



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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### CERTIFIED MAIL RETURN RECEIPT REQUESTED

October 25, 2019

Justin Adams  
Paul Evan  
Bloom Energy Corporation  
4353 North First Street  
San Jose, CA 95134

RE: **PETITION NO. 1383** – Bloom Energy Corporation petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a customer-side 750-kilowatt fuel cell facility and associated equipment to be located at Charlotte Hungerford Hospital, 540 Litchfield Street, Torrington, Connecticut.

Dear Mr. Adams and Mr. Evan:

At a public meeting held on October 24, 2019, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal meets air and water quality standards of Department of Energy and Environmental Protection and 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. Approval of any minor project changes be delegated to Council staff.;
2. The use of natural gas as a fuel system cleaning medium during fuel cell construction, installation or modification shall be prohibited;
3. 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;

4. 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;
5. 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;
6. 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 Torrington;
7. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
8. 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;
9. 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
10. 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 September 23, 2019 and additional information dated October 14, 2019, 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.

Sinceley,



Melanie A. Bachman  
Executive Director

MAB/MP/lm

Enclosure: Staff Report dated October 24, 2019

c: The Honorable Elinor C. Carbone, Mayor, City of Torrington  
Martin Connor, City Planner, City of Torrington  
Charlotte Hungerford Hospital, property owner



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Petition No. 1383

Bloom Energy Corporation

Fuel Cell Facility – Charlotte Hungerford Hospital/Hartford Health Care

Torrington, Connecticut

Staff Report

October 24, 2019

### Introduction

On September 24, 2019, the Connecticut Siting Council (Council) received a petition from Bloom Energy Corporation (Bloom) for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a customer-side 750-kilowatt fuel cell facility and associated equipment to be located at Charlotte Hungerford Hospital/Hartford HealthCare (CHH), 540 Litchfield Street, Torrington, Connecticut.

On September 13, 2019, a Bloom representative informed Martin Connor, City Planner, City of Torrington of the proposed project and provided an opportunity for comment on the proposal. On September 16, 2019, Mr. Connor responded to Bloom and expressed support for the proposed project.

On September 16, 2019 Bloom provided notice of the project to abutting property owners; City of Torrington officials; and required state agencies and officials.

On September 25, 2019, the Council sent correspondence to the City of Torrington stating that the Council has received the Petition and invited the City to contact the Council with any questions or comments by October 24, 2019. The Council has not received any comments to date.

Also on September 25, 2019, pursuant to Regulations of Connecticut State Agencies §16-50j-40, the Council notified all state agencies listed therein, requesting comments regarding the proposed project be submitted to the Council by October 24, 2019. No comments were received to date.

The Council issued interrogatories to Bloom on October 9, 2019. Bloom provided responses to the Council's interrogatories on October 15, 2019.

### Public Benefit

The project would be a “customer-side distributed resources” facility, as defined in Connecticut General Statutes (CGS) § 16-1(a)(49). CGS § 16a-35k establishes the State’s energy policy, including the goal to “develop and utilize renewable energy resources...to the maximum practicable extent.” The proposed facility is a distributed generation resource, and will contribute to fulfilling the State’s Renewable Portfolio Standard as a low emission Class I renewable energy source. In its final decision in Docket No. 12-02-09, the Connecticut Public Utilities Regulatory Authority determined that the Bloom Energy Server qualifies as a Class I renewable energy source under CGS §16-1(a)(20)(A). The project was selected as part of the Low and Zero Emissions Renewable Energy Credit (LREC/ZREC) program.

### **Project Site**

The Project site is located north of Litchfield Street and south of Roosevelt Avenue. The CHH property is approximately 119 acres and is developed with several buildings and parking lots. The CHH property is within the Residential 6,000 SF Lot Size Zoning District. The northern and western portions of the site are undeveloped woodland. Residential development surrounds the property to the west, north and east. Land to south contains sparse residential development and an existing water tank. The nearest developed residential property is located approximately 713 feet to the east of the proposed facility.

### **Proposed Project**

The facility would consist of three Bloom ES-5 solid oxide fuel cell Energy Servers, rated at 250 kilowatts each. The Bloom fuel cell uses non-combustion solid oxide technology that consumes natural gas as fuel to generate electrical power. No phosphoric acid is used in the fuel cell process.

The proposed facility would be a customer-side, distributed resources project, designed only to provide electricity. The proposed facility would operate in parallel with the utility grid and provide at least 90 percent of the average CHH baseload. Electricity generated by the facility would be consumed primarily by CHH, and any excess electricity would be exported to the grid. The Bloom fuel cell units are designed to increase the electrical efficiency. As a result, there would be no useful waste heat generated by the fuel cell units. Additionally, the minimal amount of thermal load present at the site precludes efficient deployment of a combined heat and power application.

