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Re-Imagining Regulatory Approaches for Methane Emissions

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Recently, the U.S. Environmental Protection Agency (EPA) took a step-back in regulating the methane released during natural gas extraction. In June 2016, the EPA issued the first federal regulations on methane, estimating methane emissions would decrease by a total of 510,000 short tons in 2025, with a potential net benefit of \$160 million. Yet, in October 2018, the EPA released a new proposal that weakened the 2016 methane rules, estimating methane emissions would increase by a total of 380,000 short tons in 2025, with a potential saving of \$484 million. This paper explores the EPA's drastic change between 2016 and 2018 by using a multiple lenses approach to shine a light on different aspects of the methane output problem and policy change. The paper concludes by arguing that the EPA needs to strengthen the role and responsibility of state governments to control methane emissions before finalizing the proposed methane rule.

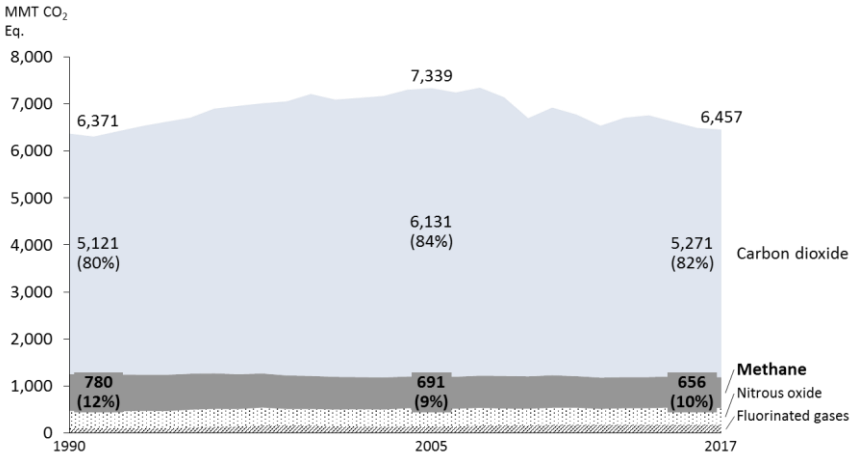
Introduction

Recently increasing methane in the atmosphere stemming from human activity contributes to climate change. This paper discusses methane policy implications based on two presidential administrations. Opening with a discussion of the EPA's shift in policy from 2016 to 2018, the paper offers an analysis of the notion that elections matter in directing what an agency does. These changes are also understood by using the concept of public service bargaining. In addition, several empirical studies are examined. The author highlights the politically motivated shift in EPA policies, looking first at the policy roll out during the Obama-era and then the impacts of the policy halt by the Trump administration. The final two sections evaluate three options available to the EPA: 1) modifying a communication strategy, 2) strengthening the role and responsibility of state governments, and 3) expanding the EPA's direct engagement in the monitoring industry. This paper concludes by recommending that the EPA needs to reimagine its regulatory approaches for methane emissions by giving more authority to states.

Background

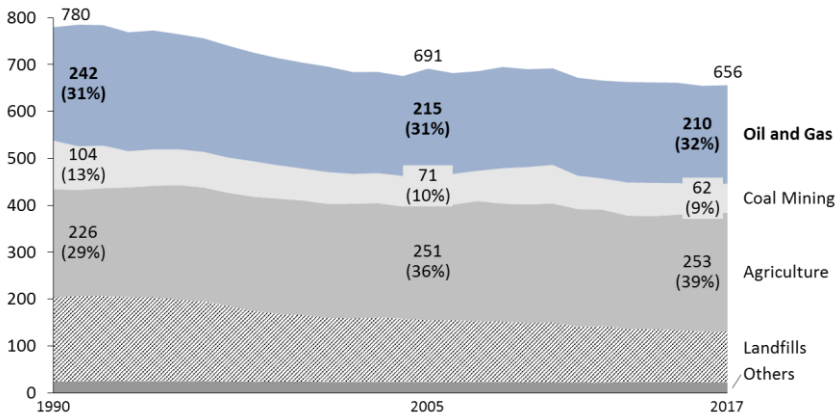
Methane is the prime constituent of natural gas, which accounts for 10 percent of U.S. greenhouse gas emissions (see Figure 1). It has been responsible for 20 percent of global warming since the pre-industrial era.¹ The rise in atmospheric methane has become more significant since 2006 mainly due to fossil fuel use.² Methane is at least 25 times more potent at trapping heat than carbon dioxide.³ Moreover, methane emissions that are associated with increased shale gas development in the U.S. have an even larger effect on greenhouse gas emissions domestically and internationally.⁴ Worse, methane threatens the lives of citizens by increasing cardiovascular and respiratory risks.⁵

