

August 29, 2019

Ms. Carey Bylin, Energy Section
Industrial Strategies Division
California Air Resources Board
10011 Street, Sacramento, CA
95812

Subject: Comments on the Discussion Draft of Potential Changes to the Regulation for Reducing Sulfur Hexafluoride (SF6) Emissions from Gas Insulated Equipment (the Regulation) on August 15th, 2019

Dear Ms. Bylin,

Brookfield Renewable Energy L.P. (Brookfield Renewable) appreciates the opportunity to comment on the California Air Resources Board's (CARB) "Discussion Draft" of Potential Changes to the Regulation of Reducing Sulfur Hexafluoride (SF6) Emissions from Gas Insulated Switchgear (GIE) presented in the August 15th, 2019 CARB workshop.

Brookfield Renewable and its affiliated companies own and operate hydroelectric and wind generation facilities in California that maintain SF6-containing GIE (each a Brookfield Facility), and as a result are subject to the GIE Regulation under discussion. Each of the Facilities, including their GIE, are held within a separate special-purpose-vehicle owner, unlike, for example, utility-owners of large amounts of GIE equipment, that tend to own that GIE equipment in a single utility entity, resulting in a large amount of SF6 inventory being aggregated under a single entity owner. Below is a table setting forth the inventory of SF6 maintained by each facility:

FACILITY	CAPACITY	SF6 INVENTORY
Malacha Hydro Limited Partnership	29.9 MW	40 lbs
Alta Wind VIII LLC	150 MW	402 lbs
Windstar Energy LLC	120 MW	2132 lbs

As you can see from the above table, the amount of SF6 maintained on-site by each Brookfield Facility is relatively modest. However, because the current Regulation contains no "de minimis" exceptions, they are subject to the full requirements of the Regulation. In practice, the Regulation is quite burdensome to administer and imposes material costs on the Facilities, even though the amount of SF6 they manage is quite modest in nominal terms. In addition, because the SF6 emission limits are stated as a percentage of SF6 inventory, they have a very adverse impact on owners of small quantities of SF6, making them susceptible to emissions violations and related reporting requirements under the Regulation for very small emission events. For example, if Malacha Hydro Limited Partnership were subject to the now-proposed 5% limit for small owners of SF6 GIE, it would take a release in excess of only 2 lbs of SF6 to trigger a potential violation under the Regulation. It does not take much of a leak to produce such a small nominal release.

Brookfield was disappointed with CARB's latest "Draft Discussion" on August 15th, 2019 that proposes to eliminate the de minimis threshold that was previously included in CARB's "Discussion Draft" on February 22nd, 2019. That prior de minimis threshold would have exempted facilities with less than 5,500 MTCO₂e in inventory from the emission caps under the Regulation. We believe the latest proposal set forth in the August 15th draft that eliminates the de minimis threshold and instead replaces it with a relaxed 5% emissions cap would be very burdensome to GIE owners with less than 5,500 MTCO₂e in inventory (Small Quantity Owners). While the relaxed 5% emissions cap is certainly better than the 1% and lower caps which are applied to GIE owners with more than the specified quantity of SF₆, it would still put Small Quantity Owners at risk of violations for very small nominal emissions. Violations trigger notice requirements, legal process and risk of substantial fines, potentially imposing significant burdens on both Small Quantity Owners and the state in policing and resolving small nominal emissions. The burdens that would create for such small owners and CARB would far outweigh any small benefit to the state's climate change initiatives in applying such a 5% cap to Small Quantity Owners. As stated above, if the proposed amended Regulation is imposed on the Malacha Facility by itself without aggregation with affiliated facilities, The Malacha Facility would be subjected to reporting requirements and potential violations should an exceedance greater than only 2 lbs occur, a very small quantity to control. Accordingly, Brookfield Renewable proposes the following alternatives to the 5% cap proposed in the August 15th proposal:

Brookfield proposes as its preferred alternative that the de minimis exception as proposed in the February 22nd, 2019 draft be reinstated for final consideration. Having a de minimis threshold allowing for exemption of Small Quantity Owners would help eliminate some of the uncertainty and burdens involved with operations, and save CARB and those owners from unnecessary reporting, process, settlement negotiations and potential fines as a result very small emissions that contribute very little to climate change risk. We therefore recommend reinstating the proposed measure in the February 22nd "Discussion Draft" allowing small nameplate capacity projects that maintain <5,500 MTCO₂e in inventory to be exempt from an annual emissions limits.

While we would like to stress the importance and value of establishing a full de minimis threshold exempting Small Quantity Owners, we would like to propose an alternative as a compromise. Should a general de minimis emissions exemption for Small Quantity Owners not be implemented by CARB in the Regulation as proposed on February 22, we recommend that Small Quantity Owners be subject to a modified emissions cap that is defined by reference to a nominal quantity of 26 lbs of SF₆, rather than a percentage of SF₆ in inventory. Thus, for all Small Quantity Owners, no matter how much SF₆ they maintain in inventory (so long as it is below the 5,500 MTCO₂e limit), so long as their aggregate annual emissions are less than 26 lbs, they will not be in violation of the Regulation. This 26 lbs amount is based on CARB's proposed *AEFi* of 5.0 for any nameplate capacity <5,500 MTCO₂e. 5,500 MTCO₂e corresponds to approximately 516 lbs of SF₆, 5% of which is approximately 26 lbs (referencing the 23,500 SF₆ GWP metric). Using a nominal cap for Small Quantity Owners that does not "telescope" lower in nominal terms based on reduced SF₆ inventory will avoid subjecting owners of GIE with very small quantities of SF₆ in inventory to unreasonably small emissions limits. For example, for the Malacha Facility, owner of a single GIS of 40 lbs, the August 15th proposed regulation that applies a 5% metric would subject that facility to an unreasonably small annual emissions limit of

2 lbs (assuming no aggregation with affiliated facilities). However, with the adjustment recommended above, this facility would have an additional 24 lbs for allowable inadvertent emissions, thereby minimizing the risk of “foot fault” type violations the 5% threshold creates.

Thank you for your consideration of our comments. Please contact me at (213)-212-0781 or by email: jonathan.kirby@brookfieldrenewable.com if you have any questions or would like to discuss further.

Very truly yours,

A handwritten signature in blue ink that reads "Jonathan Kirby". The signature is written in a cursive, flowing style.

Jonathan Kirby
Manager, Compliance and Licensing