

FUNDAMENTALS OF GREENHOUSE GAS MMRV IN THE OIL & GAS INDUSTRY

A Certificate Program offered through the Energy Emissions Modeling & Data Lab (EEMDL) and the University of Texas at Austin

PURPOSE

Across the world, governments and private-sector entities are setting aggressive near-term targets for reducing methane and other emissions from oil and natural gas supply chains.

For example: The U.S. Environmental Protection Agency has issued tough new regulations on methane emissions from the oil & gas industry, including a “super-emitter” program leveraging emissions data collected by third parties and expanded pathways for advanced emissions monitoring systems. Under the Inflation Reduction Act, upstream producers with methane intensities above 0.2% will face significant financial penalties. The European Union is planning a similar methane intensity limit for domestically produced and imported natural gas. Meanwhile, at COP28, a coalition of the world’s largest National Oil Companies and International Oil Companies committed to meeting a 0.2% upstream methane intensity benchmark by 2030.

Tracking progress towards these near-term targets requires an urgent increase in Measurement, Monitoring, Reporting and Verification (MMRV) capacity in the U.S. and globally.

Some of this capacity will be delivered through technologies, such as ground-level sensors and aerial tools like satellites, airplanes or drones. Computer models, data-science solutions and other MMRV tools are needed to translate massive volumes of disparate data points from different technologies into high-confidence, measurement-based estimates of actual emissions.

But the human element is the most important of all. The world will need thousands of MMRV professionals in the private and public sector – trained in the use of the latest technologies, models and other data-science tools – to convert ambitious methane reduction goals into real and verifiable methane cuts.

For this reason, EEMDL offers technical advice and training courses to government entities, energy companies and other stakeholders – including the Certificate in “Fundamentals of Greenhouse Gas MMRV in the Oil and Gas Industry.”

PROGRAM

A 10-hour introductory course offered online by EEMDL and the University of Texas through its Texas Executive Engineering Education (TxEEE) program. The course will be taught by university-affiliated professionals with deep expertise and experience in performing and reporting on measurements of GHG emissions in oil & gas operations. After completing the course and a final exam, participants will earn a Certificate in “Fundamentals of Greenhouse Gas MMRV in the Oil and Gas Industry,” evidencing their understanding of the fundamental frameworks and requirements for MMRV in the oil & gas industry. The Certificate will also make them eligible to apply for additional master course offerings in a variety of specialized topics, potentially earning a Master’s Certification.

TARGET AUDIENCE

Professionals from the public or private sector seeking to develop a working knowledge of the current frameworks and tools required for MMRV of GHG emissions in oil & gas operations. Introductory courses can be offered to a mix of participants drawn from government, industry or NGOs, or to a defined subset of participants from a particular group, organization, or agency. Participants are not expected or required to have any prior knowledge or experience with MMRV of GHG emissions (in oil & gas or elsewhere). But the course is designed to be useful even for professionals with some MMRV experience who are looking to refresh or update their understanding of the fundamental frameworks and evolving tools now being developed and deployed across the industry.

COURSE CONTENT

The introductory course will cover the following essential tools in the MMRV toolkit:

GHG Reporting Tools: An overview of the sources of carbon dioxide, methane and other greenhouse gas emissions in the oil & gas industry and the frameworks and tools used to report them.

Methane Measurement Tools: A survey of currently-available tools and methods for measuring methane emissions in the field, including continuous ground-level monitors, drone and aircraft surveys, and satellites.

Engineering Estimation Tools: A survey of current methods for developing estimates of methane and other emissions based on facility configurations and engineering methods and how they compare and contrast with the Methane Measurement Tools covered in the prior section.

Reconciliation Tools: The section will outline various tools for reconciling measurements, which often provide a short-term, snapshot view of emissions, with emissions reporting, which is generally done on an annual basis. It will also describe the tools that can be used for estimating and addressing the various uncertainties in both measurements and engineering estimates.

Regulatory & Voluntary MMRV Programs: An overview of current major policies, regulations, and voluntary initiatives, including emission reporting frameworks such as the UN Environment Program's Oil and Gas Methane Partnership 2.0 (OGMP 2.0) and the U.S. EPA's Greenhouse Gas Reporting Program.

MASTER CLASSES AND CERTIFICATIONS

Master classes will be offered to provide advanced training, at greater depth and with additional detail beyond the material covered in the introductory course, on topics such as: advanced technologies and tools for measurement, emission estimation for specific facility types, software tools used in specific regulatory applications, OGMP 2.0 reporting, and the use of greenhouse gas emission estimates in risk assessment and financial analysis tools. Each offering will be a class followed by hands-on training and will be offered to small groups with similar interests.

PROPOSED INTERNATIONAL OFFERINGS

The University of Texas proposes to offer the Fundamentals course and the OGMP 2.0 reporting course, in-country, for nations participating in international consortia involving the United States. The Master Class on OGMP 2.0 reporting would be delivered in partnership with the OGMP 2.0 and would focus on pathways toward international harmonization of reporting.

For more information about EEMDL's research tools and training programs, please e-mail us at eemdl@utexas.edu.

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