

ONE VISION. ZERO EMISSIONS.



March 19, 2024

NYSDEC Office of Climate Change February 27, 2024
625 Broadway
Albany, NY 12233-1030
Via email: climate.regs@dec.ny.gov

Attention representative of NYSDEC:

It is our pleasure to submit feedback and comments to the New York Department of Environmental Conservation regarding proposed policies to regulate the use and emissions of sulfur hexafluoride (SF₆) by electric power entities and utilities.

Executive Summary:

DILO Company Inc. and DILO Production Inc. (dba DILO Direct) known here forward as DILO has over 55 years' experience with manufacturing, service and management of SF₆ gas in the electrical power utility sector. With our partner entity in DILO Germany, DILO supports a number of electric power entities and utilities with safe, quality and reliable gas handling equipment and accessories designed to align with emission reduction practices, policies and regulations. Our technology includes not only the systems to recovery, store, fill and manage SF₆ gas and alternative insulating gas technologies. Our services also provide onsite gas handling, training, and gas management that supports emissions reduction practices, and policies at the user and facility level.

DILO is continuing to invest in the research and development of insulating gas handling equipment for alternatives to SF₆ gas as well as the improvements for recycling and reconditioning of used SF₆ gas. These investments contribute to global carbon footprint reduction by eliminating the need for use of virgin SF₆ gas in GIE for the utility and power sectors.

Furthermore, DILO is directly involved as members of industry standard groups that create, update and maintain standards and guides used and referenced by stakeholders in the electrical utility and power industry including public and private utilities, transmission and distribution companies, original equipment manufacturers and insulating gas users worldwide. DILO holds working group chair positions and membership in standards organizations that include but are not limited to IEEE, IEC, CIGRE and ASTM. Furthermore, DILO is a member of the NEMA SF₆ gas and Alternatives Coalition, where the General Manager and CEO of DILO Company Inc and DILO Direct is the chair.

We look forward to your response to our comments and feedback. Please do not hesitate to contact us if we can provide any additional information or answer any questions.

Regards,

A handwritten signature in black ink, appearing to read "Billy J Lao".

Billy J Lao
General Manager/CEO
DILO Company Inc. & DILO Direct





§495-1.4 (b)

The table below (Table 1), represents NYSDEC proposed phase-out schedule for SF₆ gas GIE to be used for new projects. The SF₆ phase-out dates are outlined on the table based on the voltage capacity and short circuit current ratings for above ground and below ground GIE.

(b) Table 1. Phase-out Dates for SF₆ GIE with Voltage Capacity ≤ 38 kV

Configuration	Voltage Capacity (kV)	Short-Circuit Current Rating (kA)	Phase-Out Date
Aboveground	<38	All	January 1, 2026
	38	All	January 1, 2028
Belowground	<38	<25	January 1, 2026
		>25	January 1, 2031

Table 1

REF : <https://dec.ny.gov/sites/default/files/2023-12/part495expresstermspub.pdf>

DILO wishes to advise NYSDEC that DILO supports the recommendations and feedback provided by NEMA SF₆ Gas and Alternatives Coalition regarding the recommendation to update the table and align with the current California Air Resources Board table as reflected on Table 2 below with the exception of the phase out dates, which are to be determined by NYSDEC and the final regulation date.

<u>Configuration</u>	<u>Voltage Capacity (kV)</u>	<u>Short-Circuit Current Rating (kA)</u>	<u>Phase-Out Date</u>
Aboveground	< 38	All	January 1, 2025
	38	All	January 1, 2028
Belowground	≤ 38	< 25	January 1, 2025
		≥ 25	January 1, 2031

Table 2

REF: Amend Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 3.1, sections 95350, 95351, 95353 (renumbered to 95357.1), 95354, 95357 (renumbered to 95358), 95358 (renumbered to 95359), and 95359 (renumbered to 95359.1); adopt new sections 95352, 95353, 95354.1, 95355, 95356, 95357, and 95357.2; and repeal sections 95352, 95355, and 95356, of title 17, California Code of Regulations

§495-1.4 (c)

The table below (Table 3) represents the NYSDEC proposed schedule for phase out of SF₆ gas GIE for equipment with voltage capacity <38 kV. The proposed Short-Circuit Current Rating ranges for both '38<kV≤145' and '145<kV≤245' voltage capacities are not continuous.

Voltage Capacity (kV)	Short-Circuit Current Rating (kA)	Phase-Out Date
38 < kV ≤ 145	<63	January 1, 2026
	>63	January 1, 2028
145 < kV ≤ 245	<63	January 1, 2027

Table 3

REF : <https://dec.ny.gov/sites/default/files/2023-12/part495expresstermspub.pdf>





DILO wishes to advise NYSDEC that DILO supports the recommendations and feedback provided by NEMA SF₆ Gas and Alternatives Coalition regarding the recommendation to update the table and align with the current California Air Resources Board table as reflected on Table 4 below with the exception of the phase out dates, which are to be determined by NYSDEC and the final regulation date.

