THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

August 29, 2019

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

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

Dear Ms. Bylin:

The Metropolitan Water District of Southern California (Metropolitan) appreciates the opportunity to comment on the California Air Resources Board's (ARB's) August 15, 2019, *Discussion Draft of Potential Changes to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (Draft Regulation). Metropolitan provided comments on ARB's 2017 "strawman" version of the proposed regulation which are attached and incorporated into this letter. This letter provides Metropolitan's comments regarding ARB's 2019 Draft Regulation.

**Background**

Metropolitan is a regional water wholesaler that delivers approximately two million acre-feet of water per year to 26 member public agencies, who in turn provide water to nearly 19 million people in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Metropolitan is a regulated entity under the current sulfur hexafluoride ($SF_6$) regulations and has annually reported its $SF_6$ emissions to ARB since 2008. Metropolitan has 19 pieces of $SF_6$-containing switchgear (17 in active service and 2 in reserve). Thirteen of the $SF_6$-containing switchgear are part of Metropolitan's critical infrastructure that delivers water from the Colorado River Aqueduct to southern California, with the remaining four located at Metropolitan's hydroelectric power plants that provide supplemental power to the electrical grid. All of Metropolitan's gas insulated switchgear are non-hermetically sealed and contain between 15 and 206 pounds (lbs.) of $SF_6$. Currently, the total amount of $SF_6$ in service is 2,324 lbs.—equivalent to approximately 24,000 metric tons of carbon dioxide equivalent ($MTCO_2e$). Hence, Metropolitan's $SF_6$ utilization in switchgear is small compared to a typical electric utility.

**Comments**

As a good environmental steward, Metropolitan understands that the ultimate phase out of $SF_6$ will help the State realize its greenhouse gas reduction goals. However, while the overarching goal of reducing the potential emissions of $SF_6$ into the environment is laudable, the practical implications of any such regulation needs careful consideration. As such, Metropolitan offers the following comments on the August 15, 2019, $SF_6$ draft regulation for ARB's consideration.

***§ 95351. Definitions and Acronyms***

Catastrophic failure—Metropolitan agrees with ARB that a definition of "catastrophic failure" should be included in the regulation. Towards this goal, Metropolitan proposes the following language:

> Catastrophic failure—an event that substantially impairs, damages, shuts down or incapacitates part or all of a system.

Repair and maintenance—Metropolitan recommends that ARB define activities that constitute "repair" and "maintenance." These definitions will aid industry in determining what differentiates "repair" or "maintenance" activities from "replacement" when determining when the prohibition for new $SF_6$-containing gas insulated equipment (GIE) applies. Equipment that is well maintained and repaired according to industry specifications should not need to be replaced for many years.

Replacement parts—Metropolitan appreciates the addition of the term "replacement parts" to the draft regulation and adding a provision to exclude "replacement parts" from the phase-out requirements described in §95352(a) (2). However, Metropolitan requests that ARB elaborate and include examples of specific GIE components that constitutes "replacement parts" (e.g., gaskets, auxiliary relays, and pressure gauges).

Spare—Lastly, ARB should define "spare" GIE, in order to help stakeholders understand if "spare" GIE constitutes either new or existing equipment. This will help clarify how the phase-out periods, as found in §95352, apply to spare GIE, if at all.

***§ 95352. Sulfur Hexafluoride Phase Out***

Beginning January 1, 2025, ARB proposes a tiered prohibition on the installation of new $SF_6$ GIE between 2025 and 2031, depending on voltage capacity and electrical configuration (i.e., above or below ground, distribution or transmission level, etc.). In addition, ARB proposes to prohibit the conversion of existing devices to $SF_6$ as an insulating gas. In this light, Metropolitan offers the following comments on ARB's proposed $SF_6$ phase-out approach:

1. $SF_6$ Phase-Out Exemption- Metropolitan appreciates ARB providing a pathway for GIE owners to apply for a $SF_6$ phase out exemption. Metropolitan supports the provisions for obtaining a $SF_6$ phase-out exemption as presented in §95355.3(b) when:

- Non-$SF_6$ GIE does not meet specifications for a particular project or alternatives are unavailable;
- Available non-$SF_6$ GIE cannot meet the size requirements, taking into consideration the physical size of the GIE and/or the physical constraints of the project location;
- Available non-$SF_6$ GIE cannot be used due to incompatibility with existing equipment, wiring, or connectors; or
- Available non-$SF_6$ GIE is not suitable based on safety or reliability requirements.

Metropolitan requests that ARB include an additional exemption provision for when only one manufacturer of non-$SF_6$ GIE is available after the proposed phase-out dates. It is critical that affected stakeholders have a variety of viable non-$SF_6$ alternatives and manufacturers to choose from to fit the demands of various electrical infrastructure. In addition, having multiple manufacturers would result in competitive pricing for non-$SF_6$ equipment.

