Greenhouse Gas Inventory 101

Session 2: Translating Inventory Results into Action

You will hear music until the webcast begins.

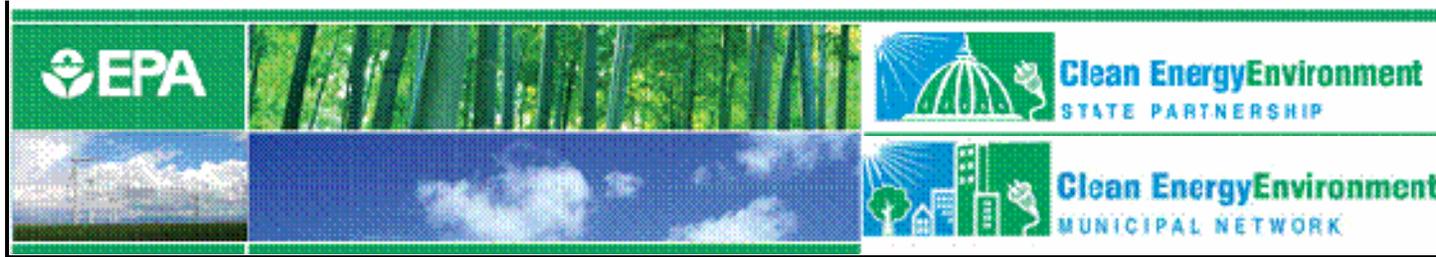Slides will be e-mailed to all participants.

Greenhouse Gas Inventory 101

Session 2: Translating Inventory Results into Action

November 6, 2007

Andrea Denny, EPA & Karl Hausker, ICF

Welcome and background

- Clean Energy Environment Programs.
  - Promote cost-effective clean energy strategies that achieve environmental, energy, public health and economic benefits.
    - Clean Energy Environment State Program.
    - Clean Energy Environment Municipal Network.

      www.epa.gov/cleanenergy/stateandlocal

  Additional inventory expertise on the phone today.
  - ICLEI.
  - USCM.
  - ENERGY STAR.

Logistics

- Phone lines are muted to control background noise.

- Please use question/comment box to submit your questions, we will consolidate questions and ask them during the Q&A session at the end of the presentation.

- Please use color indicators to show if you are confused or need the presenter to slow down. We will keep an eye on this during the presentation.

- We will notify participants of where the recording will be online once it is available.

- Feedback after the training is welcomed, please email denny.andrea@epa.gov with questions or comments.

Session 2

- Audience:
  - Multi-state, regional, state, city, county, local government, and tribal representatives, and urban regional organizations.

- Goal:
  - Translating inventory results into action: options for setting emission reduction goals and examining policies that would meet goals.
  - "Positive" not a "normative" exercise. This presentation is not endorsing any policies, but rather describing what has been done and the various rationales used.

Outline

- Uses of inventory data.

- Tracking emissions and progress.

- Setting emission reduction goals.

- Criteria cited in setting goals.

- Policy options for meeting goals.

- Evaluating policy options.

- Processes for setting goals and policies.

Uses of inventory data

- Identifying sources of emissions that are de minimus.

- Identify major sources: current magnitude and/or steep growth.

- Projecting future emissions (covered in Session 3 for states).

- Benchmarking progress.

Tracking emissions and progress

- Improving estimates over time:
    - Changes in methodology.
    - Changes/improvements in data.
- Importance of building "infrastructure" for measurement, especially for major sources.

Setting emission reduction goals

- Scope
  - GHGs: all six gases or a subset?
  - Sectors: economy-wide or some sectors?
- Timeframe
  - short-term: 2010-2012.
  - mid-term: 2020-2030.
  - long-term: 2040, 2050, beyond.
- Emission goals for each timeframe
  - Choice of base year.

