



September 22, 2020

Carey Bylin  
California Air Resources Board  
1001 "I" Street  
Sacramento, CA 95814

*Filed electronically*

*RE: WPTF Comments on July 21, 2020 Proposed Amendments to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear ("Proposed Amendments")*

Dear Ms. Bylin,

The Western Power Trading Forum ("WPTF") provides the following comments on the Proposed Amendments referenced above. WPTF is a broad-based organization of companies that advocate for competitive market rules throughout the Western Interconnection. WPTF's interests in the Proposed Amendments primarily relates to how they would affect the economic sustainability of existing energy facilities and development of new Independent Power Plants ("IPPs") to maintain grid reliability in California.

WPTF appreciates the ARB's efforts throughout this proceeding to consider many different perspectives and careful analysis of regulations that affect critical facilities. Further amendments are necessary to ensure the regulatory design achieves the California Air Resources Board's ("ARB") stated goal of setting "stringent, but reasonable limits on emissions." Further amendments are necessary because under the Proposed Amendments, IPPs would not be able to ensure their own compliance with the emissions threshold. The risk of Gas Insulated Equipment ("GIE") failures is a reality of operating generating facilities at high voltages. Even with the exercise of reasonable diligence, prudence and care, there will still be risks of releases. The Initial Statement of Reasons ("ISOR") recognizes the challenges faced by approximately 2% of the total emissions inventory, but does not fully address this concern. WPTF therefore recommends the following amendments:

1. *Inclusion and Reporting Threshold (95353)*: WPTF recommends amendments to require all SF6 inventory holders to track their inventories, report to the ARB and be subject to the phase out deadlines. For the group of entities the ARB identifies as comprising 2% of the total emissions inventory, the ARB should only require reporting, consistent with other ARB program designs adopted pursuant to Health and Safety Code Sec. 38500 *et seq.* (i.e., SB 32).
2. *Emissions Accounting (95354)*: The Proposed Amendments would establish GIE inventories based on nameplate capacity. There is considerable evidence in this record demonstrating that a nameplate capacity-based accounting system will lead to "phantom emissions", which would disincentive retirement of older GIE. The ARB should address these concerns by amending the rulemaking package to include a pre-approval process for retirements.
3. *Definitions Emergency Events (95351)*: The ARB should broaden the definition of emergency events to include unforeseen events that cannot be prevented by reasonable diligence.

4. *Phase Out Exemption (95357)*: The ARB should revise this request process to specifically acknowledge determinations by Professional Engineers responsible for operating critical facilities.
5. *Sulfur Hexafluoride Phase-Out and Annual Emissions Limit (95352 and 95353)*: Before instituting enforcement actions due to releases of SF<sub>6</sub>, the ARB should provide a clear process for achieving compliance, such as the acquisition and retirement of emissions allowances or offsets.

## DISCUSSION

- I. *The ARB Should Amend Section 95353 to Establish a Reporting-only Threshold of 10,000 MTCO<sub>2</sub>(e).*
  - a. *The 2.0% / 50 MTCO<sub>2</sub>(e) Standard is not a Reasonable Limit for Small Inventories of High Voltage GIE.*

WPTF supports the ARB's goal to set "stringent but reasonable limits on emissions."<sup>1</sup> WPTF appreciates the ARB's efforts to evaluate the ability of small GIE inventory holders to meet a "reasonable limit." The ISOR includes detailed figures demonstrating that California's SF<sub>6</sub> inventory is concentrated in a relatively small group of entities.<sup>2</sup> The ISOR goes on to conclude that a 2% or 50 MMTCO<sub>2</sub>(e) standard can be reasonably achieved by small inventory owners despite the challenges associated with meeting a strict emissions standard as applied to a small inventory. WPTF appreciates the ARB's acknowledgment of this issue, but respectfully disagrees with the conclusion that a 2% or 50 MMTCO<sub>2</sub>(e) standard resolves the concerns of small inventory holders.

According to the ISOR, entities above 10,000 MTCO<sub>2</sub>(e) comprise approximately 98% of the total SF<sub>6</sub> inventory.<sup>3</sup> This is because SF<sub>6</sub> is used in the greatest abundance by the State's largest transmission and distribution utilities. Independent generators also rely on SF<sub>6</sub> for GIE in high voltage classifications but comprise a very small percentage of the overall SF<sub>6</sub> inventory. IPPs including combined cycle gas turbines, peaker power plants, solar PV, solar thermal, geothermal, wind, biomass and battery storage all use SF<sub>6</sub> in their GIE. These IPPs play a co-equal role to utilities in ensuring the State meets its Resource Adequacy targets. Virtually all of the electrons produced at utility scale in California rely in some form on SF<sub>6</sub> for switchgear. WPTF appreciates the ARB's attention to the nature of these services in determining how to regulate approximately 2% of the total SF<sub>6</sub> emissions inventory. Based on historic emissions levels, we believe that this segment of the overall emissions inventory presents limited risk of releases and the relative occurrence of releases would be within the State's broader emission reduction targets (i.e., 40% below 1990 levels by 2030).

