



Calpine Corporation

Barbara McBride
Director of Strategic Origination
4160 Dublin Blvd. #100
Dublin, CA 94568
(925)570-0849

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Ms. Carey Bylin
Manager
Industrial Strategies Division
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Calpine Corporation Comments Regarding Potential Changes to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear

Dear Ms. Bylin,

Calpine Corporation (hereinafter, “Calpine”) offers the following comments regarding the potential changes to the Regulation for Reducing Sulfur Hexafluoride (“SF₆”) Emissions from Gas Insulated Equipment (the “SF₆ GIE Regulation”) proposed by the California Air Resources Board (“ARB”) Staff in its *DISCUSSION DRAFT of Potential Changes to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (the “Discussion Draft”), as presented at the August 15, 2019 workshop.

Calpine is one of California’s largest energy providers and the State’s leader in renewable energy and combined heat and power production. Calpine is a long-time supporter of federal and State efforts to control greenhouse gas emissions (“GHG”) and an advocate for achieving California’s Climate Change policies. Calpine remains committed to working with ARB Staff and other interested stakeholders to craft amendments to the SF₆ GIE Regulation that achieve the stated goals of furthering GHG emissions reductions and streamlining the regulatory requirements.

Calpine also appreciates that the ARB Staff efforts to incorporate written and oral comments received on the February 2019 discussion draft and February 25, 2019 workshop. There are improvements in the Discussion Draft, reflecting these comments. There remain, however, a number of continuing concerns that should be addressed. Moreover, the Discussion Draft includes some new provisions and incorporates new “concept boxes to solicit stakeholder feedback, in lieu of potential regulatory changes.” Calpine welcomes the opportunity to reiterate continuing concerns and to comment on new ideas and concepts and to request more detailed discussions on consideration of costs and other constraints that require further discussion and attention.

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In responding to the California Renewable Portfolio Standard (RPS) directive to incorporate additional renewable generation into the system in furtherance of the state's Climate Change policies, California has developed a multi-faceted energy market. The players in that energy market are diverse: investor-owned utilities, publicly owned utilities, community choice aggregators, other entities that provide retail electric service, state owned energy using and producing entities (like DWR and DGS) and independent power producers, among others.

While these entities may be diverse in their form and function, all operate in the same competitive market. At the most fundamental level, the Discussion Draft should be revised to ensure that similarly situated entities are treated equally, avoiding discriminatory effects.

I. ARB Should Level the Regulatory Playing Field by Allowing Consolidated, Fleet-Wide Reporting and Compliance, Revising the Definition of "GIE Owner" to Avoid Discriminatory Effect.

There is a simple yet profoundly important change that ARB should make to level the regulatory playing field. Specifically, ARB should revise the definition of "GIE Owner" to allow consolidated reporting and compliance by GIE Owners to demonstrate compliance with the SF₆ GIE Regulation on a fleet-wide basis. The option to allow GIE Owners to report on a fleet-wide basis avoids discriminatory effect by placing all market participants on the same footing.

Some entities have all of their GIE equipment bundled together under a single corporate entity. That bundling, however, (a) is the result of other regulatory requirements and (b) as applied results in the SF₆ GIE Regulation having a discriminatory effect. For example, the three major investor owned electric utilities (PG&E, SCE, and SDG&E) have all of their GIE assets held by a single corporate entity. This bundling is due to the regulatory scheme they face. Namely, the California Public Utilities Commission ("CPUC") regulates a single corporate entity, regulated "public utility," as defined in the California Public Utilities Code. This regulatory regime is the sole reason these larger entities have all of their GIE bundled under a single corporate entity. This unified corporate organization, driven by CPUC regulation, coupled with the current definition of "GIE Owner" in the Discussion Draft as a single company or LLC results in the investor owned utilities being able to "bundle" their GIE equipment under a single compliance and reporting scheme while other similarly situated entities in the same competitive market cannot.

In marked contrast to the regulatory bundling of investor-owned utilities' GIE, independent power producers are not regulated by the CPUC and thus not required as a matter of law to have a single, unified corporate GIE owning entity. As a result, independent power producers regularly house their fleets into separate companies or LLCs, primarily for the purposes of financing. The banks and other financial institutions that fund individual projects

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require each project to be held in a separate company or LLC to avoid cross-default risk (i.e., avoid having the funding bank's project tied to the operation of any other project not funded by that same bank). The SF₆ GIE Regulation as applied to all California market participants should not result in unequal treatment based solely on the legal fictions of whether entities are forced to combine or separate projects into single purpose companies or LLC.

