



Mandatory Greenhouse Gas Reporting Rule: EPA's Response to Public Comments

Subpart SS: Electrical Equipment Manufacture or Refurbishment

FOREWORD

This document provides responses to public comments on the U.S. Environmental Protection Agency's (EPA's) Proposed Mandatory Greenhouse Gas Reporting Rule: Additional Sources of Fluorinated GHGs: Subpart SS, Electrical Equipment Manufacture or Refurbishment. EPA published a Notice of Proposed Rulemaking in the Federal Register (FR) on April 12, 2010 (75 FR 18652). EPA received comments on this proposed rule via mail, e-mail, and at a public hearing held in Washington D.C. on April 20, 2010. Copies of all comments submitted are available at the EPA Docket Center Public Reading Room. Comments letters and transcripts of the public hearings are also available electronically through <http://www.regulations.gov> by searching Docket ID EPA-HQ-OAR-2009-0927.

EPA prepared this document in multiple sections, with each section focusing on a different broad category of comments on the rule. In light of the large number of comments received and the significant overlap between many comments, this document does not respond to each comment individually. Rather, EPA summarized and provided a single response to each significant argument, assertion, and question contained within the totality of comments. Within each comment summary, EPA provides in parentheses one or more lists of Docket ID numbers for commenters who raised particular issues; however, these lists are not meant to be exhaustive, and EPA does not individually identify each and every commenter who made a certain point in all instances, particularly in cases where multiple commenters expressed essentially identical arguments.

EPA's responses to comments are generally provided immediately following each comment summary. In some cases, EPA provided responses to specific comments or groups of similar comments in the preamble to the final rulemaking. Rather than repeating those responses in this document, EPA has referenced the preamble.

Comments were assigned to specific section of this document based on an assessment of the principal subject of the comment; however, some comments inevitably overlap multiple subject areas.

Table of Contents

1.	Definition of the Source Category	4
1.1	Installation of Electrical Equipment at Electric Power Systems.....	4
2.	Reporting Threshold.....	6
3.	Detailed GHG Emission Calculation Procedures/Equations in the Rule.....	7
3.1.	Method for Estimating Disbursements to Customers	7
3.2.	Certification of Quantity Charged in Equipment.....	7
3.3.	Over-charging equipment.....	8
4.	Monitoring and QA/QC Requirements.....	10
4.1.	Accuracy and Precision of Scales.....	10
4.2.	Other	11
	Appendix A – List of Commenters Sorted by Submission Number	12

1. Definition of the Source Category

Relevant Bin Numbers: 6.1.2 and 6.1.2.2

1.1 Installation of Electrical Equipment at Electric Power Systems

Comment Summary 1.1-a: Two commenters (0125, 0126) supported the notion that the manufacturer installing the equipment should be responsible for reporting the emissions before transferring custody of the equipment. Commenter 0125 “seeks clarification on the intersection of the facility definitions” between subpart DD and subpart SS given that often times an electrical equipment manufacturer is contracted for delivery to and installation at an electric power transmission or distribution facility. New equipment that is installed “could potentially operate “as an integrated unit” as part of the electrical grid before the utility takes ownership”; to that end, the proposed language “could require a transfer of the reporting requirement from the subpart SS entity to the subpart DD entity at the moment of first connection.” Commenter 0125 expresses concern that such a scenario would create significant administrative burdens for all parties. To simplify this burden, Commenter 0125 proposed that the definition of a facility include “the job site where new equipment installation occurs” such that “the owner of the gas, typically the equipment manufacturer or a third party, would be responsible for reporting until the title to the gas and equipment has been transferred to the customer.” Commenter 0125 proposed to add clarifying text to both subparts DD and SS about the reporting requirements with respect to equipment installation. For subpart DD, Commenter 0125 proposed adding the text, “For equipment installed but not yet owned, the reporting requirements under this subpart begin when the title to the equipment is transferred to the utility or third party.” For subpart SS, Commenter 0125 proposed adding “installation” to the language regarding GHGs to report.

One commenter (0129) recommended that there be a separate subpart of the MRR to cover emissions from equipment installation because the gas owner could be electrical equipment manufacturer, the electric power transmission or distribution facility, or a third party contracted by either the electrical equipment manufacturer or the customer. Commenter 0129 cited other reasons for having a separate subpart including the difficulty in measuring emission losses downstream of the flowmeter and the need for two different emissions calculations in Subpart SS. Commenter 0129 expressed concern over which subpart a third party that is hired to purchase gas and perform installation would follow.

