



**Comments on the “Oil and Natural Gas Sector:  
Emission Standards for New, Reconstructed, and Modified Sources,”  
proposed rule changes for New Source Performance Standards**

Docket No. EPA-HQ-OAR-2017-0483

Via email at a-and-r-docket@epa.gov

Dear Acting Administrator Wheeler,

On behalf of our health and medical organizations representing more than three hundred thousand individual members, three thousand local health departments and a network of roughly three thousand hospitals, we write to give voice to the urgency of controlling methane leaks from

oil and natural gas wells and to express our opposition to the changes proposed by the U.S. Environmental Protection Agency (EPA) to the Emission Standards for New, Reconstructed, and Modified Sources within the Oil and Natural Gas Sector, also referred to as the New Source Performance Standards (NSPS, or “the Rule”).

Our organizations are deeply concerned that the proposed rule changes will inflict significant harm on public health. Fugitive emissions, or leaks, of methane, frequently accompanied by volatile organic compounds (VOCs), occur throughout the process of natural gas and oil extraction, processing and transport. Methane leaks accelerate climate change and thus increase health threats worldwide. Leaks of VOCs endanger the health of people living near oil and gas infrastructure. The changes that the EPA is proposing to the NSPS would reduce the frequency of monitoring and lengthen the time operators have to repair leaks, thus exacerbating the amount of methane and VOCs allowed to escape into the atmosphere. This would have the effect of increasing the health threats facing millions of Americans, as well as people around the world.

### **Methane contributes to climate change, thus harming health**

Methane is a potent greenhouse gas and as such is a major contributor to climate change, a fact documented widely and acknowledged by the EPA.<sup>i</sup> Increases in world average temperatures already lead to heat waves, wildfires, increased rainfall, flooding, extreme weather events, and other climate change phenomena that harm human health. The U.S. Global Change Research Program, a multi-agency governmental body, published in 2016 an extensive report summarizing the impacts of climate change on human health in the United States. The report examined temperature-related death and illness, air quality impacts, impacts of extreme events, vector-borne diseases, water-related illness, food safety and distribution, and mental health and well-being.<sup>ii</sup> In each category the report identified current and projected impacts on human health; these were found to include increases in premature heat-related deaths, waterborne illnesses, cardiovascular and respiratory health issues, and cases of PTSD and anxiety due to extreme weather conditions.<sup>iii</sup> Separately, the National Institute of Environmental Health Sciences released a report in 2016 focused on the need for more research into the health effects to which climate change would contribute. The report expressed concern over malnutrition, neurological diseases, cancer, asthma, and exposure to toxic contaminants, among many factors affecting health.<sup>iv</sup>

Most recently, the fall 2018 special report (SR1.5) from the United Nations Intergovernmental Panel on Climate Change (IPCC), detailing the impact of global warming of 1.5°C above pre-industrial levels, finds that 2°C is no longer a safe goal to avoid the worst impacts of climate change.<sup>v</sup> It warns that sweeping, society-wide actions must be taken at unprecedented levels over the next 12 years to slash carbon emissions to avoid calamitous environmental devastation. Currently, it is estimated that the world’s temperature will rise by 3°C should no new mitigation measures be taken.

The IPCC SR1.5 is the most comprehensive collection of all known scientific, peer-reviewed, research on the impacts of 1.5°C of global warming on natural and human systems around the world. Written by 91 researchers across 44 countries, it explains that global emissions will have to be slashed by 45 percent to meet the 1.5°C target. Even the difference between a 1.5°C and 2°C temperature increase, while it may not seem substantial, can have a significant effect on the projected impacts. Examples from the report of the human health impacts to expect in a warming world include:

- Increase in heat-related mortality. Populations at highest risk include older adults, children, women, and those with chronic diseases.
- increase in storm surges, coastal flooding, and sea level rise. These are projected to exacerbate the risk of death, injury, and ill-health.
- Shift and increase in the geographic range, seasonality, and intensity of transmission of climate-sensitive infectious diseases or their vectors. More individuals may be at risk of Dengue Fever, Chikungunya, Yellow fever, and Zika virus. The geographic range and seasonality of Lyme disease and other tick-borne diseases are expected to expand in parts of North America and Europe.
- Increase in ozone-related mortality. These deaths could rise with additional warming because ozone formation is temperature-dependent.

