

Frequently Asked Questions: Regulation for Reducing Greenhouse Gas Emissions from Gas-Insulated Equipment

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Amendments to the [Regulation for Reducing Greenhouse Gas Emissions from Gas-Insulated Equipment](#) (amended Regulation or Regulation), formerly known as the [Regulation for Reducing Sulfur Hexafluoride \(SF₆\) Emissions from Gas Insulated Switchgear](#) (original Regulation) became effective January 1, 2022. **This document answers common questions about procedures GIE Owners are required to comply with starting in Data Year 2022.** Except as otherwise noted, all terminology and references in this document are consistent with the amended Regulation.

Scope, Applicability, and Definition

1. Are all Gas-Insulated Equipment (GIE) Owners (including those that are not electric utilities) subject to this Regulation?

Yes. Per section 95350(b), this Regulation applies to all owners of GIE that use a Covered Insulating Gas in Gas-Insulated Equipment. The Regulation makes no distinction between electric utilities and other GIE Owners. Definitions of Gas-Insulated Equipment or GIE, Gas-Insulated Equipment Owner or GIE Owner, and Covered Insulating Gas are provided in section 95351(a) of the Regulation.

2. For the purpose of reporting under this Regulation, how is the term “GIE Owner” applied for corporations with complex structures?

Per the definition in section 95351(a), the GIE Owner subject to the Regulation “may be a limited liability company, subsidiary, parent company, or other entity that is an owner of the GIE that use covered insulating gas.” GIE Owners that wish to combine or split for reporting purposes must follow the requirements of section 95353(i) or (j).

3. Is there a threshold in the Regulation that exempts small-capacity GIE Owners or devices from the regulatory requirements?

No, there is not an exemption threshold in the Regulation.

4. My company hires a contractor to service our GIE. Does this alleviate my company from being responsible for the services the contractor is performing?

No. The GIE Owner is responsible for ensuring that the contractor is performing its duties in accordance with all applicable requirements of the Regulation and for ensuring that their operations are in compliance with the Regulation.

5. Which Greenhouse Gases are required be reported and what is the Global Warming Potential (GWP) of each?

For Data Years 2021 and prior, SF₆ was the only Greenhouse Gas required to be reported. For Data Year 2022 and beyond, all Insulating Gases with a GWP greater

than 1 are required to be reported (see section 95355 and the definition of “covered insulating gas” in section 95351(a)).

The GWP values for this Regulation are as specified in [Table A-1 to Subpart A of Title 40 CFR Part 98](#) as published to the Federal Register on December 11, 2014.

These include:

- SF₆: 22,800.
- Perfluoroisobutyronitrile (also commonly known as Novec-4710 or by its chemical formula of C₄F₇N): 2,000.

Emissions of carbon dioxide and heptafluoroisopropyltrifluoromethylketone (also commonly known as Novec-5110 or by its chemical formula of C₅F₁₀O) are not required to be reported because they have a GWP of one.

6. My switch has a fill port, but the OEM states that it is sealed for life and classifies it as hermetically sealed. Would such a switch meet the regulatory definition of Hermetically Sealed GIE?

Section 95351(a) defines Hermetically Sealed GIE as “GIE that are pre-charged with covered insulating gas, sealed at the factory, and designed by the manufacturer to not be fillable by the GIE owner or a third-party designee.” If a switch only meets part of the definition (i.e., is prefilled and sealed at the factory but has a port and is therefore fillable), it would not meet the regulatory definition of Hermetically Sealed GIE.

Monitoring, Recordkeeping, and Notification Requirements

7. When must the amount of gas in gas containers and carts, including those we do not own, be determined?

GIE Owners must determine and report the amount of Covered Insulating Gas in containers and carts per the following categories:

- **Containers and carts owned by or stored on the property of the GIE Owner** (see sections 95354(g)(1) and 95354(j)(2-3)): when they are added to or removed from inventory, and at the end of each calendar year (which means on or between December 1 of the Data Year through January 15 of the next year).
- **Containers and carts neither owned by nor stored on the property of the GIE Owner** (see sections 95354(g)(2) and 95354(j)(4)): immediately before and after use at the GIE Owner’s facilities.