Response 1.1-a: EPA recognizes that some equipment, namely gas insulated substations, is typically assembled by the manufacturer onsite and that it can take several months to complete assembly, inspection, and final acceptance and commissioning. For these projects, gas accounting is best done by the manufacturer that is assembling the equipment and handling the gas that will be installed into the equipment. Based on EPA’s review of these comments, the final rule specifies that the responsibility of reporting emissions from installation practices is dependent upon the point at which the title is transferred to the electric power transmission or distribution entity by the equipment manufacturer or third-party contracted by the manufacturer.

In instances when the title to the equipment has not yet been transferred to the electric power transmission or distribution facility (regardless of whether the equipment manufacturer holds the title or the title temporarily passes from the equipment manufacturer to a third party contractor), and the equipment is at the electric power transmission or distribution facility, the equipment manufacturer must estimate and report emissions from equipment installation using the equipment installation mass balance equation. In instances when the title of the equipment has been transferred to the electric power transmission or distribution facility, the electric power transmission or distribution facility must estimate and report emissions during installation by accounting for the amount of gas inside the equipment, upon the date of the title transfer to the electric power transmission or distribution entity, in the mass balance acquisition input. If the title of the equipment has already been transferred to the electric power transmission or distribution entity and the installation is conducted by a third party, then the electric power transmission or distribution facility would still be responsible for reporting emissions during installation..

EPA disagrees with the need for a separate subpart to cover emissions from equipment installation. In instances when a third party is contracted to conduct the installation, the equipment manufacturer remains obligated to report the emissions unless title has transferred to the electric power system.

As explained in section V of the preamble of the 2009 final rule, all reporters must select a designated representative (DR) who is responsible for certifying, signing, and submitting all submissions to EPA. The DR has the flexibility to delegate duties, such as the preparation of submissions, but retains the ultimate responsibility to sign and certify all submissions. See, 58 FR 3590, 3598 (Jan. 11, 1993). Furthermore, while the DR or his delegatee may need to acquire necessary reporting information from a third party, the DR must make the appropriate inquiries and certification when reporting; ultimate responsibility rests and must necessarily rest on him or her. The DR may provide in contracts, leases, or other agreements with third parties that true, accurate, and correct reporting information must be provided to the DR in a timely fashion. If the third party fails to provide timely, true, accurate, or correct information to the DR, then the DR has recourse contractually, or otherwise, on the third party. For more information see section V of the 2009 final rule (74 FR 56260) and the Mandatory Greenhouse Gas Reporting Rule: EPA's Response to Public Comments, Volume 11, Designated Representative and Data Collection, Reporting, Management and Dissemination (EPA-HQ-OAR-2008-0508).

2. Reporting Threshold

Relevant Bin Number: 6.2

Comment Summary 2-a: One commenter (0125) requested that sealed and unused gas cylinders should not count toward the reporting threshold. Commenter 0125 explained that electrical equipment manufacturers “purchase sealed cylinders for bundled deliveries of gas and equipment”, and as such, their seals remain intact and no leakages can occur. The commenter referenced the 10% leak rate as cited in the preamble, which was based on a 2002 CIGRÉ article. According to the commenter, the article omitted mention of storage when describing OEM gas purchases as “partly banked in newly installed equipment and partly lost during testing, manufacturing, and commissioning.”¹

Response 2-a: EPA disagrees that sealed and unused cylinders should not count toward the reporting threshold. EPA recognizes that sealed cylinders are unlikely to be a major source of emissions and that it has been the standard practice by some manufacturers to deliver sealed cylinders with new equipment. However, EPA is concerned that not including these cylinders could introduce complications in tracking gas in cylinders and other containers because of the need to differentiate those cylinders that are sealed and destined for the customer and those cylinders that are sealed and destined for use by the electrical equipment manufacturer. Further it would be virtually impossible for an audit of threshold and cylinder record keeping requirements to distinguish the different use of cylinders at the beginning and end of the year. Therefore, EPA finalized the requirement that sealed and unused cylinders count toward the determination of the reporting threshold.

¹ P. O'Connell, F. Heil, J. Henriot, G. Mauthe, H. Morrison, L. Niemeyer, M. Pittroff, R. Probst, J.P. Taillebois, “SF6 in the Electric Industry, Status 2000,” CIGRÉ Electra, February 2002, pg. 16

3. Detailed GHG Emission Calculation Procedures/Equations in the Rule

3.1. Method for Estimating Disbursements to Customers

Relevant Bin Number: 6.4.1 and 6.4.2

Comment Summary 3.1-a: Two commenters (0125, 0128) supported the need to quantify emissions that occur during SF₆ disbursement activities. Commenter 0128 supported a combination of flow meters and engineering estimates to determine the emission loss downstream of the container filling the equipment or cylinder but opposes the use of a nameplate capacity technique that would require an “involved and uncertain statistical correction method.” Commenter 0125 was concerned that “the proposed rule could require an inordinate administrative burden to record the numerous parameters for individual fill operations.” Commenter 0125 recommended “applying a statistical calculation such as a midpoint or average to all fill operations”, which would not need to be rerecorded for each operation.