Further, SR1.5 found that generally, a warming of 2°C is found to pose greater risks to human health than a warming of 1.5°C. Holding global warming at only 1.5°C compared to 2°C would lower the risk of temperature-related morbidity, decrease the geographic ranges of mosquito-borne diseases, lower the exposure of billions of people worldwide to heatwaves, and prevent 110 to 190 million premature deaths.

The severity and extent of the anticipated impacts from climate change make it imperative that we maintain the most rigorous rule possible for reducing methane leakage into the atmosphere.

### **Volatile organic compounds harm health**

Volatile organic compounds (VOCs) are a group of chemicals with low evaporation points that can react with other chemicals in the atmosphere. Several VOCs are of concern to human health, either through their direct effects or their contribution to creating ground-level ozone. VOCs in the presence of sunlight and heat combine with nitrogen oxides to form ground-level ozone, a pollutant that damages the lungs, contributes to asthma attacks, aggravates other chronic lung diseases and pre-existing heart diseases like angina, and has been found likely to cause premature deaths.<sup>vi</sup> Among VOCs, the BTEX group (benzene, toluene, ethylbenzene and xylene), which commonly accompanies natural gas and oil deposits, is particularly dangerous. The World Health Organization classifies benzene as a carcinogen and a major public health concern; there is no safe level of exposure established for benzene.<sup>vii</sup> Toluene and xylene both can impact the nervous system, while long-term exposure to ethylbenzene can create blood

disorders.<sup>viii</sup> In now-archived pages, the EPA discussed the risks of exposure to these chemicals and the importance of natural gas and oil facilities adhering to regulations to reduce VOC emissions.<sup>ix</sup>

In the proposed changes to the Rule, the EPA noted that it:

“expects that the forgone VOC emission reductions may also degrade air quality and adversely affect health and welfare effects associated with exposure to ozone, PM<sub>2.5</sub>, and HAP, [but] data limitations prevent the EPA from quantifying forgone VOC-related health benefits.”<sup>x</sup>

Despite those data limitations, several EPA scientists published a study in 2018 which did quantify the health benefits of reducing VOC emissions from the oil and natural gas industry; it estimated those benefits to be around \$300-\$500 per ton.<sup>xi</sup> As those figures indicate, not only is it possible to quantify the benefits associated with reducing VOC emissions, but reducing those emissions can yield meaningful savings in dollars and in health.

### **EPA severely understates the global warming potential of methane**

The EPA in assessing the impacts of methane leakage fails to account for the true potency of methane as a greenhouse gas. The EPA assesses methane’s impact on the climate based on the calculation that methane’s global warming potential is 25 times greater than that of carbon dioxide over a 100-year timeframe. The EPA has frequently utilized this figure, which came from the IPCC 4th Assessment Report in 2007.<sup>xii</sup> The 2016 NSPS rule utilized the factor of 25 as well, stating that it was used due to its “consistency and comparability with other emissions estimates.”<sup>xiii</sup> In 2013, however, the IPCC released an updated Assessment Report, which adjusted the methane carbon equivalency: It stated that methane is 34 times as potent as carbon dioxide over 100 years, and 86 times as potent over 20 years.<sup>xiv</sup> Given that estimates of methane’s climate effects are used in the present Rule to analyze the forgone climate benefits over merely the next six years, the 20-year timeframe, with its corresponding carbon equivalency factor of 86, is far more relevant than is the 100-year figure. The powerful warming effects of methane over its first 20 years in the atmosphere highlight the urgency of repairing methane leaks and capturing fugitive methane. This urgency is further underscored by the need to halt temperature increases at 1.5°C, as cited above and as opposed to the 2°C agreed upon in the Paris Accords, in order to avoid catastrophic consequences.<sup>xv</sup>

### **EPA underestimates the extent of fugitive emissions**

The 2016 version of the Rule predicted that it would reduce methane emissions by some 500,000 tons annually by 2025.<sup>xvi</sup> The changes now being proposed by the EPA would significantly diminish these reductions. However, even if those reductions were to be realized, they would not be sufficient; methane emissions now appear to be far greater than was previously understood. A

