September 22, 2020

Mary Nichols
Chairman, California Air Resources Board
1001 I Street
Sacramento, California 95814

RE: Comments on Proposed Amendments to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear

Dear Chairman Nichols:

The "Utilities Group"[1][2][3][4] appreciates the opportunity to offer comments on the California Air Resources Board ("CARB") 'Proposed Amendments to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear' ("Proposed Amendments"), released on July 21, 2020. The Utilities Group represents the majority of electricity transmission and distribution system owners and operators in California.

The Utilities Group supports the direction of this rulemaking to further reduce potential emissions of high global warming potential (GWP) gases in the state and phase out the use of sulfur hexafluoride (SF_6) in gas insulated equipment (GIE). The Proposed Amendments are intended to allow the state to meet these objectives without compromising the electric grid, and allowing the continued use of existing GIE. Over the past three years, the Utilities Group worked constructively with CARB staff and industry stakeholders through informal meetings and workshops as the Proposed Amendments were being developed.

A large majority of electric transmission and distribution substations use SF_6 GIE in switchgear, including circuit switchers and circuit breakers, which serve a critical role to protect the electric grid as electric current is transferred at various voltages from generating sources to end-users. As such, end-users could

[1] Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, Sacramento Municipal Utility District, Los Angeles Department of Water and Power, Turlock Irrigation District, Modesto 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 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.

[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 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.

be significantly impacted if a substation is disabled due to failed GIE. It is paramount, notwithstanding the aggressive limits on emissions from existing SF_6 GIE and the phase-out schedule of SF_6 in GIE, that the Proposed Amendments are implemented without compromising grid safety and reliability, and in recognition that the costs of the transition away from SF_6 GIE will be borne by the state's electricity customers. This transition needs to adopt alternative technologies that meet industry standards, are cost-effective, and consider the need for utilities to maintain the necessary parts and equipment to support existing equipment through its useful life.

The Utilities Group commends staff's responsiveness and willingness to address these critical issues through this process. The comments that follow support the goal for timely adoption of SF_6 alternatives while assuring the needs for safety and reliability.

General Comments

The Utilities Group comments and recommended amendments provide clarity and compliance certainty as the state transitions away from the long-term use of SF_6 as an insulating medium in GIE. The proposed amendments include:

1. Allowing direct procurement of replacement SF_6 GIE following a failure event.
2. Methodologies to certify a revised nameplate for existing GIE.
3. Allowing direct procurement of replacement spare SF_6 GIE under certain conditions.
4. Allowing the accounting of SF_6 gas for leak calculation in the year gas is evacuated.
5. Amendments to enforcement provisions that are overly burdensome and punitive.
6. Technical amendments to improve the implementation of the regulation.

The convention used to present the Utilities Group comments is blue text (e.g. addition) to note recommended additions and dark red text with a double-strikeout (e.g. ~~deletion~~) to note recommended deletions.

I. § 95351 – Definitions. The following changes to certain definitions will better clarify the regulatory requirements and provide context to the other recommendations that follow:

1. **ADD** a definition for "Covered Insulating Gas at Removal from Regular Use" as proposed, to support the recommendation to resolve the uncertainty in gas weights from existing SF_6 - containing equipment:

   "**Covered Insulating Gas at Removal from Regular Use**" means the covered insulating gas at activation or the value calculated in section 95354(d)(1); if either value is not calculated, this term means the nameplate capacity of the GIE device.

2. **AMEND** the definition of "Catastrophic Failure" to "Failure" as proposed, since the failure of a GIE does not always occur during a catastrophe, yet will require an unplanned response by a utility to ensure system safety, reliability and integrity/resilience:

   "~~Catastrophic~~ Failure" means the sudden and unexpected failure of a GIE device that impacts ~~human safety and/or substantially impairs, damages, or shuts down part or all~~ the reliability of a system (e.g., the electrical grid, facility operations, a power producer's availability for dispatch to the electrical grid).

3. **AMEND** the definition of "Gas Cart' as proposed, to better describe the device:

   "Gas Cart" means ~~any device designed to transfer insulating gas into or out of GIE, with the gas coming from or going into a permanent or removable gas container or the gas cart itself.~~ one or more vessels manifolded and designed to carry or transfer insulating gas into or out of GIE.