Figure 1. Trends in U.S. Greenhouse Gas Emissions, 1990-2017 in Million Metric Tonnes of Carbon Dioxide Equivalents MMT CO₂ ⁶



Over the last three decades, petroleum and natural gas systems accounted for 32 percent of U.S. methane emissions (see Figure 2), which are primarily associated with oil and natural gas production, processing, and transportation. Moreover, methane emissions from U.S. oil and gas operations are 60 percent higher than the EPA’s estimate, suggesting methane loss due to leaks equals about 13 million metric tons of natural gas, enough to heat 10 million U.S. homes.⁷ Managing the methane that escapes the oil and gas supply chain is critical to climate and health policies.

Figure 2. Trends in U.S. Methane Emissions, 1990-2017



Source: created by the author using data from EPA, 2019.⁸
 Note: Others include industrial process, wastewater treatment, and land-use change.

In August 2015, the EPA proposed the first federal limits on methane, aiming to cut methane emissions from the oil and gas sector by 40 to 45 percent by 2025, compared with 2012 levels. After the agency received more than 900,000 comments, they updated many aspects and issued the final rule in June 2016, called New Source Performance Standards (NSPS). The EPA estimated the rule would cost companies about \$530 million by 2025 but would save companies \$690 million from reduced waste, creating a potential net benefit of \$160 million. Additionally, the agency also expected to reduce 510,000 short tons of methane in 2025, the equivalent of cutting 11 million metric tons of carbon dioxide.⁹ Then-EPA administrator Gina McCarthy said, “Together these new actions will protect public health and reduce pollution linked to cancer and other serious health effects while allowing the industry to continue to grow.”¹⁰

The EPA under the Trump administration, however, rolled back the Obama-era rule. In April 2017, the EPA imposed a 90-day moratorium on the NSPS, which they later extended to two years, delaying the rule’s effective date. Then, the EPA faced challenges in Federal court. For instance, the United States Court of Appeals for the District of Columbia Circuit ruled on July 3, 2017, that the EPA could not suspend the methane regulation since the EPA does not have authority to amend a rule with their order. On October 15, 2018, the EPA issued a new proposal that relaxed requirements for energy companies, thus making it easier for oil and gas companies to release methane.¹¹ For example, according to the 2016 rule, oil and gas drillers were required to conduct leak inspections on their drilling equipment every six months, and fix methane leaks within 30 days. Now, the newly proposed methane rules allow companies to perform a leak inspection once a year and give 60 days to fix leaks.

The EPA’s 2018 actions drew praise from energy industry groups, including the Independent Petroleum Association of America and the American Petroleum Institute. In contrast, environmental groups, such as the Environmental Defense Fund and the Sierra Club, criticized the EPA by saying they ignored the calls of Americans and only listened to the fossil fuel industry.

The policy shift is problematic for citizens for two reasons. First, the EPA quickly reversed their 2015 findings, decreasing policy predictability and eroding public trust in the EPA. Second, the detrimental impacts of methane, which were previously defined and acknowledged by the EPA, were neglected, allowing methane to harm the environment and affect public health more severely.

