



July 5, 2018

Richard Corey
Executive Officer
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Dear Mr. Corey,

Bloom Energy¹ provides the following comments in response to the June 21st ARB staff workshop on the upcoming 2018 Cap-and-Trade Rulemaking. These comments propose a new mechanism in the Cap-and-Trade Regulation that would help incentivize both GHG emissions reductions and criteria pollutant reductions through the deployment of fuel cells. The formula proposed herein mirrors the but-for-CHP exemption and would ensure that customers are not penalized by choosing to switch to fuel cells.

In 2017, the ARB amended the Cap-and-Trade Regulation to remove fuel cells as an "emissions source without a compliance obligation." This change has been problematic for Bloom in its efforts to market fuel cells as a low-CI alternative to grid electricity with virtually no criteria pollutants. By having a direct cap-and-trade compliance obligation, prospective customers do not perceive fuel cells as a low-CI alternative. Moreover, the prospect of having a direct compliance obligation (as opposed to simply paying GHG costs imbedded in gas rates), has led to concerns of new administrative burdens and regulatory risks for potential fuel cell owners and operators. The number of fuel cell facilities subject to a direct cap-and-trade compliance obligation is relatively small (less than 100,000 MT/year). However, the impact on Bloom's ability to market its systems is significant. To address these concerns and facilitate the transition of fuel cells derived from a natural gas fuel stock to those derived from biogas, the ARB should reintroduce the fuel cells as an emissions source without a compliance obligation in Section 95852.2.

As an alternative, the ARB should mirror the logic of the but-for-CHP exemption in the fuel cell context. The but-for-CHP exemption allows facility operators to avoid a direct cap-and-trade compliance obligation through a "but-for-CHP" formula. The CHP formula subtracts emissions attributable to thermal energy from the total emissions of the CHP facility. If the resulting emissions are less than 25,000 MT, the facility is exempt from a direct cap-and-trade compliance obligation. Facilities qualifying for this provision are still subject to paying for cap-

¹ Bloom Energy develops on-site distributed generation using innovative fuel cell energy technology that utilizes natural gas or biogas. Our unique on-site power generation systems utilize an innovative new [fuel cell energy technology](http://www.bloomenergy.com) with roots in NASA's Mars program. Derived from a common sand-like powder, and leveraging breakthrough advances in materials science, our technology is able to produce clean, reliable, affordable energy, practically anywhere, from a wide range of renewable energy sources or traditional fuels. Our Energy Servers[®] are among the most efficient green energy generators on the planet; providing for significantly reduced electricity costs and dramatically reduced greenhouse gas emissions. By generating power on-site, where it is consumed, Bloom Energy offers increased electrical reliability and improved energy security, providing a clear path to energy independence.

and-trade costs through their gas purchases from the utility. As noted in the Final Statement of Reasons for the 2013-14 Cap-and-Trade Rulemaking, exemption ensures that facilities that currently have cogeneration systems are not disadvantaged compared to similar facilities that produce their own thermal energy with boilers and purchase electricity from the grid.”² Natural gas fuel cells have a much lower CI than the current CI for grid electricity, and the ARB could account for this fact through a similar limited-exemption calculation applicable to natural gas fuel cells.

Under Bloom’s proposal, the ARB would compare natural gas fuel cells to the emissions factor set forth in the California Energy Commission’s Thermal Efficiency Report, which is updated on an annual basis. The ARB would compare a natural gas fuel cell’s emissions rate (on a MWh basis) to the CEC thermal efficiency rate. The “delta” between the two emissions rates would be the amount of emissions avoided by the customer in choosing to switch to a fuel cell system. The ARB would subtract this “delta” from the total facility emissions of the fuel cell. If the resulting emissions are less than 25,000 MT, the fuel cell operator would be permitted to pay for its share of cap-and-trade costs indirectly through the natural gas utility. This proposal is detailed in proposed regulatory amendment text in Attachment A to these comments.

We urge you to recognize that direct regulation of fuel cells can actually lead to foregone emission reductions associated with fuel cells and that any associated emissions will be managed in short order via full consignment in the natural gas sector. Thank you again for the opportunity to provide these comments as well as you and your staff’s attention to this important matter.

Sincerely,



Erin Grizard

² See 2014 FSOR at p. 195, available at: <https://www.arb.ca.gov/regact/2013/capandtrade13/ctfsor.pdf>

Attachment A

Limited Exemption of Emissions from the Production of Qualified Fuel Cell Output. Emissions from the production of electrical output from a fuel cell installation shall not have a compliance obligation and shall not count toward the inclusion threshold of section 95812(c)(1) if the requirements of this subsection are satisfied.

A facility with a fuel cell unit may apply for a limited emissions exemption if it meets the following condition for the applicable emissions year, and will remain eligible until the year in which the condition is not met, based on annual emissions data reported pursuant to Section 95100 *et seq.*, of the Mandatory Reporting Regulation: The Limited Exemption from the Production of Qualified Fuel Cell Output will apply when the facility's adjusted emissions ($GHG_{FC\text{ Adjusted}}$) using the following formula is less than 25,000 metric tons of CO₂e:

$$GHG_{FC\text{ Adjusted}} = GHG_{FC} - GHG_D$$

Where:

“ GHG_{FC} ” is the annual amount of covered emissions for each calendar year, in metric tons of CO₂e, associated with the production of electric output by a fuel cell installation.

“ GHG_D ” is the difference between annual covered emissions for each calendar year, in metric tons of CO₂e, associated with the production of electric output by a fuel cell installation and the production of electric output by an alternative natural gas power plant;

Where:

$$GHG_D = GHG_{Alt} - GHG_{FC}$$

“ GHG_{Alt} ” is the annual amount of emissions for each calendar year, in metric tons of CO₂e, associated with the production of electric output by a hypothetical natural gas power plant, which is calculated as follows:

$$GHG_{Alt} = Output_{FC} \times HR_{Alt} \times CO_{2eNG}$$

Where:

“ $Output_{FC}$ ” is equal to the annual electric output of a fuel cell installation;

“ HR_{Alt} ” is the CEC thermal efficiency report “State Average without Cogeneration” heat rate value, which is updated annually. For 2018, the State Average without Cogeneration heat rate value is 7,761 btu/kWh;

“ CO_{2eNG} ” is the GHG emissions content per unit of natural gas of 117 lbs/mmBtu