4. **AMEND** the definition of "Gas Container" as proposed, to better describe the device:

   ~~(6)~~ **"Gas Container"** means a single vessel containing or designed to contain ~~SF6. "Gas container"~~ a gas used as an insulating gas in GIE. This includes pressurized cylinders, any container that can be removed from a gas carts, or other containers, but does not include GIE or the gas cart itself.

5. **AMEND** the definition of "Gas-Insulated ~~switchgear~~ Equipment" or ~~GIS~~ "GIE" as proposed, to more accurately describe the GIE:

   ~~(7)~~ **"Gas-Insulated ~~switchgear~~ Equipment" or ~~GIS~~ "GIE"** means all electrical power equipment, regardless of location that utilize a gas ~~and insulating medium~~ (e.g., ~~solid dielectric~~, air, vacuum, SF6, alternative gas), ~~insulated with SF6 gas~~ that provides insulating and/or interrupting (arc quenching) functions related to the ~~transmission of electric current in~~ operation of electrical power systems ~~regardless of location~~. ~~Gas insulated switchgear or~~ GIE~~S~~ includes, but are not limited to, switchgear, switches, ~~stand-alone gas-insulated equipment, and any combination of electrical disconnects, fuses, electrical transmission lines, transformers~~ circuit switchers, coupling capacitor potential devices, gas-insulated substations, station service voltage transformers and~~/or~~ circuit breakers ~~used to isolate gas insulated electrical equipment~~. This definition includes hermetically sealed GIE and non-hermetically sealed GIE.

   The proposed definition provides a more precise description of GIE. While we understand that CARB may need to include vacuum and solid dielectric in the regulation for purposes of calculating Early Action Credit (EAC), the definition of "Gas-Insulated Equipment" or "GIE" should not include equipment that does not contain greenhouse gases (GHGs). GIE that does not contain GHGs should not be reported under this regulation. We recommend revising the definition of GIE to only include equipment containing GHGs.

   Additionally, the definition of GIE in the 45-day language refers to *"…transmission of electric current in electrical power systems."* This phrase may cause some confusion because it contradicts the example of coupling capacitor potential devices. We recommend simplifying the language to *"operation of electrical power system."*

6. **AMEND** the definition of "Non-Hermetically Sealed Gas-Insulated Equipment" or "Non-Hermetically Sealed GIE" as proposed, to simplify the description of a non-hermetically sealed GIE.

   "Non-Hermetically Sealed Gas-Insulated Equipment" or "Non-Hermetically Sealed GIE" means GIE that ~~contain a covered insulating gas and are designed by the manufacturer to be fillable by the GIE owner or a third-party designee.~~ is not hermetically sealed.

7. **AMEND** the definition of "Substantive Error" as proposed, to better align with other GHG regulations:

   "Substantive Error" means an error that affects calculated emissions, data used to calculate emissions, or any other data element required to be reported pursuant to section 95353(a), (b), (e), (f), (g), (h), (i) and (j) of the annual report, resulting in a change in emissions greater than 5%.

8. **ADD** a definition for equipment voltage capacity. There are several different ways voltage capacity can be interpreted (e.g., nominal system voltage or nameplate maximum voltage). We recommend using the IEEE standard terminology (reflected on the GIE nameplate as "Rated Voltage") in order to maintain consistency with industry standards:

"Equipment Voltage Capacity" which is reflected on the GIE nameplate as "Rated Voltage" consisted with IEEE standard terminology.

II. §95352 - Sulfur Hexafluoride Phase-Out.

A. The phase-out language includes a provision that exempts replacement of defective GIE under warranty. Since GIE warranty replacements may incur unforeseen costs, including restocking or shipping fees, we recommend this language be **amended** as follows:

(a)(4) The SF6 GIE manufacturer replaces a defective SF6 GIE device ~~at no cost to the GIE owner~~ under the terms of the manufacturer's warranty.

III. §95353 - Annual Emissions Limit.

In setting the emission rate limit, CARB has proposed a threshold of 10,000 MTCO2e, below which the emissions limit would be set at 2%, and above which the emission limit would be set at 1%. The Utilities Group supports this proposal. As the Initial Statement of Reasons (ISOR) notes, GIE owners with average system capacities below 10,000 MTCO2e would have a difficult time complying with a 1% emission limit due to the fact that a single event could release enough gas to exceed the annual emission limit before the GIE owner was even aware that a leak had occurred. Additionally, the total number of GIE owners that fall below this threshold are a relatively small source of SF_6 emissions, comprising less than 2% of the total statewide SF_6 capacity (ISOR, pp. 33-34).