Response 3.1-a: EPA recognizes that developing a representative loss factor that can be used for all filling events is more practical than performing measurements for each individual fill operation. EPA agrees with the commenters that direct measurement would be burdensome in this circumstance. Consequently, rather than requiring actual measurements as proposed, EPA is allowing reporters to account for variability in the diameters and fittings of hoses supplied by various manufacturers and applied under varying conditions and requiring an emission factor be calculated for each hose and valve, or fitting, combination. For each hose-valve combination, the calculated emission factor must be multiplied by the number of annual fill operations that use that hose-valve arrangement. The calculation must be recalculated annually to account for changes to the specifications of the valves or hoses that may occur throughout the year. In addition, EPA is requiring electrical equipment manufacturers to account for SF₆ or PFC emissions that occur as a result of unexpected events or accidental losses, such as a malfunctioning hose or leak in the flow line, during the filling of equipment or containers for disbursement. If there is a sudden rise in the quantity of SF₆ or PFC gas that is needed to fill a certain make and model to its shipping charge, or nameplate capacity, this may be indicative of a leak in the lines. It is good practice to note unusual changes to the quantities used to fill equipment.

In addition, although one commenter opposes the use of a nameplate capacity technique, to increase flexibility, EPA is providing this additional option for determining the mass of SF₆ or the PFCs disbursed to customers in new equipment. EPA is allowing the equipment’s nameplate capacity or, in cases where equipment is shipped with a partial charge, the equipment’s partial shipping charge to be assumed as equal to the disbursement. A sufficiently precise estimate of the nameplate capacity for each make and model of equipment must be determined through a number of measurements. The number of measurements required must be calculated to achieve a precision of one percent of the true mean, using a 95 percent confidence interval.

Comment Summary 3.1-b: Commenter 0075 acknowledged that flow meters may be appropriate for certain manufacturer SF₆ disbursement procedures but does not support the use of flow meters by the electrical transmission or distribution facility because they are not currently available and crews are not presently trained in their use. “Weighing of cylinders has proven to provide a good measure of facility inventory and emissions.”

Response 3.1-b: EPA is not requiring the use of flowmeters by the electrical transmission or distribution facility under Subpart DD of the final rule. Under Subpart SS, electrical equipment manufacturers are required to estimate the mass of SF₆ or PFCs disbursed to customers in new equipment or cylinders by monitoring the mass flow of the SF₆ or PFCs into the new equipment or cylinders using a flowmeter or by weighing containers before and after gas is filled into equipment or cylinders. For more information regarding the cylinder tracking and weighing requirements for electrical transmission or distribution facilities, please see section DD of the preamble and final rule.

3.2. Certification of Quantity Charged in Equipment

Relevant Bin Number: 6.4.3

Comment Summary 3.2-a: Seven commenters (0075, 0081, 0083, 0094, 0097, 0098, 0126) supported requiring that electrical equipment manufacturers certify the quantity of SF₆ or PFC contained in equipment that is delivered inside equipment. Commenter 0081 recommended that the quantity of gas certified in delivered equipment be “expressed in pounds and not in terms of pressure, volume and temperature.”

Commenter 0083 asserted that electric transmission or distribution facilities are “currently unable to obtain accurate information on the amount of gas used for the residual charge, or the amount of gas shipped in cylinders alongside new equipment, or even an accurate nameplate capacity for the new piece of equipment.” Commenter 0083 supported the inclusion of electrical equipment manufacturers in the rule and requiring that they provide to the customer an accounting of the amount of SF₆ disbursed to the electrical equipment user and an accurate nameplate capacity for the equipment. Commenter 0083 stated that “since equipment manufacturers will already be tracking their SF₆ disbursements, sharing this information with the equipment users will not be burdensome.”

Commenters 0097 and 0098 both supported that the electrical equipment manufacturer should certify both the weight of that gas and the nameplate SF₆ weight; commenters 0097 and 0094 state that the nameplate SF₆ weight should be expressed at rated pressure and standard temperature.