8. If a Covered Gas Container remained in storage for the entire year, does it need to be weighed at the end of the calendar year? Can emissions from the container be assumed to be zero?

There is the possibility that Covered Gas Containers may be defective or were stored with open valves, which can cause emissions. Hence, all Covered Gas Containers must be weighed at the end of each calendar year, including those that have remained in storage.

9. How do I determine the amount of Covered Insulating Gas in a Gas Cart?

Starting January 1, 2022, GIE Owners must use one of the following methods to determine the amount of Covered Insulating Gas in a Gas Cart. Once a method is chosen for each Gas Cart, GIE Owners must consistently use that method going forward:

- The “container method” (see section 95354(j)(2)(A))
- The “scale method” (see section 95354(j)(2)(B)), or
- The “mass flow meter method” (see section 95354(j)(2)(C))¹.

When using the container or mass flow meter method, the cart must be brought to the pressure at which the cart is empty (according to manufacturer specifications) every time Covered Insulating Gas is accounted for.

10. When is a GIE device considered to be “removed from regular use”?

Per section 95354(c)(1), GIE that have been active at some point during ownership by the GIE owner are considered “removed from regular use” when covered insulating gas has been extracted pursuant to section 95354(d), after any of the circumstances in sections 95354(c)(1)(A) through 95354(c)(1)(C).

11. Am I required to perform Nameplate Capacity adjustments?

No. Per section 95357.2, undertaking the Nameplate Capacity adjustment process is optional.

12. Some information required in section 95356 (Recordkeeping) is not necessary for calculating emissions or reported annually to CARB. Are GIE Owners required to record all this information?

Yes. All information listed in section 95356 is required to be recorded and retained for a minimum of five calendar years pursuant to section 95356(b).

13. The Regulation requires that certain notifications that are not a part of the annual report be sent to CARB staff. Where do I send these notifications?

These notifications may be [emailed](#) to CARB staff.

Annual Reporting Requirements

14. Does CARB provide an annual reporting form?

Yes. It is available on the [program webpage](#).

15. How are annual reports submitted?

Per section 95355(b), GIE Owners subject to the requirements of title 17, CCR, section 95100 et seq. (commonly referred to as the Mandatory Reporting Regulation, or MRR), must use the Cal e-GGRT reporting system to submit their reports. GIE Owners not subject to MRR may use Cal e-GGRT or [email](#) their reports to CARB

¹ CARB staff have learned that flow meters may not be able to detect/measure gas when the flow rate drops below a certain level. Please consult your flow meter’s documentation to determine if this method would correctly measure the amount of gas in your gas cart.

staff. Detailed instructions are available on the program's annual reporting [webpage](#).

16. Does an annual report need to be submitted if a GIE Owner has no Greenhouse Gas emissions for a given year?

Yes. Per section 95355(a), any person who was a GIE Owner at any point during the previous calendar year is required to submit an annual report for the previous calendar year, regardless of emissions.

17. I found an error in a previously submitted report. What should I do?

Pursuant to section 95359(b), "Each day or portion thereof that any report required by this subarticle remains unsubmitted; is submitted late; or contains an incomplete, untrue or inaccurate data field after the reporting deadline shall constitute a single, separate violation of this subarticle." Therefore, it is important to resolve reporting errors as quickly as possible. [Email](#) CARB staff with an explanation of the error and staff will explain next steps.

18. How are blends (or mixtures) of multiple gases to be reported?

Only the blend's constituent members with a GWP greater than one should be reported. For example, if 100 pounds of a gas blend containing 10% Covered Insulating Gas, 20% carbon dioxide, and 70% oxygen (by mass) were emitted, the GIE Owner would only report the 10 pounds of Covered Insulating Gas. Use the same approach for other quantities of Covered Insulating Gas reported under this Regulation (for example, the amount stored in containers, and the Covered Insulating Gas at Activation (CIGAA) of a GIE device). Covered insulating gas that is a constituent of a gas blend is quantified using the equation in section 95354(m).

19. If my Covered Gas Container is empty (i.e., no longer contains any Covered Insulating Gas), do I still need to report it?