The Utilities Group also notes that the 10,000 MT CO2e threshold is consistent with the applicability threshold in the Mandatory Reporting Regulation. The Utilities Group proposes the following **amendments** to improve this section of the regulation:

A. GIE acquired with a SF_6 Phase-out Exemption should be included in the Average System Capacity. The Annual Emission Limit is calculated as 1% of the annual average GIE capacity. However, the Proposed Amendments would exclude GIE acquired with a phase-out exemption from the 'average system capacity' for each covered insulating gas ($C_{avg,j,i}$). We recommend that the capacity of all GIE be included when calculating the annual emission limit, regardless of whether the GIE was acquired pre or post phase out date. This is appropriate since the exemption applies when alternatives are unavailable for technical reasons. Therefore, the Utilities Group proposes deleting the sentence that would exclude GIE acquired with a phase-out exemption from the annual average system capacity.

DELETE § 95353(b)(3)(C) ~~The GIE device was not acquired with an SF6 phase-out exemption, either by the GIE owner or by a previous owner of the GIE device.~~

B. Early Action Credit. The Utilities Group supports CARB staff's inclusion of the EAC provision in section §95353 of the Propose Amendments. In order to recognize early action by entities that pro-actively installed non-SF_6 GIE prior to adoption of the Proposed Amendments, we recommend: a) changing the starting year for the EAC from 2021 to 2017 when the phase-out regulatory concepts were first introduced by CARB, and b) provide the EAC starting in the year when the early action was taken.

C. Conversion Factor. With the mass emission limit set at 1% of the baseline value from 2020-2034 for most entities, it is crucial to calculate and record the baseline value as accurately as possible. When calculating the baseline CO_2e, the Utilities Group recommends using a conversion factor of 2204.62 instead of 2205 to convert from pounds to metric tons. This

conversion factor is consistent with the unit of measure conversions in 40CFR 98 Subpart A Table A-2, which is also used for calculating CO_2e emissions under the EPA mandatory reporting rule. Using a conversion factor of 2204.62 instead of 2205 pounds to a metric ton ensures consistency and compliance with other reporting rules and accuracy of baseline values and emission limits.

The Utilities Group proposes the following **amendments** to implement the EAC and Conversion Factor recommendations:

1. **AMEND** §95353 (c) as follows to recognize the EAC in the year the early action was taken and use the more accurate conversion factor:

   §95353 (c) GIE owners must calculate their average CO_2e capacity on an annual basis as follows for each covered insulating gas *j*:

$$Average\ CO2e\ capacity = \mathrm{EAC_i} + \sum_{n=j}^{m} (GWP_j * Cavg, j, i)/2204.62$$

2. **AMEND** §95353 (d) as follows to recognize early actions starting in 2017:

   §95353 (d) Beginning with data year ~~2021~~2017, GIE owners must calculate their early action credit (EAC) as follows on an annual basis:

3. **AMEND** § 95353 (g) as follows to apply the EAC in the emissions limit:

   § 95353 (g) GIE owners shall establish their emissions limit using the following formulas in conjunction with Table 4 and Table 5:

   (1) For data years 2020 to 2024, GIE owners shall establish their emissions limit using the following formula in conjunction with the applicable values provided in Table 4 and Table 5:

$$Emission\ Limit(i) = EAC(i) + \left[\frac{AEF}{100} * AverageCO2e\ capacity\right]$$

2. **AMEND** the conversion factor in the formulas in § 95353 (c) and (e) and the formulas in § 95354.1 (b) and (c).

"~~2205~~2204.62" is the number of pounds in a metric ton.

IV. §95354 - Inventory and Insulating Gas Procedures.

A. The requirements to inventory GIE in the Proposed Amendments are either administratively burdensome or unspecific for reporters, may not be available for the individual GIE, and are not used to calculate emissions. Therefore, the Utilities Group proposes the following amendments to ease the regulatory burden associated with GIE inventories:

1. Record the Year when equipment was manufactured. Manufacturers do not provide a specific date when a GIE was manufactured and often provide only the year of manufacture on the nameplate. The year of manufacture can be used to determine the age

of the GIE with an appropriate level of accuracy and prevent the likelihood of multiple violations due to missing or incomplete data. Therefore, the Utilities Group recommends changing the GIE inventory requirement from "Date" to "Year" equipment was manufactured as follows:

AMEND § 95354(a)(2): ~~Date~~ Year equipment was manufactured.