Examples: regional goals

	Western Climate Initiative[1]	Regional Greenhouse Gas Initiative[2]	New England Governors and Eastern Canadian Premiers[3]
Scope	Economy-wide emissions	Electric power sector	Economy-wide emissions
	Reduction of the 6 main GHGs: CO_2, CH_4, N_2O, SF_6, PFCs, HFCs	Reduction of CO_2	Reduction of the 6 main GHGs: CO_2, CH_4, N_2O, SF_6, PFCs, HFCs
Timeframe	2007-2020	2009-2018	2008-2020
Emission Goals	Reduction of 15% below 2005 levels by 2020	Stabilize emissions 2009-2015; achieve a 10 % reduction of 2015 levels by 2019	1990 level by 2010; 10% below by 2020; ultimately 75-85%

[1]Includes AZ, CA, NM, OR, WA, British Columbia, Manitoba.
[2]Includes CT, DE, ME, NH, NJ, NY, and VT.
[3]Includes CT, ME, MA, NH, RI, VT and the Premiers of Québec and the Atlantic provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island).

Examples: state goals

	California	Arizona	Minnesota
Scope	Economy-wide emissions	Economy-wide emissions	Economy-wide emissions
	Reduction of the main 6 GHGs: CO_2, CH_4, N_2O, SF_6, PFCs, HFCs	Reduction of the main 6 GHGs: CO_2, CH_4, N_2O, SF_6, PFCs, HFCs	Reduction of the main 6 GHGs: CO_2, CH_4, N_2O, SF_6, PFCs, HFCs
Timeframe	2007 - 2050	2007 - 2040	2008 - 2050
Emission Goals	1990 levels by 2020; 80 % below 1990 levels by 2050	2000 levels by 2020; 50% below 2000 levels by 2040	15% below 2005 levels by 2015; 30% by 2025; 80% by 2050

Examples: local government goals

| Scope	Economy-wide emissions	Economy-wide emissions	Business and household emissions
	Reduction of the 3 GHGs: CO_2, CH_4, N_2O	Reduction of predominant GHGs: CO_2 and CH_4	CO_2 emissions
Timeframe	2007-2030	2007-2012	2003-2010
Emission Goals	Reduce GHG emissions 35% below 1990 levels by 2030	Reduce GHG emissions to 7% below 1990 levels by 2012	Reduce GHG emissions to 10% below 1997 levels by 2010

Note: Local governments sometimes do inventories and set goals from two perspectives: "municipal operations" (city owned/operated facilities) and "community-wide" (economy-wide)

Criteria cited in setting goals

- "Science-based"
  - "80% below 1990 levels by 2050."
- "Precedent" or "consistency"
  - Mayors' Climate Protection Agreement uses emission reduction goals from Kyoto Protocol. (7% below 1990 levels by 2012)
  - Use of 1990 as base year.
- Technical and economic feasibility.
  - Short-term, mid-term goals.
  - Increasing use of 2000 base year or later.
- Setting goals is an art, not a science.
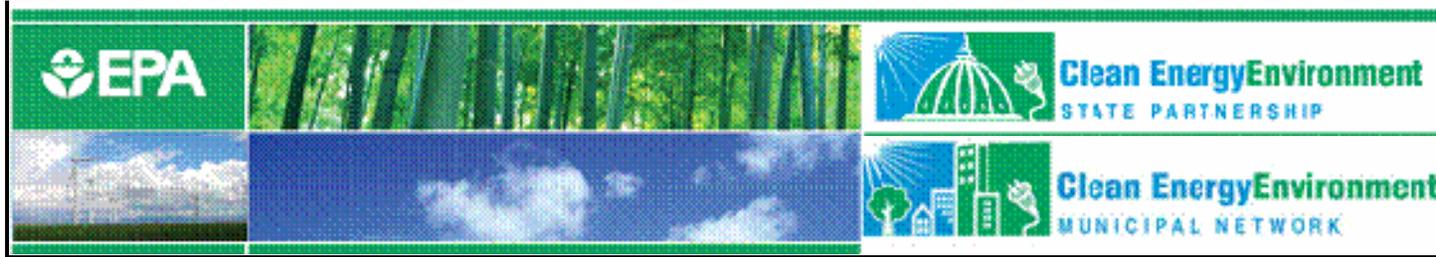
Observations on goal-setting, policy options, and their interplay

- The "cost-effectiveness" perspective.
  - Substantial attention paid to $/ton estimates, and desire to avoid very expensive options.
- Strong interest in environmental. co-benefits, macro impacts, jobs, energy security.
- Interplay in selecting policy options.
  - Goals first, then analysis of how to achieve.
  - Analysis first, then set goals.