Since section 95351(a) defines a Covered Gas Container as a Gas Container containing or *designed to contain* Covered Insulating Gas, empty containers should be reported with the amount of Covered Insulating Gas inside reported as "0." The same is true of Gas Carts.

20. If a Covered Gas Container we own or store on our property is sent out for recycling and later comes back, do we need to report these transactions?

Yes. Per section 95355(a)(5), annual reports must include the information required to be recorded pursuant to section 95354(h). Section 95354(h) requires GIE Owners to establish an inventory that includes the information required to be recorded pursuant section 95354(g)(1). Per section 95354(g)(1), for Covered Gas Containers owned by or stored on the property of the GIE Owner, the GIE Owner needs to record the weight whenever the container is added to, or removed from, the GIE Owner's gas container inventory. Covered Gas Containers are considered removed from the GIE Owner's gas container inventory when they are sent out for recycling and are considered added to the GIE Owner's gas container inventory when they

come back. Therefore, the weight of Covered Gas Containers when they are sent out for recycling and when they come back must be reported.

21. My company stores containers of Covered Insulating Gas out of state. Do I need to report these containers?

Do not report containers owned by your company that were never present within California during the Data Year. Should such a container be brought into California, follow the requirements of section 95354(h).

22. Must GIE that meet the definition of "removed from regular use" per section 95354(c) be reported?

Yes. All GIE that use Covered Insulating Gas and are owned by the GIE Owner at any point during the year, regardless of operational status, must be reported (see section 95354(a) and 95355).

23. My GIE are designed to use a Covered Insulating Gas, but they are temporarily filled with a non-Covered Insulating Gas (e.g., nitrogen) for storage. Are they required to be reported during this time?

Yes. Section 95355(a)(5) of the Regulation specifies that GIE Owners must report the information in section 95354(a), which says "GIE owners must establish and maintain a current and complete GIE inventory [...] for each GIE device that uses covered insulating gas." Therefore, GIE designed to use a Covered Insulating Gas need to be reported even if they are temporarily filled with a non-Covered Insulating Gas.

24. Must GIE that use vacuum technology for interruption and a Covered Insulating Gas for insulation be reported?

Yes. Pursuant to sections 95355(a)(5) and 95354(a), all GIE that use Covered Insulating Gas must be reported.

25. A GIE device was Acquired after December 31, 2021, and was delivered to the GIE Owner containing more Covered Insulating Gas than needed for operation. If Covered Insulating Gas is only extracted from the device between acquisition and its first activation, what should be reported for Additional Covered Insulating Gas Added to Device for Activation? How does this affect the calculation of CIGAA for this device?

In this case, because Covered Insulating Gas was removed rather than added, report the amount of Covered Insulating Gas extracted as a negative number under the Additional Covered Insulating Gas Added to Device for Activation column of the reporting form.

Average System Capacity, Emissions Limit, and Emissions

26. Is Average System Capacity simply the average capacity of my GIE (i.e., the mean capacity of all my GIE)?

No. Average System Capacity is the average amount of a Covered Insulating Gas (e.g., SF₆) in all of a GIE Owner's Active GIE over the data year. The equation, found

in section 95353(b), considers only Non-Hermetically Sealed GIE,² taking into account the CIGAA of each and the number of days that each device was active during the data year. The equation requires that the GIE Owner multiply the CIGAA for each applicable GIE device by the number of days that it was Active GIE during the Data Year, and then divide that amount by the number of days in the Data Year. The sigma symbol (Σ) instructs you to sum the results of each of those calculations. For example, if a GIE Owner owns the following four SF₆ GIE:

- A hermetically sealed device that was connected to the electrical grid with a CIGAA of 6 pounds,
- A non-hermetically sealed device which was inactive for the entire Data Year with a CIGAA of 7 pounds,
- A non-hermetically sealed device that was active for the entire Data Year with a CIGAA of 8 pounds, and
- A non-hermetically sealed device that was active for 73 days during the Data Year with a CIGAA of 5 pounds.

Their Average System Capacity would be:

0 pounds + 7 pounds * (0 days / 365 days) + 8 pounds * (365 days / 365 days) + 5 pounds * (73 days / 365 days) = 9 pounds.