Fleet-wide reporting and compliance would work in the current market by placing all GIE Owners on equal regulatory footing. Equally important, fleet-wide reporting and compliance would ensure continued growth and diversity in a market emphasizing renewable power. Current market participants would be able to make an election to report individually or collectively. New market entrants would likewise have regulatory certainty by being allowed to either report on a single project or fleet-wide basis. The "either/or" reporting and compliance option also makes it easier to sell individual projects, ensuring market efficiency and thus the lowest price for energy.

Not only is fleet-wide compliance and reporting administratively efficient, it avoids discriminatory outcomes that disadvantage smaller, yet critical facilities with few or only one piece of GIE. For instance, Calpine's subsidiary Agnews facility has only one breaker with 141 pounds (lbs) of SF₆ capacity. For calendar year 2020, Agnews would be limited to a maximum of 1% or 1.41 lbs of leakage. Per Table 3 in the Discussion Draft, the 1% ratchets down to 0.60 in 2049 and beyond, or just 0.84 lbs. By contrast, a large consolidated utility company with an inventory in excess of 100 breakers, and capacity in the thousands of pounds, is afforded a significantly greater margin of compliance through its ability to average its emission rate across all company-wide GIE and thereby compensate for any individual equipment-specific leaks. For smaller facilities, the current individual corporate entity approach has the discriminatory effect of setting emission rate targets that approach the limits of current measurement technology.

A fleet-wide compliance and reporting system allows all GIE Owners to manage their facilities on an equal basis. This fleet-wide approach allows for more precise operating and maintenance procedures by ensuring that facilities with small individual inventories can be maintained without fear that even the smallest release will put the individual facility above the Annual Emission Factors set forth in Table 3 and Table 4 of Section 95352.2.

Accordingly, the definition of "GIE Owner" should be revised to allow a group of separately-regulated entities with direct corporate association to report and comply on a consolidated, fleet-wide basis. To ensure parity, the definition of "GIE Owner" should be revised as follows:

"Gas-Insulated Equipment Owner" or "GIE Owner" means the person who owns covered GIE. For purposes of this regulation subarticle, "GIE Owner" excludes temporary ownership by the original equipment manufacturer during GIE transport for purposes

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of and installation at a customer's site or repair. For purposes of this regulation subarticle, "GIE Owner" includes either (a) each corporation or limited liability company which owns covered GIE is considered to be a distinct GIE owner and is independently subject to this regulation or (b) a group of separately-regulated entities with direct corporate association that report and comply on a consolidated basis.

Whether an owner of more than one facility employing GIE equipment reports individually or on a consolidated basis should not be dictated by corporate structures, regulatory regimes or legal fictions.

As a matter of due process, equal protection, and sound public policy, similarly situated entities should be treated the same under all regulatory schemes. To make distinctions on the basis of corporate legal fictions would be the quintessence of arbitrary and capricious. Accordingly, the definition of "GIE Owner" should be revised to allow for fleet-wide reporting and compliance, placing all similarly situated GIE Owners on equal regulatory footing.

II. The Definition of "Emergency Exemption" Should Not Be Limited To Events Caused By Acts of Nature.

With respect to an "emergency", the key consideration is whether the release was beyond the reasonable control of the GIE Owner. There are improvements in the SF₆ GIE Regulation but additional changes are required to avoid ambiguity.

The language of Section 95355.4(a) has been revised in the Discussion Draft to incorporate events beyond the reasonable control of the GIE Owner. Calpine appreciates these improvements. In addition to these changes, the definition of "Emergency Event" should also be revised to be consistent with the changes in Section 95355.4(a) to reflect circumstances beyond the GIE Owner's control as follows:

"Emergency Event" means a situation arising from a sudden and unforeseen event that could not have ~~reasonably~~ been prevented because it is beyond the reasonable control of the GIE Owner, including but not limited to an earthquake, flood, or fire or that the release of insulating gases could not have been prevented by the exercise of prudence, diligence, and care, and was beyond the control of the GIE Owner.

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III. Calpine Recommends that the ARB Institute the *De-Minimis* Threshold and Set that Threshold at 10,000 MTCO_{2e}, Consistent with the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions.

The absence of the ability for an entity to engage in fleet-wide reporting and compliance results in discriminatory effects that ripple throughout the Discussion Draft. ARB's February 2019 discussion draft proposed a *de-minimis* threshold, set at 5,500 MTCO_{2e}. As Calpine and many other commenters noted, this threshold was arbitrarily set based on the ARB's review of compliance submittals. The 5,500 MTCO_{2e} level was reportedly set as a threshold at which more than half of the entities are exempted from the program, while still keeping the majority of the emissions from larger transmission and distribution systems.

This demarcation is arbitrary because similarly situated generators will be above and below the threshold. Many of these generators compete against one another in the CAISO markets. Based on Calpine's initial research, the costs associated with non-SF₆ equipment are considerable, and it would be concerning that only a subset of the independent generators would incur the costs of compliance with the Discussion Draft.

