



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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### CERTIFIED MAIL

### RETURN RECEIPT REQUESTED

January 20, 2017

Justin Adams  
Bloom Energy Corporation  
1299 Orleans Drive  
Sunnyvale, CA 94089

**RE: PETITION NO. 1272** - Bloom Energy Corporation, as an agent for Frontier Communications Corporation, 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 1.4-Megawatt Fuel Cell Facility to be located at the Frontier building, 310 Orange Street, New Haven, Connecticut.

Dear Mr. Adams:

At a public meeting held on January 19, 2017, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need, with the following conditions:

1. Use of off-road construction equipment that meets the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including, but not limited to, retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel;
2. Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies that limit the idling of mobile sources to 3 minutes;
3. Approval of any minor project changes be delegated to Council staff;
4. The use of natural gas as a fuel system cleaning medium during fuel cell construction, installation or modification shall be prohibited.
5. Submit the following information to the Council 15 days prior to any fuel pipe cleaning operations related to fuel cell construction, installation, or modification:
  - a. Identification of the cleaning media to be used;
  - b. Identification of any known hazards through use of the selected cleaning media;
  - c. Description of how known hazards will be mitigated, including identification of any applicable state or federal regulations concerning hazard mitigation measures for such media;
  - d. Identification and description of accepted industry practices or relevant regulations concerning the proper use of such media;
  - e. Provide detailed specifications (narratives/drawings) indicating the location and procedures to be used during the pipe cleaning process, including any necessary worker safety exclusion zones;
  - f. Identification of the contractor or personnel performing the work, including a description of past project experience and the level of training and qualifications necessary for performance of the work;



- g. Contact information for a special inspector hired by the project developer who is a Connecticut Registered Engineer with specific knowledge and experience regarding electric generating facilities or a National Board of Boiler and Pressure Vessel Inspector and written approval of such special inspector by the local fire marshal and building inspector; and
  - h. Certification of notice regarding pipe cleaning operations to all state agencies listed in General Statutes § 16-50j(h) and to the Department of Consumer Protection, Department of Labor, Department of Public Safety, Department of Public Works, and the Department of Emergency Management and Homeland Security.
6. Compliance with the following codes and standards during fuel cell construction, installation or modification, as applicable:
  - a. NFPA 54
  - b. NFPA 853; and
  - c. ASME B31.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;
8. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the City of New Haven;
9. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
10. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;
11. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and
12. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated November 4, 2016, additional information dated December 28, 2016, and in compliance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

A handwritten signature in blue ink that reads "Robert Stein". Above the signature, there is a small, handwritten mark that appears to be "1608".

Robert Stein  
Chairman

RS/RDM/cm

Enclosure: Staff Report dated January 19, 2017

c: The Honorable Toni N. Harp, Mayor, City of New Haven  
Michael Carter, Chief Administrative Officer, City of New Haven  
Karyn Gilvarg, A.I.A., Executive Director, City Plan Department, City of New Haven  
Alicia Surowiec, Bloom Energy Corporation



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### Petition No. 1272

Bloom Energy Corporation

310 Orange Street, New Haven, Connecticut

### Staff Report

January 19, 2017

On November 7, 2016, the Connecticut Siting Council (Council) received a petition (Petition) from Bloom Energy Corporation (Bloom), as an agent for Frontier Communications (Frontier), for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the installation of a 1.4-megawatt (MW) fuel cell facility and associated equipment at the Frontier building located at 310 Orange Street, New Haven, Connecticut. A field review of the project was conducted on December 28, 2016 that was attended by Council member Robert Silvestri, Council staff member Robert Mercier and Bloom representative Justin Adams.

Prior to filing the Petition, Bloom discussed the proposed facility with the City of New Haven Planning Department. Bloom provided formal notification of the project to abutting property owners, City of New Haven officials, and required state agencies and officials on or about November 3, 2016. The Council requested additional information on December 8, 2016. Bloom responded to the Council's interrogatories on December 28, 2016. The Council has not received any written comments on this Petition to date.

The project site is located on the main roof (12-story) of the 14-story Frontier building. The building, located on a 1.5-acre parcel, is within the Central Business district and is surrounded by commercial, residential, and religious buildings and associated parking areas. The nearest residential dwelling is within a mixed-use building approximately 275 feet to the north.

Bloom and Frontier have entered into an agreement whereby Bloom would install and maintain five Bloom energy servers that would collectively produce 1.4 megawatts of power for the building, providing approximately 95 percent of Frontier's electric needs under normal operating conditions. Any surplus electricity would feed into United Illuminating's electric distribution system for use by the grid.

