Electric Transmission and Distribution Equipment Use

United States Environmental Protection Agency

Final Rule: Mandatory Reporting of Greenhouse Gases (40 CFR 98, Subpart DD)

Under the final Mandatory Reporting Rule for Additional Sources of Fluorinated Greenhouse Gases (GHGs), owners and operators of electric power system facilities with a total nameplate capacity that exceeds 17,820 lbs (7,838 kg) of sulfur hexafluoride (SF_6) and/or perfluorocarbons (PFCs) must report emissions of SF_6 and/or PFCs from the use of electrical transmission and distribution equipment. Owners or operators must collect emissions data, calculate GHG emissions, and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.

How Is This Source Category Defined?

The electrical transmission and distribution equipment use source category consists of all electric transmission and distribution equipment and servicing inventory insulated with or containing SF_6 or PFCs used within an electric power system. This equipment includes but is not limited to gas-insulated substations; circuit breakers; switchgear, including closed-pressure and hermatically sealed-pressure switchgear; gas-insulated lines containing SF_6 or PFCs; gas containers such as pressurized cylinders; gas carts; electric power transformers; and other containers of SF_6 or PFC.

For the purposes of this subpart, *facility* is defined as the electric power system, comprising all electric transmission and distribution equipment insulated with or containing SF_6 or PFCs that is linked through electric power transmission or distribution lines and functions as an integrated unit, that is owned, serviced, or maintained by a single electric power transmission or distribution entity (or multiple entities with a common owner), and that is located between (1) the point(s) at which electric energy is obtained by the facility from an electricity generating unit or a different electric power transmission or distribution entity that does not have a common owner, and (2) the point(s) at which the customer or another electric power transmission or distribution entity that does not have a common owner receives the electric energy. The facility also includes servicing inventory for such equipment that contains SF_6 or PFCs.

What GHGs Must Be Reported?

The rule requires that each electric power system facility must report total SF_6 and PFC emissions (including emissions from equipment leaks, installation, servicing, decommissioning, and disposal, and from storage cylinders) from the following types of equipment:

- Gas-insulated substations;
- Circuit breakers;
- Switchgear, including closed-pressure and hermetically sealed-pressure switchgear;
- Gas-insulated lines containing SF_6 or PFCs;
- Gas containers such as pressurized cylinders;
- Gas carts;
- Electric power transformers; and
- Other containers of SF_6 or PFC.

How Must GHG Emissions Be Calculated?

Under this rule, electric power system facilities must calculate SF_6 and PFC emissions using a mass-balance approach that takes into account the following:

- Decrease in SF_6 Inventory: The SF_6 stored in containers (but not in energized equipment) at the beginning of the year minus the SF_6 stored in containers (but not in energized equipment) at the end of the year. These quantities must be measured using a scale that is accurate to within +/- 2 pounds of true weight, and the scale must be recalibrated periodically per manufacturer specifications.
- Acquisitions of SF_6: The sum of (1) the amount of SF_6 purchased from chemical producers or distributors in bulk, (2) SF_6 purchased from equipment manufacturers or distributors inside or alongside equipment (including hermetically sealed-pressure equipment), and (3) SF_6 returned to the facility after off-site recycling.
- Disbursements of SF_6: The sum of the amount of SF_6 in bulk and contained in equipment that is sold to other entities, returned to suppliers, and sent off-site for recycling or destruction. Facilities returning cylinders to storage or to the supplier must either weigh the cylinders themselves or have the supplier weigh the cylinders, obtaining a detailed monthly account from the supplier. The scale used to weigh these quantities (regardless of whether weighing is performed by the electric power system facility or the supplier) must be accurate to within +/- 2 pounds of true weight, and the scale must be recalibrated periodically per manufacturer specifications.
- Net Increase in Total Nameplate Capacity of Equipment: The nameplate capacity of new equipment (including hermetically sealed-pressure equipment) minus the nameplate capacity of retiring equipment (including hermetically sealed-pressure equipment). Nameplate capacity refers to the full and proper charge of gas within equipment as specified by the equipment manufacturer rather than the actual charge, which may reflect leakage.

Using the parameters above, the electric power system facility must calculate emissions (in pounds) using the following mass-balance equation:

$$\text{Emissions} = \text{Decrease in } SF_6 \text{ Inventory} + \text{Acquisitions of } SF_6 - \text{Disbursements of } SF_6 - \text{Net Increase in the Nameplate Capacity of Equipment}$$

PFC emissions (e.g., from transformers that formerly used CFC-113) must be calculated in the same way, substituting the PFC for SF_6 in the equation above.

When Does Reporting Begin?

Facilities subject to subpart DD must begin monitoring GHG emissions on January 1, 2011 in accordance with the methods specified in subpart DD. For 2012 only, the GHG report must be submitted to EPA by September 28, 2012. In future years, the deadline for reporting is March 31, unless that date falls on a weekend, in which case the report is due the next business day.

What Information Must Be Reported?

In addition to the information required by the General Provisions at 40 CFR 98.3(c), the rule calls for each electric power system to report:

- Nameplate capacity of equipment (pounds) containing SF_6 and PFCs existing at the beginning of the year (*excluding* hermetically sealed-pressure equipment).

- Nameplate capacity of new equipment (pounds) purchased during the year (*including* hermetically sealed-pressure equipment) and equipment retired during the year (*including* hermetically sealed-pressure equipment).
- Transmission miles (length of lines carrying voltages above 35 kilovolt [kV]).
- Distribution miles (length of lines carrying voltages at or below 35 kilovolt [kV]).
- SF_6 and PFC stored in containers, but not in energized equipment, at the beginning of the year (pounds).
- SF_6 and PFC stored in containers, but not in energized equipment, at the end of the year (pounds).
- SF_6 and PFC purchased in bulk from chemical producers or distributors (pounds).
- SF_6 and PFC purchased from equipment manufacturers or distributors with or inside equipment, including hermetically sealed-pressure switchgear (pounds).
- SF_6 and PFC returned to facility after off-site recycling (pounds).
- SF_6 and PFC in bulk and contained in equipment sold to other entities (pounds).
- SF_6 and PFC returned to suppliers (pounds).
- SF_6 and PFC sent off-site for recycling (pounds).
- SF_6 and PFC sent off-site for destruction (pounds).
- For any missing data, the parameters for which the data were missing, the substitute parameters used to estimate emissions in their absence, and the quantity of emissions thereby estimated.

EPA has temporarily deferred the requirement to report data elements in the above list that are used as inputs to emission equations (76 FR 53057, August 25, 2011). For the current status of reporting requirements, including the list of data elements that are considered to be inputs to emissions equations, consult the following link: http://www.epa.gov/ghgreporting/reporters/cbi/index.html

For More Information

This document is provided solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person. The series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the rule. They are not intended to be a substitute for the rule.

Visit EPA's Web site (http://www.epa.gov/ghgreporting/index.html) for more information and additional information sheets, or go to www.regulations.gov to access the rulemaking docket EPA-HQ-OAR-2009-0927.