The August Discussion Draft not only did not make any revisions based on the comment, it instead expanded the scope of the SF₆ GIE Regulation to cover all SF₆ GIE above and below the 5,500 MTCO_{2e}. Specifically, Section 95352.2(a), "Annual Emissions Limit," includes two tables: Table 3 for "Annual Emission Factors for GIE Owners whose average CO_{2e} capacity ≥ 5,500 MTCO_{2e}" and Table 4 for "Annual Emission Factors for GIE Owners whose average CO_{2e} capacity < 5,500 MTCO_{2e}".

Rather than setting a *de minimis* threshold of 10,000 MTCO_{2e}, consistent with the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions ("MRR"), the Discussion Draft instead sweeps all GIE Owners into the regulatory scheme. The Discussion Draft should be revised to set a single *de minimis* threshold, consistent with the MMR, at 10,000 MTCO_{2e}. Entities below the 10,000 MTCO_{2e} threshold should be exempt entirely from reporting, not just subject to the 5% leak rate. Table 4 should therefore also be deleted.

IV. The Baseline Year for the Purposes of the Revised SF₆ GIE Regulation Should be the First Calendar Year After the New Regulation Is Effective, Not 2019.

As written, the Discussion Draft of the SF₆ GIE Regulation uses 2019 as the baseline year for purposes of the new reporting requirements and other obligations that will follow the new SF₆ GIE Regulation's effective date. Using 2019 as the Baseline year is effectively an early phase out.

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While the Discussion Draft does not use or define the term “baseline year,” the Staff Presentation recognizes that the new Discussion Draft treats 2019 as a baseline year: “Average CO₂e capacity equals capacity of active GIE in 2019, “baseline” value remains fixed for purposes of calculating emissions limit in all subsequent years.”¹

The 2019 baseline concept is reflected most prominently in three sections. First, in Section 95352.2, Annual Emissions Limit, the Average CO₂e capacity is “The GIE Owner’s average CO₂e capacity value for data year 2019.” While not expressly called out as a new “baseline” year, the inclusion of “2019” in this calculation makes 2019 the baseline year for these purposes. Second, in Section 95353(j), Reporting Requirements, the 2019 baseline is emphasized as follows: “* * * Whenever one or more nameplate capacity adjustments were completed during a data year on a GIE device that was in active service in 2019, report their previously reported C_{avg} for 2019, the revised C_{avg} for 2019, the previous emissions limit, and the revised emissions limit”. (Emphasis added.) Thus, with respect to reporting obligations, 2019 is the baseline year. Third in Section 95355.2, “Nameplate Capacity Adjustments” the “concept box” provides, in pertinent part, as follows: “Whenever nameplate capacity is adjusted for a device that was in active service in **data year 2019**, the GIE owner would re-calculate their reported value of C_{avg} for **2019** and annual emissions limit and report the revised values to CARB.”

While seemingly innocuous, not even warranting a regulatory definition for “Baseline Year,” the use of 2019 as a baseline effectively penalizes otherwise good faith activities that predate any regulatory changes by excluding from the baseline acquisitions and additions made before the SF₆ GIE Regulation’s effective date.

For example, a new renewable energy project that is currently in permitting in 2019, but won’t begin operations until 2020 or later is excluded from the baseline. Likewise, for publicly owned utilities, investor owned utilities and other load serving entities, the additions to their distribution and transmission systems designed to help California achieve its RPS and Climate Change policy objectives will likewise be excluded from the applicable baseline. In addition to being arbitrary, the use of a 2019 baseline is, in essence, an early phase-in of the Regulation and phase-out of GIE needed for the furtherance of the State’s RPS, Climate Change, and reliability goals, objectives, and obligations. Accordingly, the Regulation should provide that the Baseline Year for the purposes of revised SF₆ GIE Regulation should be the first calendar year after the new regulation is effective, not 2019. Specific language changes for Sections 95352.2 and Section 95353(j) are set forth in Attachment A.

¹ Emphasis in Original; ARB Staff Presentation, August 15, 2019, Slide 11. Available at: <https://ww2.arb.ca.gov/sites/default/files/2019-08/sf6-gis-reg-slides-20190815.pdf>

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V. An Effective “Non-SF₆ Electrical Power Equipment Clearinghouse” Would Require Detailed Information on Commercially Available Products

Staff has requested comments on the concept of a “Non-SF₆ Electrical Power Equipment Clearinghouse” (the “Non-SF₆ Clearinghouse”). To provide value, the Non-SF₆ Clearinghouse would need to provide detailed information on commercially available technologies.

The Discussion Draft states that the purposes of the Clearinghouse are as follows:

The Clearinghouse could help GIE owners identify suppliers of non-SF₆ GIE, and, if appropriate, demonstrate to CARB that non-SF₆ GIE are unavailable when pursuing a SF₆ phase out exemption under section 95355.3(b)(1). Similarly, the Clearinghouse could be used by GIE owners to demonstrate to CARB that non-SF₆ GIE are available from only one equipment manufacturer. (Discussion Draft, p. 38.)