Creating a politically driven policy, along with the politicization of the EPA, results in major consequences for the climate and citizen health. Therefore, a new way of examining the EPA rule is necessary. Several theories can be used to understand the issue and identify three alternative options available to the EPA.

Understanding the Problem

The author provides a multi-lens interpretation of this case to understand better the EPA's drastic position change. The Wilsonian (1887) and Weberian (1905) beliefs argue that public administrators are nothing more than faithful enforcers of the elected officials.¹² This politics-administration dichotomy model provides a high degree of political comfort to the EPA, stressing values such as efficiency, effectiveness, and economy.¹³ Scholars find that institutionally separating administration from politics offers values in a system of checks and balances. This also sustains government discretion and accountability.¹⁴

However, public agencies, including the EPA, not only deliver services but also serve as a source of political influence on public policy. It is unreasonable to assume that administration can be separated from politics.¹⁵ Administrators' self-expectation is one of the key factors in explaining policy formulation.¹⁶ Indeed, public administrators are regular political participants in the policy formulation process.¹⁷

Furthermore, political appointees changed the course of the EPA. Capture theory suggests that the organized interest group can often influence the regulatory process.¹⁸ In this instance, the NSPS worked for a year. Yet, on March 2, 2017, one day after Republican officials from 11 states petitioned then-the EPA administrator Scott Pruitt, complaining the rule added costs and paperwork for oil and gas companies, the EPA canceled the requirement for reporting methane emissions. The withdrawal was effective immediately, and owners and operators in the oil and natural gas industry were no longer required to provide information on emissions at existing oil and gas operations.¹⁹ On April 18, 2017, after lobbyists for the oil and gas industries further requested to administrator Pruitt to relax the rule, Pruitt ordered a review of the rule limiting methane emissions at new oil and gas drilling sites.²⁰ In short, the fossil fuel industry influenced political appointees to change the regulatory actions related to methane emissions in favor of the industry rather than citizens.

The EPA's situation can also be explained by the idea of public service bargain, which is a bargain agreed upon between political and administrative leaders.²¹ President Trump seeks to obtain loyalty from the EPA, and in return, the President offers rewards and stability. In this case, EPA Administrator (Scott Pruitt and Andrew Wheeler) were motivated to protect their political interests over protecting the general interest of the climate and citizen health. Indeed, the EPA concentrated on short-term results, which secured jobs and burnished their reputation.

In addition, the EPA is limited by bounded rationality, in which organizational rationality is constrained by incomplete information, limited cognitive capacity, and unclear linkages between decision and outcomes.²² The regulatory impact analysis (RIA) for the proposed EPA amendments estimates that the oil and gas industry would save a total of \$380 million to \$484 million from 2019 through 2025, while increasing methane emissions.²³ However, several studies suggest that real methane emissions are 1.5 to 5.8 times higher than current EPA estimates.²⁴ In other words, in this new rule, the EPA underestimated costs associated with methane emissions. The new RIA did not stem from more recent research findings. In designing the Obama-era NSPS, the EPA collaborated with researchers and the oil and gas industry to warrant evidence-based policymaking. Those researchers found that the most substantial five percent of leaks typically contribute to over 50 percent of the total leakage volume. The studies indicated that these "super emissions" are missing from the EPA's methane database, and provided significant new data on methane emitted by existing operations in the oil and gas sector.²⁵ Furthermore, researchers concluded that natural gas power plants release 21 to 120 times more methane than the EPA estimates, and oil refineries' emission rates are 11 to 90 times more than initial estimates, which suggests that the EPA's decision is not systematically warranted.²⁶

Given that the EPA's change is politically motivated, through capture theory and public service bargain, and limited by bounded rationality, there is a need for alternative means to adjust the EPA's proposed rule.

Exploring Alternative Means

According to the EPA's 2018 baseline estimate under the new proposal, methane emissions will increase by a total of 380,000 short tons, over the 2019 through 2025 timeframe. The new methane rule is expected to save the EPA up to \$484 million in regulatory costs during this timeframe. The agency held a public hearing on the new proposal in November 2018 and will publish a

final rule in mid-2019. When considering policy implementation, the following section briefly describes three alternative options for the EPA in implementing the new rule.

