August 29, 2019

Carey Bylin
Manager, Energy Section
Industrial Strategies Division
California Air Resources Board
1001 I Street
Sacramento, California 95814

RE: Comments on August 15, 2019 Discussion Draft of Potential Changes to the Regulation of Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear

Dear Ms. Bylin:

The Utilities Group[1][2][3][4] appreciates the opportunity to offer comments on the California Air Resources Board ("CARB") 'Discussion Draft of Potential Changes to the Regulation of Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear' ("Discussion Draft"), released on August 15, 2019. Though we have supported the direction of this rulemaking - reducing emissions of high global warming potential (GWP) gases and phase out of sulfur hexafluoride (SF_6) in insulated switchgear - we remain concerned that this draft does not assure that critical uses of sulfur hexafluoride (SF_6) equipment can continue in a way that allows for safe and reliable operation of the statewide electricity grid in a cost-effective manner.

The Utilities Group acknowledges that CARB staff have considered the following comments provided in April 2019 and incorporated them into this Discussion Draft regulation:

- Revision of the definition of *"Insulating Gas"*
- Proposing a Phase-out schedule for aboveground and underground Distribution-level Gas Insulated Equipment (GIE)

[1] Pacific Gas & Electric Company, Sacramento Municipal Utility District, San Diego Gas & Electric Company Southern California Edison Company, Turlock Irrigation District, Liberty Utilities, Bear Valley Electric Service, the Northern California Power Agency, Southern California Public Power Authority and the California Municipal Utilities Association

[2] The California Municipal Utilities Association is a statewide organization of local public agencies in California that provide electricity and water service to California consumers. CMUA membership includes publicly-owned electric utilities that operate electric distribution and transmission systems. In total, CMUA members provide approximately 25 percent of the electric load in California.

[3] The Southern California Public Power Authority (SCPPA) is a joint powers agency whose members include the cities of Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Los Angeles, Pasadena, Riverside, and Vernon, and the Imperial Irrigation District. SCPPA Members collectively serve nearly five million people throughout Southern California. Each Member owns and operates a publicly-owned electric utility governed by a board of local officials who are directly accountable to their constituents.

[4] The Northern California Power Agency (NCPA) is a nonprofit California joint powers agency established in 1968 to construct and operate renewable and low-emitting generating facilities and assist in meeting the wholesale energy needs of its 16 members: the Cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, Shasta Lake, and Ukiah, Plumas-Sierra Rural Electric Cooperative, Port of Oakland, San Francisco Bay Area Rapid Transit (BART), and Truckee Donner Public Utility District—collectively serving nearly 700,000 electric consumers in Central and Northern California.

- Recognizing the purchase date for GIE as a trigger relative to the proposed phase-out dates
- Eliminating a prescriptive way of marking and labeling GIE and gas containers
- Recognizing the manufacturer's nameplate accuracy for GIE, and proposing voluntary methods for making nameplate capacity adjustments
- Eliminating the administrative burden that required reporters to electronically submit and update written procedures within an arbitrary timeframe
- Amending the gas container weighing procedures so that 'phantom emissions' are not reported, and
- Recognizing conditions that allow the installation of SF_6-containing GIE in situations when alternatives are not available or technically feasible to replace.

However important concerns still remain with this Discussion Draft that present significant compliance challenges, including:

a) a baseline (cap) on emissions starting in 2019,
b) the phase-out schedule of GIE,
c) the steady decrease in the annual allowable leak rate,
d) the removal of an incentive to voluntarily introduce SF_6 alternatives and
e) lack of credit for SF_6 GIE installed following a phase-out exemption.

If implemented as proposed, these provisions will individually and collectively result in a high risk to utilities even as new technologies are made available and adopted by utilities. To address these challenges and mitigate the adverse impacts, the Utilities Group proposes that CARB address the following:

I. Establish an appropriate baseline year in § 95352.2 - Annual Emissions Limit
II. Establish phase-out schedules and achievable annual emission limits that all reporters can meet
III. Change proposal to Acquire SF_6 GIE No Later Than 12 Months After Phase-Out §95352(a)(1)(A)(3)
IV. Amend proposed definitions of 'Gas Cart' and 'Gas Container' and associated language to satisfy gas measurement accuracy goals,
V. Amend proposed definitions of 'Permanently Decommissioned' to recognize operational limitations
VI. Suggestions for Nameplate Capacity adjustment criteria as requested by CARB staff
VII. Remove proposed "Non-SF_6 Electrical Power Equipment Clearinghouse"
VIII. Expand Economic Analysis

Each comment is expanded on below.