These are laudable goals. However, Staff also believes that the Clearinghouse should include “...all known non-SF₆ GIE available for sale, *whether for pilot testing or full commercial use*...” (Discussion Draft, p. 38; emphasis added.) The inclusion of “pilot” tested GIE is particularly problematic.

The Clearinghouse should provide, instead, commercially proven and commercially available non-SF₆ GIE suitable to serve as a real replacement for SF₆ equipment. “Pilot” equipment is by definition, not commercially proven. It is commercially “unavailable”. Without a proven record of successful commercial application, pilot equipment promises only to threaten reliability and increase costs. A poorly operated Non-SF₆ Clearinghouse could also open the door to sellers’ unsubstantiated claims on commercial availability and, in the extreme, the potential for fraudulent claims of product suitability, particularly absent a threat of penalty perjury for misrepresentations.

To provide a real alternative for critical energy infrastructure, the Non-SF₆ equipment must be proven. At a minimum, Non-SF₆ equipment in any Clearinghouse should include the following information:

- 1) An affidavit from the GIE manufacturer that the equipment is safe and reliable for commercial application;
- 2) The number of units sold worldwide;
- 3) The number of units in commercial operation worldwide;
- 4) The number of units sold in California;
- 5) The number of units in commercial operation in California;

**CALPINE CORPORATION COMMENTS REGARDING POTENTIAL CHANGES TO
THE REGULATION FOR REDUCING SULFUR HEXAFLUORIDE EMISSIONS
FROM GAS INSULATED SWITCHGEAR
Attachment A**

Note: Calpine's proposed language changes to the August 15, 2019 Discussion Draft are shown in underline and strikeout below.

§ 95351. Definitions and Acronyms.

(a) For the purposes of this subarticle, the following definitions apply:

“Gas-Insulated Equipment Owner” or “GIE Owner” means the person who owns covered GIE. For purposes of this regulation subarticle, “GIE Owner” excludes temporary ownership by the original equipment manufacturer during GIE transport for purposes of and installation at a customer’s site or repair. For purposes of this regulation subarticle, “GIE Owner” includes either (a) each corporation or limited liability company which owns covered GIE ~~is considered to be a distinct GIE owner and is independently subject to this regulation~~ or (b) a group of separately-regulated entities with direct corporate association that report and comply on a consolidated basis.

"Emergency Event" means a situation arising from a sudden and unforeseen event that could not have ~~reasonably been prevented~~ because it is beyond the reasonable control of the GIE Owner, including but not limited to an earthquake, flood, ~~or~~ fire or that the release of insulating gases could not have been prevented by the exercise of prudence, diligence, and care, and was beyond the control of the GIE Owner.

§ 95352.2. Annual Emissions Limit.

(a) GIE Owners that are subject to the annual emissions limit shall establish their emissions limit using the following formula in conjunction with Table 3 and Table 4:

Average CO₂e capacity = The GIE Owner’s average CO₂e capacity value for the first ~~data~~calendar year ~~2019~~ after effective date of this section.

§ 95353. Reporting Requirements.

(j) Annual reports must include all nameplate capacity adjustments made pursuant to section 95355.2 during the data year, including manufacturer’s serial number, the original nameplate capacity value, the revised nameplate capacity value, and the date the revised nameplate capacity was established. Whenever one or more nameplate capacity adjustments were completed during the data year on a GIE device that was in active service in ~~2019~~ the first calendar year after effective date of this

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section, report their previously reported C_{avg} for ~~2019~~ the first calendar year after effective date of this section, the revised C_{avg} for ~~2019~~ the first calendar year after effective date of this section, the previous emissions limit, and the revised emissions limit;

Technical Cleanup Recommendations

1. To allow for reporting when Covered GIE may possibly be out of state during the reporting period for maintenance, repair, or storage, revise Section 95352(a)(1)(A)(2) as follows:

“2. The SF6 GIE was ~~present in the State and~~ reported to CARB pursuant to section 95353(f) for a data year prior to the appropriate phase-out date listed in Table 1 or Table 2.”

2. Section 95353(j)(15)(A)(2) still reflects the “sale” of GIE from the February 2019 Discussion Draft. This section should be revised to reflect the August 2019 Discussion Draft as follows:

“(15) For SF6 GIE acquired after the phase-out date:

* * *

2. For SF6 GIE acquired pursuant to section 95352(a)(1)(A)2., ~~the name of the previous GIE owner~~ confirmation that the GIE was reported to CARB pursuant to section 95353(f) for a data year prior to the appropriate phase-out date listed in Table 1 or Table 2.”