

NIST Greenhouse Gas Emissions Quantification and Verification Strategies Workshop

June 2-3, 2010 • Scripps Seaside Forum • La Jolla, CA

Your expert opinion is vital! Lend your voice to help shape future GHG emissions monitoring, reporting, and verification.

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[Key Questions](#)

[Outcomes](#)

[Breakout Topics and Chairs](#)

[Preliminary Agenda Featured Speakers](#)

Workshop Chairs:

Maxine Savitz
Vice President, National Academy of Engineering

Bryan Hannegan
Vice President, Electric Power Research Institute

Quin Shea
Executive Director, Environment, Edison Electric Institute

Join Prominent Experts and Help Identify Critical Monitoring, Reporting, and Verification (MRV) Requirements for a National GHG Emissions Program

The ability to accurately measure, report and verify greenhouse gas (GHG) emissions—from point and non-point sources, on the ground, in regions, and globally—is vital to future reduction and verification strategies for GHGs. Without accurate measurement of a nation's, state's, or covered entity's emissions, it will not be possible to determine if the necessary reductions are being made. Yet, different countries use different reporting systems. In addition, some industrial sectors have extensive experience reporting GHG emissions, others very little. Furthermore, there is strong evidence on global and regional scales that the differences between reported "bottom-up" emissions and "top-down" emissions for a wide range of GHGs—as determined from measurements in the atmosphere—are too large to meet the goals of climate legislation and carbon-equivalent emissions trading. Accurate—not just precise—"bottom-up" emissions quantification is critical to effective climate policy. Confidence in the accuracy and comparability of emissions and reduction reporting is critical for the viability of carbon markets and the development of offsets projects. The Energy Policy Act of 2005, Title XVI, Sec. 1610 (H), also includes a mandate for the Department of Energy to collaborate with National Institute of Standards and Technology (NIST) to develop standards and best practices for calculating, monitoring, and analyzing GHG intensity.

The purpose of this workshop is to better understand the constraints and uncertainties in current "bottom-up" emissions quantification methods, and then to define a path that will reduce these uncertainties. It is one of a series sponsored by NIST to identify the key technology and measurement areas related to issues of national and global importance. Emissions of primary interest will be those defined by regulation and legislation: carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, and fluorinated gases.

Key Questions for Consideration

- What kind of accuracy do we need, when do we need to achieve it, and why (in the context of pending regulation and efforts to mitigate climate impacts)?
- How should different segments and sectors be treated?
- How do we effectively allocate the carbon footprint? Who is responsible for improvements in efficiency? How do emissions count toward inventories?
- How do we avoid double-counting (e.g., power sales and purchases)?
- How do we define additionality (e.g., when is it additional, where does it fit – emissions, financial, regulatory)?
- What are the key challenges and gaps in measurement and monitoring?
- How do we effectively integrate information across segments and sectors?
- What levels of uncertainty are needed to support carbon markets?
- What are the priority MRV issues that we urgently need to address?

Outcomes

The insights gained at the workshop will form the basis for a consensus document outlining the most pressing challenges and key recommendations for GHG emissions quantification and verification strategies for the future. This important document will help to:

- Inform and influence policy and planning, now and in the future;
- Provide strategic guidance for public and private decision-makers;
- Support a foundation for future GHG emissions programs; and
- Provide key actionable recommendations.

Steering Committee:

Power Generation

Eric Holdsworth, *Edison Electric Institute*

Karen Obenshain, *Edison Electric Institute*

Global Monitoring

Charles Elachi, *National Aeronautics and Space Administration*

Ray Weiss, *Scripps Institution of Oceanography*

Ralph Keeling, *Scripps Institution of Oceanography*

James Butler, *National Oceanic and Atmospheric Administration*

Industrial Generation

Ed Rightor, *The Dow Chemical Company*

Hector Ybanez, *Holcim (US) Inc.*

Brad Upton, *National Council for Air & Stream Improvement, Inc.*

Distributed Sources and Sinks

John Miranowski, *Iowa State University*

Carbon Markets

Daniel Schrag, *Harvard University*

Robert Marlay, *U.S. Department of Energy*

Breakout Topics and Chairs

Industrial Generation Ed Rightor, The Dow Chemical Company

Point and non-point source emissions (including aggregated point sources) from industrial sources, including CO₂, nitrous oxide, methane, halons, SF₆, and other gases with high global warming potential; includes emissions from combustion of fuel as well as processing emissions and gaseous leaks.

Power Plants Karen Obenshain, Edison Electric Institute

Point source emissions from power plants, including CO₂, nitrous oxide, SF₆, and methane; includes emissions from combustion of fuels and gaseous leaks.

Distributed/Localized Sources and Sinks (including Offsets) John Miranowski, Iowa State University

Emissions from localized sources such as farming, landfills, coal mine methane, oil and gas extraction, and others; includes distributed but connected sources (e.g., freight depots); includes integrally connected human-managed sinks such as farms, forests, grasslands, and others.

Regional and International Emissions Ralph Keeling, Scripps Institution of Oceanography

Measurement and monitoring of atmospheric emissions, both at regional and international level; includes satellite based optical measurements, remote and atmospheric monitoring.

Carbon Emissions Market Issues Dan Schrag, Harvard University

Integrating measurements across disparate segments, methodologies, and length scales; measuring whether a country is meeting or has met compliance and/or reduction targets; and establishing consistent nomenclature (e.g. verification, control, certification, etc.).

Preliminary Agenda and Speakers

Tuesday June 1, 2010

5 - 6:30 pm Welcoming Reception - *light snacks & cash bar*

Wednesday, June 2, 2010

7:30 am Registration and Continental Breakfast

8:30 am Welcome and Opening Remarks

- **Katharine Gebbie**, *Acting Chief Scientist, National Institute of Standards and Technology*
- **Maxine Savitz**, *Vice President, National Academy of Engineering*

8:50 am Plenary and Luncheon Speakers

- **Government Perspectives** *Brian McLean, Environmental Protection Agency*
- **Power Industry Perspectives** *Chuck Dene, Electric Power Research Institute*
- **Industry Perspectives** *Ray Ratheal, Eastman Chemical Company*
- **Quantifying Greenhouse Gas Emissions from Atmospheric Measurements: A Critical Reality Check for Climate Legislation** *Ray Weiss, Scripps Institution of Oceanography*
- **National Academies Report Highlights: Verifying Greenhouse Gas Emissions: Methods to Support International Climate Agreements** *Pieter Tans, National Oceanic and Atmospheric Administration*
- **Challenges for Forestry Offsets** *Molly Macauley, Resources for the Future*
- **Challenges and Opportunities In Calculating, Verifying, and Reporting GHG Emissions** *Diane Wittenberg, The Climate Registry*
- **European Perspective on Emissions and Monitoring** *Speaker TBA*

12:00 pm Lunch

1:30 -5:00 pm Breakout Sessions: Facilitated Discussions

5 - 7:00 pm Networking Reception - *appetizers & cash bar*

Thursday, June 3, 2010

7:30 am Continental Breakfast

8:30 am 1st Day Recap and Cross-cutting Themes

Moderators: Bryan Hannegan, *Vice President, Electric Power Research Institute*

Karen Obenshain, *Director, Fuels, Technology & Commercial Policy, Edison Electric Institute*

Plenary Speaker

- **Carbon Trading Issues** *Gray Taylor, Bennett Jones LLP*

9:30 am Breakout Sessions Continued

12:00 pm Lunch

1:45 pm Day Two Report Out and Final Comments

3:00 pm Adjourn



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