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Docket No.: EPA-HQ-OAR-2023-0234

Event: Public Hearing for the Greenhouse Gas Reporting Rule: Revisions and Confidentiality Determinations for Petroleum and Natural Gas Systems (Subpart W of Part 88 FR 50282, August 1, 2023)

Subject: Revisions to Reporting Requirements To Improve Verification and Transparency of the Data Collected, Cited In Subpart W, Greenhouse Gas Reporting Rule

Statement: Radiocarbon Methane ($^{14}\text{CH}_4$)—A Universal, SI-Traceable Metric for Management of Oil and Gas Industry Emissions and Verifiable Offsets for Carbon Markets

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Hello, I am Bruno Marino, CEO of Planetary Emissions Management, Inc. of Cambridge, MA.

Thank you for the opportunity to testify today.

PEM Inc. supports EPA's revisions to Subpart W—particularly the focus on accuracy, empirical data, and direct measurement—and emphasizes the availability and cost-effectiveness of advanced emissions measurement technology.

Importantly, the differentiation of fossil versus modern CH_4 flux for a commercial operation is not clear, and should be addressed in the revisions.

The distinction is crucial to reduce uncertainties in verifying actual net fossil fuel CH_4 emission reductions and as a foundation for tradable emission offsets.

Indeed, without empirical data, claimed CH_4 reductions and offsets, as well as charges for waste emissions, may be perceived as inaccurate and unreliable by stakeholders.

An attractive solution to this problem is analysis of radiomethane, or $^{14}\text{C CH}_4$, which is the anthropogenic fossil fuel perturbation itself to the climate system. Radiomethane flux accounting, however, is not achievable with current bottom-up and top-down $^{12}\text{C CH}_4$ detection methods.

As a fossil-fuel, radiomethane is devoid of ^{14}C and when emitted to the atmosphere during oil and gas operations, is readily measurable as a decrease in the ratio of atmospheric ^{14}C to ^{12}C , and defines a mixing line to calculate abundance of fossil methane leakage, integrating of all CH_4 sources, across small to large project scales.

As a further safeguard, a central reference laboratory for radiomethane could be established by a third party to electronically verify and certify field measurements, via the cloud, with traceability to the System of International Units ("SI" metric system) ensuring universality and equivalence of results across all measurements and all locations.

PEM's radiomethane measurement technology and sensor system architecture, under development, will provide an even higher level of accuracy than other technologies by distinguishing exact methane sources. EPA's final rule should encourage and allow use of radiomethane measurement technology to achieve its goals. Thank you.