2. GIE Clearinghouse—Metropolitan thanks ARB for considering potential revisions to §95355.3 to include a "Non-$SF_6$ Electrical Power Equipment Clearinghouse" that lists all known non-$SF_6$ GIE available for sale. The GIE Clearinghouse information should include voltage capacity, footprint and space constraints, insulating capacity, reliability, the ability to competitively bid multiple GIE vendors, as well as where the GIE is in the development process (i.e., pilot testing or full commercial use). Metropolitan agrees that such a clearinghouse could help GIE owners identify viable non-$SF_6$ GIE. However, Metropolitan reiterates that viable alternatives must be available and fully vetted prior to ARB banning their $SF_6$-containing analogs. To date, Metropolitan is not aware of any non-$SF_6$ GIE in commercial use above 245 kilovolt (kV); hence any phase-out date for 245 kV GIE (or above) that uses $SF_6$ should be delayed until such time as multiple viable alternatives are available.

3. Change of Ownership— Metropolitan thanks ARB for modifying the provision in §95352 (a)(1)(A)(2) under which existing $SF_6$-containing GIE can be transferred to a new owner beyond phase-out dates:

   - The $SF_6$ GIE device was present in the State and reported to ARB pursuant to §95353 (f) for a data year prior to the appropriate phase-out date …

   Metropolitan is exploring options to purchase existing GIE that is in operation and located on Metropolitan's property, but not currently owned by Metropolitan. The modified draft language pertaining to change in ownership for "used" devices present in the State and reported to ARB prior to the phase-out dates is beneficial to the industry.

### *§ 95352.2. Annual Emissions Limit*

Metropolitan has concerns over ARB setting 2019 as the baseline year for establishing an annual emissions limit (in $MTCO_2e$) for each GIE owner. Using the 2019 average $CO_2e$ nameplate capacity (used to calculate a baseline emissions limit) for $SF_6$ GIE does not take into account the potential for utilities to add new GIE as part of routine capital investment projects prior to the proposed phase-out $SF_6$ dates. For example, Metropolitan is in the process of acquiring three, previously regulated pieces of 230 kV $SF_6$ insulating switchgear within the next two years. If adopted, the 2019 baseline year would result in a new *de facto* emission limit that cannot be exceeded beginning in 2020. To alleviate this issue, Metropolitan recommends extending the regulatory baseline year for setting and freezing an annual emission limit to 2025 (the first $SF_6$ phase-out date) to take into account new load growth projects installed prior to December 2024.

### *§ 95355.2. Nameplate Capacity Adjustments*

Metropolitan thanks ARB for adjusting the nameplate capacity provisions to enable GIE owners to adjust the nameplate capacity as needed, rather than by a certain date. Metropolitan agrees that the ability to change the nameplate capacity is a positive development, as it provides more regulatory flexibility. By removing the old January 1, 2023 date, industry would avoid the added costs for off-cycle maintenance and inspection, as well as reduce the handling of $SF_6$ during the extraction and reinsertion process. However, Metropolitan requests that ARB clarify whether it would seek enforcement penalties retroactively if an owner elects to revise the nameplate capacity and the revised capacity data exceed those that were reported in previous years.

### *§ 95353. Reporting Requirements*

While Metropolitan recommended that ARB exempt owners that elect to use zero- or near zero-global warming potential (GWP) technology (i.e., less than 10 GWP) from the annual reporting requirements, Metropolitan appreciates ARB doing so for GIE with less than 1 GWP. Exempting low-GWP insulting gases from the annual reporting requirements would incentivize the industry to replace older GIEs with newer technologies by reducing their regulatory exposure.

Thank you again for the opportunity to comment on the August 15, 2019, $SF_6$ draft regulation. Metropolitan looks forwards to working with ARB on this issue and asks that ARB consider these comments prior to finalizing the official rulemaking draft of the $SF_6$ regulations. If you have questions or need additional information, please contact Dr. Christopher Gabelich at cgabelich@mwdh2o.com or (213) 217-6544.

Very truly yours,

Daniel Guillory, P.E.
Section Manager, Operational Safety and Regulatory Services

Attachment 1: December 18, 2017 *Subject: Comment Letter—Regulatory Amendments to $SF_6$ Regulations.*

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

*Office of the General Manager*

December 18, 2017

Mr. Dave Mehl
Energy Section Manager
California Air Resources Board
Industrial Strategies Division
P.O. Box 2815
Sacramento, CA 95812

Dear Mr. Mehl:

**Subject: Comment Letter — Regulatory Amendments to SF6 Regulations**

The Metropolitan Water District of Southern California (Metropolitan) appreciates the opportunity to comment on the California Air Resources Board's (ARB's) proposed amendments to the existing regulations governing sulfur hexafluoride (SF6) emissions from gas insulated equipment. Metropolitan is a regulated entity under the current SF6 regulations and has annually reported its SF6 emissions to ARB since 2008. This letter summarizes Metropolitan's concerns regarding ARB's proposed amendments to the SF6 regulations.

**Background**

Metropolitan is a regional water wholesaler that delivers approximately two million acre-feet per year to 26 member public agencies, who in turn provide water to nearly 19 million people in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Metropolitan has 19 pieces of SF6-containing switchgear (17 in active service and 2 in reserve). Thirteen of the SF6-containing switchgear are located as part of Metropolitan's critical infrastructure that delivers water from the Colorado River Aqueduct to southern California, with the remaining four located at Metropolitan's hydroelectric power plants that provide supplemental power to the electrical grid. All of Metropolitan's gas insulated switchgear are non-hermetically sealed and contain between 15 and 206 lbs of SF6. Currently, the total amount of SF6 in service is 2,324 lbs. Hence, Metropolitan's SF6 utilization in switchgear is small compared to a typical electric utility.