2. Align GIE Voltage Characteristics with Industry Standards. The Utilities Group recommends that GIE voltage capacity use the Institute of Electrical and Electronics Engineers (IEEE) convention to describe the characteristics of a particular GIE in an owner's inventory and **amend** the section as follows:

   AMEND § 95354(a)(5). Equipment rated voltage capacity using IEEE convention (in kilovolts).

3. Revise Requirement for Gas Received Inside Equipment. GIE suppliers have not established a standard to supply reporters with an accurate mass of covered gas added to GIE prior to shipping from the factory. The Utilities Group recommends the following **amendment** to address the lack of consistency:

   AMEND § 95354(a)(10)(A)(2). For GIE acquired after December 31, 2020, record the amount of covered insulating gas in the device at the time the device was acquired (pounds)~~, per information provided by the manufacturer~~. If no covered insulating gas was in the device when it was acquired, record this value as zero;

4. Add options to determine mass of gas in in-use GIE. For in-use GIE, the Proposed Amendments do not prescribe how to address adjustments to the original gas nameplate capacity. Differences between the 'nominal' and 'real' covered insulating gas capacities can be significant and introduce reporting errors if the nominal nameplate capacity does not match the real mass of gas in a GIE. Since this difference is typically identified when a GIE is decommissioned, it is important to determine the actual gas capacity value and have that value be recorded to accurately account for the covered gas in a GIE. Therefore, the Utilities Group recommends that the following section be added to permit GIE owners to adjust the gas capacity value for in-use GIE:

   ADD § 95354 (a)(10)(A) 7. For in-use GIE, the "covered insulating gas at activation" gas capacity value may be revised based on: 1) full recovery of the insulating gas by a qualified technician, starting with the optimal GIE pressure gauge reading that meets utility standards, or 2) a revised GIE nameplate provided by the manufacturer.

B. The Utilities Group recognizes CARB's intention to account for movement of covered insulating gas between containers and GIE in the mass balance calculation within the data year. However, it is sometimes not possible to remove gas from a GIE by December 31 when a GIE is removed from service late in the data year. To remedy the challenge of rushing to remove gas solely to meet an administrative deadline, while also meeting the objective to avoid creating 'phantom emissions', a GIE device should be considered "removed from regular use" on the date when the gas is extracted. In addition, GIE returned to the manufacturer for repair should not be considered removed from inventory because ownership of the GIE does not change hands. The Utilities Group proposes the following **amendment** to remedy this regulatory conflict:

   AMEND §95354(c)(1)(B). When the GIE device is taken out of active service ~~for the purpose of removing the device from a GIE owner's inventory (e.g., to be disposed of, sold,~~

~~transferred to a new GIE owner, sent to the manufacturer for repair)~~ and the covered insulating gas has been extracted.

C. § 95354(c)(1) Removed from Regular Use and (d) Remove Covered Insulating Gas. These sections would declare a GIE that has not been active for five consecutive years as "removed from regular use" and require the gas be removed from the GIE. It is not clear whether a GIE that was "removed from regular use" can be put back in service, and whether this requirement would apply to spare GIE. This proposed requirement is problematic for several reasons: 1) it adds unnecessary gas removal work, diverting operations and maintenance staff away from their regular duties; 2) removing the gas could ruin distribution switches and hermetically sealed equipment that were intended to remain fully charged; 3) the GIE owner may not have the special equipment necessary to extract the gas; and 4) it adds more recordkeeping to track how long a GIE has been in storage. The Utilities Group recommends deleting these proposed requirements, as the requirements create more work and don't improve emissions reporting accuracy.

