

Proposed Mandatory GHG Reporting Rule: Overview



Kenneth L. Mitchell, Ph.D.
Energy & Climate Change Coordinator
U.S. EPA; Atlanta, GA

Outline



- Congressional Request
- Rulemaking Approach
- Summary of Key Elements of Proposal
- Appendices



Appropriations Language



FY08 Omnibus Appropriations, signed Dec 26, 2007:

- “... not less than \$3,500,000 shall be provided for activities to develop and publish a draft rule not later than 9 months after the date of enactment of this Act, and a final rule not later than 18 months after the date of enactment of this Act, to require mandatory reporting of greenhouse gas emissions above appropriate thresholds in all sectors of the economy...”

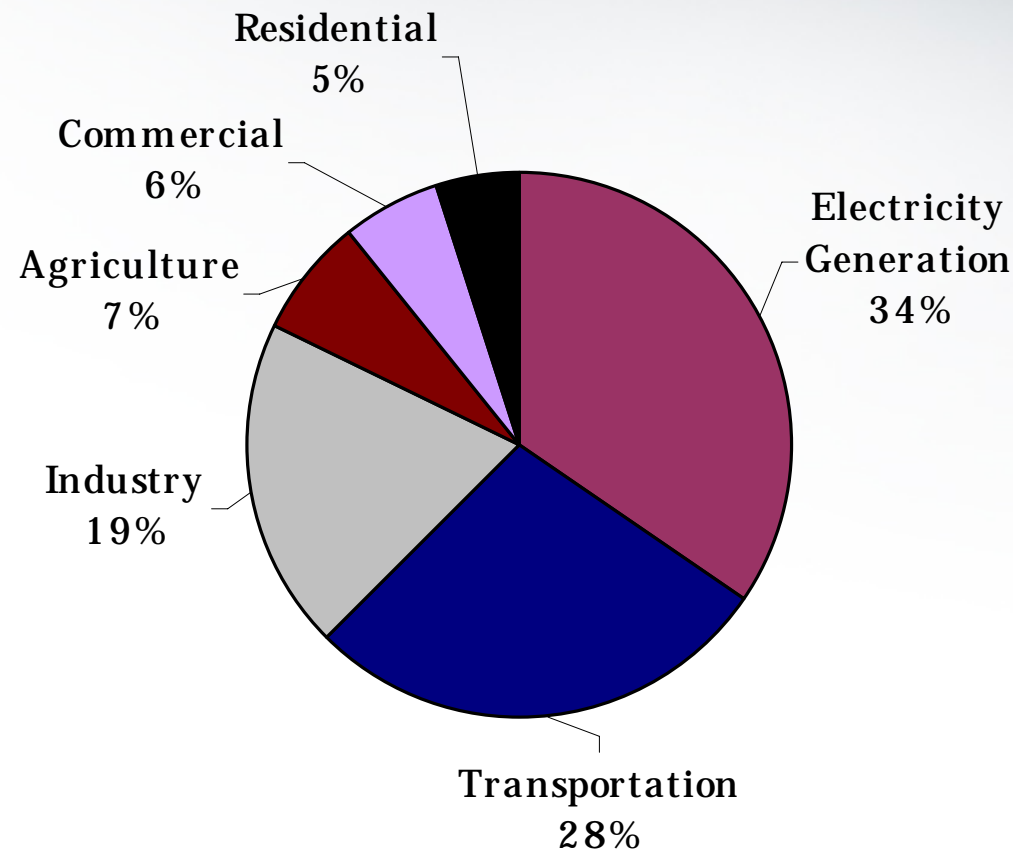
Accompanying Explanatory Statement

- The Agency shall "use its existing authority under the Clean Air Act" to develop a mandatory GHG reporting rule. "The Agency is further directed to include in its rule reporting of emissions resulting from upstream production and downstream sources, to the extent that the Administrator deems it appropriate. The Administrator shall determine appropriate thresholds of emissions above which reporting is required, and how frequently reports shall be submitted to EPA. The Administrator shall have discretion to use existing reporting requirements for electric generating units under Section 821 of the Clean Air Act...."

