

Methane emissions from natural gas local distribution focus of new study

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Washington State University's (WSU) Laboratory for Atmospheric Research is leading a nationwide field study to better understand methane emissions associated with the distribution of natural gas.

Beginning this month, a WSU research team led by Regents Professor Brian Lamb will quantify methane emissions throughout local gas systems (from city border to customer meter) and use the data to estimate a national methane emissions rate for U.S. natural gas distribution systems.

"This work is important and the study is unique," said Lamb. "It is critical to do these careful measurements along the entire natural gas industry supply chain, so that we have a clear understanding of the impact of the industry's [greenhouse gas emissions](#). These are critical questions as our nation faces the challenges of energy, sustainability and [climate change](#)."

The \$800,000 project—\$85,000 of which goes to WSU—will be conducted with coordination and support from major natural gas utilities, the Environmental Defense Fund (EDF) and Conestoga-Rovers and Associates, an engineering and environmental consulting firm.

Potent greenhouse gas

Large amounts of natural gas are domestically available because of

dramatic advancements in technology, creating significant economic and energy security benefits for the nation. Composed mostly of methane, natural gas is a cleaner fossil fuel that, when burned, produces less carbon dioxide and fewer greenhouse gas emissions than any other fossil fuel.

However, uncombusted natural gas is a [potent greenhouse gas](#). When it is released into the atmosphere at various points along the supply chain, it has a higher warming potential than carbon dioxide, the principal contributor of manmade climate change. Greenhouse gas emissions from human activity are believed to be impacting the earth's climate.

Obtaining direct, carefully measured data under real-world conditions is essential to determine the scope of methane emissions from natural gas operations, including local distribution systems. The U.S. Environmental Protection Agency's (EPA) most recent assessment indicates methane emissions from natural gas operations are lower than previous reports, with data based on emissions estimates. A greater understanding of the total methane loss throughout natural gas operations can play a key role in development of sound energy policies and management practices.

Detailed, accurate measurements

The researchers will make direct emission measurements component by component at company gas facilities and for individual underground pipeline leaks.

The American Gas Association (AGA), EDF, National Grid, Pacific Gas and Electric Company (PG&E) and Southern California Gas Company (SoCalGas) commissioned this study to measure methane emissions when gas is routed through local service and distribution main pipelines, as well as gas metering and regulating stations.

The WSU study is part of a two-year research series on which EDF is collaborating with the natural gas industry and universities to more accurately characterize and understand methane emissions across the value chain. National Grid, PG&E and SoCalGas are providing access to their gas facilities and equipment for tests in different regions throughout the country. Several companies are participating through AGA and are also providing access to their gas facilities for testing, including CenterPoint Energy, Citizens Energy Group, NW Natural, Piedmont Natural Gas, Questar Gas and Xcel Energy.

Work begins this month

"Brian Lamb and WSU's Laboratory for Atmospheric Research were instrumental in the first national [natural gas](#) emissions study issued by the EPA in the early 1990s," said Mark Brownstein, associate vice president and chief counsel, EDF's U.S. Energy and Climate Program. "His expertise is valuable in both designing the right scientific approach to gather data and then extrapolating those results nationally.

"We expect this study to continue to advance the discussion around methane leakage and, to the extent necessary, provide a business case for public utility commissions to better monitor and reduce leaks that lead to [methane emissions](#)," he said.

Field work will begin this month in multiple U.S. cities in coordination with local utilities and distribution service companies. The research team is carefully selecting numerous sites in various regions around the country that meet specific criteria in order to ensure that the dataset will be as comprehensive and representative for national scaling as possible. Results are expected to be released in a peer-reviewed journal in early 2014.

A scientific advisory panel comprised of professors and experts in the

fields relevant to the study will serve as independent advisors, charged with reviewing the appropriateness of the methodologies, results and statistical methods.

Provided by Washington State University

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