D. Gas from GIE (excluding fully charged switches and hermetically sealed GIE) is typically removed within 1 year of the GIE being removed from active use. Additionally, distribution switches and hermetically sealed GIE that come fully charged from the factory should be exempt from the requirement to remove the gas. The Utilities Group proposes the following **amendment** to address this conflict:

AMEND §95354(d). For any GIE device meeting the specifications in sections 95354(c)(1)(A) and 95354(c)(1)(B), covered insulating gas must be removed and evacuated into a covered gas container or containers, and accounted for following the requirements of section 95354(d)(1) ~~in the same year that the GIE device is counted as "removed from regular use."~~ within one year from the date that the GIE device has been removed from active use. The amount of covered insulating gas transferred out of the GIE device (pounds) must be recorded. GIE devices that are sold or transferred to a new GIE owner or returned to the manufacturer for repair do not require the covered gas to be extracted unless necessary to comply with Department of Transportation requirements.

V. § 95354.1. Calculating Annual Emissions.

A. GIE gas capacities assigned by the original equipment manufacturer (OEM) on nameplates are nominal; the real gas capacity of the GIE can only be determined at the time of initial installation or when gas is completely removed from the GIE. The Proposed Regulation does not address how reporters can reconcile these differences for an individual GIE, and this discrepancy results in the creation of 'phantom emissions' that are likely to manifest when GIE are removed from regular use. The Utilities Group proposes the following method to resolve the concern of phantom emissions:

i. Prior to evacuation of SF_6 gas from a GIE, a qualified technician validates that the GIE pressure gauge meets utility accuracy standards for in-service operational use, and the GIE is at proper operating pressure based on the manufacturer's gas temperature-pressure curve.
ii. After the gas is evacuated from the GIE, the qualified technician certifies the accuracy of the mass of gas removed for the individual GIE. This value would be the "Covered Insulating Gas at Removal from Regular Use," (CIGARR) as defined.
iii. The reporter uses the certified mass of gas removed as the corrected gas capacity value for that specific reporting year.
iv. The corrected gas capacity would be certified by the Designated Representative with the Annual Report.

To ensure that these procedures are followed, the regulation can specify the requirements for data collection, data reporting and recordkeeping in §95354(a)(8), §95355(a) and §95356, respectively. The CIGARR value would be used while calculating the annual emissions for covered insulating gas.

B. **AMEND** § 95354.1 (a) Annual Emissions by Covered Insulating Gas using the proposed language:

Net increase in total capacity of active GIE owned and filled with covered insulating gas j = (covered insulating gas *j* at activation for GIE whose status changed to active GIE for the first time during the data year or after being considered removed from regular use during the data year pursuant to section 95354(c)(1)) -(covered insulating gas *j* at ~~activation~~ removal from regular use for GIE removed from regular use during the data year pursuant to section 95354(c)(1)) – (covered insulating gas *j* at activation for GIE transferred while in use to another entity during the data year pursuant to section 95354(c)(2)) + (covered insulating gas *j* at activation for GIE transferred while in use from another entity during the data year pursuant to section 95354(c)(2)).

VI. § 95355.1(a) Reporting Requirements. It is not clear from the proposed text that vacuum and dielectric GIE are exempt from this provision. Since vacuum and dielectric GIE contain non-covered insulating gases with a GWP less than 1, these should be excluded from reporting requirements, except where required to demonstrate EAC eligibility, and the proposed amendments should reflect this clarification.

VII. §95356 – Recordkeeping. The Proposed Amendments lists specific records that must be retained by a reporter. Subsection (a)(4) prescribes retention of extensive records to demonstrate purchase and acquisition of GIE by an owner. The extent of the records specified do not support the need to accurately inventory GIE and is unnecessary. Utilities normally utilize electronic recordkeeping systems to record GIE properties and procurement and can be used to demonstrate purchase and acquisition. The Utilities Group proposes the following **amendment**:

AMEND §95356(a)(4). Documentation regarding the purchase and acquisition of any covered insulating gas and/or GIE ~~(including but not limited to, contracts, material invoices, and receipts)~~, including any information used to justify the acquisition of SF6 GIE after the phase-out date pursuant to section 95352(a)(2)-(4);

VIII. § 95357 - SF_6 Phase-Out Exemption.

A. The Utilities Group proposes the following amendment to specify that GIE purchased prior to, but entering California after the phase-out date will qualify for a phase-out exemption:

AMEND § 95357 (a). Pursuant to section 95352(a)(1), a GIE owner who wishes to acquire SF6 GIE after the applicable phase-out date indicated in Table 1 or Table 2 or as allowed in 95352 (a)(3) must electronically submit an SF6 phase-out exemption request to the Executive Officer that, if approved, would allow the GIE owner to acquire the requested SF6 GIE.

