

EPA State and Local GHG Inventory Tools and Protocols

Andrea Denny

OAR State and Local Branch

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Local Climate and Energy Program



Quick Overview of State Inventory Tool



- Covers all sources included in US National Inventory Fossil
 - ▶ Fuel Combustion
 - ▶ Natural Gas and Oil Systems
 - ▶ Agriculture
 - ▶ Municipal Solid Waste
 - Industrial Processes
 - Coal Mining
 - Land Use/Forestry
 - Wastewater
- Uses National Inventory methods, with some adaptations to accommodate data gaps
- Provides default data, but users are encouraged to customize if they have access to better data
- Maximizes transparency—intended to stimulate discussion and educate states on inventory methods
- Designed to provide a “big picture” assessment to aid climate and energy planning
- Not intended to serve as the basis for regulatory design
- Does not address government operations, state-wide only

Expected Upgrades to State Tool



- Routine updates to emissions factors and methodology based on US Inventory changes
- Addition of additional years of activity data
- Development of methods to quantify indirect emissions from electricity consumption
 - ▶ Still in development
 - ▶ Will rely on eGRID data for import/export data as well as emissions factors
 - ▶ May exist as stand-alone module to prevent double-counting
 - ▶ Intended to serve as an estimate to assist planning

Regional Greenhouse Gas Inventory Guide (Protocol)



- Covers inventory basics and background
 - baselines, timelines, boundaries
- Methods for emissions from:
 - stationary energy production and consumption,
 - industrial processes,
 - waste,
 - agriculture and forestry
 - Transportation
- Designed to calculate region-wide emissions—with possible application for down-scaling to jurisdictions within a region
- Some methods could be used for govt operations as well

GHG Inventory Methods: Motor Vehicles



- Use models such as Mobile6 or MOVES or calculate based on VMT data, vehicle mix, and emissions factors
- Multiple Approaches for Determining VMT
 - ▶ Regional transportation models
 - ▶ County level models or traffic counts
 - ▶ Downscale state VMT data
 - ▶ Estimate VMT based on population density
- Vehicle Mix
 - ▶ Based on vehicle registrations
 - ▶ State vehicle mix

GHG Inventory Methods: Motor Vehicles



- **CO₂ Emissions Factors**
 - ▶ Use modeled emissions factors by vehicle type
 - ▶ Assume average fuel economy by vehicle type and use national carbon content emissions factors
- **CH₄ and N₂O Emissions Factors**
 - ▶ Very small fraction of GHG emissions, <0.5%
 - ▶ Can use national proportion of CH₄ and N₂O to CO₂ as rough estimate
 - ▶ Can be calculated if vehicle age distribution and emissions control technologies data available

Regional Protocol: Next Steps



- Exploring development of companion “tool” or calculation sheets to operationalize protocol
- May include methods for disaggregating emissions from regional level to jurisdictions within the region

Other Relevant Tools: ENERGYSTAR Portfolio Manager



- Free online tool for tracking energy use/ghgs from existing buildings:
 - Assess the energy use of existing buildings
 - Compare your energy use against your peers
 - Receive an energy performance rating (1-100 score) or comparison to national average energy use.
 - Track changes in energy use over time in single buildings, groups of buildings, or entire portfolios.
 - Track cost savings and CO₂ reductions.
 - Track water usage.
- <http://www.energystar.gov/benchmark>

Other Relevant Protocols: Airports



- Transportation Research Board—Guidebook on Preparing Airport GHG Inventories
http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_011.pdf

- Contains Methods for:
 - ▶ Aircraft
 - ▶ Ground Support Equipment
 - ▶ Ground Access Vehicles
 - ▶ Stationary Sources (e.g. building energy use)
 - ▶ Waste Management
 - ▶ Fire Training
 - ▶ Construction