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**
  - long-term: 2040, 2050, beyond.

- **Emission goals for each timeframe**
  - Choice of base year.
Examples: regional goals

<table>
<thead>
<tr>
<th></th>
<th>Western Climate Initiative&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Regional Greenhouse Gas Initiative&lt;sup&gt;2&lt;/sup&gt;</th>
<th>New England Governors and Eastern Canadian Premiers&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>Economy-wide emissions</td>
<td>Electric power sector</td>
<td>Economy-wide emissions</td>
</tr>
<tr>
<td></td>
<td>Reduction of the 6 main GHGs: CO&lt;sub&gt;2&lt;/sub&gt;, CH&lt;sub&gt;4&lt;/sub&gt;, N&lt;sub&gt;2&lt;/sub&gt;O, SF&lt;sub&gt;6&lt;/sub&gt;, PFCs, HFCs</td>
<td>Reduction of CO&lt;sub&gt;2&lt;/sub&gt;</td>
<td>Reduction of the 6 main GHGs: CO&lt;sub&gt;2&lt;/sub&gt;, CH&lt;sub&gt;4&lt;/sub&gt;, N&lt;sub&gt;2&lt;/sub&gt;O, SF&lt;sub&gt;6&lt;/sub&gt;, PFCs, HFCs</td>
</tr>
<tr>
<td><strong>Emission Goals</strong></td>
<td>Reduction of 15% below 2005 levels by 2020</td>
<td>Stabilize emissions 2009-2015; achieve a 10 % reduction of 2015 levels by 2019</td>
<td>1990 level by 2010; 10% below by 2020; ultimately 75-85%</td>
</tr>
</tbody>
</table>

<sup>1</sup>Includes AZ, CA, NM, OR, WA, British Columbia, Manitoba.

<sup>2</sup>Includes CT, DE, ME, NH, NJ, NY, and VT.

<sup>3</sup>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

<table>
<thead>
<tr>
<th>Scope</th>
<th>California</th>
<th>Arizona</th>
<th>Minnesota</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Economy-wide emissions</td>
<td>Economy-wide emissions</td>
<td>Economy-wide emissions</td>
</tr>
<tr>
<td></td>
<td>Reduction of the main 6 GHGs: CO₂, CH₄, N₂O, SF₆, PFCs, HFCs</td>
<td>Reduction of the main 6 GHGs: CO₂, CH₄, N₂O, SF₆, PFCs, HFCs</td>
<td>Reduction of the main 6 GHGs: CO₂, CH₄, N₂O, SF₆, PFCs, HFCs</td>
</tr>
<tr>
<td>Emission Goals</td>
<td>1990 levels by 2020; 80% below 1990 levels by 2050</td>
<td>2000 levels by 2020; 50% below 2000 levels by 2040</td>
<td>15% below 2005 levels by 2015; 30% by 2025; 80% by 2050</td>
</tr>
</tbody>
</table>
Examples: local government goals

<table>
<thead>
<tr>
<th>Scope</th>
<th>Economy-wide emissions</th>
<th>Economy-wide emissions</th>
<th>Business and household emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reduction of the 3 GHGs: CO₂, CH₄, N₂O</td>
<td>Reduction of predominant GHGs: CO₂ and CH₄</td>
<td>CO₂ emissions</td>
</tr>
<tr>
<td>Emission Goals</td>
<td>Reduce GHG emissions 35% below 1990 levels by 2030</td>
<td>Reduce GHG emissions to 7% below 1990 levels by 2012</td>
<td>Reduce GHG emissions to 10% below 1997 levels by 2010</td>
</tr>
</tbody>
</table>

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 inventory energy use, set goals, and measure energy reductions 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.
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.
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