I. <u>Establish an appropriate baseline year in § 95352.2 - Annual Emissions.</u>

The Utilities Group remains concerned with staff's proposal to retain the 2019 "baseline" for purposes of calculating emissions limits after January 1, 2020 and urges CARB to reconsider the proposal to use a 2019 baseline; as demonstrated by the substantial information provided on this issue. At its core, staff's proposal to use 2019 for this calculation essentially initiates a SF_6 GIE phase-out ahead of the dates proposed in Tables 1 and 2.

As proposed, the regulation would place many utilities in the untenable position of exceeding the annual emissions limit whenever they legitimately add SF_6 GIE to their system. The baseline for calculating the emissions limits should be based on the phase-out dates for the SF_6 GIE. Setting 2019 as a baseline to limit emissions fails to consider planning and procurement decisions already made that cannot be altered, or that no suitable non- SF_6 alternatives are commercially available for planned procurement. As such, a 2019 baseline unjustly penalizes those entities that will justifiably see an increase in their SF_6 inventory. In the alternative, as more fully explained herein, the Joint Utilities believe that the phase-out of all non- SF_6 GIE will enable the state to meet its broader policy objective, eliminating altogether the need for a baseline.

The Utilities Group previously noted many reasons why SF_6 capacity may increase for GIE owners between now and when the proposed phase-out of SF_6 begins in 2025, including the need to install SF_6 GIE where no alternatives are available or tested at projects to build or modify substations to accommodate increased renewable energy mandates and scheduled replacement of older equipment to assure system reliability. System maintenance and planning decisions are made on a minimum three to five-year horizon. As such, some utilities already have SF_6 GIE in their possession that will not be installed before the end of 2019. Other planned procurements, as further explained below, would not be completed until after 2019. Under the proposed regulation, equipment that is already acquired or planned procurements under contract, will be included in the annual emissions limits, but would not be included in the utility's baseline.

Furthermore, for some utilities, the majority of the SF_6 acquisitions between 2020-2024 will be in the high-voltage (HV) categories where no alternatives to SF_6 currently exist or where only one vendor offers a product at this time. These HV SF_6 additions also contain the greatest mass of SF_6. Setting the baseline at 2019 levels will compromise grid reliability by limiting utilities' options to adequately respond to load growth without undue penalty risk. During the August 15, 2019 Workshop Presentation, staff stated that, based on past reported data, it appears that there is room in GIE owners' inventories to account for any increases between now and 2025. However, those reports do not reflect any planned changes to inventory due to the myriad factors listed above.

Individual utilities have provided CARB staff with examples of current and planned installations or GIE replacements that cannot use non- SF_6 GIE. As proposed, some of these lawful, pre-phase out installations would make it probable that the utility would be unable to meet the annual emissions limit. At a minimum, if non- SF_6 alternatives are unavailable, the proposed baseline should be tied to the actual phase-out schedule adopted in the regulation.

During the August 15, 2019 Workshop Presentation, staff raised concerns that a proposal to include inactive GIE could raise GIE owners' baseline significantly. Even if true, this rationale does not support penalizing long-term procurement planning that does not violate any existing regulations.

II. <u>Establish phase-out schedules and achievable annual emission limits that all reporters can meet.</u>

The Utilities Group has previously expressed support for a tiered phase-out schedule for new GIE purchases that is dependent upon the commercial availability of non- SF_6 equipment for each voltage class of equipment, that is cost-effective, and is linked to a robust technical

exemption mechanism to ensure the SF_6 GIE phase-out does not compromise the safety, reliability, and integrity of the electricity system.