Response 3.2-a: After reviewing the comments received, EPA concludes that the electrical equipment manufacturer should certify the quantity of gas provided in delivered equipment as it represents two inputs to two mass balance equations—a disbursements input of the mass-balance equation used by manufacturers (i.e., sales of SF₆ to other entities, including gas in equipment that is sold) and an acquisitions input of the mass-balance equation used by electric power systems (i.e., gas with or alongside equipment). Additionally, EPA concludes that the electrical equipment manufacturer should certify the quantity of gas charged into the equipment at installation as it represents the acquisition input to the electric power systems’ mass balance equation. The validity of the mass-balance approach is dependent on precise inputs, consequently, inaccuracies of even two or three percent could lead to unacceptably large inaccuracies in emissions estimates. The final rule includes a requirement for electrical equipment manufacturers to maintain such certifications as records and to express the quantity in pounds of SF₆ or PFC gas. Electrical equipment manufacturers should provide copies of the certifications to electric power systems upon request.

3.3. Over-charging equipment

Relevant Bin Number: 6.4.4

Comment Summary 3.3-a: Three commenters (0075, 0097, and 0098) provided comment to EPA’s request for information on over-charging electrical equipment during installation and commissioning. Commenter 0075 stated that such a practice is not allowed by their company’s operating, maintenance, and safety procedures. Commenters 0097 and 0098 recommended that the electrical equipment manufacturer “be responsible for the associated emissions of any overcharge of SF₆ when OEMs [electrical equipment manufacturers] install and commission equipment at the electric transmission or distribution facility.”

Response 3.3-a: EPA recognizes that emissions associated with an overcharge can occur at different points in time during the lifetime of the equipment. Associated emissions from over-charging are discussed further in the Subpart SS Technical Support Document, “Technical Support Document for Emissions from Electric Equipment Manufacture or Refurbishment and Manufacturing of Electrical Components.” Please see this document, available in the docket (Docket ID No. EPA-HQ-OAR-2009-0927) and online, for more information.

Additionally, EPA recognizes the need for accuracy of the data inputs required to estimate emissions of SF₆ from electrical equipment use. Therefore, EPA is requiring in the final rule that the quantity of gas charged into delivered equipment and added during installation by the manufacturer be certified by the manufacturer and expressed in pounds of SF₆ or PFC. Electrical equipment manufacturers must keep records of certifications of the quantity of gas, in pounds, charged into equipment at the electrical equipment manufacturer or refurbishment facility as well as the actual quantity of gas, in pounds, charged into equipment at installation. This certification requirement will ensure that the equipment user knows the exact amount of gas contained within the equipment that arrives to its electric transmission or

distribution facility in order to satisfy subpart DD reporting requirements. It is the equipment user's responsibility to be aware of any overcharge and document this overcharge in their mass-balance emissions monitoring.

Lastly, the requirements of the final rule distinguish the reporting boundary between subparts DD and SS by requiring electrical equipment manufacturers to estimate and report the annual SF₆ and PFC emissions from the equipment being installed on the electric power system's premises until the title of the equipment has transferred to the electric power transmission or distribution entity. For more information on reporting boundaries, please see the response to comment under 1.1a, above.

4. Monitoring and QA/QC Requirements

4.1. Accuracy and Precision of Scales

Relevant Bin Number: 6.4.2

Comment Summary 4.1-a: Two commenters (0118, 0125) provided comment on the proposed accuracy and precision requirements for scales used by electrical equipment manufacturers. Commenter 0118 agreed that “scales used to weigh the SF₆ cylinders need to be calibrated and within one percent accuracy.” Conversely, commenter 0125 disagreed with the proposed requirement. Commenter 0125 is concerned that such a level of accuracy “will be unattainable in practice because scales currently in use have an accuracy of ±2 pounds.” With the current accuracy of ±2 pounds, “a gas cylinder returned with 10 pounds of residual gas would result in a potential gas weight error of 20 percent. A one percent accuracy requirement would require a scale with an accuracy of ±0.1 pounds, or 200 times more precise than currently in use.” The commenter (0125) believed that despite the proposed rule allowance of “best available” measurement accuracies in the 2011 reporting year, the one percent accuracy will not be attainable by 2012. Commenter 0125 recommended “an accuracy requirement that is no stricter than 10 percent for residual gas amounts.”