Policy options for meeting goals

- Regulations/Standards.

- Market-based mechanisms.

- Tax incentives, loans, grants.

- Lead-by-example, pilot projects.

- Disclosure, reporting, and registries

- Voluntary programs.

- Technical assistance, information and education.

Regulations/standards

- Transportation.
  - Biofuel mandates, low-carbon fuel standards.
  - GHG regulations for light-duty vehicles. ("Pavley standards"- California)
  - Phase-in of all hybrid taxis. (New York City)
- Energy efficiency.
  - Appliance standards.
  - Building energy codes.

Regulations/standards (continued)

- Power sector.
  - GHG performance standards for new power plants.
  - Renewable portfolio standards.
  - Net metering standards.
  - Interconnection standards.

Market-based mechanisms

- Carbon taxes, energy taxes.
    - Boulder, CO example.
- Congestion fees.
    - New York City proposal.
- Cap-and-trade policies.
    - Western Climate Initiative, RGGI.
- Offset requirements for new power plants.
    - Oregon.

Tax incentives, loans, grants

- Tax reductions (personal income, corporate, sales, property) related to adoption of energy efficiency/renewable energy.

- Production incentives for biofuels.

- Public benefits funds.

Lead-by-example, pilot projects

- GHG goal for state or local government operations.

- Green power purchasing.

- Energy efficiency standards for public buildings.

- Pilot projects on to lower barriers to new technology.

  - Chicago city hall green roof.

  - Ohio pilot on carbon capture and sequestration.

  - Pennsylvania support to first biofuel blending station.

Disclosure, reporting, registries

- Mandatory reporting of GHG emissions by large sources.
  - Wisconsin requires mandatory reporting for large sources.
- Disclosure of building energy performance to prospective buyers. (new California policy)
- State GHG registries.
  - 39 states collaborating in the Climate Registry. www.theclimateregistry.org

Voluntary programs

- State and local government participation in EPA programs.
  - ENERGY STAR, WasteWise, Natural Gas Star, etc.
- State and local initiatives.

ENERGY STAR

- Use Portfolio Manager to <u>inventory energy use, set goals, and measure energy reductions</u> for buildings and wastewater treatment plants (drinking water coming soon) – www.energystar.gov/benchmark

- Emissions data based on E-Grid.

Technical assistance, information and education

- Support for Smart Growth, form-based codes, transit-oriented development, etc.

- Smart meters to better inform consumer decisions on electricity consumption.

- Driver education on vehicle operation and maintenance.

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Evaluating/screening policy options

- "Is the policy working someplace else?"
- Simple spreadsheet analysis and projections.
- Dynamic multi-sector models.
- Choices may depend on resources available.

Processes for choosing goals and policies

- Stakeholder-driven.
    - "Blue ribbon panel."
    - Facilitated, collaborative process.
    - Not binding on government but can build public acceptance.
    - Can be time- and resource-intensive.

- Agency-driven.
    - Agency typically seeks expert and stakeholder input, but is less formal.
    - May be quicker, but less public acceptance.

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Additional resources

- EPA Climate Change – State and Local Government. www.epa.gov/climatechange/wycd/stateandlocalgov/index.html

- EPA State and Local Clean Energy Programs. www.epa.gov/cleanenergy/stateandlocal/index.htm

- ENERGY STAR for Governments.

  http://energystar.gov/index.cfm?c=government.bus_government

- Database of State Incentives for Renewables and Efficiency. http://www.dsireusa.org/

- ICLEI USA.

  http://www.iclei.org/index.php?id=391

Final session

Third Session: State Inventory Tool (SIT) Training Session

This session is recommended for state officials since the tool is designed to incorporate state-level data.

December 5, 2007; 2-3:30 EST

EPA's State Inventory Tool (SIT) is an interactive Excel-based suite of tools that assists with the development of a state-level greenhouse gas emission inventory. This detailed training for the SIT modules includes implementation of state data to assess GHG emissions by source and sector.

To register, e-mail: **Inventory101@icfi.com**

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Q&A session