U.S. GHG Emissions (2007)



Emissions (CO₂e) Allocated to Economic Sectors

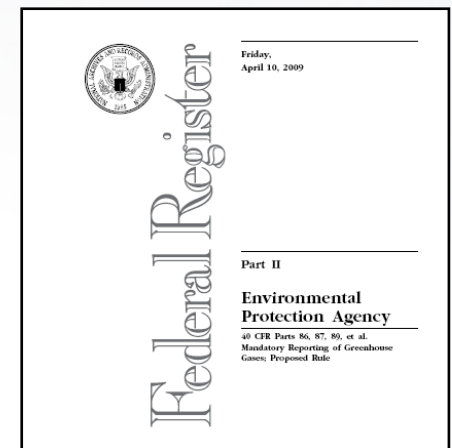


Source: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007* (April 2009)

Rulemaking Approach



1. Start with anthropogenic emission sources in the U.S. GHG Inventory and IPCC Guidelines
2. Review existing methodologies and reporting programs
3. Apply screening criteria to identify source categories to be included in the rule:
 - Could be covered under the Clean Air Act
 - Ability to measure
 - Administrative burden (Number of reporters vs. coverage of emissions)
4. Develop reporting methodologies for selected emission source categories
5. Established cross-Agency workgroup to develop rule
6. Outreach meetings held with over 250 groups



Key Aspects of Proposal



- What chemicals are covered
- Who would report
- Thresholds
- Reporting methodology
- Frequency
- Verification



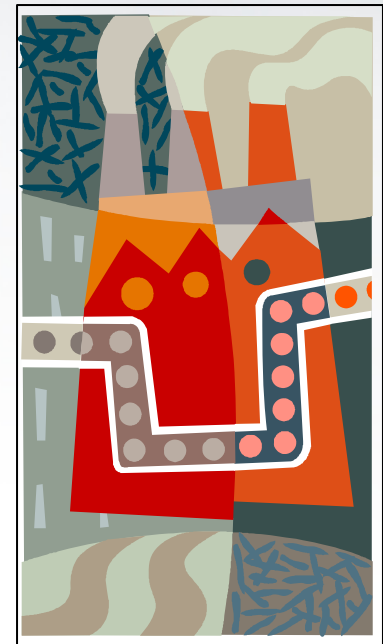
What Chemicals are Covered?



- **Anthropogenic GHG emissions covered under the United Nations Framework Convention on Climate Change (UNFCCC) and other fluorinated gases**

- carbon dioxide (CO₂)
- methane (CH₄)
- nitrous oxide (N₂O)
- hydrofluorocarbons (HFC)
- perfluorocarbons (PFC)
- sulfur hexafluoride (SF₆)
- nitrogen trifluoride (NF₃)
- hydrofluorinated ethers (HFE)

- **expressed in metric tons of carbon dioxide equivalent (mtCO₂e).**



Who Reports



- **Who is the appropriate reporter for a mandatory reporting program?**
 - Facility-level, unit-level, or corporate-level reporting
- **Should the reporter be uniform for all source categories in the program?**
 - Could be difficult to define facility for all reporters (e.g., importers)

Proposal: Hybrid- Primarily facility, with limited exceptions (e.g., fuel importers, vehicle and engine manufacturers)

Source Categories Coverage



After applying the screening criteria, EPA developed reporting methodologies for emissions source categories found at the following facilities:

Sector	Reporters
Electricity Generation	Power plants
Transportation	Vehicle and Engine Manufacturers
Industrial	All large industrial emitters, including those in the following industries:
<i>Metals</i>	Iron and Steel, Aluminum, Magnesium, Ferroalloy, Zinc, and Lead
<i>Minerals</i>	Cement, Lime, Glass, Silicon Carbide, Pulp and Paper
<i>Chemicals</i>	HCFC-22, Ammonia, Nitric Acid, Adipic Acid, SF6 from Electrical Equipment, Hydrogen, Petrochemicals, Titanium Dioxide, Soda Ash, Phosphoric Acid, Electronics, Titanium Dioxide
<i>Oil and Gas</i>	Components of oil and gas systems, Underground coal mining
Other	Landfills, Wastewater Treatment, Ethanol , Food Processing
Agriculture	Manure Management
Upstream Suppliers*	Petroleum Refineries, Gas Processors, Natural Gas Distribution Companies , Coal Mines, Importers/Exporters , Industrial Gases (e.g., HFCs, N2O, PFCs, CO2)

*Some upstream suppliers will also be reporting their direct emissions (e.g., refineries)

Thresholds



- **What is the form of the threshold?**
 - Capacity, Emissions, Hybrid
- **What is the level of an emissions threshold (in CO₂e)?**
 - 1,000 tons, 10,000 tons, 25,000 tons, 100,000 tons, capacity (e.g., 500 tons of clinker/day for cement facilities), etc.
- **What data are available to support the threshold determination?**

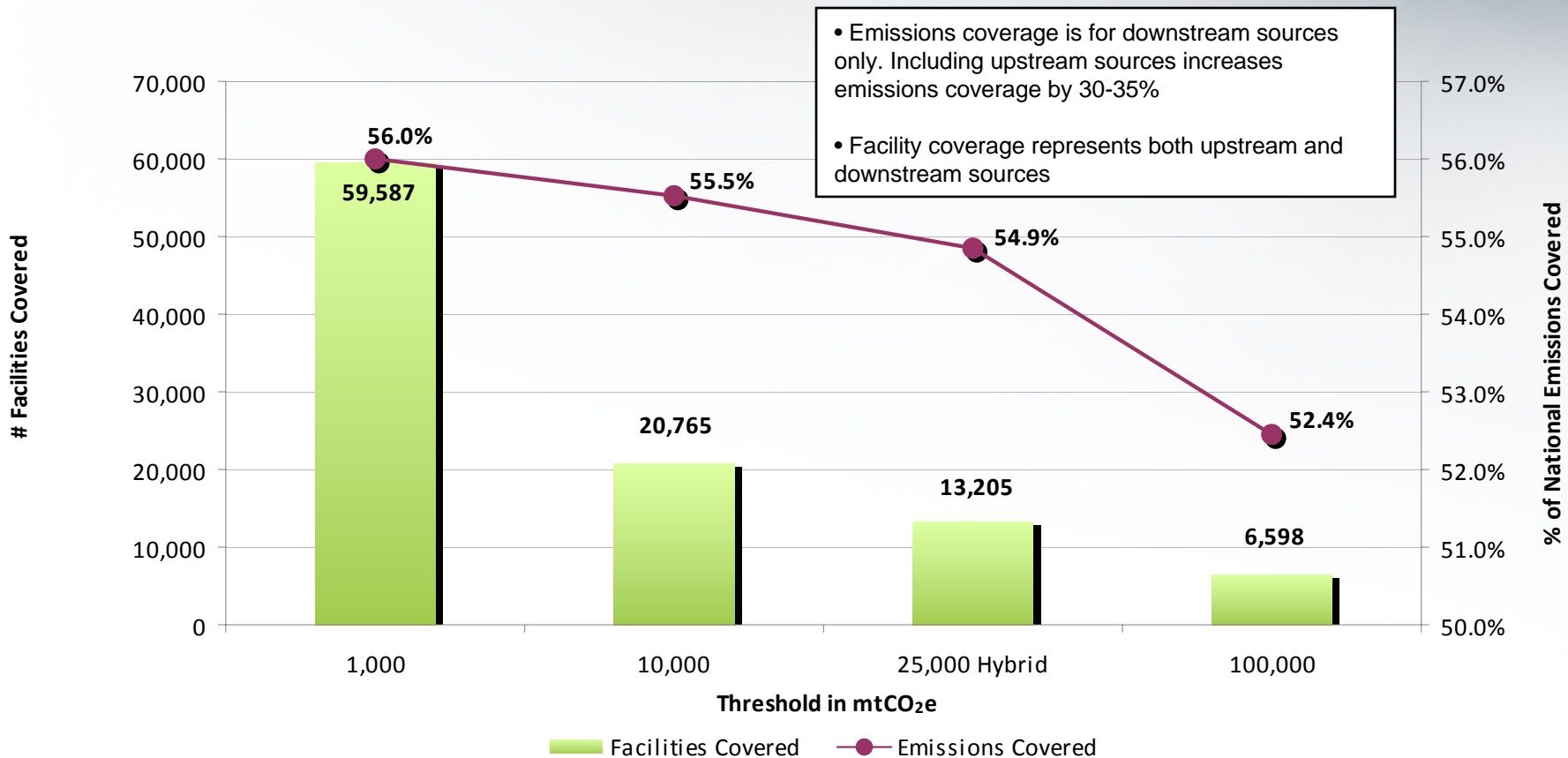
Proposal:

- **Capacity-based threshold, where appropriate and feasible**
- **Emissions-based threshold of 25,000 metric tons of CO₂e/yr for other sources**

Estimated Proposal Coverage



Downstream Facility and Emissions Coverage by Threshold



Methodologies - Background



- **What types of methodologies are available for calculating GHGs?**
 - Direct measurement
 - Facility-specific calculation (i.e., calculations based on periodic sampling/testing at a facility)
 - Simplified methods using default factors
- **What are the sources of methods currently in use?**
 - EPA, IPCC, WRI/WBCSD , industry, States, voluntary programs (e.g., TCR)
- **Examples from existing GHG programs:**
 - CARB uses a hybrid approach of direct measurement and facility-specific calculations
 - 1605(b) offers a range of choices from direct measurement to mass balance calculation with default emissions factors

Proposed Methodologies



- **Hybrid of direct measurement, where available, and facility-specific calculation for other sources**
 - Use direct measurement of emissions where facilities already reporting and collecting (e.g., Acid Rain Program) and facility-specific calculations for other source categories
 - Generally, vehicle/engine manufacturers would use existing certification and test protocols
 - Industrial gas suppliers use direct reporting of gas produced, imported and exported
- **EPA direct reporting system for fuel quantity and quality information**
 - Facilities would report all information directly to EPA
 - More consistent with approach for direct emitters (e.g., timing, verification, definitions of facilities etc.)

Frequency



- **What is the appropriate frequency for a mandatory reporting program?**
- **Should the frequency be uniform for all source categories in the program?**

Proposal:

- **Annually for New Reporters**
 - Exception: Facilities reporting quarterly for existing mandatory programs (e.g., Acid Rain Program) continue quarterly reports
 - First reports submitted to EPA March 31, 2011 for CY2010

Verification



Verification Type	Pros	Cons
EPA verification	<ul style="list-style-type: none"> •Timely QA/QC data available to reporters, public, etc., •EPA retains control of data •Lower costs for reporters •Highest EPA and stakeholder confidence in data •EPA/States are usual CAA verifiers 	<ul style="list-style-type: none"> •Requires more data from reporters, and more data management for EPA •Start-up costs for EPA to develop QA/QC and auditing system •Requires sustained financial and human resources to handle large amounts of data in timely fashion •Requires procedures for handling CBI
Third-party verification	<ul style="list-style-type: none"> •Similar to some other GHG mandatory programs (e.g., CARB, EU ETS) •Could be a way to alleviate some CBI concerns 	<ul style="list-style-type: none"> •Requires more time for data to reach EPA •Less transparency in data •Costs to EPA to certify verifiers and audit reports •Potential inconsistencies •Highest costs for reporters •Potential conflicts of interest between verifier and reporter •Strong industry opposition
No verification	<ul style="list-style-type: none"> •Lowest cost to reporters and EPA. 	<ul style="list-style-type: none"> •Lowest EPA and stakeholder confidence in data •Significant changes would be required in any transition to a regulatory program.