report by the Environmental Defense Fund, published in 2018, estimates the fugitive methane emissions for the entire U.S. oil and gas supply.<sup>xvii</sup> Using multiple methods supported by over 100 research experts, the report found that methane emissions are 60 percent higher than the EPA reports. A peer-reviewed article reporting these findings indicated that the discrepancy was largely due to sampling methods and the inability of the EPA to account for abnormal operating conditions.<sup>xviii</sup> A separate 2018 analysis of peer-reviewed research, also conducted by the Environmental Defense Fund, found that in Pennsylvania alone, methane emissions may already total more than 500,000 tons annually.<sup>xix</sup> Conventional wells in Pennsylvania may be leaking as much as 22 percent of their overall gas production, while unconventional wells are leaking at a much lower rate – closer to 0.27 percent – but because of the much higher volume of gas produced by unconventional wells in the state, this small percentage rate results in roughly the same total volume of emissions as conventional wells.<sup>xx</sup> Beyond operational wells, leaks also occur at compressor stations, pipelines and abandoned wells. The originally adopted NSPS measures not only provide greater protection than the amendments now being proposed; they would also yield a greater positive impact than had been projected, given the newly understood magnitude of the extent of methane leakage.

### **Health Effects Can and Should be Quantified and Monetized**

Americans need protection from the health effects of natural gas, especially the roughly 17.6 million Americans who live near active oil and gas operations and face serious health risks associated with fugitive emissions.<sup>xxi</sup> In a report released this summer, scientists who work for the EPA joined with other researchers to publish a peer-reviewed article estimating particulate matter-related and ozone-related health effects from the oil and natural gas industry as a whole. They predicted for 2025 that these would account for 1,970 premature deaths, 39,000 individuals with upper and lower respiratory symptoms, 3,600 emergency room visits, and 1.1 million asthma attacks related to these emissions.<sup>xxii</sup> The attributable portion of these deaths, hospitalizations and illnesses should be included in the cost-benefit analysis being used to justify the proposed changes to the methane NSPS. Yet, in fact, the EPA is moving in the opposite direction. Despite listing the serious health risks associated with fugitive emissions in Table 3-1 in the Regulatory Impact Analysis, the Agency does not quantify or monetize them in performing the cost-benefit analysis.<sup>xxiii</sup> We refer here to such health outcomes that EPA usually models, such as incidences of premature mortality, non-fatal heart attacks, respiratory and, cardiovascular hospital admissions, and asthma attacks. EPA should also recognize that while no models exist to quantify the impact on reproductive and developmental effects and cancer, the evidence indicates that these effects would also be reduced.<sup>xxiv</sup> Failing to account for the gains to be had by reducing these incidences greatly distorts the cost-benefit analysis.

While these effects were not quantified in the original version of the Rule, their quantification was at that time unnecessary given the benefits already established through the use of a global social cost of methane. Since that time, Executive Order 13783 has rewritten the approach to

measuring the social cost of greenhouse gases. It requires that all environmental regulations be of greater benefit than cost, while effectively revoking the higher global social cost estimates. By failing to quantify or to monetize the many health benefits that would result from implementing the existing NSPS, the EPA would tip the balance of cost-benefit analyses in favor of the oil and gas industries and to the detriment of human health. This is regulatory sleight-of-hand; it should be rejected, and the social cost of methane should be acknowledged and applied in the EPA's calculations.

## **Conclusion**

As the recent IPCC Special Report 1.5 outlined, the next 12 years are critical to reducing emissions of greenhouse gases to slow climate change and protect us from the profound impacts on the environment, food supply, and human health that will arise with increased global temperatures. To strip away environmental protections and allow for increased methane emissions, as the proposed changes to the methane NSPS would do, would contribute to these potentially catastrophic impacts. In addition, the changes would contribute to human health impacts through exposure to fugitive emissions of VOCs.

It is the EPA's mission to protect the environment and human well-being. The changes proposed to the Rule would jeopardize human health. On behalf of the three hundred thousand individual members, three thousand local health departments and roughly three thousand hospitals we represent, we call on the EPA to reject the changes proposed to the Rule and instead to vigorously enforce the existing and far more health-protective New Source Performance Standards.

Respectfully,

Physicians for Social Responsibility  
American Lung Association  
American Public Health Association  
Alliance of Nurses for Healthy Environments  
National Student Nurses' Association  
National Association of Nurse Practitioners  
in Women's Health  
National Association of County and City  
Health Officials  
Healthcare Without Harm  
Trust for America's Health  
Asthma and Allergy Foundation of America

Citizens Climate Lobby/Health Team  
American Medical Student Association  
Nurse Alliance of SEIU Healthcare  
Association of Public Health Nurses  
Ohio Public Health Association  
Children's Environmental Health Network  
National Association of Hispanic Nurses  
Breathe Utah  
Southwest PA Environmental Health Project  
Health Action New Mexico

## NOTES

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