The Connecticut Public Utilities Regulatory Authority classifies Bloom Energy Servers as a Class I renewable energy source. The proposed fuel cell facility uses non-combustion solid oxide technology that consumes natural gas as fuel to generate electrical power. The facility would be a customer-side, distributed resources project, designed only to provide electricity. The fuel cell would not have an Uninterruptible Power Module and would not provide backup or grid-isolated power.

By a new site plan submitted on December 28, 2016, the fuel cell facility would consist of two 250-kilowatt ES-5 Energy Servers and three 300-kilowatt ES-5 Energy Servers, control cabinets, and gas connection equipment. Each energy server would measure approximately 32-36 feet long, 7 feet tall and 4.5 feet wide. The energy servers would be installed in a linear arrangement and would be located adjacent to existing building mechanical equipment and the roof parapet. The energy servers would be installed on metal framing mounted on steel I-beams that support the building. The building frame is structurally capable of supporting the proposed facility.

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards. Bloom's design only requires an initial input of approximately 524 gallons of water, after which no additional water is consumed or discharged during normal operation. The building is not within a DEEP designated Coastal Management Area or a flood zone.



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Affirmative Action / Equal Opportunity Employer

Air emissions produced during fuel cell operation would be below the DEEP applicable limits, as shown in the table below – thus, no air permit is required:

Comparison of the Fuel Cell Facility with RCSA Criteria *		
Compound	Fuel Cell Facility (lbs/MWh)	Emissions standards (lbs/MWh)
NO <sub>x</sub>	<0.01	0.15
CO	<0.05	1.0
CO <sub>2</sub>	679-833	1,650

\* Regulations of Connecticut State Agencies Section 22a-174-42(b)(3)(C); 22a-174-42(d)(2)(B)(ii) & Table 42-2

The project would result in a net carbon dioxide reduction for the environment because it would displace emissions from traditional fossil-fueled generation. The proposed facility would reduce net CO<sub>2</sub> emissions for the environment by at least 25 percent per year when compared to the ISO-NE fossil fuel output emissions rate.

The proposed facility would emit no methane (CH<sub>4</sub>), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (known as HFCs) or perfluorocarbons (known as PFCs), which are greenhouse gasses defined in Regulations of Connecticut State Agencies Section 22a-174-1(49).

The fuel cell facility has a desulfurization process to remove the sulfur compounds which were added to the natural gas as an odorant, with sulfur compounds collected within a canister containing filter media. When a desulfurization canister is taken out of service, typically after five years, it is taken by a Bloom contractor to a licensed out of state facility. The desulfurization canister has been certified by the U.S. Department of Transportation for transport of this material.

Bloom utilizes an U.S. Environmental Protection Agency (EPA) exemption that provides for the regulation of the desulfurization canisters up to the point of removal of any waste. The EPA exemption has also been incorporated into Connecticut's Hazardous Waste Management Regulations. Bloom would dispose of desulfurization canister substances at an EPA-permitted Transportation, Storage and Disposal Facility in Texas.

Any noise associated with the construction of this facility would be temporary in nature and exempt per DEEP noise regulations. According to Bloom's acoustical consultant, the operation of this facility would meet DEEP noise regulations at all abutting properties without the need for noise mitigation measures.

Visual impact from the proposed project would be minimal due to its location on the roof of an existing building. The proposed project is located outside of the shaded area of the DEEP Natural Diversity Database.

The facility would be remotely monitored by Bloom on a 24/7 basis to detect abnormalities in operation. The server would shut down automatically when abnormal operation is detected. Additionally, the servers can be shut down from a manned remote operations center. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association standards for stationary fuel cell power systems and includes extensive safety control systems, including both automatic and manual shutdown mechanisms that comply with pertinent engineering standards. Bloom included an Emergency Response Plan within the Petition.

The proposed installation would not have any substantial adverse environmental effect and would meet DEEP air and water quality standards. It would reduce the emission of air pollutants that contribute to smog and acid rain, and to a lesser extent, global climate change.

Staff recommends the following conditions:

1. Use of off-road construction equipment that meets the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including, but not limited to, retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel;
2. Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies that limit the idling of mobile sources to 3 minutes; and,
3. Approval of any minor project changes be delegated to Council staff.

**View of site, Frontier Building, 310 Orange Street, New Haven**