<u>Voltage Capacity (kV)</u>	<u>Short-Circuit Current Rating (kA)</u>	<u>Phase-Out Date</u>
<u>38 < kV ≤ 145</u>	<u>< 63</u>	<u>January 1, 2025</u>
	<u>≥ 63</u>	<u>January 1, 2028</u>
<u>145 < kV ≤ 245</u>	<u>< 63</u>	<u>January 1, 2027</u>
	<u>≥ 63</u>	<u>January 1, 2031</u>
<u>> 245</u>	<u>All</u>	<u>January 1, 2033</u>

Table 4

REF: Amend Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 3.1, sections 95350, 95351, 95353 (renumbered to 95357.1), 95354, 95357 (renumbered to 95358), 95358 (renumbered to 95359), and 95359 (renumbered to 95359.1); adopt new sections 95352, 95353, 95354.1, 95355, 95356, 95357, and 95357.2; and repeal sections 95352, 95355, and 95356, of title 17, California Code of Regulations

§ 495-1.10

DILO wishes to recommend language to be included in the proposed regulation with regard to phase-out exemptions and GIE failure (emergent reporting). It has been determined by the industry that SF₆ gas is 100% recyclable and can be processed for reuse with minimal emissions. For reference, emissions can be <0.5lbs/100lbs when SF₆ gas is recycled or reconditioned as compared to production of virgin SF₆ gas which can be ≥8lbs/100lbs virgin SF₆ gas produced^[1]. The recommended language would be similar to language found in the European Commission regulation proposal^[2] that allows for insulating gas users to use SF₆ gas currently in the GIE owner inventory or acquired from certified distributors or suppliers that provide recycled and/or reconditioned SF₆ gas.

Recommended language can state, “owners of GIE which contain SF₆ and have applied for a phase out exemption may use SF₆ gas in the event of a phase-out exemption approval :

- a) Recovered and recycled SF₆ gas from existing GIE
- b) SF₆ gas storage in cylinders prior to the scheduled phase-out timeline
- c) SF₆ gas that has been acquired from a distributor or supplier of reconditioned and recycled SF₆ gas

[1] <https://dilo.com/blog/article/emission-rates-of-reconditioned-recycled-and-virgin-sf6-gas>

[2] Official Journal of the European Union, article referencing, “REGULATION (EU) 2024/573 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 February 2024 on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014”, item (22)
REF : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202400573

DILO wishes to advise NYSDEC that the current roadmaps for alternatives as well as availability of virgin SF₆ gas is becoming stressed with the implementation of new and revised regulations worldwide. Supply lines for virgin SF₆ gas are no longer as strong as they were 5 years ago. With current economic and social impacts, including the war in Ukraine which has resulted in sanctions with Russia as well as sea transport lines being impacted by terrorist groups in the Red Sea, SF₆ gas supply to North America





has been reduced. As a result per pound cost of virgin SF₆ gas has increased, the supply is less and the majority of virgin SF₆ gas is directed towards medical use and semiconductor manufacturing which requires higher technical grade than what the standards require for electrical power utility industry.

Furthermore, DILO asks the NYSDEC to consider the impact of destruction of SF₆ gas from not only an environmental approach which has a negative impact that is difficult to measure (i.e., accountability of CO₂e as a result of destruction of SF₆ gas). There are environmental and economic advantages for owners of GIE to reuse existing SF₆ gas that is currently in existing GIE and in storage as well as use of recycled and reconditioned SF₆ gas from suppliers which provide recycled and reconditioned SF₆ gas.

Finally, DILO wishes to recommend to NYSDEC that the regulation include language requiring operators of insulating gas handling equipment be certified based on a reasonable schedule of certification every 2-years. As illustrated in the EU, emissions due to improper gas handling techniques are reduced significantly when operators are trained and required to operate gas handling systems at a higher level of safety and quality. Training leads to improved operating processes that require accountability of every kilogram of insulating gas handled. A trained and responsible operator will be required to maintain the certification up to date to meet the requirements of the agency thus enforcing the operators processes to include accountability and reporting, which align with the goal for emissions reduction as stated by the regulation.

[3] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202400573#d1e861-1-1 – REGULATION (EU) 2024/573 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 February 2024 on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014, Article 10

Additional comments for consideration.

DILO has learned that supply constraints for SF₆ GIE have grown due to increased demand from end users and Engineering and Procurement organizations for projects that are to be initiated post SF₆ phase-out schedule. Specifically because of, the current technology for specific voltage and short circuit current as well as the application does not meet the project restraints such as footprint, load capacities or due to expected increased project cost for alternative solutions.

DILO is asking that NYSDEC must take this point into consideration as the review for exemptions and phase out schedule is communicated. The industry will need existing and future technologies for insulating gas alternative solutions to be available as a whole (not just one technology) in order to have a safe and reliable grid. While one technology can be very good at one voltage range and interrupting capabilities, at higher voltage or short circuit current ratings it is probable that the current available solutions cannot meet all the of the voltage and interrupting range required to meet the safe and quality standards as required and set forth by industry standard organizations that include, IEEE, IEC, CIGRE and ASTM.

