

Testimony of Elgie Holstein

Sr. Director for Strategic Planning, Environmental Defense Fund

Before the Subcommittee on Railroads, Pipelines and Hazardous Materials of the Committee on House Transportation and Infrastructure

April 2, 2019

Mr. Chairman and members of the subcommittee, thank you for the opportunity to appear before you today to discuss the safety and oversight of the nation's pipeline system.

Environmental Defense Fund (EDF) is an international environmental advocacy organization with a million-and-a-half members. Placing a strong emphasis on our core strengths of science and economics, we are dedicated to finding innovative approaches to solving some of the most difficult national and international environmental challenges. Whenever possible, we collaborate with private-sector partners, state and federal leaders, academic institutions and other environmental organizations interested in maximizing incentives for market-based solutions to environmental problems.

We recognize that the oil and gas sector is a key contributor to our nation's energy mix, but with that role comes the responsibility to minimize harmful impacts to our communities and to the environment. With the continuing increases in recoverable U.S. oil and gas reserves, it is more important than ever that both the industry and the government commit to a cleaner and more sustainable energy future. Recognizing and addressing the causes and effects of methane emissions from the oil and gas sector is one important step in fulfilling that commitment.

In thinking about the role and performance of the Pipeline and Hazardous Materials Safety Administration (PHMSA) of the Department of Transportation, it is important to emphasize that environmental protection is among the core responsibilities of the agency. We fully understand and support the view that PHMSA has a critical role to play in protecting public health and safety. However, we also believe that environmental protection is closely aligned with that mission – in fact, that it is inextricably linked to it -- and that the agency needs to be more responsive and more proactive in addressing *both* safety and environmental matters.

I will focus my remarks on PHMSA's regulation of the natural gas industry, because natural gas (methane) leaks from pipelines not only create dangerous conditions for people and communities, they also contribute to and accelerate climate change. Scientists around the world – and even in the Trump Administration – are telling us that we must act quickly to avert the worst consequences of human-caused climate change.

We believe that PHMSA already has sufficient authority to play a more ambitious role with respect to the environment. However, we also believe that Congress needs to be more explicit in defining the terms of the agency's environmental mission. In addition, Congressional action seems overdue to address the agency's repeated failures to meet congressionally defined deadlines for acting on statutory mandates, as well as the excessive time it seems to take in launching – and completing -- major regulatory initiatives.

The Harm From Methane Emissions

One of the most serious issues within PHMSA's jurisdiction is the issue of methane emissions from the nation's extensive natural gas transportation and storage infrastructure.

As you know, natural gas is playing a growing role in America, notably with respect to the continuing market-based preference for gas over coal in the generation of electricity. At the same time, methane – the primary component of natural gas – has an especially pernicious effect on the environment when it escapes or is released into the atmosphere. Methane emissions accelerate climate change, and they undermine the climate benefits of switching from coal-fired electricity generation to natural gas-fired generation.

The scientific understanding of the extent of methane pollution and its effects has been growing steadily. EDF has contributed to that knowledge base by engaging with 100 partnering organizations, including 40 research partners from industry and academia, in numerous scientific studies that have helped to better identify the extent and sources of methane emissions in the oil and gas sector.¹ That work has been driven by our dual concern for the environment and for public health.

Across our economy, emissions from the oil and gas sector as a whole represent about a third of total U.S. methane emissions, the largest of all industrial U.S. sources, according to EPA. They are equivalent to the carbon pollution from more than 250 coal plants over 20 years. Natural gas systems alone are the second largest source of methane.

The nature of methane's damage to the environment is now clearly understood. In terms of the climate damage it does, methane is some 84 times more potent than carbon dioxide over the first couple of decades following its release. While CO₂ represents a continuing, long-term threat in the form of accumulated, long-lived and rising atmospheric concentrations, methane drives near-term climate effects. Methane's potency, and the amounts making their way into the atmosphere, combine to cause approximately 25% of the global warming we are experiencing right now.

The global warming impact of those emissions reflects both methane's potency and the fact that atmospheric concentrations of methane have increased 164% over the past 250 years – a direct result of human activities.

The Intergovernmental Panel on Climate Change – the distinguished international scientific group that is tracking climate change worldwide -- has concluded that more than half of the warming in the next couple of decades due to *current* emissions will be from short-lived climate pollutants such as methane.

Therefore, decisions made now about methane emissions will have a major impact on the rate at which the climate changes over the lifetimes of many Americans living now and spanning the next several generations. (For more details about the science underlying concerns about

methane and other short-lived climate “forcers,” please see the attached article from Science magazine.)

Methane emissions have impacts beyond the realm of climate change, extending to threats to human health. When methane is released, other chemicals such as benzene and volatile organic compounds – which contribute to ground-level ozone (smog) -- are often released as well. So, it makes sense – and we believe it is essential -- to address the threats from both CO₂ and methane, as the Science article discusses.

