U.S. EPA's Proposed Amendment to the Greenhouse Gas Mandatory Reporting Rule (75 FR 18652, April 12, 2010)

Subpart DD: Use of Electrical T&D Equipment

Subpart SS: Manufacture of Electrical T&D Equipment

Subpart QQ: Imports and Exports of Equipment Pre-charged with Fluorinated GHGs

SF_6 Partners Meeting
May 13, 2010

Presentation not a substitute for reading the Proposed Rule

- This presentation is intended to assist reporting facilities/owners in understanding key provisions of the proposed rule. However, it is not intended to be a substitution for the proposal (75 FR 18652; April 12, 2010).

- If there are any inconsistencies with material presented here and the rule, defer to what's in the rule.

- Asking a question on this presentation is not the same as submitting public comment. Please see Web page or preamble for information on how to submit comments.

Mandatory Reporting Rule: Status

- Required by FY08 Appropriations Act – Dec. 26, 2007
  - All greenhouse gases
  - Report on "Upstream" and "Downstream" sources
  - Collect accurate and timely data to inform public policy

- Final rule signed September 22, 2009; published in Federal Register on October 30, 2009
  - Requires reporting of 2010 data in 2011

- New/additional source categories proposed March 22, 2010; published in Federal Register April 12, 2010

Key Elements of the October 30, 2009 Final Rule

- Annual reporting of GHG by:
  - 25 source categories
  - 5 types of suppliers of fuel and industrial GHG
  - Motor vehicle and engine suppliers (except light duty sector)
- 25,000 metric tons CO_2e per year reporting threshold for most sources; capacity-based thresholds where feasible
- Estimated 10,000 facilities (85% of US emissions coverage)
- Direct reporting to EPA electronically, system will be web-based
- EPA will conduct verification of the emissions data
- Excludes most small businesses and governments
- MRR complements state programs; it is not intended to replace or preclude them

Source Categories in the Final Rule*

Upstream Sources	• Suppliers of Coal-based Liquid Fuels • Suppliers of Petroleum Products • Suppliers of Natural Gas and Natural Gas Liquids • Suppliers of Industrial GHGs • Suppliers of Carbon Dioxide (CO2)
Downstream Sources	• General Stationary Fuel Combustion Sources • Electricity Generation • Adipic Acid Production • Aluminum Production • Ammonia Manufacturing • Cement Production • Ferroalloy Production • Glass Production • HCFC-22 Production and HFC-23 Destruction • Hydrogen Production • Iron and Steel Production • Lead Production • Lime Manufacturing • Miscellaneous Uses of Carbonates • Nitric Acid Production • Petrochemical Production • Petroleum Refineries • Phosphoric Acid Production • Pulp and Paper Manufacturing • Silicon Carbide Production • Soda Ash Manufacturing • Titanium Dioxide Production • Zinc Production • Municipal Solid Waste Landfills • Manure Management
Mobile Sources	•Vehicles and engines outside of the light-duty sector (light-duty in NPRM to *Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Fuel Economy Standards)*

* We delayed inclusion of the following source categories as we consider the comments and options: Electronics Manufacturing, Ethanol Production, Fluorinated GHG Production, Food Processing, Magnesium Production, Oil and Natural Gas Systems, Sulfur Hexafluoride (SF_6) from Electrical Equipment, Underground Coal Mines, Industrial Landfills, Wastewater Treatment, Suppliers of Coal

Amendment to the Mandatory Reporting Rule

- Proposal signed March 22, 2010; published in Federal Register April 12, 2010
- 60 day public comment period ends June 11
- Goal is reporting for calendar year 2011 in 2012
- Includes three sources or suppliers of SF_6 –
  - Subpart DD: Use of electric power equipment
  - Subpart SS: Manufacture of electric power equipment
  - Subpart QQ: Imports and exports of equipment charged with fluorinated greenhouse gases

Electric Transmission and Distribution Equipment Use

~Subpart DD~

Background

- First proposed on April 12, 2009 (74 FR 16448)
  - Received comments from 22 entities
  - General support for threshold, method, monitoring, etc
  - Needed clarification on definition of “facility”
- Supplemental proposal (April 12, 2010, 75 FR 18652) to provide additional detail on definition of facility under this source category.
- EPA requests comment on definition of facility but is not seeking further comment on other elements of the initial proposal

Proposed Definition of Facility

- EPA proposes to define “facility” for this subpart to mean an “electric power system”.
- System: the collection of SF6- and PFC-insulated equipment linked through electric power transmission or distribution lines and operated as an integrated unit by one electric power entity or several entities that have a single owner.
- EPA proposed to define an electric power entity using the Energy Information Administration (EIA) list of examples

EIA Entities

- A company
- Electric cooperative
- Public electric supply corporation, e.g. TVA
- Federal Department, e.g. Bonneville
- Bureau of Reclamation or Corp of Engineers
- A jointly owned electric supply project, e.g. Keystone

REGGI: Alternate Definition

- All assets and equipment used to transmit and distribute electricity from an electric generator to the electrical load of a customer. It includes all related assets and equipment located within the service territory of the entity, defined as the service territory of a load-serving entity specified by the applicable state regulatory agency.
- EPA seeks comment on whether the RGGI definition includes the spectrum of entities identified in the EIA list and captures the full universe of SF6-emitting entities in the U.S.

