



February 2nd, 2016

Robert Stein, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Response to Interrogatories (Petition NO. 1208)

Dear Chairman Stein,

Please find the attached response to interrogatories relating to Petition No. 1208, Manchester Sam's Club Bloom Energy Fuel Cell Project. Included is an original and fifteen copies.

Should you have any questions or concerns regarding the proposed Facility, please contact Rory Eblen at (516) 974-6824 or rory.eblen@bloomenergy.com

Respectfully,

Bloom Energy

A handwritten signature in black ink, appearing to read "Rory Eblen", with a long horizontal flourish extending to the right.

Rory Eblen
Planning and Permitting Specialist



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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VIA ELECTRONIC MAIL

January 15, 2016

Rory Eblen
Bloom Energy
Rory.eblen@bloomenergy.com

RE: PETITION NO. 1208 – Bloom Energy Corporation, as an agent for Walmart Stores, Inc., petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, operation and maintenance of a Customer-Side 200-Kilowatt Fuel Cell Facility to be located at the Sam's Club store, 69 Pavillions Drive, Manchester, Connecticut.

Dear Mr. Eblen:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than January 25, 2015. To help expedite the Council's review, please file individual responses as soon as they are available.

Please forward an original and 15 copies to this office, as well as send a copy via electronic mail. In accordance with the State Solid Waste Management Plan and in accordance with Section 16-50j-12 of the Regulations of Connecticut State Agencies the Council is requesting that all filings be submitted on recyclable paper, primarily regular weight white office paper. Please avoid using heavy stock paper, colored paper, and metal or plastic binders and separators. Fewer copies of bulk material may be provided as appropriate.

Yours very truly,

Melanie Bachman
Acting Executive Director

MB/MP

c: Council Members
Amy Shanahan, Bloom Energy
Edwin Pho, Bloom Energy



CONNECTICUT SITING COUNCIL
Affirmative Action / Equal Opportunity Employer

**Petition No. 1208
Bloom Energy
69 Pavilions Drive
Manchester, CT
Interrogatories**

1. Would the proposed fuel cell shut down in the event of a power outage, and if so, does it have "black start" capability and the ability to automatically restart?
2. Would the fuel cell have an uninterruptible power module?
3. Would the fuel cell project comply with the Connecticut Department of Energy and Environmental Protection (DEEP) Noise regulations at the property boundaries?
4. Would the proposed fuel cell provide baseload or backup power (or both) for Sam's Club? Would any surplus power be sold to the grid?
5. Would any waste heat from the fuel cell be used for the building's internal use such as to provide or supplement domestic heating and/or hot water?
6. Would bollards be used to protect the fuel cell facility from being accidentally struck by vehicles?
7. What statutes and/or regulations govern fuel cell emissions for the proposed facility?
8. Provide a table showing state criteria thresholds and projected emissions from the proposed facility for all greenhouse gasses listed in the Regulations of Connecticut State Agencies Section 22a-174-1(49).
9. Provide information regarding available technologies to reduce greenhouse gas emissions from the proposed facility.
10. Could offsets be used to mitigate air emissions impacts from the facility?
11. Discuss other mitigation techniques that could be used to offset air emissions from the proposed facility e.g. planting trees. If planting trees is listed as an option, estimate the number and size of trees required.

12. Natural gas has sulfur dioxide injected as an odorant. Please submit a desulfurization plan narrative for the proposed fuel cell facility containing the following information:
- a) Chemical reaction overview concerning what substances are produced from the desulfurization process, as well as plans for their containment and transport;
 - b) How much solid sulfur oxide would result from the desulfurization process, and methods and locations for containment, transport, and disposal;
 - c) Whether any of these desulfurization substances are considered hazardous, and if so, plans for the containment, transport, and disposal of hazardous substances;
 - d) Anticipated method of disposal for any other desulfurization substances; and
 - e) Whether any gaseous substances resulting from desulfurization can be expected to vent from the fuel cells, as well as the applicable DEEP limits regarding discharge of these gasses.

**Petition No. 1208
Walmart Stores, Inc.
69 Pavilions Drive
Manchester, CT
Interrogatories**

Responses

1. The Manchester Sam's Club Fuel Cell project is a grid parallel installation, which means that the fuel cell provides primary power to the building with additional load power provided by the utility. In the event of a power outage, the Bloom Energy fuel cell will automatically go into stand-by mode and disconnect from the grid. The system will automatically start up again when the grid is normal.
2. No, the Manchester Sam's Club Fuel Cell project will not have an Uninterruptible Power Module (UPM).
3. Proposed site is considered in the category Class B Land Use: Retail Trade. The proposed equipment does not have any impulse, prominent discrete tones, or infrasonic and ultrasonic noise components, and therefore the property line threshold noise levels are set at 62 dBA. The distance to the site boundary from our system would be approximately 65ft. At that distance the expected noise level would be approximately 56dBA, well below the threshold for this category, so the installation would be in compliance.
4. Our system would provide base load and would not typically produce any surplus power for sale back to the grid.
5. Our system produces very little waste heat. Excess heat is reused internally to the system to improve overall system electrical efficiency. Any left over, low grade heat is exhausted out the top of the unit.
6. Yes. Bollards, both fixed and removable are used to protect the system from accidental vehicle impacts.
7. The exhaust from our system is water vapor, air, and CO₂. The system meets the stringent California Air Resources Board (CARB) requirements for exhaust emissions of fuel cells.
8. The Bloom Energy server, when compared with traditional natural gas fired electricity generation, will reduce CO₂ by 22%, and when compared to oil fired electricity generation by, will reduce CO₂ emissions by 47% each year it's in operation. The state has a goal to reduce CO₂ by only 13% by the year 2020 from current levels.
9. It may be possible to separate the CO₂ from the system by use of a membrane or other such technology for use elsewhere, or sequestration.
10. Not necessary since the Bloom Energy server exceeds the targets set forth.

11. See answer #10.

12. Desulfurization Plan Narrative

The fuel cells proposed for the Manchester Sam's Club project will utilize natural gas from the utility pipeline that delivers natural gas to homes and to commercial businesses in the area. This is the very same natural gas the Manchester, CT residents use in their homes for heating and for cooking over a gas range. The fuel cells planned for deployment in Manchester, CT do not create sulfur. Gas suppliers add sulfur compounds to the natural gas as a safety precaution to smell the gas in the event there is a pipeline leak. The sulfur compounds, however, impede the function of the fuel cell and their removal ensures longer system life and enhanced productivity. A sulfur removal unit consisting of sealed metal canisters containing sorbent beds is included with each fuel cell to remove sulfur compounds from the natural gas stream before it enters the fuel cell system.

Periodically these sealed desulfurization canisters are removed and replaced as sorbent material is used up. The sulfur compounds captured in this process are not considered hazardous waste per the EPA Resource Conservation and Recovery Act (RCRA) regulations. At the time of replacement, the filter materials have essentially the same make up as when they were new. In addition, they have absorbed a small amount of sulfur compounds, which are filtered from the natural gas stream and accumulated in the sorbent, representing an estimated 0.3 wt. % of the filter materials. The sorbent materials may also contain trace amounts of hydrocarbons or other organic compounds which are naturally present in natural gas. Out of an abundance of caution, these canisters remain sealed until they are opened and treated at an EPA licensed facility. During shipment the canisters remained sealed and we adhere to all applicable federal, state, and local environmental requirements. Our transportation protocol has also been verified by the Department of Transportation. The elements that are filtered out and handled responsibly in the connection to the fuel cell are the same elements that are burned in the home and released into the atmosphere every day during normal home heating and cooking.