Response 4.1-a: The proposed rule would have required that scales be accurate and precise to within ±1 percent of the true weight or better. Based on these commenters’ concerns, EPA conducted an analysis, as described in the Technical Support Document for Emissions from Electrical Equipment Manufacture or Refurbishment and Manufacturing of Electrical Equipment Components, on two hypothetical electrical equipment manufacturer facilities to examine the effect of those accuracies and precisions on the relative uncertainty of facility-level emissions estimates. The findings indicated that the incremental increase in relative uncertainty from a requirement of ± 1 percent of true mass or weight scale accuracy to ± 2 pounds scale accuracy was not enough to justify a more stringent accuracy of 1 percent and its associated burden. Based on this review, EPA has changed the requirements for scale accuracy and precision.

The final rule requires that quantities required by the equations in this subpart have been measured using either flowmeters with an accuracy and precision of ±1 percent of full scale or better or scales with an accuracy and precision of ±1 percent of the filled weight (gas plus tare) of the containers of SF₆ or PFCs that are typically weighed on the scale. For scales that are generally used to weigh cylinders containing 115 pounds of gas when full, this equates to ±1 percent of the sum of 115 pounds and approximately 120 pounds tare, or slightly more than ± 2 pounds. This absolute accuracy requirement, expressed as a percentage of the filled weight of the container that is weighed on the scale, is less stringent than the 1 percent (of true weight) relative accuracy requirement in the proposed rule. EPA concluded this change will lower the burden on reporters without significant compromise to data quality. For more information on scale accuracy and precision, please see the Subpart SS Technical Support Document, “Technical Support Document for Emissions from Electric Equipment Manufacture or Refurbishment and Manufacturing of Electrical Components” available in the docket (Docket ID No. EPA-HQ-OAR-2009-0927) and online.

4.2. Other

Relevant Bin Number: 6.5.3

Comment Summary 4.2-a: Commenter 0075 emphasized that the issue of accurately determining nameplate capacity primarily impacts manufacturers of equipment. Commenter 0075 stated that their company's equipment has a nameplate capacity, regardless of the equipment age, which is provided by the manufacturer and/or from a physical plate attached to the equipment. Commenter 0075 expressed concern of a requirement to measure nameplate capacity, stating that "existing facility equipment must be grandfathered" from any such requirement, because any capacity measurement procedure for in-service equipment would be "unacceptably disruptive for the electric power system and the customers and would likely result in the release of at least some SF₆."

Response 4.2-a: EPA agrees about the need to accurately determine nameplate capacity and that it primarily impacts electrical equipment manufacturers. For more information regarding the requirement for electrical equipment manufacturers to certify the quantity of gas provided in delivered equipment and the quantity of gas charged into the equipment at installation, please see response 3.2-a above. Regarding the commenter's concern about measuring nameplate capacity, EPA reiterates that this requirement of measuring nameplate capacity to accurately determine disbursements was proposed for the electrical equipment manufacturer under Subpart SS only and does not extend to in-service equipment at electrical transmission or distribution facilities per Subpart DD.

Comment Summary 4.2-b: Commenter 0075 stated that the final wording of the mandatory reporting rule should preserve the practice whereby electric transmission or distribution facilities receive new equipment with a minimum, positive charge of SF₆ and filled by trained personnel at the electric transmission or distribution facility using SF₆ from the company inventory rather than purchasing the equipment fully charged with SF₆ or with an accompanying set of SF₆ cylinders.

Response 4.2-b: The final rule has no bearing on the continued practice described by this commenter. Electrical transmission or distribution facilities may receive new equipment with a minimum, positive charge and have their personnel fill the remaining charge using gas from their inventory. This rule contains reporting requirements but does not dictate where or by whom equipment must be filled.

Appendix A – List of Commenters Sorted by Submission Number

Submission No.	Commenter	Organization
EPA-HQ-OAR-2009-0927-0075	Kenneth Boyd	Southern Company
EPA-HQ-OAR-2009-0927-0081	Kenneth Boyd	Southern Company
EPA-HQ-OAR-2009-0927-0083	Deborah Boyle	Oncor
EPA-HQ-OAR-2009-0927-0094	Alexander G. Taft	National Grid
EPA-HQ-OAR-2009-0927-0097	Michael Bradley	The Clean Energy Group
EPA-HQ-OAR-2009-0927-0098	Rayburn L. Butts	Nextera Energy, Inc.
EPA-HQ-OAR-2009-0927-0118	Mitchell C. Contreras	Center Point Energy
EPA-HQ-OAR-2009-0927-0125	Eric Hsieh	National Electric Managers Association
EPA-HQ-OAR-2009-0927-0126	Wesley McNealy	Pepco Holdings, Inc.
EPA-HQ-OAR-2009-0927-0128	Pamela Campos	Environmental Defense Fund
EPA-HQ-OAR-2009-0927-0129	David Giegel	Mitsubishi Electric Power Products