Metropolitan's SF6 emissions have consistently been less than 1% of total inventory per year — the current regulatory threshold for 2020. In addition, Metropolitan has actively pursued reducing its SF6 gas container inventory as part of its good environmental stewardship efforts.

**Comments**

Metropolitan offers the following comments on the proposed SF6 regulations for ARB's consideration:

**§ 95352.1. Sulfur Hexafluoride Phase Out**

Beginning January 1, 2025, ARB proposes to ban the installation of new SF6-containing gas insulted equipment (GIE), as well as prohibit the conversion of existing devices to SF6 as an insulating gas. As a non-electrical entity whose primary focus is water treatment, conveyance and distribution, Metropolitan is typically not an early adopter of new electrical equipment technology. In this light, Metropolitan offers the following comments on ARB's proposed SF6 phase-out approach:

- Alternatives Analysis—ARB should complete a full alternatives analysis for non-SF6 GIE prior to implementing the ban on SF6. ARB should consider cost of alternatives, potential adverse environmental and safety impacts of alternatives, footprint and space constraints, insulating capacity, reliability, and the ability to competitively bid multiple GIE vendors. Viable alternatives must be available and fully vetted prior to ARB mandating their use.
- Phase-Out Deadline—Similar to industry comments on SF6 rulemaking by ARB in 2010, Metropolitan recommends that GIEs with less than 5,000 pounds of total nameplate capacity of SF6 have an alternative phase-out date (e.g., 2030 or later). This two-tier phase out recognizes that the greatest potential for reducing GHGs would be to focus on major sources of SF6 first. As such, regulating smaller sources will not result in significant GHG reductions despite the fact that SF6 has a high global warming potential (GWP), as compared to carbon dioxide.

  The majority of Metropolitan's SF6-containing GIE was installed in 2004 and is still in good working order. The two-tier phase out allows Metropolitan additional time to take advantage of electric utility pilot testing of non-SF6 GIE—which may take up to 5 years to conduct. Once the electric industry vets viable alternatives, Metropolitan would then need sufficient time to plan for capital investments to replace the existing SF6 switchgear as it reaches the end of its useful life.

- Change of Ownership—ARB should clarify if the purchase of existing SF6-containing GIE from another owner constitutes "new equipment". Metropolitan is exploring options to purchase existing GIE that is in operation and located on Metropolitan's property, but not currently owned by Metropolitan. Metropolitan seeks clarity over whether this change of ownership constitutes "new equipment' and would violate the ban on new SF6 GIE post 2025.

**§ 95351. Definitions**

Metropolitan requests that ARB add definitions that qualifies what constitutes "repair" and "maintenance" to § 95351. These definitions will aid industry in determining what differentiates

"repair" or "maintenance" activities from "replacement" when determining when the prohibition for new SF6-containing GIE applies. Equipment that is well maintained and repaired according to industry specifications should not need to be replaced for many years.

**§ 95354.1. Nameplate Capacity Adjustments**

ARB proposes that if the manufacturer's nameplate capacity of devices manufactured prior to 2011 is determined by the GIE owner to be inaccurate, the owner may establish a new nameplate capacity prior to January 1, 2023 based on a proscribed procedure. Metropolitan agrees that the ability to change the nameplate capacity is a positive development as it provides more regulatory flexibility. However, Metropolitan recommends removing the January 1, 2023 date for determining a new nameplate capacity. It is Metropolitan's opinion that nameplate capacity data should be reviewed as part of normal GIE maintenance cycles and not by an arbitrary date. By removing the January 1, 2023 date, industry would forgo the added costs for off-cycle maintenance and inspection, as well as reduce the handling of SF6 during the extraction and reinsertion process.

Metropolitan also seeks to clarify that if an owner elects to revise the nameplate capacity, ARB will not seek enforcement penalties retroactively if the revised capacity data exceed those that were reported in previous years.

**§ 95356. Annual Reporting Requirements**

Metropolitan recommends that ARB exempt owners that elect to use zero- or near zero-GWP technology (i.e., less than 10 GWP) from the annual reporting requirements. Exempting low-GWP insulting gases from the annual reporting requirements would incentivize the industry to replace older GIEs with newer technologies by reducing their regulatory exposure. Owners would still need to report to ARB the initial switchover to low-GWP equipment, but would be exempt from reporting GHG data for those GIE thereafter.

**Conclusion**

Thank you again for the opportunity to comment on the proposed SF6 regulations. Metropolitan looks forward to working with ARB on this issue and asks that ARB consider these comments prior to finalizing the SF6 regulations. If you have any questions or need addition information, please contact Dr. Christopher Gabelich at cgabelich@mwdh2o.com or (213) 217-6544.

Very truly yours,

Daniel Guillory, P.E.
Interim Manager, Safety and Regulatory Services Section