Bloomenergy

October 22, 2018

Clerk of the Board
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Dear Mr. Corey,

Bloom Energy[1] provides the following comments in response to the September 4, 2018 Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market Based Compliance Mechanisms Regulation ("Cap-and-Trade"). For the past 26 months, Bloom Energy has worked with the ARB to address the direct cap-and-trade compliance obligation imposed on fuel cells. Fuel cells reduce greenhouse gas emissions and improve criteria air pollutants compared to the grid and compared to multiple other electricity generating technologies. However, the ARB regulations assign a compliance obligation to emissions from a fuel cell but treat less efficient combustion technologies as emissions without a compliance obligation. This regulatory treatment has the unintended consequence of increasing GHG emissions and criteria air pollutants, as ARB regulations are leading some customers to choose dirtier grid electricity backed up by diesel generators, or less-efficient combustion cogeneration technologies, instead of installing fuel cell technologies. Additionally, since this direct cap-and-trade compliance obligation will prevent some fuel cell projects from proceeding, it will reduce the fuel cell industry's capacity to make investments to address the immense challenges that currently stand in the way of increasing the use of biogas for electricity generation. Deploying biogas in fuel cells results in even greater greenhouse gas emissions reductions.

This situation pushes a zero-net carbon future further out into the future. These comments reiterate a proposal that Bloom provided in the pre-rulemaking phase of this proceeding. Bloom's proposal would help enable 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. These changes are within scope of the present rulemaking and we urge the ARB to adopt them expeditiously to advance the mission of the Cap-and-Trade: to reduce the greenhouse gas emissions that cause climate change.

Background

In the original Cap-and-Trade rulemaking, the ARB included fuel cells as an emission source without a Cap-and-Trade compliance obligation (i.e., Section 95852.2). The significance of including fuel cells in Section 95852.2 and the letter the Executive Director sent to Bloom Energy

[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 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 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.

dated May 23, 2013 (Attached below) confirming the treatment of fuel cells offered a clear demarcation that fuel cells are GHG reducing with co-benefits that afford them unique treatment in recognition of these important attributes.

In 2016, the ARB amended the Cap-and-Trade Regulation to remove fuel cells as an "emissions source without a compliance obligation" but continued to afford similar treatment to combustion CHP technologies. This change has been problematic, as it dissuades potential customers from procuring fuel cells as a low-carbon intensity (CI) alternative to grid electricity with virtually no criteria pollutants. By having a direct cap-and-trade compliance obligation, some 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—leading customers to choose dirtier diesel generators and/or less-efficient cogeneration technologies.

The number of fuel cell facilities subject to a direct cap-and-trade compliance obligation is relatively small (based on Bloom's estimates, less than 100,000 MT/year). However, the impact on the fuel cell industry's ability to market its systems is significant. Additionally, since this direct cap-and-trade compliance obligation will prevent some fuel cell projects from proceeding, it will reduce the fuel cell industry's capacity to make investments to address the challenges that currently stand in the way of operating fuel cells using biogas. Deploying biogas in fuel cells results in even greater greenhouse gas emissions reductions. This situation pushes a zero-net carbon future further out.

Proposed Solution

To address these concerns and to prevent ARB from inadvertently encouraging California entities from picking dirtier technologies, Bloom proposed in comments on June 21, 2018 that 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-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, the CHP 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-

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

trade costs indirectly through the natural gas utility. This proposal is detailed in proposed regulatory amendment text in Attachment A to these comments.

Bloom's Proposal to Address Fuel Cells is within the Scope of the Present Rulemaking

Bloom has engaged collaboratively with ARB staff—sharing data, making presentations, organizing multiple meetings—to find a solution for the past 26 months. We have been willing partners and—for the sake of our business, our customers, California's economy, and climate change—desire to resolve this uncertainty.

The proposals Bloom made in the pre-rulemaking process to provide natural gas fuel cells with a transition to using renewable natural gas can be considered to be within the scope of the 2018 Cap-and-Trade Rulemaking.