PHMSA’s Authority to Act

PHMSA is expressly empowered to consider, and to design regulations to mitigate, risks to the environment -- including methane emissions from gas pipelines. The Pipeline Safety Act of 1992 amended the Natural Gas Pipeline Safety Act of 1968 to expand DOT’s responsibilities to include environmental protection in addition to safety. Specific amendments delegate responsibility to the Office of Pipeline Safety for, among other things:

- (1) Requiring pipeline operators to submit reports on any condition that is a hazard to the environment;
- (2) Considering whether an operator’s inspection and maintenance plan is sufficiently protective of the environment; and
- (3) Promulgating minimum safety standards for pipelines and facilities that are designed to protect the environment.

According to EPA’s latest greenhouse gas inventory, leaks and routine operations in the transmission and storage (T&S) component of the gas supply chain lead to 1.3 million metric tons of methane emitted per year. The problem is clearly serious enough to merit additional action by PHMSA and by Congress.

Detecting Methane Emissions

Our assertion that PHMSA should do more to reduce methane emissions from energy infrastructure within its jurisdiction should be seen in light of the fact that the cost-effectiveness of methane detection equipment and services -- especially for oil and gas operations -- has been improving steadily.

For example, Environmental Defense Fund, working with Google Earth Outreach’s Street View mapping cars, has been able to map gas leaks from distribution pipelines in 12 cities around the United States.²

In 2016 EDF and the Pipeline Safety Trust wanted to understand the potential impacts on methane emissions from PHMSA-proposed new gas pipeline safety rules. Specifically, we commissioned an independent analysis by M.J. Bradley and Associates to assess the methane emissions associated with pipeline “blowdowns.” (A blowdown is a release of pipeline gas into the atmosphere so that maintenance, testing or other activities can occur.) The analysis also examined the mitigation methods available to reduce such emissions.³

The study found that while additional blowdowns potentially required by the rule could result in significant additional methane emissions, fifty to ninety percent of the methane emissions attributable to maintenance activity conducted to comply with the proposed rule could be cost-

effectively mitigated using currently available methods, depending on the mitigation measure selected and the parameters of the blowdown.

M.J. Bradley analyzed five currently available mitigation measures: in-line compression, low pressure diversion, mobile compression, flaring, and stopples. All five mitigation methods investigated resulted in negative net cost as well as high cost-effectiveness values when saved gas value and the social benefits (such as climate impacts) of methane mitigation were considered.

Another example: In a recent report on mobile emissions detection work done for Public Service Electric and Gas in New Jersey, Picarro Inc. – a leading vendor of natural gas leak detection equipment – reported that the accuracy of its mobile methane emissions detection systems is some 1000 times greater than that of legacy systems. It is able to detect methane at the scale of one part per billion.⁴

These kinds of high-sensitivity, advanced leak detection systems are mounted on vehicles and aircraft (including drones) and are increasingly used by companies anxious to assure the public and regulators that they are doing their part to detect and fix pipeline leaks, protect public health and safety, save money for their customers, and reduce adverse impacts on the climate.

In 2016, EDF released a summary analysis, prepared by the consulting firm, ICF, Inc., of three previous reports examining the cost-effectiveness of a variety of methane emissions abatement technologies, including leak detection and repair programs. The report concluded that methane emissions from the North American oil and gas sector could be cut by over 40% using equipment already available on the market at that time, at a cost of less than 1 penny per thousand cubic feet of gas produced.⁵

Moreover, the value of natural gas savings gas amounted to well over a half-billion dollars a year. (The study noted that additional, health-related benefits would accrue from pollution reductions associated with methane abatement, but those benefits were not included in the cost-benefit calculations – meaning the remarkable cost-benefit conclusion were very conservative.)

We believe that PHMSA's traditional focus on Integrity Management Systems limited to high-consequence areas is ill-suited to address the problem of methane emissions and climate change, since gas leaking from anywhere in the gas supply chain does serious harm to the atmosphere and worsens near-term global warming. (It also undermines the environmental advantage that gas industry representatives point to in their electricity market competition with coal.) Accordingly, we believe that PHMSA must move in the direction of more reliable and comprehensive inspections of pipelines to ensure that advanced leak detection and repair protocols are implemented for gas pipelines everywhere.

Gas Gathering Lines

With the ongoing national boom in natural gas development, the system of onshore gas gathering lines has also increased, and it is likely to continue to expand with thousands of miles of new lines carrying gas under high pressure. Based on information from the Interstate Natural Gas Association of America (INGAA), over 300,000 miles of new onshore gas gathering lines are likely to be constructed over the next 20 years.

As discussed above, the cost-effectiveness and rapidly improving accuracy of leak detection and repair equipment reinforce the argument for extending advanced leak detection to the nation's more than 435,000 miles of gas gathering lines. The technology is here; it is cost-effective, and it has the potential to save enormous amounts of natural gas that otherwise would be wasted.

First, however, PHMSA must learn where those lines actually are.

