Institute of Clean Air Companies
Clare Schulzki, Executive Director
2101 Wilson Blvd, Suite 530, Arlington, VA 22201
Cschulzki@icac.com

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TO: U.S. Environmental Protection Agency
FR: The Institute of Clean Air Companies (ICAC)
RE: **Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review (EPA-HQ-OAR-2021-0317)**

The Institute of Clean Air Companies (ICAC) appreciates the opportunity to offer comments in response to Environmental Protection Agency's proposed rulemaking on Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources for the oil and natural gas sector.

ICAC is the national trade association of companies that supply greenhouse gas management and air pollution control and monitoring systems, and equipment and services for stationary sources. For over 60 years, ICAC member companies have helped to clean the air by developing and installing reliable and cost-effective control and monitoring systems.

ICAC's comments will respond to various aspects of EPA's proposed rules. We support technology-neutral and flexible policies that enable cost-competitiveness and a diverse set of technologies to compete in the market.

Again, ICAC appreciates the opportunity to offer input to EPA and we look forward to answering any further questions or provide additional information.

Sincerely,

Clare Schulzki
Executive Director, ICAC

Introduction

The Institute of Clean Air Companies (ICAC) appreciates the opportunity to respond to EPA's proposed rules on Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources for the oil and natural gas sector. ICAC is a trade association headquartered in Arlington, VA, and represents more than 30 companies in the air pollution control, greenhouse gas management, and emissions measurement industry. ICAC members have successfully developed and deployed solutions to address emissions challenges for over 60 years and are uniquely positioned to provide their expertise on emerging clean technologies and advancing clean technology markets.

ICAC members have successfully commercialized solutions for the industrial, power, oil and gas, manufacturing and maritime sectors, and have worked alongside policymakers, regulators, and other industry stakeholders to address challenges that emerge at the nexus of air and water pollution management. Pollutants managed by member technologies include mercury, acid gases, PM, NOx, SOx, VOCs, HAPs, GHGs, HCl, and coal ash. Additionally, ICAC members are working at the forefront of the energy transition on innovations in clean hydrogen production and use, carbon capture, methane management strategies, and other solutions to tackle the next set of emissions challenges through equitable, cost-effective, and collaborative work. Our members have operations in all 50 states and range from multi-national corporations with thousands of employees to small businesses focused on local emission challenges. ICAC is recognized as a trusted, unbiased technical resource for government and other stakeholders by providing information on what is technologically achievable, and the relevant costs associated with technologies.

ICAC members' experience in meeting emissions challenges equips our organization with valuable insights that can help inform the development of successful policies, regulations, and other mechanisms to support the advancement of clean technologies ready to deploy now and those needing further development. ICAC believes policies should be technology-agnostic and flexible to enable cost-competitiveness. Many solutions will be needed to meet the anticipated clean energy demand and to reach our mid-century decarbonization goals.

To advance the abatement of methane emissions, ICAC's Methane Workgroup members (see Figure 1) collaborate to identify potential applications for current technology and capability synergies from ICAC members and explore potential demonstration project(s) with industry lead adopters. In addition, the Workgroup works to create a foundational understanding of methane emissions, industry segments and driving forces for controls and communicate this with industry, government and regulators, as well as other stakeholders.

ICAC members stand ready to provide information to help inform EPA as it looks to regulate methane emissions from the oil and gas sector and would welcome the opportunity to further discuss our perspectives.

Figure 1. ICAC Methane Abatement Capabilities

Capability	ICAC Member Companies
Advanced Measurement and Monitoring Instruments and Methods	Bison Engineering Montrose Environmental Thermo Fisher Scientific Wunderlich-Malec
Gas Impurity Pre-Treatment, including Acid Gas and Impurity Removal	Advanced Emissions Solutions Johnson Matthey Lhoist North America Mississippi Lime Company Montrose Environmental Solvay
Creating Environmental Asset Revenue Streams	ClimeCo Montrose Environmental
Fugitive Methane Emissions Concentration and Enrichment Technologies	Advanced Emissions Solutions
Enabling Technologies	Lanxess (urethane/HPM fluids) Montrose Environmental
Catalytic and Non-Catalytic Destruction Technologies	Johnson Matthey
Engineering Design and Technology Aggregation	Bison Engineering Mitsubishi Power Montrose Environmental Wunderlich-Malec
Advanced Highly Selective Sorbent Media for Capture	Advanced Emissions Solutions Mississippi Lime Company Montrose Environmental
New Technology Development	Lanxess Lhoist North America Mississippi Lime Company Mitsubishi Power Montrose Environmental

ICAC's comments will respond to various aspects of EPA's proposal, outlined in "EPA's Proposal to Reduce Climate- and Health-Harming Pollution from the Oil and Natural Gas Industry: Overview"[1].

Finding and Repairing Methane Leaks from Well Sites and Compressor Stations

It is important to emphasize that technologies have and will continue to be developed in the future to comply with leak detection standards. It is critical that EPA rules are designed to ensure

[1] EPA's Proposal to Reduce Climate- and Health-Harming Pollution from the Oil and Natural Gas Industry: Overview
Fact Sheet on Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review (EPA-HQ-OAR-2021-0317)

the standard is technology neutral. For example, methods should not prescribe specific technology solutions, but rather prescribe the leak detection and documentation standards that must be met.