B. The Proposed Amendments properly include a provision for GIE owners to seek a phase-out exemption under certain conditions. The Utilities Group supports the objective of the phase-out but need the ability to maintain their existing SF6 GIE equipment that is critical for a safe and reliable electricity supply. For this reason, it is important that the regulation acknowledge that all decisions related to the replacement of SF_6 equipment, under both ordinary operations and in the event of equipment failure, are appropriately made by the utilities' own experts. The GIE owners' employees and engineers have intimate knowledge of their respective systems and make these decisions. As drafted, the proposed regulations

would grant a third-party the authority to second-guess the decisions of the utilities' own experts in determining whether to approve either an SF_6 phase-out exemption or expedited SF_6 phase-out exemption request. The Utilities Group proposes that the regulation be amended to address this concern and recommends that the Proposed Amendments provide that SF_6 phase-out exemption and expedited SF_6 phase-out exemption requests be subject to the following: (1) the request would be submitted to CARB with an attestation from the GIE owner's lead engineer that the exemption is necessary and complies with all of the provisions set forth in the regulation, and (2) CARB's approval of the request will not be denied if such a valid attestation is provided.

C. The Utilities Group acknowledges that a justification for acquiring SF6 GIE after phase-out dates must be submitted to CARB to be considered for an exemption. The exemption application requires the manufacturer and maker information of the SF6 GIE. However, it should be recognized that the bidding process for municipalities are based on a "lowest (cost) responsive bidder." That is, in most cases, the GIE owner will not have the specific SF6 GIE information at the time the exemption application is submitted. Conversely, if the GIE owner were to wait after bids for the SF6 GIE are evaluated and then, send the application to CARB, this will require that SF6 GIE suppliers extend their quote validation period to observe both municipalities' board approvals and CARB review periods. It is not guaranteed that the suppliers may want to do that. The Utilities Group proposes the following amendment:

AMEND § 95357(d)(4). Description and quantity of SF6 GIE to be exempted, including but not limited to the GIE characteristics (per Tables 1 and 2) and equipment type, seal type, proposed manufacturer and model, and nameplate capacity;

D. GIE owners may seek a phase-out exemption if equivalent non-SF_6 GIE is not available from at least "two suppliers." The proposed regulation essentially provides that a phase-out exemption request can be denied if CARB determines that equipment is available from "at least two suppliers." However, the regulation does not include a definition or description of a "supplier." The GIE owner must be able to procure equipment from a qualified supplier; it is the GIE owners that are best suited to determine whether a "supplier" is a bonafide provider of the necessary equipment, able to meet the owner's requirements for things such as warranties and service. The Utilities Group does not believe that CARB should define the metrics for determining whether a supplier is qualified. Because utilities (and their governing bodies) are best suited to make the determination of whether a supplier is qualified to provide the services, the regulation should not actually define a supplier that would be universally acceptable. Rather than include such a definition, the Utilities Group proposes that the regulations acknowledge that the GIE owner must attest that the equipment is not available from at least two qualified suppliers, as the GIE owner has determined the suppliers' qualifications. The Utilities Group proposes the following **amendment**:

AMEND § 95357(b)(1). Non-SF6 GIE of the equipment type and GIE characteristics necessary for the particular project(s) or application(s) are unavailable from at least two suppliers; or be subject to the following: (1) the request for exemption would be submitted to CARB with an attestation from the GIE owner's lead engineer that there are not at least two suppliers of the necessary equipment that would be able to fulfil the GIE owner's minimum requirements for vendors, and (2) CARB's approval of the request will not be denied if such a valid attestation is provided.

AMEND § 95357(d)(8)(A). For exemptions submitted under section 95357(b)(1), this includes the specific GIE characteristics (per Tables 1 and 2) that cannot be met by at least two suppliers or be subject to the following: (1) the request for exemption would be submitted to CARB with an attestation from the GIE owner's lead engineer that there are not

at least two suppliers of the necessary equipment that would be able to fulfil the GIE owner's minimum requirements for vendors, and (2) CARB's approval of the request will not be denied if such a valid attestation is provided.