Proposal: EPA as verifier

- Reporter self-certifies emissions data and other specified activity data
- Submit to EPA who would perform QA/QC of reports; EPA would take enforcement action for non-compliance
- Consistent with most EPA Programs

Approach to Mobile Sources



- **Vehicle and engine manufacturers**
 - EPA already has a structure for receiving emission data from manufacturers.
 - CO₂ is almost universally measured as a part of vehicle and engine certification (CARB also requires all manufacturers to report CO₂ measured during their certification emission tests)
 - CH₄, N₂O and air conditioning HFC emissions are rarely measured and reported today

Proposal:

- **Expand existing emission reporting requirements to include CO₂, CH₄, N₂O and HFCs for new vehicles and engines**
 - Emissions rate (e.g. grams/mile) similar to existing requirements
 - Provides consistency in CO₂ reporting across all vehicle and engine categories
 - Modest new requirements for measuring and reporting CH₄, N₂O and HFCs
 - HFC reporting would be primarily limited to light duty vehicles
- **Manufacturers report annually, at time of current annual certification (first reports for 2011 model year)**
- **Small manufacturers would not have to report**

How Is This Source Category Defined and What GHGs Would Be Reported?



Manufacturers of the following mobile source categories...	would report the following GHGs...	in units of...	for new vehicles and engines certified under or subject to the Code of Federal Regulations (CFR) Title 40, including proposed amendments to these parts.
Light-duty vehicles	CO ₂ , N ₂ O, CH ₄ , Air conditioning-related GHGs	grams per mile ^a	86, 600, 1064, ^b 1065
Highway heavy-duty vehicles (chassis-certified)	CO ₂ , N ₂ O, CH ₄ , Air conditioning-related GHGs	grams per mile ^a	86
Highway heavy-duty engines	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	86
Highway motorcycles	CO ₂ , N ₂ O, CH ₄	grams per kilometer	86
Nonroad diesel engines	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	89, 1039
Marine diesel engines	CO ₂ , N ₂ O, ^c CH ₄ ^c	grams per kilowatt-hour	94, 1042
Locomotive engines	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	1033
Nonroad small spark ignition engines	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	90, 1054
Nonroad large spark ignition engines	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	1048
Marine spark ignition engines/personal watercraft	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	1045
Snowmobiles	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	1051
Off-highway motorcycles and ATVs	CO ₂ , N ₂ O, CH ₄	grams per kilowatt-hour	1051
Aircraft engines ^d	CO ₂ , CH ₄	grams per kilonewton	87

^a Except air conditioning-related GHGs; see relevant CFR sections for details. ^b This is a new part, not an amendment. ^c Except C3 marine engines. ^d Only turbofan and turbojet engines with a rated output greater than 26.7 kilonewtons.

Fleets and VMT/travel activity data



- Reviewed options for collecting fleet-wide, in-use emissions data to complement manufacturer data
- EPA already receives some truck and rail fleet emissions data voluntarily via the SmartWay program and some county-level travel activity data and other mobile source data from states via the Air Emissions Reporting Rule