The proposed 2% or 50 MMTCO<sub>2</sub>(e) emissions limit threshold in the Proposed Regulations would not resolve the concerns associated with the ability of small GIE inventory holders to reasonably comply with the emissions limits. We appreciate the ARB's recognition that a 1% emission standard is difficult to comply with and respectfully assert that a 2% emissions threshold is as difficult for most GIE owners to comply with. This is because most releases are due to unforeseen equipment failures. Independent generators' GIEs are typically at higher voltage classifications and each GIE typically holds more than 50 MTCO<sub>2</sub>(e). Consequently, a single release due to an unforeseen equipment failure will still

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<sup>1</sup> ISOR at p. 34.

<sup>2</sup> Id.

<sup>3</sup> Id.

put the IPP over the 2.0% emissions limit or 50 MTCO<sub>2</sub>(e). The existing Regulation set a 2.0% standard (in 2019). Emissions in a single year are not a proper benchmark for whether small inventory holders can meet this standard over the longer term. At a 2% standard, small inventory holders face ongoing risks of non-compliance in the event of a single release of high voltage GIE or retirement where measured SF<sub>6</sub> is considerably less than nameplate capacity due to losses in SF<sub>6</sub> capacity over time.

Over the past seven years the current SF<sub>6</sub> Regulation has been in place, WPTF believes most, if not all, IPPs have taken steps to ensure they are prudently handling and maintaining their SF<sub>6</sub> inventories to minimize risks of releases. The ARB's statutory authority to enforce violations is well understood, and yet the pathway to compliance is not. Once IPPs undertake reasonably prudent maintenance and handling procedures for SF<sub>6</sub> GIE the only remaining option to ensure compliance is a complete system redesign. The technology pathway and retrofit costs of system redesigns at high voltage remains unclear. Some IPPs have estimated that the costs of retrofitting high-voltage SF<sub>6</sub> alternatives could necessitate significant (i.e., seven-figure or more) retrofit costs for a single facility. Such costs cannot be recovered or passed through by IPPs due to the lack of a captive rate base. Utilities will have the ability to recover any associated costs with replacement. Put simply, once all reasonably prudent maintenance measures have been undertaken by the IPP, there is little if anything the IPP can do to protect against unforeseen equipment failures that may lead to inadvertent releases. Unlike other GHG regulations adopted by the ARB, this Regulation would not permit the purchase of allowances or offsets. Under a plain reading of the Draft Regulations, an IPP may be subject to enforcement, irrespective of whether the release could have been prevented by reasonably prudent maintenance and equipment management standards. For entities that pride themselves on operating their critical facilities safely and in full compliance with all environmental laws to maintain a reliability grid, such a situation where compliance cannot be reasonably assured is untenable. As discussed in Section 5 below, the ARB should consider reasonable compliance measure that would enable entities to ensure their own compliance in the event of inadvertent releases.

*b. The Proposed Regulation Would Result in Disparate Treatment of IPPs and Large Utilities.*

Currently (and as amended), the Regulations enable the State's largest electric utilities to combine all of their GIE for reporting and compliance. This means that those with higher inventories are at a lesser risk of non-compliance compared to small inventory holders when there is a single piece of GIE equipment unexpectedly fails. WPTF encourages the ARB to review the largest utilities' reported SF<sub>6</sub> data and confirm that multiple large (i.e., >50 MTCO<sub>2</sub>(e)) releases can occur in a year and the largest utilities will still be within the applicable emissions limits for that reporting year. By comparison, a single release at a high voltage GIE device at a small inventory holder (i.e., the typical IPP) will exceed the annual emissions limit by double digit orders of magnitude over a 2% emissions limit. Most IPPs operate a single or hand full of facilities subject to the regulation. The Proposed Regulation would perpetuate a regulatory design that creates risks of regulatory compliance for IPPs that are not shared with their competitors. Under the Proposed Regulation, IPPs will continue to bear a disproportionate compliance risk due to the relative size of their inventories compared to large transmission and distribution utilities. This disparate impact is compounded by the fact that IPPs compete with utility owned generation, and IPPs do not have captive rate bases over which they can impose the costs of switching to non-SF<sub>6</sub> alternatives. We are deeply concerned that the integration of alternative technologies will require massive capital outlays that exceed the ARB's projection of the potential costs associated with compliance with the new regulatory design. Even if alternative technologies are technically feasible at higher voltage levels, the cost of retrofitting existing facilities to accommodate new technologies will jeopardize the economic sustainability of these facilities. It is unlikely that IPPs will be able to pass these costs on in the competitive power markets or to their bilateral counterparties. Put simply, WPTF remains concerned that disparate treatment under the Proposed Regulation could affect the IPPs' competitiveness in the wholesale power markets and remain available to serve grid reliability needs.

