is rarely cost-effective. By focusing on the process or technology and not the outcome, the prescriptive approach frequently increases costs without achieving a commensurate environmental benefit. Additionally, by mandating specific technologies, the prescriptive approach tends to discourage

[11] The US Climate Action Plan (2014) projected the US methane emissions prior to the Administration's methane actions to be 239 million metric tons (methane as CO_{2e}). In 2012, the US methane emissions were 192 million metric tons (EPA, April 2014). 45% of 192 million metric tons equates to 86 million tons which equates to 180 billion cubic feet of natural gas cited by the March 2, 2015 communications from the White House. Similarly a 40% reduction equates to about 77 million metric tons. Subtracting 77 million (40%) or 86 million (45%) from the projected 239 million tons results in a 2025 annual emissions goal of 162 and 153 million tons.

(and often forbids) the adoption of new innovations. As a result, even prescriptive regulations that are initially effective tend to show diminishing returns over time.

The companies in ONE Future begin with a focus on the outcome we want to achieve. In the case of methane emissions, that desired outcome is to collectively achieve an average rate of emissions across all of our facilities that is equivalent to one percent (or less) of total natural gas production. Each company then has the flexibility to determine the most cost-effective pathway to achieve that goal. In order to demonstrate *credible and measurable results*, ONE Future companies agree to quantify their emissions and track their progress according to uniform, EPA-approved reporting protocols.

Combining a performance target with a flexible pathway, allows our companies to deploy their capital where it will be maximally effective in reducing emissions. This is important, because most studies clearly show that the majority of methane emissions come from a small fraction of sources. ONE Future's approach allows companies to focus their resources on identifying and addressing those major sources.

The ICR should be designed to gather and assess the available science and data to determine the best economic options to reduce methane emissions from existing facilities. We believe "sound science leads to sound policies" and all policy frameworks should be evaluated before any decision or recommendation by EPA on the appropriate pathway. The current ICR appears to be narrowly crafted to provide answers to a pre-determined outcome of regulating existing sources under §111(d) that mirrors the recently finalized NSPS OOOOa regulations. Table 1 provides an estimate of the potential number of "affected facilities". As noted below when designing a data request to cover the hundreds to million + affected sources, EPA must be open to all policy tools available to reduce methane emissions. These include:

- Voluntary options – EPA Methane Challenge, including ONE Future[12];
- Technology-based options similar to the recent NSPS OOOOa;
- Performance-based options similar to 111(d) rules for Municipal Combustors at § 60.33b (d)(1)[13]. (ONE Future design framework is also a performance-based option); and
- Market-based options.

EPA's own reports show that voluntary actions, such as the successful Gas STAR program, have reduced methane emissions, with Gas STAR accounting for over 1.2 trillion cubic feet of reductions since 1993[14]. The industry has also demonstrated interest in flexible programs, such as the ONE Future coalition commitments to achieving methane emission reduction goals. Leading companies continue to identify and employ lower emitting technologies and more efficient operations, regardless of participation in Gas STAR, Methane Challenge etc. Therefore, it is quite conceivable that the current Gas STAR figures are an under-estimate of the actual

[12] https://www3.epa.gov/gasstar/methanechallenge/
[13] https://www.gpo.gov/fdsys/pkg/CFR-1998-title40-vol6/pdf/CFR-1998-title40-vol6-sec60-33b.pdf
[14] https://www3.epa.gov/gasstar/accomplishments/index.html

reductions that the industry has achieved. The proposed ICR lacks any data gathering on reductions already undertaken by companies.

On July 8, 2016, the EPA announced a voluntary request for information (RFI) on emerging technologies[15] and the notice conveys "..., research may be developing monitoring systems that provide coverage across emission points or equipment in a way that was not previously possible, thus enabling a different approach to setting standards." The ICR efforts must be coordinated with the RFI and the results must be analyzed to determine the optimum policy program going forward related to methane emissions.

Hence the ICR should focus on the following additional questions:

1) What are the total voluntary reductions achieved by companies through EPA Gas STAR, EPA Methane Challenge and other voluntary programs? What voluntary reductions have been achieved by companies since 2012?
2) What fraction of a company's assets are included in the EPA Greenhouse Gas Reporting Program (GHGRP)?
3) Does the company have a corporate or asset level methane monitoring program? What is the monitoring frequency of such programs?
4) Considering advances in methane emissions monitoring, including continuous emissions monitoring, has the company applied any advanced monitoring technologies (beyond approved methods in NSPS OOOOs) [16]?
5) Has the company developed corporate-wide or large-scale directed inspection and maintenance (DI&M) or predictive analytical that can aid in identification and minimization of methane emissions?