E. Add mechanism to replace spare inventory. The Utilities Group recognizes that the ISOR supports the concept of an SF_6 Phase-Out Exemption to acquire a new spare GIE device. However, the purchase of GIE to be placed back into spare inventory does not appear to fall clearly into any of the 4 identified exemption categories within the standard protocol (§95357(b)(1), (2), (3) or (4)). Immediate access to spare GIE for like-for-like repairs is critical to minimize outage times and to provide reliability and redundancy. Occasionally, through a mutual aid network, utilities may call upon GIE inventory from another utility. In this instance the replacement GIE shouldn't be subject to the regulation as this would disincentivize providing aid. The ability to acquire or replace a spare is fundamental to maintaining reliability of the grid. The Utilities Group proposes adding a new category, Section 95357(5) to provide additional clarity:

ADD §95357(b)(5). Available non-SF6 GIE cannot be used to replenish inactive spare GIE inventory.

F. The timing set forth in proposed section 95357(e) does not reflect the real-world circumstances under which the GIE owners operate. The Utilities Group recommends that the GIE owners receive conditional approval with a phased approach to requests. Once a project goes through the bidding process (twice, due to non-availability of equipment), the project would be far behind schedule, which could impact the energization of the equipment and could have financial and/or reliability consequences if utilities must wait until the end of the procurement process to submit for approval. Further, in order to ensure that the process is timely, CARB should confirm receipt of the request within two days of submittal, as waiting a full week to even know whether the request has been received will unduly delay the process.

G. Replacing SF_6 GIE following equipment failure. The Proposed Regulation requires the regulated party to seek an accelerated SF_6 phase-out exemption following a "Catastrophic Failure," as defined. A GIE failure does not always occur during a catastrophe, yet a failure is an event that would require an unplanned response by a utility to ensure system safety, reliability and integrity/resilience. An unplanned replacement with another SF_6-containing or non-SF_6-containing GIE that meets operational requirements would be required in an expedited manner. A GIE may fail under different unplanned conditions, including extreme heat, cold, or lightning strike; not all GIE failures result in a release of SF_6 gas. An electricity surge or 'flashover' can cause the failure of a 500kV dead tank circuit breaker. If the breaker is positioned in a critical part of the substation based on its physical location or equipment configuration, the failure creates a system-reliability risk. This will require expedited replacement of equipment that may not have a non-SF_6 alternative readily available. The replacement breaker may be secured through a mutual aid agreement with a utility in California or another state, or directly from the supplier.

To assure that the utility can respond to these unplanned events and meet its regulatory obligations to all federal and state agencies, including the Federal Energy Regulatory Commission (FERC) and the California Public Utilities Commission (CPUC), as well as its customers, the Utilities Group recommends the following **amendments**:

a. **AMEND** § 95351, Definitions, by changing the term "Catastrophic Failure" with "Failure," as proposed earlier in this letter.
b. **AMEND** § 95357(h) SF_6 Phase-out Exemption following GIE Failure as follows:

(h) In the event of a GIE failure as specified in § 95351, the GIE owner must notify the Executive Officer within 15 days of the failure event.

(1) The GIE owner must indicate that the SF6 phase-out exemption request is in response to a ~~catastrophic~~ failure pursuant to section 95357(h) and include a detailed description of the ~~catastrophic~~ failure, including, but not limited to the following:

c. **DELETE** § 95357(i) since this would no longer be applicable.

H. Amend SF_6 Phase-Out Exemption Request Procedure. The Utilities Group recognizes CARB's flexibility in allowing for multiple GIEs of the same type to be exempted under one application. However, limiting the validity of the application to 24 months could create a non-technical burden for utilities to either:

a. Install/replace all equipment of the same type within a 24-month period, or
b. Resubmit/restart a new procurement process to acquire non-SF_6 GIE after 24 months, where most likely, equipment would still be unavailable.

The Utilities Group recommends the following **amendments**:

AMEND § 95357(j). A GIE owner with an approved SF6 phase-out exemption may ~~acquire~~ identify and order the specific SF6 GIE described in the SF6 phase-out exemption within 24 months of CARB's approval of the request, or within three months of CARB's approval of an expedited SF6 phase-out exemption request. If the SF6 GIE are not acquired within the specified timeframe, the GIE owner must submit another SF6 phase-out exemption request. The SF6 GIE acquired shall only be used in the specified project(s) identified in section 95357(d)(3). There is no date by which SF6 GIE acquired utilizing an SF6 phase-out exemption must be placed into active service, or removed from active service.