c. *The ARB Should Revisit its Proposal to Address the Small GIE Inventory Concern in the August 2019 Draft Pre-Rulemaking Amendments.*

WPTF supports the ARB’s goal to set “stringent but reasonable limits on emissions.”<sup>4</sup> In an early draft of the potential amendments released during the informal public process, CARB staff proposed a “threshold value of 5,500 MTCO<sub>2</sub>e (~ 500 pounds of SF<sub>6</sub>) average system capacity, below which level entities would be required to report emissions to CARB but would not be held to an emissions limit.” This was a simple approach that would have reduced administrative burden for ARB staff and GIE owners alike. Under this simple proposal, data would still be available to ensure projections of relative emissions are consistent with expectations. This proposal also had appeal because it had been tested in other contexts. A simple reporting/compliance threshold is consistent in its design with other regulatory determinations of the ARB under the same statutory framework (i.e., the Cap-and-Trade and Mandatory Reporting Regulation adopted pursuant to Section 38500 of the California Health and Safety Code). If adopted, the Proposed Regulations would have the ARB act under those very same statutory provisions. The ARB should propose further amendments develop a regulatory design that minimizes administrative burden without sacrificing environmental stringency. By the ARB’s own analysis sources less than 10,000 MTCO<sub>2</sub>(e) comprise 2% of the overall SF<sub>6</sub> inventory and the ARB has used this same threshold for compliance in the MRR and Cap-and-Trade. Since small inventories comprise less than 2% of the total SF<sub>6</sub> emissions inventory and the potential cost of these regulations may jeopardize the ability of firm capacity generation to operate in an economically sustainable way and meet grid reliability needs, the ARB should not impose the emissions limit and phase out requirement.

For the reasons explained in subsections (a) – (c), WPTF recommends the ARB revise the Draft Regulations to require reporting by all sources below 10,000 MTCO<sub>2</sub>(e), but not set a specific emissions limit or threshold. This way the ARB could monitor these sources (and the future build out of new capacity) and ensure that ARB’s own projections that emissions only account for about 2% of the overall inventory are consistent with expectations. If there is clear evidence that inventories below 10,000 MTCO<sub>2</sub>(e) are not being prudently managed, the ARB could always revise its Regulation to impose an emissions limit. In light of the fact that IPP’s comprise less than 2% of the total SF<sub>6</sub> inventory, we believe a simple emissions limit threshold of 10,000 MTCO<sub>2</sub>(e) can achieve the ARB’s environmental objectives while avoiding the creation of an emissions limit that cannot be reasonably complied with by small GIE inventory holders.

II. *The ARB Should Adopt a Preapproved Retirement Process.*

The Proposed Amendments would establish GIE inventories based on nameplate capacity or as measured at activation. In explaining these amendments, the ISOR acknowledges stakeholder concerns with “Phantom Emissions”:

CARB has heard from a number of GIE owners that an individual GIE device’s nameplate capacity value may not accurately reflect the amount of covered insulating gas that a device actually contains, and can be off by as much as 20 percent. Thus, under the current Regulation, the possible inaccuracy of nameplate capacity values has led GIE owners to call into question whether emissions that are calculated at retirement are the result of inaccuracies in the nameplate capacity rather than actual emissions. The proposed amendments solve this issue by revising the emission equation to have GIE owners use the calculated covered insulating gas at activation value, rather than the nameplate value, when possible.

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<sup>4</sup> Id.

WPTF appreciates the ARB's acknowledgement of these concerns, but does not believe the proposal to adjust inventories at activation values will resolve the phantom emissions concern. Older GIE are what are at risk of being assessed phantom emissions. Some of these systems have been in place for decades and will not be "activated" when the new Regulations take effect. Removing SF6 from active GIE and replacing the SF6 in an older system for the sole purpose of establishing the GIE baseline inventory will in-and-of itself create risks of releases. In the absence of being able to measure SF6 quantity at activation the Regulation defers to the nameplate capacity, which as the ARB acknowledges may overstate the actual SF6 quantity in many cases.

WPTF acknowledges that the existing Regulation provides a process for working with a GIE manufacturer to update nameplate capacity demarcations. However, in the absence of actually evacuating GIE (thereby creating a risk of release), there is no way to definitively determine the actual capacity of older equipment. This is because a GIE may lose capacity over an extended period of time and there is no way to determine when and by how much those releases may be when they occur over a multi-decade timeframe. Small releases that occur over time may have occurred well before the original start of the Regulation, and there is no way that even a manufacturer of GIE can accurately measure this phenomenon.