[1] Regional Greenhouse Gas Initiative Model Rule, 2008.

Who Would Report?

- Proposed threshold for reporting is 17,820 lbs. of utility-wide SF_6 nameplate capacity

- Proposed EPS source category includes the following SF_6 or PFC containing equipment (transmission and distribution):
  - gas-insulated substations
  - circuit breakers and other switchgear
  - gas-insulated lines
  - power transformers
  - Plus: cylinders, gas carts,

Proposal for Calculating Emissions

- Emissions would be calculated for the entire utility using the following mass balance formula:
  - Emissions = (decrease in SF_6 inventory) + (acquisitions of SF_6) – (disbursements of SF_6) – (Net Increase in Total Nameplate Capacity of Equipment Operated)
- Same methodology as Partnership
- PFC emissions calculation would also be required using same equation

Monitoring and QA/QC Requirements

- Proposed QA/QC:
  - Review inputs to emission calculation to ensure all inputs/outputs included
  - Ensure all additions including SF_6 purchased from OEMs and SF_6 returned from off-site recycling are accounted for among the additions to inventory.
  - Do not enter negative inputs, confirm no negative emissions
  - Ensure beginning-of-year inventory matches end-of-year inventory from previous year

Monitoring and QA/QC Requirements Continued

- Proposed QA/QC methods throughout the year:
  - Weigh all cylinders sent off-site
    - using scales certified to be accurate and precise to within 1% of the true weight and recalibrated per manufacturer specs.
  - Track and weigh all cylinders as they leave and enter storage
    - using scales within 1% of the true weight and recalibrated at least annually or minimum frequency per manufacturer specs.
  - Ensure all substations have provided information to manager compiling the emissions report (if not already handled through an electronic inventory system)

Proposed Data Reporting Requirements

- Nameplate capacity of all equipment at beginning of year, new equipment purchased and equipment retired during the year
- Transmission miles (>34.5 kV)
- SF_6 and PFCs sales and purchases
- SF_6 and PFCs sent off-site (destruction, recycling, or return to suppliers)
- SF_6 and PFCs returned from off-site after recycling
- SF_6 and PFCs stored in containers at the beginning and end of year
- SF_6 and PFCs with or inside new equipment purchased in the year or sold equipment
- If required, missing data could be replaced by data from similar equipment with similar nameplate capacity

Electrical Equipment Manufacture or Refurbishment

~Subpart SS~

Proposed Definition of Source Category and Reporting Threshold

- Electrical equipment manufacturers and refurbishers of SF_6 or PFC-insulated closed-pressure equipment and sealed-pressure equipment including GIS, circuit breakers, and other switchgear, GIL, or power transformers.
- EPA requests comment on:
  - Whether transformers using PFCs are manufactured in the U.S.
  - Whether PFC emissions associated with the manufacture/refurbishment occur at the same rate and during the same processes as SF6 emissions.
- <u>Proposed Reporting Threshold:</u> Total annual purchases of SF_6 and PFC exceed 23,000 lbs.
  - Equivalent to an emissions-based threshold of 25,000 MTCO2Eq.

Proposed Monitoring Methods

- Mass-balance approach similar to the 2006 IPCC Guidelines Tier 3 methods
  - Emissions of SF_6 and PFCs would be estimated and reported separately
- Mass balance equation:
  - Emissions = (decrease in SF_6 inventory) + (acquisitions of SF_6) – (disbursements of SF_6)
- PFC emissions calculation would also be required using same equation

Installation

- EPA requests comment on whether an equipment installation mass-balance eqn. is required to measure emissions from equipment installation and commissioning performed by manufacturer at utility location.
  - Manufacturer responsible for associated emissions when filling equipment before transferring custody to the user
- EPA requests comment on whether manufacturer should be required to certify to equipment users the actual qty. of SF6 or PFCs charged into equipment at installation.
  - How frequently is equipment over-charged at installation?
  - How to capture the overcharge in user emissions (subpart DD)?

Imports and Exports of Fluorinated GHG Inside Pre-Charged Equipment and Closed-Cell Foams

~Subpart QQ~

Imports and Exports of Pre-charged Equipment Containing F-GHGs

- Includes all SF6-containing equipment

- Threshold: imports or exports at the corporate level contained a total of 25,000 metric tons of carbon dioxide equivalent (mtCO2e) or more of fluorinated GHGs

- Why? Source estimated to be 10% of fluorinated GHG supply

For more information

- Visit EPA's Web site (www.epa.gov/climatechange/emissions/ghgrulemaking.html) for more information, including the proposed preamble and rule and additional information sheets on specific industries, or go to <www.regulations.gov> to access the rulemaking docket (EPA-HQ OAR-2009-0927).
- Written comments should be submitted to www.regulations.gov no later than June 11
- For questions that cannot be answered through the Web site or docket, call 1-877-GHG-1188 or email: ghgmrr@epa.gov.

Discussion Items

- Definition of facility
  - Good fit?
- Installation of equipment
  - Scenarios of ownership transfer
- Perfluorocarbon (PFC) transformers
  - PFCs used as substitute for CFCs
  - Anybody have any?