IX. Amend the Emergency Event Exemption. The Utilities Group supports the continued inclusion of the Emergency Event Exemption in the Proposed Regulation. Certain emergency events may result from GIE failure, such as an electrical current surge. The cause of the failure may only be determined after a detailed root cause analysis that may take several months following the emergency event. However, if an emergency event occurs, as defined, the GIE owner should be permitted to replace the impacted GIE under the 'Failure' provision recommended above and request an exemption to exclude the resulting emissions from the annual report pursuant to § 95357 with the amendment proposed below:

AMEND § 95357.1 (b) (3). A statement and supporting documentation that the release occurred as a result of an emergency event within 180 calendar days; and

X. Provide Fair and Reasonable Enforcement Provisions**.** The proposed amendments to the Enforcement Section are unnecessary and overly punitive, as even a minor error could result in multiple violations and exorbitant fines. The existing rule provisions provide clear authority for CARB to enforce any violation of the rule—be they emissions, unauthorized replacement of GIE, reporting, and/or recordkeeping.

The new proposal separates out similar errors into multiple violation categories, or otherwise serves to become multipliers for maximum penalty amounts. These changes are counterproductive, and will not serve the regulated community, or CARB, in implementation. As an example, utilities have experienced several situations where a serial number or voltage was

recorded incorrectly. These types of corrections do not have a significant, if any, impact on the emissions and should not result in a violation.

The Utilities Group does not believe the legislature intended for CARB to issue a mandatory penalty provision deeming an annual emission violation to automatically constitute 365 days of violation. An exceedance of the annual emission limit should therefore not automatically constitute 365 separate violations, especially when an event or date of exceedance can be found. The JUG urges CARB to exercise its discretion and to develop a method to calculate the number of days in violation for entities that exceed the annual emission rate or mass emission limit. If such a determination into what caused the exceedance, and the duration of the exceedance and the extent of the exceedance can be found, the number of days should be reduced. Real world examples can be seen where a release of gas occurred on a definitive date and therefore would not constitute a full year of violations.

The Utilities Group proposes the following **amendments**:

§95359. 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. In seeking any penalty amount, CARB shall consider all relevant circumstances, including any pattern of violation, the size and complexity of the reporting entity's operations, and the other criteria in Health and Safety Code section 42403(b).

(b) Each day or portion thereof that any report required by this subarticle remains unsubmitted~~,~~ or is submitted late, or ~~, shall constitute a single, separate violation of this subarticle. or contains Additionally, each~~ contains an incomplete data field that exists after the reporting deadline (either in a submitted report or an unsubmitted report) ~~shall constitute a single, separate violation of this subarticle. Finally~~, or contains a ~~each~~ data field that ~~contains~~ ~~or inaccurate information after the reporting deadline~~, includes a Substantive Error that is not corrected by the GIE owner within the time period set forth in section 95355(c) shall constitute a single, separate violation of this subarticle. The Executive Officer shall take into consideration the materiality, with respect to emission compliance, of any incomplete or inaccurate information when penalties are assessed.

(c) ~~Any Each MTCO2e~~ An exceedance of the ~~maximum allowable SF6~~ emission rate limit for a ~~calendar year~~ data year prior to 2020 or to the emissions limit for data year 2020 and beyond shall constitute a single, separate violation of this subarticle for each day of the calendar year, except where a defined event triggered such an exceedance.

(d) Any acquisition, for use in California, of a SF6 GIE device after the dates provided in Table 1 and Table 2 shall constitute a single, separate violation of this subarticle for each day ~~the GIE owner is in possession of the device and for each MTCO2e of covered insulating gas at activation, in that device, or that the device is designed to contain~~, unless it was acquired pursuant to one of the exceptions noted in section 95352(a)(1-4).

~~(d)~~(e) *Injunctions.* Any violation of this subarticle may be enjoined pursuant to Health and Safety Code section 41513.

Conclusion
The Utilities Group supports the objective of this rulemaking to transition away from the use of high GWP gases in the state and appreciates the opportunity to provide these constructive comments to improve clarity and address concerns with the proposed amendments. The Utilities Group urges CARB to issue 15-day changes to the Proposed Amendments to address the comments above.