

Proposed Regulation Order

Division 3. AIR RESOURCES

Chapter 1. AIR RESOURCES BOARD

Subchapter 10. Climate Change

Article 4. Regulations to Achieve Greenhouse Gas  
Emission Reductions

Subarticle 3.1.  
Regulation for Reducing Sulfur Hexafluoride Emissions  
from Gas Insulated Switchgear

## PROPOSED REGULATION ORDER

Adopt new Subarticle 3.1, Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear sections 95350 to 95359, title 17, California Code of Regulations, to read as follows:

[Note: All of the text below is new language to be added to the California Code of Regulations (CCR)]

### Subchapter 10. Climate Change

#### Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions

##### Subarticle 3.1. Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear

###### § 95350. Purpose, Scope, and Applicability.

- (a) *Purpose.* The purpose of this regulation is to achieve greenhouse gas emission reductions by reducing sulfur hexafluoride (SF<sub>6</sub>) emissions from gas insulated switchgear.
- (b) *Applicability.* The provisions of this subarticle apply to owners of gas insulated switchgear. Any person who is subject to this subarticle must meet the requirements of this subarticle, notwithstanding any contractual arrangement that person may have with any third parties.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

###### § 95351. Definitions.

- (a) For the purposes of this subarticle, the following definitions apply:
  - (1) **“Active GIS Equipment”** means non-hermetically sealed SF<sub>6</sub> gas insulated switchgear that is actively connected (i.e., interconnected through busbars or cables which are actively conducting electricity) to the GIS owner’s electrical power system. “Active equipment” does not include equipment in storage.
  - (2) **“Electrical Power System”** means the combination of electrical generators (i.e., power plants), transmission and distribution lines, equipment, circuits, and transformers used to generate and transport electricity from the generator to consumption areas or to adjacent electrical power systems.
  - (2) **"Emergency Event"** means a situation arising from a sudden and unforeseen natural disaster such as an earthquake, flood, or fire.

- (3) **“Emission rate”** means, subject to the provisions of section 95356(e), a GIS owner’s total annual SF<sub>6</sub> emissions from all active GIS equipment divided by the total SF<sub>6</sub> nameplate capacity of all active GIS equipment.
- (4) **“Executive Officer”** means the Executive Officer of the California Air Resources Board (ARB) or his or her designee.
- (5) **“Gas container”** means a vessel containing or designed to contain SF<sub>6</sub>. “Gas container” includes pressurized cylinders, gas carts, or other containers.
- (6) **“Gas-insulated switchgear or GIS”** means all electrical power equipment insulated with SF<sub>6</sub> gas regardless of location. Gas insulated switchgear or GIS includes switches, stand-alone gas-insulated equipment, and any combination of electrical disconnects, fuses, electrical transmission lines, transformers and/or circuit breakers used to isolate gas insulated electrical equipment.
- (7) **“GIS Owner”** means the person who owns gas insulated switchgear. For purposes of this regulation “GIS owner” excludes temporary ownership by the original equipment manufacturer during GIS equipment transport and installation at a customer’s site.
- (8) **“Hermetically Sealed Gas Insulated Switchgear”** means switchgear which is designed to be gas-tight and sealed for life
- (9) **“Nameplate Capacity”** means the design capacity of SF<sub>6</sub> specified by the manufacturer for optimal performance of a GIS device. Nameplate capacity may be found on the nameplate attached to the GIS device, or may be stated within the manufacturer’s official product specifications.
- (10) **“NIST-Traceable Standards” means** national, traceable measurement standards developed by the National Institute of Standards and Technology (NIST).
- (11) **“Person”** shall have the same meaning as defined in Health and Safety Code section 39047.

- (12) **“Responsible Official”** means one of the following:
- (A) For a corporation, a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person; or
  - (B) For a partnership or sole proprietorship, a general partner or the proprietor, respectively; or
  - (C) For a municipal, state, federal, or other public agency, either a principal executive officer or a ranking elected official.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

**§ 95352. Maximum Annual SF<sub>6</sub> Emission Rate.**

For each calendar year specified below, the maximum annual SF<sub>6</sub> emission rate for each GIS owner’s active GIS equipment shall not exceed the following:

<b>Maximum Annual SF<sub>6</sub> Emission Rate</b>	
<b>Calendar Year</b>	<b>Maximum Allowable SF<sub>6</sub> Emission Rate</b>
2011	10.0%
2012	9.0%
2013	8.0%
2014	7.0%
2015	6.0%
2016	5.0%
2017	4.0%
2018	3.0%
2019	2.0%
2020, and each calendar year thereafter	1.0%