The proposed EPA threshold of 8 kilograms/hour for advanced technologies represents less than .02% of total existing leaks and would likely trigger follow up optical gas imaging (OGI) surveys at less than 2% of facilities with fugitive emissions. The calculation methodology for the 8 kilograms/hour threshold was not made available. If possible, we would request access to the methodology and data used to determine the 8 kilogram/hour threshold to help understand its applicability and impacts to real-world industry use.

Transitioning to Zero-Emitting Technologies for Pneumatic Controllers

ICAC members believe the technologies to implement this exist today and are well-vetted. There are companies specializing in replacing natural gas-driven pneumatics with air-driven pneumatics operating today. While there are very few technical challenges with this transition, the hurdle will be related to the widespread adoption of these technologies across industry. The transition will need to factor in the time and resources involved in retrofitting existing installations and EPA must ensure that timeframes are safe, realistic, and achievable.

Broadening the Types of Pneumatic Pumps Covered by the Rule

We are aware of low-emitting retrofits at remote locations that have no electrical power and natural gas is used to generate electric power to run controls directly or to power air compressors that drive pneumatic controls. This changes the methane emissions profile by not directly releasing methane but by combusting it. This change results in a low-emitting, but not zero-emissions, source. In remote locations, solar power is always possible, but reliability may be low in unattended locations with very cold temperatures or heavy snow load.

Reducing Additional Methane and VOC Emissions Through New and Stronger Requirements

The proposed goals and actions in this section are all theoretically feasible. However, the costs of retrofitting existing equipment may be prohibitive, could slow down or halt operations at some low production facilities.

The utilization of OGI offers a reduction in assessment times by greater than 50% using current industry standards for use of the camera. Using this technology allows for more frequent assessments of components while still offering a reduction in cost. In reviewing the EPA materials, it was not clear if the information in Appendix K was utilized in calculating efficiencies provided by OGI technology. Clarifying this would be helpful to determine efficiencies.

Seeking Additional Information to Inform a Supplemental Proposal

With regard to establishing a community monitoring program, ICAC supports EPA's objectives and commends the agency for taking action to establish environmental justice initiatives that will improve the disproportionate impacts of climate and environmental degradation on vulnerable communities. Grants and funding mechanisms directed toward such a program will be key to successful implementation. In addition, it is important to rely on data collected through established measurement and monitoring technologies rather than data collected by individuals without advanced technologies or expertise.

ICAC Members Deploy Proactive Solutions in Non-Oil and Gas Sectors

Measurement and monitoring technologies are only part of the solution. We also need to be proactive and prevent methane creation and leaks through control technologies.

In its November 2021 *U.S Methane Emissions Reduction Plan*[2], the Biden administration redoubled its efforts to reduce methane emissions with a "whole of government" approach. ICAC members support activities across the administration to reduce and abate methane emissions. For example, the Department of Energy (DOE) has set a goal to reverse the rate of accumulation of methane in the atmosphere, decrease atmospheric methane concentration, and thus ameliorate climate change. The agency is targeting these sources:

- Exhaust from natural gas-fired lean-burn engines, used to drive compressors, generate electricity, and increasingly, repower ships;
- Flares required for safe operation of oil and gas facilities; and
- Coal mine ventilation air methane (VAM) exhausted from operating underground mines.

These sources are responsible for at least 10% of US anthropogenic methane emissions.

ICAC member companies are actively involved in the development of catalytic solutions for several of these applications. While methane is a difficult molecule to oxidize, there is significant activity to apply catalyst technology to these applications.

1. Exhaust aftertreatment for lean burn combustion engines are significantly more efficient than their stoichiometric counterparts and have the flexibility advantage of using a NG + diesel fuel blend, enabling the retrofitting of existing diesel engines. Abatement of unreacted CH4 remains a challenge due in part to the presence of excess O2 (10 - 15%) and H2O (10 – 18%), and minute amounts of SO2 (< 10 ppm; source and treatment dependent). New catalytic lean methane oxidation technology is needed to overcome these hurdles that inhibit the expansion of NG engines. Aftertreatment emission control companies are striving to achieve an overall methane conversion of 99.5%, reduce net greenhouse gas emissions > 87% on a life-cycle basis, have a levelized cost of carbon less than $40/ton CO2e, and address techno-economic issues related to commercialization.
2. Methane emissions from coal mining and abandoned coal mines accounted for about 8% of total U.S. methane emissions in 2019. It was the fifth-largest methane-emitting sector, based on the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019. There

[2] U.S. Methane Emissions Reduction Action Plan 2021

needs to continue and further support for technology development to reach net-zero targets for coal mining companies.

ICAC would welcome the opportunity to provide information on the technologies outlined above if there is interest within EPA on methane control technologies.

Conclusion

ICAC member companies offer a wide range of skill, talent and assets that can help provide unmatched access to industry stakeholders, strategic advice, marketing and branding support, investor networks, and a community of like-minded founders. Working with EPA, we can lead the way to a more sustainable world by connecting people, capital, and purpose to advance market-ready solutions to address climate change.

Again, ICAC would like to thank EPA for the opportunity to respond to this proposed rulemaking. We welcome an opportunity to further discuss these thoughts with you and are happy to answer additional questions or clarify any points made.

Contributing ICAC Members:

Advanced Emissions Solutions
Bison Engineering
Johnson Matthey
Montrose Environmental