The Utilities Group notes that individual utilities have separate processes to introduce new products into their operations that include varying times to: a) ensure compatibility with existing equipment and electricity systems, b) purchase equipment through competitive solicitation or bids, c) test the operation and maintenance of such equipment, and d) provide sufficient time for workforce training and education. Such diversity in existing administration of this technology requires regulatory understanding and flexibility. It is not enough that a single manufacturer has a product available if there has not been sufficient time for a utility to test the equipment on its system, or without adequate time to appropriately train the workforce. For the reasons noted above, individual utilities have provided their individual phase-out schedules for transmission-level equipment, and we urge CARB to consider a phase-out schedule that is achievable based on equipment availability.

The Utilities Group reiterates the following phase out schedule for distribution-level GIE presented in April 2019:

Table 1. Phase-out Dates for Distribution-level SF_6 GIE

Voltage (kV)	***Phase-out Date***
≤ 17.5 kV (Aboveground[1])	*January 1, 2025*
17.5 < kV ≤ 38 (Aboveground[1])	*January 1, 2031*
≤ 38 kV (Belowground)	*January 1, 2031*

[1] Aboveground distribution GIE includes pad-mounted or pole-mounted equipment

III. Change proposal to Acquire SF_6 GIE No Later Than 12 Months After Phase-Out §95352(a)(1)(A)(3)

The Utilities Group appreciates that CARB staff has recognized that equipment purchases made prior to the Phase-Out date can result in GIE deliveries and installation after the Phase-Out date. However, the 12-month limit reflected in the discussion draft is not consistent with utility capital planning requirements. Utilities plan capital projects three to five years in advance of installation and may have already acquired, or are soon to be in contract for, several high voltage SF_6 GIE for delivery in the future. In some cases, an agreement with a seller to acquire a product will include cancellation or termination charges if withdrawn. While delivery 12 months after purchase meets the definition of "Purchase," in the discussion draft, actual delivery of GIE beyond the 12 months stipulated is common; sometimes GIE may be delivered 24 to 36 months after purchase. As proposed in the discussion draft, utilities would be unable to install GIE acquisitions after 12 months, even if the GIE is purchased prior to the phaseout date.

The Utilities Group recommends revising the language in §95352(a)(1)(A)(3) as follows:

"The SF_6 GIE device was purchased by the GIE owner prior to the applicable phase-out date listed in Table 1 or Table 2 ~~and the owner acquires the SF_6 GIE no later than 12 months after the applicable phase-out date~~."

IV. Amend proposed definitions of 'Gas Cart' and 'Gas Container' and associated language to satisfy gas measurement accuracy goals

The definitions of 'Gas Cart' and 'Gas Container' appear to have been amended to satisfy the proposed language in §95355(a)(2)(A) and (B) - Measurement Procedures and §95353(g)(5), (6) and (7). Each time SF_6 gas is transferred from carts to containers with the sole purpose of determining the gas weight, there is an unnecessary risk of gas release. This is contrary to the intent of the regulation to reduce SF_6 emissions, especially since the gas carts can be weighed. The Utilities Group recommends that CARB consider other alternatives available to determine the mass of SF_6 gas in gas carts.

V. Amend the proposed definition of 'Permanently Decommissioned' to recognize operational limitations

The proposed definition of 'Permanently Decommissioned' includes a clause, "*Any GIE device which was in active service at some point in time that has been consecutively out of active service for 3 years has been permanently decommissioned.*" It appears that CARB seeks to account for gas from GIE that are not in 'active service'. However, there are numerous instances when a utility will remove a GIE from active service, remove the SF_6 gas, repair the equipment if needed and return it to storage as a 'spare' to use as needed. The GIE may remain in storage for several years. As written, the regulation will prohibit equipment that are functional from being returned to service once removed for an arbitrary period. Additionally, a utility may remove a distribution-level GIE from service and maintain it as a 'spare' for an extended period.

Instead of establishing an arbitrary requirement that does not align with operational practices, CARB should consider recategorizing these GIE as 'in storage'. The nameplate capacity of the 'in storage' GIE would be accounted for when calculating the '*Net increase in total nameplate capacity*'.