Table 1: Potential Number of Affected Facilities

Affected Source		Potential number of affected facilities	
Emission Source	**Facility**	**No. of facilities**	**Data Source**
Fugitive emissions	Gas well sites	456,140	GHG NEI, Table A-134, Annex 3
	Oil well sites	898,268	GHG NEI, Table A-127, Annex 3
	Gathering facilities	4,999	GHG NEI, Table A-134, Annex 3
	Processing Plants	668	GHG NEI, Table A-136, Annex 3
	Transmission Compressor Stations	1,834	GHG NEI, Table A-137, Annex 3
Pneumatic Pumps	Gas well sites	83,249	GHG NEI, Table A-134, Annex 3
	Oil well sites	127,484	GHG NEI, Table A-127, Annex 3
High-Bleed Pneumatic controllers	Gas wells	29,006	GHG NEI, Table A-134, Annex 3
	Oil well sites	43,211	GHG NEI, Table A-127, Annex 3
	Gathering facilities	Not Available	

[15] https://www3.epa.gov/airquality/oilandgas/pdfs/20160708rfi.pdf
[16] ONE Future is aware that the EPA will be issuing a separate "Request for Information" to gather information on advanced monitoring technologies.

Affected Source		Potential number of affected facilities	
Emission Source	**Facility**	**No. of facilities**	**Data Source**
	Processing plants	Not Available	
	Transmission Compressor station	12,508	GHG NEI, Table A-137, Annex 3
Reciprocating Compressors	Gas well sites	48,518	GHG NEI, Table A-134, Annex 3
	Oil well sites	2,967	GHG NEI, Table A-127, Annex 3
	Gathering facilities	Not Available	
	Processing Plants	6,020	GHG NEI, Table A-136, Annex 3
	Transmission Compressor Stations	2,173	GHG NEI, Table A-137, Annex 3
Centrifugal Compressors	Gas well sites	Not Available	
	Oil well sites		
	Gathering facilities		
	Processing Plants	665	GHG NEI, Table A-136, Annex 3
	Transmission Compressor Stations	869	GHG NEI, Table A-137, Annex 3
Storage Tanks	Gas well sites	Not Available	
	Oil well sites		
	Gathering facilities		
	Processing Plants		
	Transmission Compressor Stations		

RECOMMENDATION 2: EPA SHOULD EXTEND THE PERIOD TO RESPOND TO THE PART 1 (OPERATOR SURVEY) AND PART 2 (DETAILED FACILITY SURVEY)

The EPA will conduct the ICR in two phases. Part 1, referred to as the operator survey – will require collection of "facility-level" information using the definition of facility commonly employed when permitting new and existing sources (i.e., all buildings, equipment, structures, and other stationary equipment that are located on one or more contiguous or adjacent properties and that are under common ownership or control). Specifically, the EPA defines an onshore petroleum and natural gas facility as an "onshore facility that contains a well drilled for the purpose of producing crude oil or natural gas, and includes all equipment used in the production, extraction, recovery, lifting, stabilization, separation, storing or treating of crude oil and/or natural gas (including condensate) located at the facility." Part 2, referred to as the detailed facility survey, will be sent to selected oil and gas facilities (production, gathering and boosting, processing, compression/transmission, pipeline, natural gas storage, and LNG storage and import/export facilities) based on a statistical sampling method. EPA estimates over 22,500 operators representing about 698,800 facilities will be required to respond to the Part 1 ICRs and about 3,385 respondents will be required to respond to the Part 2.

The EPA expects to issue the ICRs by October 30, 2016 with Part 1 response by 30 days (i.e. November 29, 2016) and the Part 2 response in 120 days (February 27, 2017). For reasons stated below we recommend extending the Part 1 ICR response to February 27, 2017 and Part 2 ICR response to June 30, 2017. We request the extensions for the following reasons:

1) The Part 1 ICR seeks about 18 questions from each facility. While on the surface, these seem to be simple "yes/no" questions, the EPA should consider the practical difficulties in gathering this information in a short period of time while ensuring safe, reliable operations from such a large population of facilities. For onshore oil and gas production facilities, this information is required at each well which increases the complexity and burden for our members who have several thousand well sites and hundreds of compressor stations. As noted above, EPA estimates "698,800" facilities but at the same time requests information for each oil and gas well (including abandoned or capped wells) besides the surface equipment, at each site. Table 1, which has been recreated using EPA data shows that there are over 1.3 million oil and gas wells in the country. There are over 57,000 reciprocating compressors and over 1,500 centrifugal compressors (not including upstream production and gathering) in the oil and gas sector. In addition, the ICRs have to be certified for its accuracy by a responsible individual. There are internal review and quality control processes that are typically employed at companies. It is simply impossible to place this huge burden on larger operators with hundreds to thousands of facilities to collect, verify and certify the information within 30 days.
2) Part 2 of the ICR seeks to gather very detailed information several emission sources from about 3,385 facilities. Based on EPA's proposed timing for the requests, companies will be in the process of preparing their 2016 GHGRP submittals, which includes reporting emissions for 40 CFR 98 Subpart W from gathering and boosting operations and transmission pipeline segment blowdowns for the first time. Companies already require significant time and resources to complete GHGRP reporting by March 31st for the other industry sectors: Production, Processing, Transmission, Storage, and LNG. Considering these practical difficulties, the EPA must extend the response time for Part 2 of the ICR.
3) There are a significant number of overlapping compliance reporting requirements impacting all industry sectors under the Parts 1 and 2 ICR surveys. Because the proposed ICR is added to an extraordinarily high volume of compliance reports that are due during this same first quarter timeframe, there will be major constraints on available internal and external resources for all companies required to provide data under the ICR. The following is a list of some compliance reports that will overlap with the proposed ICR during the first quarter of 2017:
    a. Annual GHGRP reports due to the EPA by March 31, 2017 including the new segments subject to reporting as mentioned in # 2 above.
    b. Annual and semi-annual Title V compliance reports due to states & EPA
    c. Several NSPS and NESHAP regulatory compliance reviews and reports applicable to oil and gas facilities across all segments (e.g., 40 CFR 60, Subparts KKK, JJJJ, KKKK, OOOO etc.; 40 CFR 63 Subparts HH, ZZZZ, and HHH)
    d. Other state specific compliance and emission reporting: The large majority of states and local jurisdictions also require reporting during the first quarter of each year. For states that do not require reporting during the first quarter, their deadlines typically occur in April or May of each year.
4) Some of the ICR data requested such as component population counts and pneumatic device counts will require site visits to the facilities and this will be challenging. Many

of the same environmental and operations personnel responsible for the other compliance reports will also need to be involved in the data collection effort for the ICR. This will result in significant additional internal and external resource burden across the board. In addition, there are several regions within the U.S. that will be constrained by winter weather conditions preventing any type of site visits during the first quarter. Those regions particularly susceptible to these weather restrictions are the Northeast, Upper Midwest, and Rocky Mountain Regions.

RECOMMENDATION 3: THE EPA SHOULD EXCLUDE LOW-EMITTING FACILITIES FROM THE ICR.

We believe the EPA can greatly alleviate burden on both the operator and itself by exempting low-emitting facilities from the ICR process.

In the final NSPS OOOOa rules[17], EPA did not exempt low production sites because EPA "did not receive data showing that low production well sites have lower GHG emissions" and "well site fugitive emissions are not correlated with levels of production, but rather based on the number of pieces of equipment and components. Therefore, we believe that the fugitive emissions from low production and non-low production well sites are comparable." We believe the scientific literature does not support this claim as noted below. The NSPS OOOOa decision is relevant in this ICR comments since it appears that EPA's decision to gather information from these low-emitting facilities stems from the incorrect conclusion by the EPA in the final rules that does not match with peer-reviewed science.

In a paper by EPA staff[18], "[w]hen considering correlation between production and emissions individually, CH4 emissions were most strongly correlated with gas production." The authors add that "maintenance-related stochastic variables and design of production and control equipment" are also determining factors. Lower production sites may very well have a higher methane leakage rate relative to their production but the claim in terms of absolute emissions being similar to a large facility is not supported by science.

In another paper published by the Environmental Defense Fund in the prestigious Proceedings of the National Academy of Sciences (PNAS) [19],, the authors conclude that "[e]ven though a facility's emission rate depends only weakly on the total amount of gas produced or processed, facility-level emissions as a fraction of the total CH4 produced or processed is a more effective metric than absolute emissions to identify sites with avoidable emissions".