To avoid creating a disincentive to retirement of older GIE, the ARB should address these concerns by amending the rulemaking package to include a pre-approval process for retirements. The pre-approval process should create an exception to the enforcement of the annual emissions limits under Section 95353 when a GIE owner is: (1) in compliance with the reported emissions limits for all periods leading up to the retirement; (2) prior to the retirement, the GIE owner discloses its retirement plan demonstrating handling procedures to protect against emissions releases during the decommissioning of the GIE; and (3) the ARB approves the retirement plan prior to the decommissioning event. This addition would ensure that ARB's goals of replacing older GIE, which may be at the greatest risk of failures, occur in an orderly and predictable manner. In addition to a pre-approved retirement process, the ARB should also create a specific mass-based retirement amount that would ensure that a voluntary retirement of SF6 GIE does not result in non-compliance with the emissions limits.

*III. WPTF Recommends Amending the Definition of Emergency Event to Ensure that Small Inventory Holders Can Reasonably Achieve Compliance with the Amended Regulation in the Event of Unforeseen Releases that Cannot Be Prevented by Reasonable Diligence and Care.*

As discussed in Section I above, IPPs will face considerable challenges and cannot reasonably meet the proposed emissions limits. WPTF believes that many IPPs have undertaken reasonable diligence efforts to avoid unforeseen equipment failures. Despite these efforts, IPPs will still be at risk of equipment failures and could be subject to significant penalties despite the exercise of reasonable diligence and care. We believe that as with the current regulatory design, many of these events may not qualify because the ARB also requires that emergency events be a "sudden and unforeseen event, including but not limited to, an earthquake, flood or fire."<sup>5</sup> WPTF is aware of situations where the ARB has rejected emergency event requests that were unforeseen, but nevertheless did not precipitate from an unforeseen event such as an earthquake, flood, or fire. In recognition of the disparate impact of small GIE owners, WPTF encourages the ARB broaden the Emergency Event Definition to include all events that are unforeseen and could not have been prevented by the exercise of reasonable care and diligence. This change will provide incentives to continue to operate and maintain their systems, while at the same time providing a clearer pathway for IPPs to ensure they will be in compliance with the emissions limits.

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<sup>5</sup> 17 Cal. Code Reg. Sec. 95351.

*IV. The ARB Should Revise Section 95357 to Explicitly to Acknowledge the Expert Determinations of Professional Engineers Responsible for the Operation of Critical Facilities.*

WPTF appreciates the ARB's recognition in the Proposed Regulation of the need to account for situations where SF6 GIE may be needed after the phase out. There are a number of justifications a GIE owner may offer. Enabling flexibility in the exemption review process is critical because there may be many different situations and circumstances where operators of critical facilities. Within the list of situations, WPTF specifically supports the inclusion of "specific project or application(s) due to incompatibility with existing equipment, wiring or connectors." While the ARB does not include a specific cost justification, we understand the phase out exemption request process would allow for the acquisition of SF6 after the phase out in situations where reconfiguring existing systems would be overly burdensome or costly. In making these determinations, it is important to recognize that operating engineers at critical facilities are in the best position to evaluate the feasibility of SF6 alternatives. The ARB should recognize this expertise by explicitly relying and deferring to attestation provided by professional engineers under Section 95357.

*V. The ARB Should Clarify the Application of Emissions Limit and Provide an Opportunity to Achieve Compliance through the Voluntary Purchase of Cap-and-Trade Allowances in the Event of an Exceedance.*

WPTF recommends that the Emissions limits be clarified to include rounding to the nearest whole number. For example, an entity that emits 2.3% emissions in a year should be rounded to 2%. Further, as discussed in Section I above, the Proposed Regulation may lead to non-compliance despite a regulated entity undertaking reasonably prudent maintenance and operating measure to protect against inadvertent releases. To address these concerns, the ARB should create a voluntary compliance mechanism that would avoid an enforcement action. In the event that the emergency event exemption does not apply, the ARB should allow the regulated entity to purchase cap-and-trade allowances or emissions offsets to provide a clear and predictable mechanism that entities can rely on to ensure their own compliance.

### **CONCLUSION**

WPTF greatly appreciates this opportunity to engage with the ARB and explain the perspective of IPPs in implementing a new SF6 rulemaking design. WPTF looks forward to working with the ARB to ensure that the economic, reliability, and competitiveness implications of this Regulation are fully evaluated and addressed in the final regulatory design.

Sincerely,

/s/

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Scott Miller  
Executive Director  
Western Power Trading Forum