The time has come for Congress to direct the agency, working with the states, to develop an inventory of gathering lines. That inventory must include not only location, but size, operating pressures, and other data relevant to safe and environmentally sound performance.

The lack of that information not only deprives regulators and the public of important information, it also makes it that much harder for PHMSA to justify major new rules. This is particularly true given the cost-benefit requirements that Congress has imposed on the agency, a hurdle made harder to clear by the absence of comprehensive information about gathering lines.

Accordingly, Congress should ensure that PHMSA requires gathering line operators to participate in the National Pipeline Mapping System.

EDF also supports the expansion of reporting requirements to include gas gathering pipelines. Annual, incident and safety-related reporting requirements are essential for reasonable management and data-based regulation of this growing pipeline segment.

Onshore gas gathering pipelines are currently exempt from reporting requirements, and most states with delegated authority to conduct inspections on intrastate gathering lines have not developed regulations to provide meaningful oversight to fill this gap.

Without data and oversight of these gathering lines, assessing and managing the safety risks associated with larger, higher-pressure gathering lines is impossible. To remedy this problem, GAO recommended that PHMSA collect data on federally unregulated gas gathering lines, to allow the Agency to quantitatively assess safety risks, and evaluate the sufficiency of regulation.

EDF concurs with this recommendation, and is pleased to see it reflected, at least in part, in the proposed rules for certain gas gathering lines. Specifically, EDF supports PHMSA's proposal to repeal the exemption for reporting requirements for operators of onshore gas gathering lines, which would require gas gathering line operators to submit annual, incident and safety-related reports, and other important data already required for other types of pipelines.

As noted above, gas gathering lines should be included in the National Pipeline Mapping System to provide consistent, accessible information about the ownership and location of the rapidly expanding gathering infrastructure.

The type of data submitted under the National Pipeline Mapping System requirements are precisely the type of data PHMSA needs to evaluate the efficacy of current regulatory thresholds. The location and information regarding gas gathering lines will -- as with similar information for transmission lines -- assist with emergency response, regulatory management, compliance, and analysis. Future risk-based regulations, such as an expansion of the rules applicable to gas gathering pipelines and installation of automated control valves, may be improved with data submitted under the National Pipeline Mapping system requirements.

EDF also supports PHMSA's proposed clarification of the gathering line definition, which would avoid inadvertently excluding certain gathering lines from regulation.

Additional Needed Congressional Actions

Additional steps Congress should take to improve pipeline safety and reduce methane emissions include the elimination of the current cap on civil penalties. There is no longer any reason, if there ever were one, to shield poor performers from the consequences of their decisions and actions.

Congress should also remove the exemptions from PHMSA's requirements for safety-related condition reporting. That reporting is intended to identify conditions that could lead to future incidents, and the reports are considered by the agency to be important indicators of safety system effectiveness. However, PHMSA permits several exemptions from such reporting, undermining their usefulness as early indicators of potential problems. In the unfolding era of "big data" they also reduce the potential value of the reports as a predictive tool that might otherwise save lives and protect property and the environment.

Budget: None of these recommendations will matter in the long run, however, unless Congress rejects the administration's PHMSA budget proposals for next year. The President's budget request for FY2020 includes a funding cut of almost 10% for pipeline safety, as well as staffing reductions, at PHMSA. If, as the saying goes, "budget is policy," Congress must show its determination to safeguard the public and the environment by rejecting that ill-conceived budget proposal. PHMSA must have the resources necessary to do its work if these conversations about its responsibilities and programs are to have any meaning.

Conclusion

Natural gas is, and will remain for the foreseeable future, an important part of our nation's energy mix. The natural gas revolution in America can make a positive contribution to a cleaner environment, but only if gas development is based on reasonable rules to ensure that its more damaging impacts are limited.

As we manage our nation's bounty of oil and gas, it is important to get the rules right. Doing so will not only help minimize adverse environmental impacts, it is an essential ingredient in building public trust and confidence in the ability and commitment of the government and the industry to reducing negative impacts on public health, safety and the environment. Congress can ensure that PHMSA will play an expanded role in delivering on that commitment.

Thank you for the opportunity to testify today, and I welcome any questions you may have.

References

1. Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain, R.A. Alvarez *et al*, *Science*, October 9, 2018
2. EDF, Google Use Special Street View Cars TO Map and Measure Leaks from Pittsburgh Natural Gas System. <https://www.edf.org/media/edf-google-use-special-street-view-cars-map-and-measure-leaks-pittsburgh-natural-gas-system>
3. M.J. Bradley and Associates, "Pipeline Blowdown Emission and Mitigation Options," June 2016. <http://blogs.edf.org/energyexchange/files/2016/07/PHMSA-Blowdown-Analysis-FINAL.pdf>
4. Picarro, Inc., <https://www.picarro.com/>
5. "Summary of Methane Emission Reduction Opportunities Across North American Oil and Natural Gas Industries." May 2016. https://www.edf.org/sites/default/files/north-american-executive-summary_english.pdf