[17] Federal Register / Vol. 81, No. 107 / Friday, June 3, 2016, 35856

[18] Assessment of Methane Emissions from Oil and Gas Production Pads using Mobile Measurements, Brantley et al., 2014, dx.doi.org/10.1021/es503070q | Environ. Sci. Technol. 2014, 48, 14508−14515

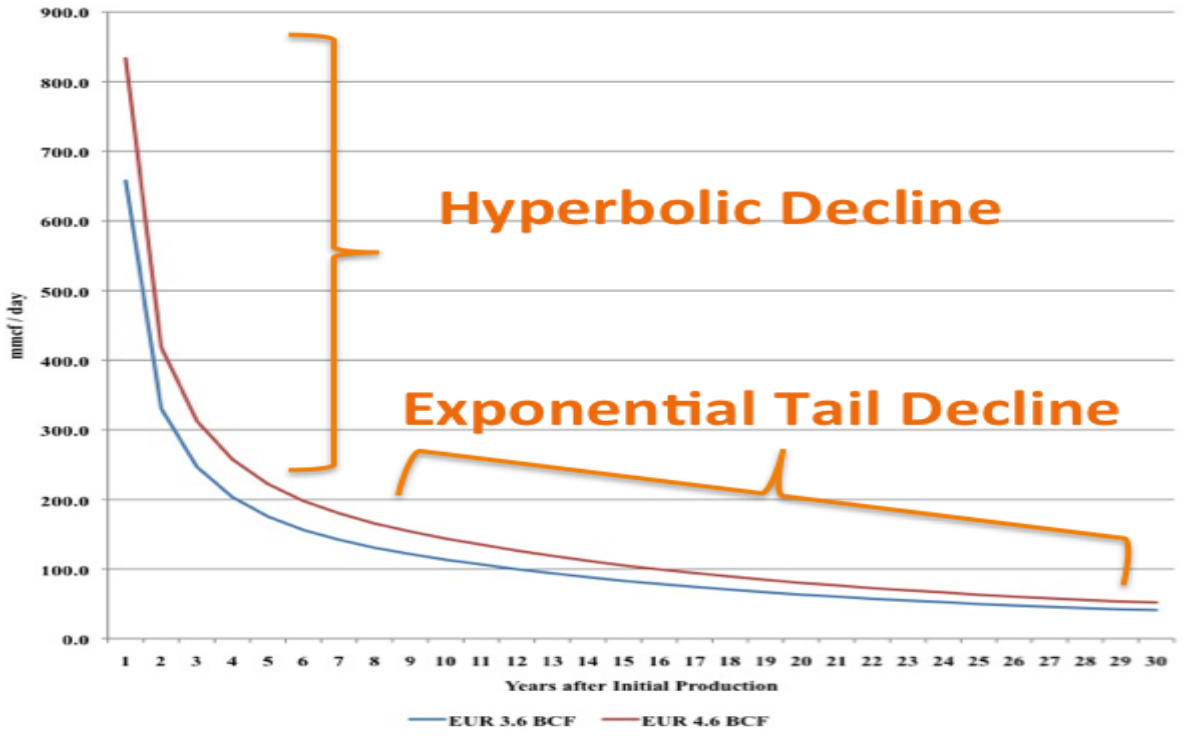
[19] Zavala-Araiza, D., Lyon, D. R., Alvarez, R. A., Davis, K. J., Harris, R., Herndon, S. C., ... and Steven P. Hamburg (2015). Reconciling divergent estimates of oil and gas methane emissions. Proceedings of the National Academy of Sciences, 112(51), 15597-15602, doi:10.1073/pnas.1522126112

NOAA in a 2015 paper[20] determined a loss rate from production operations of 1.0–2.1% from the Haynesville region, 1.0–2.8% from the Fayetteville region, and 0.18–0.41% from the Marcellus region in northeastern Pennsylvania. ONE Future members have operations in multiple shale plays and if the EPA theory that methane emissions are correlated only with the type of surface equipment, then these regions measured by NOAA should have had very similar emission rates. This is not the case, which demonstrates that EPA's rationale for not exempting low-production facilities based on the amount of the surface equipment is not supported by peer-reviewed science.

A low-emitting well site's potential to emit fugitive emissions will not exceed that of its initial period of oil and natural gas production. In order to illustrate why this is the case for well sites, Figure 2 depicts the typical production decline curve over the lifetime of a natural gas well. As the figure clearly shows, the potential for fugitive emissions is highest during the initial period of production, which is a fundamental characteristic of shale wells. Hence, such facilities, which by their physical or operating conditions have a low potential to release fugitive methane emissions, should be excluded from the ICR. The request for these wells with a low potential for fugitive emissions constitutes an inefficient expenditure of capital and resources that could be better utilized elsewhere to achieve greater environmental benefit.