VI. Suggestions for Nameplate Capacity adjustment criteria as requested by CARB staff

In response to CARB staff's request for feedback, the Utilities Group proposes the following language to § 95355.2. Nameplate Capacity Adjustments:

1. Remove section § 95355.2 (b) through (i) and replace with the following language:
    a. GIE owner to follow CARB certified manufacturer procedures for nameplate capacity adjustments
    c. Manufacturer to submit nameplate adjustment procedures to CARB for certification
2. Recommend criteria for identifying GIEs needing nameplate adjustment to be submitted by the GIE owner as part of the process.

VII. Remove proposed "Non- SF_6 Electrical Power Equipment Clearinghouse"

Staff has proposed revisions to section 95355.3 to include a "Non- SF_6 Electric Power Equipment Clearinghouse." The Utilities Group appreciates CARB's responsiveness to concerns raised regarding the ability to demonstrate the lack of alternative technologies post-phase out in order to qualify for the SF_6 phaseout exemption. To that end, the idea of a "clearinghouse" where all known non- SF_6 GIE is listed is one that merits further consideration. However, the Utilities Group do not feel that this clearinghouse should be included in the

regulation itself. While the clearinghouse could be a useful tool for GIE owners to identify new technologies and available vendors, utilizing the clearinghouse in a way that would be a resource and support request for exemptions under section 95355.3 would require a robust mechanism that would include:

1) A transparent verification process for determining whether the vendors and each individual product listed on the site are in fact viable non- SF_6 alternatives including a means to verify any manufacturer claims.
2) Demonstration of commercial operability before a product is added to the clearinghouse, and
3) A process to ensure that the clearinghouse is up to date, as well as the ability to use vendors and products that are not listed.

Additionally, there would need to be a mechanism for an exemption for a product that does not meet the specific installation requirements of a utility.

Developing and implementing appropriate safeguards would take considerable time and effort, and likely require additional resources to maintain to a level of stringency necessary to meet the regulation. The Utilities Group welcomes the opportunity to work with CARB staff and industry representatives on a common CARB-hosted clearinghouse of the type contemplated by staff, but not as part of the regulation itself.

VIII. Expand Economic Analysis

The Utilities Group is concerned with the lack of data related to anticipated costs associated with this rulemaking—total costs, incremental costs, reporting costs, cost effectiveness on a per ton GHG basis, and some of the fundamental assumptions related to the proposed language. In addition, the staff response to a workshop question related to associated retrofitting costs not being included was very concerning.

It is uncertain if CARB believes this amendment constitutes a Major Regulation, and thus requires the preparation of a Standard Regulatory Impact Assessment (SRIA). The Utility Group suggests that such a determination should include all costs associated with this regulation, including retrofitting, reporting, IT updates, capital costs, maintenance costs and the like associated with changing the rule from 'leak-limiting only' to a 'prohibition of SF_6'. It is also important that all costs be included for the requirements themselves, and not discounted for potential discretionary exemptions. The proposed regulatory amendment requires installation and/or replacement of non- SF_6 equipment and compliance with an emissions limit, whereas the original regulation was intended to manage equipment leaks to meet a declining annual emissions leak rate. Therefore, the economic analysis should consider this fundamental change.

Utilities found that the level of effort and cost of compliance with the existing regulation was orders of magnitude higher than originally anticipated by CARB.[5] The original estimates grossly underestimated the administrative cost of compliance from reporting and recordkeeping, so more realistic administrative costs should be considered to include the cost for recordkeeping and reporting and the increased costs to prepare Phase-Out Exemption request packages.

[5] Proposed Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear, Staff Report: Initial Statement of Reasons, Appendix D - SF_6 Emission Detail, Cost Information and Calculation Tables; January 7, 2010 (LINK)

Finally, the Utilities Group also requests more details on the potential GHG reductions associated with this rulemaking that will aid both regulated entities and policymakers to fully understand the impact of this regulatory amendment. The true cost impacts and cost-effectiveness of the regulation cannot be known until the expected emissions reductions from the regulation are known.

Conclusion

The Utilities Group appreciates Staff's work to address stakeholder comments in the latest draft regulation text and looks forward to continuing to work with CARB staff to address the concerns outlined in this letter.