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

**§ 95353. Emergency Event Exemption.**

- (a) After January 1, 2020, a GIS owner may request emissions from an emergency event to be exempted from the calculation of the maximum allowable emission rate if it is demonstrated to the Executive Officer's satisfaction that the release of SF<sub>6</sub>:
- (1) Could not have been prevented by the exercise of prudence, diligence, and care; and
  - (2) Was beyond the control of the GIS owner.
- (b) A request for an exemption pursuant to this section must be submitted in writing to the Executive Officer within 30 calendar days after the occurrence of the emergency event, and must contain the following information:
- (1) The GIS owner's name, physical address, mailing address, e-mail address and telephone number;
  - (2) A detailed description of the emergency event, including but not limited to the following:
    - (A) The nature of the event (e.g., fire, flood, earthquake);
    - (B) The date and time the event occurred;
    - (C) The location of the event;
    - (D) The GIS equipment that was affected by the event;
    - (E) The amount of SF<sub>6</sub> released (in pounds);
  - (3) A statement and supporting documentation that the release occurred as a result of an emergency event; and
  - (4) A signed and dated statement, under penalty of perjury, provided by the appropriate responsible official that the statements and information contained in the submitted request are true, accurate, and complete.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

**§ 95354. SF<sub>6</sub> Inventory Measurement Procedures.**

- (a) GIS owners must do all of the following:
- (1) Establish and adhere to written procedures to track and weigh all gas containers as they are leaving and entering storage;
  - (2) Weigh all gas containers on a scale that is certified to be accurate to within one percent of the true weight;
  - (3) Calibrate all scales used to measure quantities that are to be reported under this subarticle by:
    - (A) Using calibration procedures specified by the scale manufacturer; or
    - (B) If a scale manufacturer has not specified calibration procedures, using:
      1. A NIST traceable standard; and
      2. A published calibration method identified as appropriate for that scale by either the International Society of Weighing and Measurement or the National Conference on Weights and Measures.
  - (4) Calibrate scales used to measure quantities reported under this subarticle prior to the first reporting year.
  - (5) Recalibrate scales used to measure quantities reported under this subarticle at least annually, or at the minimum frequency specified by the manufacturer, whichever is more frequent.
- (b) GIS owners must:
- (1) Establish and maintain a log of all measurements required by this section;
  - (2) Record the scale calibration methods used pursuant to this section; and
  - (3) Retain all documents and records required by this section for a minimum of three years.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

**§ 95355. Recordkeeping.**

Owners of gas insulated switchgear must:

- (a) Establish and maintain a current and complete GIS equipment inventory which includes the following information:
  - (1) Manufacturer serial number;
  - (2) Equipment type (e.g., circuit breaker, transformer, etc);
  - (3) Seal type (hermetic or non-hermetic);
  - (4) Equipment manufacturer name;
  - (5) Date equipment was manufactured;
  - (6) Equipment voltage capacity (in kilovolts);
  - (7) Equipment SF<sub>6</sub> nameplate capacity (charge in pounds);
  - (8) Equipment status (active or inactive); and
  - (9) Equipment location:
    - (A) The physical address for each piece of equipment must be listed; and
    - (B) Complete records must be kept of changes to the equipment inventory and the dates the changes occurred (such as installation of new equipment, removal of equipment, and disposition of the equipment (e.g, sold, returned to manufacturer, etc.)).
- (b) Establish and maintain a current and complete inventory of gas containers, which includes the following information for each container:
  - (1) A unique identification number;
  - (2) Size;
  - (3) Location;
  - (4) A chronological accounting, by weight in pounds, of SF<sub>6</sub> transferred into or out of the container;
  - (5) The current SF<sub>6</sub> residual, by weight in pounds.

- (c) Retain SF<sub>6</sub> gas and equipment purchase documentation (such as contracts, material invoices, receipts, etc.);
- (d) Retain all records required by this subarticle for a minimum of three calendar years;
  - (1) GIS owners headquartered in California must retain all records at a location within California;
  - (2) GIS owners headquartered in other states may retain all records at location in California or at their business offices nearest to California;
- (e) Have all records available for ARB inspection at time of inspection; and
- (f) Upon request by ARB, provide these records to the Executive Officer.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

#### **§ 95356. Annual Reporting Requirements.**

- (a) Beginning in calendar year 2011 for emissions occurring during the previous calendar year, and each calendar year thereafter, each GIS owner must submit the following annual report to the Executive Officer no later than the applicable deadline specified in title 17, California Code of Regulations, Section 95100, *et seq.*:
- (b) The annual report must contain all of the following information:
  - (1) Reporting entity name, physical address, and mailing address;
  - (2) Location of records and documents maintained in California if different from the reporting entity's physical address.
  - (3) Name and contact information including e-mail address and telephone number of the person submitting the report, and the person primarily responsible for preparing the report;
  - (4) The year for which the information is submitted;
  - (5) A signed and dated statement provided by the appropriate responsible official that the information has been prepared in accordance with this subarticle, and that the statements and information contained in the submitted emission data are true, accurate, and complete.

