Carey Bylin
Manage, Energy Section
Project Assessment Branch
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Date: September 21, 2020

Reference:
California Air Resources Board's (CARB) PROPOSED AMENDMENTS TO THE REGULATION FOR REDUCING SULFUR HEXAFLUORIDE EMISSIONS FROM GAS INSULATED SWITCHGEAR 45-day Language.

From: DILO Company Inc.

Ms. Bylin:

DILO is formally submitting this letter in response to the California Air Resources Board's (CARB) PROPOSED AMENDMENTS TO THE REGULATION FOR REDUCING SULFUR HEXAFLUORIDE EMISSIONS FROM GAS INSULATED SWITCHGEAR 45-day Language.

We understand the work and the challenges behind this effort. DILO wishes to express its gratitude to CARB for the continued opportunity to communicate and accept comments from industry stakeholders.

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.

Weigh of Gas Carts (Section 95354 (g) & (i) (2) (B): DILO proposes that the language which includes weighing of a gas cart be removed.

Due to the different sizes, applications, and design, including carts permanently installed in trailers, it is not operationally effective and, in most cases, not possible to weigh a gas cart and calculate empty weight and "full weight." Further a gas cart does not have a set "full weight" and can be misleading.

DILO does agree that the "scale method" is accurate under specific requirements. Thus, requiring users of gas carts to empty gas cart systems into on-board cylinders which can be removed and weighed individually and emptying the cart system per the manufacturer's recommendations be a requirement. Note methods to safely empty gas carts into cylinders is possible and is part of most SF6 gas cart short term storage, long term storage and maintenance processes.

Scales: DILO proposes that the language regarding scales be further clarified to include the language "Cylinder Scales and/or scales designed to weigh cylinders and cylinder rack systems." In addition, include language for a definition that specifies a scale which is specifically designed to weigh cylinders (this may include a pallet scale or similar that is designed to weigh large objects such as cylinder rack systems).

Proposed language for a definition: Cylinder Scale: A Beam balance (or Beam scale) device specifically designed to measure weight or mass of a cylinder or cylinder rack system.

DILO is has witnessed situations where 3rd party contractors have used non-industrial scales to weigh cylinders. These scales are not capable of maintaining accuracy and may create false weighing events. Specifically clarifying scales which are designed to weigh cylinders and cylinder rack systems will eliminate the opportunity for inaccurate reporting.

Mass Flow Meter: DILO proposes that language regarding the use a Mass Flow Meter.

Mass Flow Meter accuracy has been proven to be more accurate than balance scales. Many stakeholders have made investments towards Mass Flow Meters. Not including their use as part of determining gas used during a transfer of gas will render these investments useless as well as lower the accuracy capabilities of Mass Flow Meter users.

A mass flow meter is used by simply connecting the device via hoses designed for the application. The Mass Flow meter is temporarily installed between the GIE and the gas cart. The Mass Flow Meter by it's design will account for all gas flowing to or from the GIE. Once the user notes that the transfer of gas is complete, the user will record the reading from the Mass Flow Meter.

95354(e) and (f) Container Weight.: DILO proposes that the regulation language include the instruction that cylinder Tare Weight is required as part of the documentation to ensure that the net weight can be properly and accurately calculated. This will eliminate the potential for inaccurate data due to the net weight of containers not being recorded.

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, as stated in earlier correspondence, 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.

The language CARB has included to allow for exceptions is very helpful towards allowing for GIE manufacturers and users alike to align with the new proposed regulation. DILO supports this language and appreciates the work CARB has put behind the exception regulations.

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 and no changes are allowed unless the GIE is altered due to a repair or maintenance which replaces parts and materials that effect the actual gas weight in the equipment at the temperature corrected pressure. In this case the processes as summarized above must be followed.

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 reductions across the E.U. and within the stakeholder organizations.

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.

Regards,

Billy Lao
General Manager
DILO Company Inc. & DILO Direct
billy@dilo.com