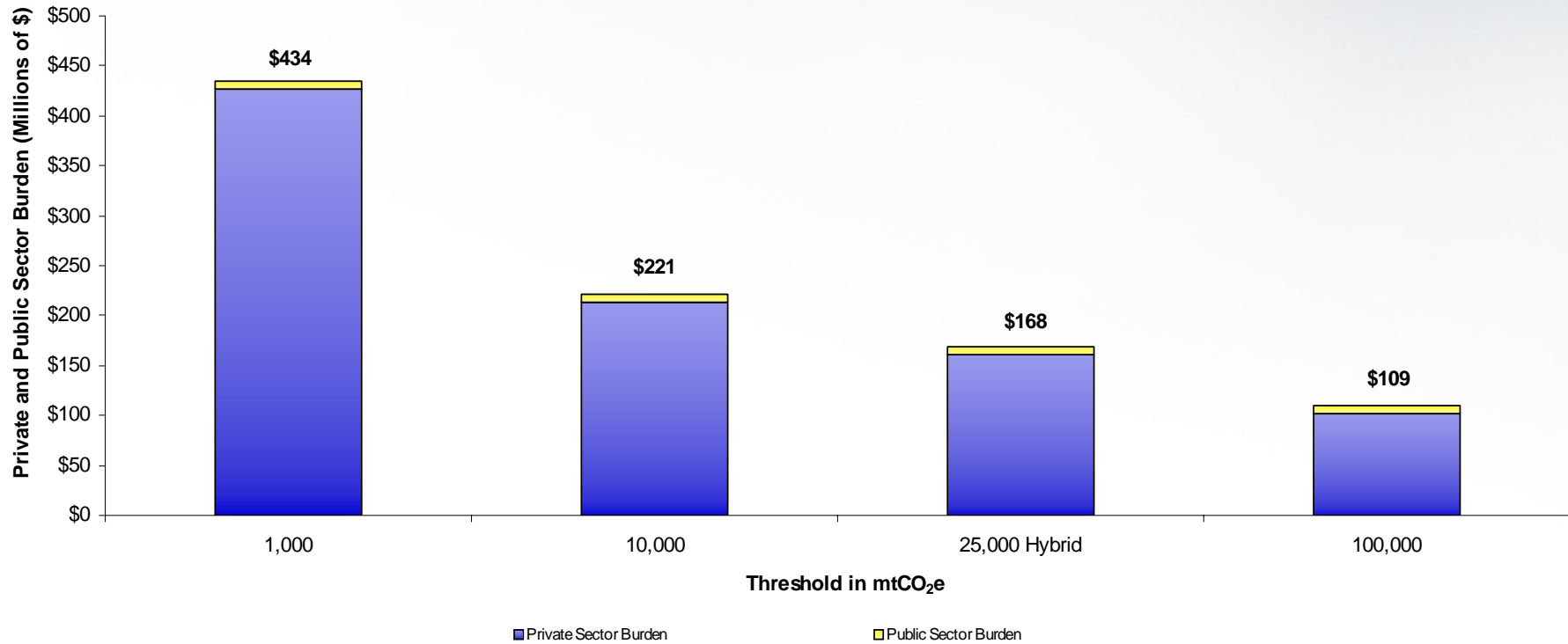
Proposal:

Not proposing any new requirements; seeking comment on collecting additional emissions and activity data from fleets and state and local governments

Estimated Proposal Costs



First Year National Costs by Threshold (Millions of \$)



Proposal Summary



- **Reporter: Hybrid approach**
 - Facility reporting for all source categories for which there are methods
 - Limited exceptions (e.g. fuel importers, vehicle and engine manufacturers)
- **Threshold: Hybrid approach**
 - 25,000 tons CO₂e – Facility reports all source categories for which there are methods in the rule
 - May develop capacity thresholds where feasible (e.g., ARP)
- **Methodology: Hybrid approach**
 - Direct measurement of stationary combustion source categories where data currently collected (e.g., CO₂ emissions from EGUs in ARP)
 - Facility-specific calculation methods for other source categories at the facility
- **Frequency: Annual**
 - Annual for new reporters
 - Facilities already reporting similar data more frequently to other mandatory programs (e.g., Acid Rain Program) continue current practice
- **Verification: EPA as the verifier**
 - Reporter self-certifies emissions data and other specified activity data and submits to EPA who performs QA/QC of reports

For more information...



Ken Mitchell
404-562-9065
mitchell.ken@epa.gov

<http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>

*This information is intended to assist reporting facilities/owners in understanding key provisions of the proposed rule.
However, this information is not intended to be a substitution for the rule.*