The three fuel cells are each approximately 14-feet 4-inches long by 8-feet 8-inches wide by 6-feet 9-inches high. Associated equipment includes water deionizers, telemetry cabinets, disconnect switches and utility cabinets. The equipment would be located on concrete pads within a new approximately 1,360 square foot paved area to be surrounded by an 8-foot fence. This new paved area would be located immediately south of an existing parking lot on the subject property. The proposed facility would interconnect to CHH's existing electric and water service. A new natural gas service tap would connect to Litchfield Street. These connections would be installed underground.

The fuel cell facility has an operational life of 20 years equal to a 20 year contract with CHH. The solid oxide fuel cell media would be changed at five year intervals. At the end of the 20 year contract, CHH may renew the contract, return the facility at no cost, or buy the facility at fair market value. If the facility is to be removed at the end of the contract, the fuel cell units and associated equipment and components would be dismantled and removed.

Bloom anticipates construction to start in the second quarter of 2020 with 12-14 weeks of total construction time (i.e. 4 weeks each for site prep, installation, and commissioning). Construction hours are expected to be Monday to Friday between 7 a.m. to 4 p.m. If extended work hours on weekends, nights and holidays extend beyond the typical hours, Bloom would notify the City.

The estimated cost of the proposed facility is provided in the table below:

Projected Project Cost Estimates October 11, 2019	Current Forecast
Install Labor	\$ 140,000
Ancillary Equipment	\$110,000
Design	\$ 36,000
Construction	\$ 300,000
Other (utility fees, contingency)	\$180,000
<b>Total</b>	<b>\$ 766,000</b>

### Environmental Effects and Mitigation

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards as no water would be consumed or discharged once the facility is operational. The site is not within an Aquifer Protection Area (APA). The nearest APA is located 3.4 miles northwest of the site. The proposed fuel cell facility would have virtually no water usage or discharge. Water consumption would only occur at system fill.

Air emissions produced during fuel cell operation would be below DEEP applicable limits for a new distributed generator, as shown below, and thus, no DEEP air permit is required.

Comparison of the Fuel Cell Facility with RCSA Criteria *		
Compound	Fuel Cell Facility(lbs/MWh)	Emissions standards(lbs/MWh)
NOx	<0.01	0.15
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 proposed facility would emit no methane (CH<sub>4</sub>), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs), which are greenhouse gases defined in Regulations of Connecticut State Agencies Section 22a-174-1(49), and would emit negligible amounts of sulfur oxides, volatile organic compounds and particulate matter.

The fuel cell desulfurization system would remove sulfur that is used as an odorant in natural gas because it is a fuel cell system contaminant. Sulfur compounds would be collected within a desulfurization unit (desulf unit) using a filter media – a composite copper catalyst. The U.S. Department of Transportation has certified the desulf unit as an acceptable form of transport for the desulfurization material that meets hazardous waste shipment standards. When a desulf unit is taken out of service, it is transported by a Bloom contractor to an out of state facility where the composite copper catalyst within the unit is removed, and the copper is used as an ingredient in other products. Because the spent desulf units are used to make copper products, the desulf units are exempted from hazardous waste requirements as “excluded recyclable material.”

Visual impact from the proposed project would be minimal as it is located on a developed hospital property, and the project would be consistent with existing development on the property. In general, any off-site visibility from the north and west would be masked by the distance and mature woodland. Existing buildings and vegetation would minimize visibility from the south and east. Some existing tree trimming would be required, but no tree removal would be expected.

No wetlands would be disturbed by the Project. The site is not within a Federal Emergency Management Agency-designated flood zone. There are no DEEP Natural Diversity Database buffered areas within 0.25 mile of the site. The Project site is not within the DEEP Coastal Boundary.

Any noise associated with the construction of this project would be temporary in nature and exempt per DEEP Noise Control Regulations. The operation of the proposed facility would meet DEEP Noise Control Regulations.

### **Public Safety**

Before commissioning of the proposed facility, the natural gas fuel lines would be cleaned in accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission using nitrogen.

The fuel cell facility has internal and remote 24/7 operational monitoring. Abnormal operation would cause the facility to automatically shut down. The facility can also be shut down through a remote operations center as well as by manual switches for the facility and for the natural gas feed. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association (ANSI/CSA) America FC 1-2014 and the National Fire Protection Association, Inc. Standard 853 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. A Fire Prevention and Emergency Planning Plan (FPEPP) for the facility is included within the Petition. Bloom would meet with the local Fire Marshal during the building permit review phase of the project.

The fuel cell has built in safety features and in-system checks to prevent and alert unauthorized access to facility components.

### **Conclusion**

The project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. It would reduce the emission of air pollutants that contribute to smog and acid rain, and to a lesser extent, global climate change, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources.

### **Recommendation**

If approved, staff recommends the following condition:

1. Approval of any minor project changes be delegated to Council staff.

## Fuel Cell Location



## Site Plan