27. If all of my GIE are non-hermetically sealed and were active for the entire Data Year, is my Average System Capacity the cumulative CIGAA of my GIE?

Yes.

28. What is the emissions limit for GIE Owners under the amended Regulation for data years 2021 through 2024?

Per section 95353(g)(1), each GIE Owner's emissions limit is based on the sum of their Average CO_{2e} Capacity and Early Action Credit (EAC_{≤10}). For GIE Owners with an Average CO_{2e} Capacity of 10,000 metric tons of carbon dioxide equivalent (MTCO_{2e}) or greater, the annual emissions limit is one percent of this sum. For GIE Owners with an Average CO_{2e} Capacity less than 10,000 MTCO_{2e}, the annual emissions limit is two percent of this sum.

The amended Regulation also established a minimum emissions limit of 50 MTCO_{2e} for entities whose calculated emission limit is less than 50 MTCO_{2e} (section 95353(h)).

29. The annual emissions equation in section 95354.1(a) includes several terms that apply to GIE: "Acquisitions of covered insulating gas" (Acquisitions), "Disbursements of covered insulating gas" (Disbursements) and "Net increase in total capacity of active GIE owned and filled with covered insulating gas" (Capacity). Can you provide examples of what types of inputs would go in each term?

Following are some examples of GIE Owner activities and where they would go in the emissions equation:

² By definition, "Hermetically Sealed GIE" are not "Active GIE" (see section 95351).

- GIE device is “removed from regular use” per section 95354(c)(1):
 - The device’s CIGAA will reduce the Capacity term (per item “(covered insulating gas j at activation for GIE removed from regular use during the data year pursuant to section 95354(c)(1)).”
 - If the gas extracted from the device is sent offsite, the amount of gas will increase the Disbursements term.
- GIE device is sold to another company without being taken out of active service (“transferred while in use” per section 95354(c)(2)):
 - Since an Active GIE device is removed from the GIE Owner’s inventory, the Disbursements term will increase and the Capacity term will decrease by the amount of the device’s CIGAA.
- GIE device is Acquired from another company without being taken out of active service (“transferred while in use” per section 95354(c)(2)):
 - Since an Active GIE device is added to the GIE Owner’s inventory, both the Acquisitions term and the Capacity term will increase by the amount of the device’s CIGAA.
- GIE device is activated for the first time:
 - The amount of gas that was inside the device when originally Acquired (if applicable) will increase the Acquisitions term (per the item “(covered insulating gas j inside GIE when acquired by the GIE owner, for any GIE that became active GIE for the first time during the data year).”
 - The device’s CIGAA will increase the Capacity term.

30. What value should I use as the CIGAA when calculating annual emissions?

The value to be used depends on the dates the device was Acquired and activated for the first time, and whether a Nameplate Capacity adjustment has been performed.

- “Covered Insulating Gas at Activation” is defined as “the value calculated in section 95354(a)(10)(A)6. If this value is not calculated, this term means the nameplate capacity of the GIE device.”
- Section 95354(a)(10)(A)6. provides the method for calculating CIGAA for GIE that were both Acquired and activated for the first time after December 31, 2021.
- For GIE that are not covered by section 95354(a)(10)(A)6., the CIGAA is the nameplate capacity of the device.
 - Use the Nameplate Capacity found on the nameplate attached to the GIE device or stated within the manufacturer’s official product specifications.
 - If the device has undergone a Nameplate Capacity adjustment pursuant to section 95357.2, use the value determined through that process, starting in the Data Year that the new nameplate value was determined.

31. My company disposed of a GIE device that was never activated. Do we include this device when calculating annual emissions?

No. This device will have never entered the emissions calculation in the first place because it was never activated. Therefore, it should be excluded from the calculation.

32. Does the GIE Owner have any liability for emissions from Hermetically Sealed GIE?

No. Any emissions from Hermetically Sealed GIE are not included in the GIE Owner's emissions reported pursuant to sections 95355(a)(7)(F)-(I).

33. My company jointly owns a GIE device with another GIE Owner. How do I determine my company's share of the device's emissions, emissions limit, early action credit, etc.?

Calculate your share using the equation provided in section 95354(a)(7)(B) of the Regulation.