First, the EPA can maintain the status quo, while modifying their communication strategy. Currently, the agency takes a hardline stance against any changes in the proposed rule. However, the EPA can claim that they will reflect opinions from citizens incrementally. The EPA can suggest that they have built enough capacity to manage methane emissions. The agency should be more assertive about the applicability and practicality of the new rule. At the same time, the EPA can emphasize their advocacy for citizens and defend themselves by contending that they will proceed through a succession of incremental changes.²⁷

Second, the EPA can strengthen the role and responsibility of state policies and legislatures. The proposed rule change delegates to the states to some extent, but concerning accountability (e.g., corporations are required to report to both the EPA and their state government), it has some gray areas. Instead, the EPA should actively instruct the state governments regarding methane emissions management. In clean air policy, state agencies have more policy influence than the EPA. Additionally, administrative procedures affect the degree of bureaucratic autonomy.²⁸

Third, the EPA can expand its direct engagement in the monitoring industry. Methane-related issues may last for generations, beyond any governor's tenure, which demands institutional constancy.²⁹ State regulations change over time depending on state government leadership. Furthermore, companies and watchdogs would have to spend significant time researching the requirements for regulations in different states. If the EPA is involved more in methane policy implementation, concerns from environmental groups could be lessened.

The dominant way of thinking about what makes for good governance rests on the ability to make practical tradeoffs between values.³⁰ Key criteria for evaluating which option is best for the EPA are efficiency, equity, and acceptability.

- Efficiency: The ability to control the costs of the policy involved.
- Equity: Procedural fairness and equal treatment.
- Acceptability: Acceptance by stakeholders including policy targets and the general public.

In the final section, the second recommendation, strengthening the responsibility and role of state governments, is explained.

Recommendation

This paper recommends strengthening the role and responsibility of state governments because it promises to be the most efficient and politically acceptable. Although oil and gas methane pollution is an urgent problem, with pollutants from the flaring and venting of methane, the political context must be considered. The EPA's new proposal impacts air quality and human health negatively, while touting more profits for energy companies, and runs counter to procedural fairness. Furthermore, according to Resources for the Future, the forgone benefits exceed the cost savings related to repeal.³¹ At this moment, however, the EPA is under considerable institutional constraint while current elected officials set the EPA's direction. The Trump administration seeks to secure easily achievable outputs, such as red tape cutting and regulatory savings, before the next presidential election. According to a report released in October 2018 by the Office of Information and Regulatory Affairs, in Fiscal Year 2018, the Trump Administration drew attention to \$23 billion in regulatory cost savings, which includes methane emissions regulations.³²

Arguably, governments should only take action in matters where it can adequately act on behalf of its citizens.³³ However, to the EPA, methane emissions control is not inherently a governmental function. In light of this, the EPA will not pursue more engagement in regulation. Furthermore, the proposed rule with minimal changes may be less acceptable to the general public.

Strengthening the role and responsibility of state governments is the most feasible alternative for the new EPA rule. In the area of environmental policy, several states have moved beyond mere compliance with national requirements and have adopted their own important laws and policies.³⁴ Colorado is a good example. Colorado became the first state in 2014 to require companies to find and fix methane leaks from oil and gas drilling.³⁵ Their rules have reduced the amount of methane emissions, improved air quality, and enhanced profitability and worker safety.³⁶ The case of Colorado shows that state governments can effectively control methane emissions.

Before the window of opportunity for changing the 2018 proposal closes forever, strengthening the role and responsibility of state governments should

be seriously considered. This could fix regulatory pitfalls and help the oil and gas industry estimate the methane regulation they would be impacted.³⁷ Strengthening state governments is the best option because it is the most feasible, responsive to citizens, and environmentally friendly.

Notes

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