The relevant legal provisions governing the scoping requirements for California agency rulemakings are set forth in Cal. Govt. Code Sec. 11346.8(c), which provides:

> (c) No state agency may adopt, amend, or repeal a regulation which has been changed from that which was originally made available to the public pursuant to Section 11346.5, unless the change is (1) nonsubstantial or solely grammatical in nature, or (2) *sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action*. If a sufficiently related change is made, the full text of the resulting adoption, amendment, or repeal, with the change clearly indicated, shall be made available to the public for at least 15 days before the agency adopts, amends, or repeals the resulting regulation. Any written comments received regarding the change must be responded to in the final statement of reasons required by Section 11346.9. (emphasis added)

The term sufficiently related was defined by OAL in regulation to mean:

> Changes to the original text of a regulation shall be deemed to be "sufficiently related," as that term is used in Government Code Section 11346.8, if *a reasonable member of the directly affected public could have determined from the notice that these changes to the regulation could have resulted.* (See 1 Cal. ADC Sec. 42, emphasis added)

Bloom's proposal for a calculation that mirrors the but-for-CHP exemption is "sufficiently related" to the scope of the present Cap-and-Trade Rulemaking. These changes to the regulation could have resulted based on at least three separate reasons, each of which justify its inclusion in the 15 day language:

1. The ISOR includes numerous changes to Section 95852 – "emissions categories used to calculate compliance obligations." This is the section of the Regulation where Bloom's proposal from the pre-rulemaking docket could be included. To a member of the public, it is clear that the rulemaking has a broad scope and there are numerous changes to the various emissions categories that lead to compliance obligations. The ISOR includes changes to the exemption language, including new provisions for waste-to-energy facilities and CHP. While fuel cells are not explicitly listed in the ISOR changes, a member of the public could reasonably anticipate that fuel cells or other technologies could result given the broad nature of the rulemaking and the specific inclusion of new exemption language for other technologies.

2. The ISOR explicitly contemplates changes to encourage biomass derived fuels and better align the program with the LCFS. By providing a transition to RNG use in fuel cells, Bloom's fuel cell language shares the same policy goals and is sufficiently related to the changes the ARB is making related to how biofuels are covered in the Cap-and-Trade.

3. The ISOR makes explicit reference to the pre-rulemaking workshops, notes that public comments were received, and goes on to include links in the ISOR to the pre-rulemaking record. The ISOR explicitly references the June 21st workshop where Bloom made its proposal. By explicitly referencing the pre-rulemaking record, a member of the public could reasonably anticipate that comments and proposals made in the pre-rulemaking record could become the subject of a 15 day notice.

Conclusion

We urge you to recognize that imposing direct cap-and-trade compliance obligations on fuel cells can actually lead to increased emissions as customers choose dirtier or less efficient electricity generating technologies that do not prompt a direct cap-and-trade compliance obligation. 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

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

May 23, 2013

Mr. Josh Richman
Bloom Energy
1299 Orleans Drive
Sunnyvale, California 94089

Dear Mr. Richman:

Thank you for your recent letter to Chairman Nichols requesting confirmation of the requirements for fuel cell operators under the Air Resources Board's (ARB) greenhouse gas (GHG) Cap-and-Trade and Mandatory Reporting Programs.

ARB recognizes the environmental and energy benefits of fuel cell technologies and has elected to exempt these GHG emissions from a compliance obligation under the Cap-and-Trade Program. We specifically refer you to section 95852.2(b)(2) of the Cap-and-Trade Regulation for the exemption. Please note that beginning in 2015, a compliance obligation for natural gas supplied to uncovered entities in California will be assessed on the local distribution company (LDC) supplying the gas. ARB expects that the LDC will pass GHG compliance costs to the end user of the fuel as an incentive to spur efficient technology investment such as that provided by fuel cells.

While there are currently no requirements for reporting CO_2, CH_4 or N_2O emissions from fuel cells, pursuant to the Mandatory Reporting Regulation, fuel cell operators are required to report basic information about the generating unit including generating capacity, net and gross power generation, fuel type and fuel consumption, and fuel supplier information. This information is collected to track the increased use of this new technology and to support the ARB's legislatively mandated program to maintain the statewide GHG emissions inventory. The detailed requirements can be found in section 95112(f) of the Mandatory Reporting Regulation.

We appreciate your continued efforts in helping California reach its greenhouse gas emission reduction goals. For any additional questions related to the Cap-and-Trade Regulation, please contact Mr. Steve Cliff at (916) 322-7194 or scliff@arb.ca.gov. For questions related to the Mandatory Reporting Regulation, please contact Mr. Dave Edwards at (916) 323-4887 or edewards@arb.ca.gov.

Sincerely,

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

Richard W. Corey
Executive Officer

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cc: Mary D. Nichols
Chairman

Steven Cliff, Chief
Climate Change Program Evaluation Branch

Dave Edwards, Manager
Climate Change Reporting Section

Attachment B

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 ($GHG_{FC\ Adjusted}$) using the following formula is less than 25,000 metric tons of CO2e:

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

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:

$GHG_{Alt} = Output_{FC} \times HR_{Alt} \times CO_2e_{NG}$

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_2e_{NG}" is the GHG emissions content per unit of natural gas of 117 lbs/mmbtu