[20] Quantifying atmospheric methane emissions from the Haynesville, Fayetteville, and northeastern Marcellus shale gas production regions, Peischl et al., March 2015, doi: 10.1002/2014JD022697

Figure 2: Illustrative Production Decline Curves for Shale Gas Wells (Source: Penn State University)



Considering the fact that peer-reviewed science supports the relation of methane emissions to throughput (much more than EPA's claim of correlation of emissions with surface equipment) and all oil and gas production facilities have a natural decline in production (and therefore emissions), we request the ICR process exempt additional informational from low production or facilities with low potential to emit. As part of the ICR, we urge the EPA to employ the de minimis exception to any of the affected sites/facilities with a potential to emit less than the values listed below, which are principally derived from the potential uncontrolled rates from the Technical Support Document (TSD):[21]

[21] Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution, Background Technical Support Document for the Proposed New Source Performance Standards, 40 CFR Part 60, subpart OOOOa available in the docket at http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2010-0505-5021.

Table 2: Low Fugitive Methane Emissions Facility Threshold

Segment	Low Fugitive Methane Emissions Facility Threshold *(metric tons per year, CH_4)*	Comment
Natural Gas Well Site	4	Per well[22]
Oil Well Site	4[23]	Per well
Gathering & Boosting	35	Per station
Transmission	62	Per Compressor Station
Storage	164	Per Storage facility

RECOMMENDATION 4: EPA SHOULD CAREFULLY EVALUATE EMISSION CONTROL EXPERIENCES AND COST-ESTIMATES TO ACCOUNT FOR REGIONAL VARIATIONS.

The EPA has requested cost data for several emission sources in the Part 2 survey. These include costs on compressors, control devices, leak detection and repair surveys etc. ONE Future had commissioned ICF International (ICF) to conduct an analysis of the marginal abatement cost (MAC) of various methane emission abatement technologies and work practices for the natural gas industry. The study was released in June 2016 and can be found at ***http://www.onefuture.us/wp-content/uploads/2016/06/ONE-Future-MAC-Final-6-1.pdf***. This analysis represents the most updated average cost estimates for various emission control technologies and work-practices. ICF identified several relatively cost-effective controls but the costs were significantly higher than previous estimates. As part of the study, ICF reviewed existing literature, interviewed One Future members, industry, technology innovators, and equipment vendors and incorporated more recent information on emissions and equipment costs and modified assumptions provided by the One Future participants. The analysis calculated the annualized cost of emission reductions based on the capital and operating costs of the emission reduction technologies and the value of recovered gas in the production segment. In this study, ICF clarifies that it attempted "to define reasonable estimates of average cost and performance based on the available data and experiences of operators, including ONE Future members. The costs and performance of an actual individual project may not be directly comparable to the averages employed in this analysis because implementation costs and technology effectiveness are highly site-specific. Some technologies, like the efficiency of plunger-lifts for liquids unloading to reduce emissions, depend on the operating conditions of the well. Further, certain low-production or lower utilized compressor stations may have lower emissions. Costs for specific actual facilities could be higher or lower than the averages used in this analysis." In evaluating, leak detection and repair costs, ICF conveys "[t]he key factors in the analysis are

[22] See Proposed Rule at 56,637. EPA estimates 700 components at a well site. Table 5-7 of the TSD estimates a "Model Well Site" with 2 well-heads and 548 components to have potential uncontrolled emissions of 4.54 tpy. Extending the ratio of these different components to 700 yields a total of 8 tpy for a 2 well-pad site or 4 tpy per well. ONE Future further contends that it makes no sense to have a different or lower threshold for oil well sites than for gas well sites

[23] Note that while the calculations from Table 5-7 would indicate a 1 tpy threshold for oil well sites, we believe it makes little sense to impose a different *de minimis* exclusion threshold on oil and gas sites.

how much time it takes an inspector to survey each facility, how many inspections are required each year, how much reduction can be achieved, and how much time is required for repairs… estimated average costs and are highly variable depending on site-specific conditions and scale." While the ICR attempts to inform the EPA with respect to a 111(d) policy, the goal of the ICF study for ONE Future was significantly different and mainly to inform ONE Future members to develop company-specific emission reduction plans under the ONE Future design. Any cost data received by the operators must be analyzed carefully and we highly recommend any average cost-estimates must be evaluated on a regional basis and must be weighted or normalized in an appropriate manner. Extreme caution must be taken to develop simple averages based on cost data from operators. Typically, a larger firm operating several hundred facilities within close proximity of each other is able to negotiate lower costs with suppliers and vendors than a smaller firm with few facilities that are spread across the country. As noted in many peer-reviewed literature, there is significant regional variation in emissions (Allen, 2013, 2015; Peischl, 2015). Therefore, if EPA proceeds to use the ICR data to develop any costs or cost-effectiveness of emission control devices, it should consider developing regional estimates that are carefully normalized.
