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California Air Resources Board
1001 I Street
Sacramento, CA 95814

Date: August 27, 2019

To: Members of CARB's Electricity Transmission and Distribution Greenhouse Gas Emissions Working Group

Comments in reference to:
Draft Amendments to the Regulation for Reducing Sulfur Hexafluoride (SF_6) Emissions from Gas Insulated Switchgear, August 15, 2019 Workshop.

From: DILO Company Inc.

CARB Staff and Management:

DILO is formally submitting this letter in response to the draft amendments discussed during the August 15, 2019 workshop.

DILO wishes to express its gratitude to CARB staff and management for the continued opportunity to communicate and accept comments from industry stakeholders while reviewing the items regarding the upcoming changes and updates to the CARB SF_6 gas regulations for California.

DILO's intent to provide CARB with information from not only an SF_6 gas handling OEM point of view, but from discussions with other stakeholders and industry experts that are interested in the betterment of the SF_6 gas industry user's environmental impact.

DILO is committed to emission reductions and supporting the users of SF_6 gas to improve processes and to provide equipment that contributes to the reduction of SF_6 gas emissions. Please feel free to contact DILO in regards to the comments that follow. We also welcome CARB to contact us if the staff is in need of any support or clarifications regarding SF_6 gas handling.

Phase out of SF_6 GIE

DILO is prepared to support the industry as new solutions are launched to replace SF_6 GIE with alternative solutions. However, it is unclear if the process and time frame to reach 100% compatibility of alternative solutions will meet the same level of performance of SF_6 gas across all voltages and current ratings per the proposed phase out dates.

As equipment manufacturers of GIE work through R&D challenges it is very difficult to project when all voltage and current applications will be available to meet the varied specific voltage and current breaking capabilities.

DILO aligns the recommendations for phase out with NEMA's response to this item as follows:

Phase-out Dates for Distribution-level GIE

Configuration	Voltage (kV)	Short-circuit Current (kA)	Phase-out Date	DILO Proposal
Aboveground	< 38	< 25	January 1, 2025	January 1, 2025
		≥ 25	January 1, 2025	January 1, 2025
	≥ 38	< 25	January 1, 2025	January 1, 2031
		≥ 25	January 1, 2025	January 1, 2031
Belowground	< 38	< 25	January 1, 2025	January 1, 2031
		≥ 25	January 1, 2025	January 1, 2031
	≥ 38	< 25	January 1, 2025	January 1, 2031
		≥ 25	January 1, 2025	January 1, 2031

Phase-out Dates for All Other GIE

Voltage (kV)	Short-circuit Current (kA)	Phase-out Date	DILO Proposal
≤ 72.5	< 63	January 1, 2025	January 1, 2025
72.5 < kV ≤ 145	< 63	January 1, 2025	January 1, 2025
72.5 < kV ≤ 145	≥ 63	January 1, 2025	January 1, 2029
145 < kV ≤ 245	All	January 1, 2029	January 1, 2033
> 245	All	January 1, 2031	January 1, 2036

Nameplate capacity and correction

DILO requests that CARB staff further consider as part of the regulation the clarification that nameplate capacity corrections be the responsibility of the GIE owner and at their discretion.

The nameplate capacity should be confirmed as follows:

a. Via the process for filling from vacuum (i.e. fully recovering shipping gas or installed gas during maintenance or de-commissioning to final blank-off pressure) or
b. by following the proposed nameplate capacity calculation method as proposed by NEMA SF_6 Coalition for nameplate adjustments.

The regulation should enforce that a calibrated scale or a mass flow meter be used in either application to fill, recover and account for gas handled.

At this time the process presented by NEMA has been the most effective and accurate method available to SF_6 gas users and has been used in support of calculating not only correct nameplate values, but to also verify the recovery of 100% of the installed SF_6 in GIE.

Further, it is clear that the concern regarding nameplate inaccuracies can be found at all levels of GIE. However, as the impact may be greater with high voltage than with medium voltage, we wish to recommend that the process be applied to GIE which has a voltage rating of 38kV and above.

DILO does recommend that once any of the proposed processes are used, an SF_6 gas nameplate value is permanently installed on the GIE.

Disposal of SF_6 Gas post de-commissioning and replacement with Alternative gas

DILO wishes to also request that the CARB staff review further the environmental and financial impact of SF_6 gas disposal as the phase out moves forward.

A consideration of allowing users to use reconditioned SF_6 gas as an alternative to new ("virgin") SF_6 gas will have a positive impact on the environment, reducing maintenance and/or capital expenditure costs to users for disposal, and allowing the reconditioned gas to be part of the solution for global reduced emissions. As an additional consideration, we recommend that the regulation should include language specific to the training and certification of gas handling personnel. This is a requirement in the E.U. regulation and has resulted in better gas handling practices which have contributed to emissions reduction.

Regards,

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