- (6) Annual SF<sub>6</sub> emissions as calculated using the equation specified in subsection (d), below;
  - (7) Annual SF<sub>6</sub> emission rate as calculated using the equation specified in subsection (e), below;
  - (8) A gas insulated switchgear inventory report containing the information required by Section 95355, subsections (a)(1) through (a)(8); and
  - (9) A gas container inventory report containing the information required by Section 95355(b).
- (c) The annual report shall be submitted to the Executive Officer as follows:
- (1) GIS owners subject to the requirements of title 17, California Code of Regulations Sections 95100 *et seq.*, shall use the ARB Greenhouse Gas Reporting Tool, as specified in title 17, California Code of Regulations section 95104(e).
  - (2) GIS owners not subject to the requirements of title 17, California Code of Regulations Sections 95100 *et seq.*, may either:
    - (A) Use the ARB's Greenhouse Gas Reporting tool, as specified in title 17, California Code of regulations section 95104(e); or
    - (B) Submit reports in writing to ARB through the US Postal Service, electronic mail or by personal delivery.
- (d) *Annual SF<sub>6</sub> Emissions.* GIS owners must use the following equation to determine their SF<sub>6</sub> emissions:

Equation for determining annual SF<sub>6</sub> emissions:

$$\text{User Emissions} = (\text{Decrease in SF}_6 \text{ inventory}) + (\text{Acquisitions of SF}_6) - (\text{Disbursements of SF}_6) - (\text{Net increase in total nameplate capacity of non-hermetically sealed GIS equipment owned})$$

Where:

Decrease in SF<sub>6</sub> inventory = (SF<sub>6</sub> stored in containers, but not in equipment, at the beginning of the year) - (SF<sub>6</sub> stored in containers, but not in equipment, at the end of the year).

Acquisitions of SF<sub>6</sub> = (SF<sub>6</sub> purchased from chemical producers or distributors in bulk) + (SF<sub>6</sub> purchased from equipment manufacturers or distributors with or inside non-hermetically sealed GIS equipment) + (SF<sub>6</sub> returned to site after off-site recycling).

Disbursements of SF<sub>6</sub> = (SF<sub>6</sub> in bulk and contained in non-hermetically sealed GIS equipment that is sold to other entities) + (SF<sub>6</sub> returned to suppliers) + (SF<sub>6</sub> sent off site for recycling) + (SF<sub>6</sub> sent to destruction facilities).

Net increase in total nameplate capacity of non-hermetically sealed GIS equipment operated = (The nameplate capacity of new non-hermetically sealed GIS equipment) - (Nameplate capacity of retiring non-hermetically sealed GIS equipment). (Note that nameplate capacity refers to the manufacturer's SF<sub>6</sub> design capacity rather than to the actual charge, which may reflect leakage.)

- (e) *Annual SF<sub>6</sub> Emission Rate.* GIS owners shall use the following equations to determine their SF<sub>6</sub> emission rate.

Equation for determining emissions rate:

$$ER = \frac{\text{Emissions}}{C_{avg}}$$

Where: ER = Emission Rate  
 Emissions = Annual emissions per subsection (d) (lbs)  
 C<sub>avg</sub> = Average system nameplate capacity as expressed in the equation below (lbs)

$$C_{avg} = \frac{\sum_{i=1}^n (d_i C_i)}{365}$$

Where: C<sub>avg</sub> = The average system nameplate capacity (in lbs.)  
 n = The number of GIS devices  
 d<sub>i</sub> = The number of days during the year the GIS device was in active service  
 C<sub>i</sub> = The nameplate capacity (lbs) of the GIS device

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.

### **§ 95357. Treatment of Confidential Information**

Information submitted pursuant to this subarticle may be claimed as confidential. Such information shall be handled in accordance with the procedures specified in title 17, California Code of Regulations, sections 91000 through 91022.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, 39601, and 41511 Health and Safety Code. Reference: Sections 38560, 39600, 39601, and 41511 Health and Safety Code.

### **§ 95358. Enforcement.**

- (a) *Penalties.* Penalties may be assessed for any violation of this subarticle pursuant to Health and Safety Code section 38580. Each day during any portion of which a violation occurs is a separate offense.
- (b) Each day or portion thereof that any report required by this subarticle remains unsubmitted, is submitted late, or contains incomplete or inaccurate information, shall constitute a single, separate violation of this subarticle.
- (c) Any exceedance of the maximum allowable SF<sub>6</sub> emission rate for a calendar year shall constitute a single, separate violation of this subarticle for each day of the calendar year.
- (d) *Injunctions.* Any violation of this subarticle may be enjoined pursuant to Health and Safety Code section 41513.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, 39601, 41510, and 41513, and Health and Safety Code. Reference: Sections 38560, 38580, 39600, 39601, 41510, and 41513 Health and Safety Code.

### **§ 95359. Severability.**

Each part of this subarticle is deemed severable, and in the event that any part of this subarticle is held to be invalid, the remainder of this subarticle shall continue in full force and effect.

NOTE: Authority cited: Sections 38510, 38560, 38580, 39600, and 39601, Health and Safety Code. Reference: Sections 38560, 39600, and 39601, Health and Safety Code.