STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 10, 2019

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

RE: **PETITION NO. 1365** – 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 1.2-megawatt fuel cell facility and associated equipment to be located at Connecticut College, 5 Reservoir Street, New London, Connecticut.

Dear Mr. Adams:

At a public meeting held on May 9, 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 New London;

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.

Additionally, the Council recommends the installation of bollards, or other type of safety guard, along the east side of the fuel cell equipment pad.

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 March 27, 2019, and the additional information dated April 8, 2019, 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.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/RDM/emr

Enclosure: Staff Report dated May 9, 2019

c: Alicia Surowiec, Bloom Energy Corporation
Katherine Bergeron, President, Connecticut College
The Honorable Michael E. Passero, Mayor, City of New London
Felix J. Reyes, Director of the Office of Development & Planning, City of New London
The Honorable Daniel M. Steward, First Selectman, Town of Waterford
Abby Piersall, AICP, Planning Director, Town of Waterford
Mark A. Wujtewicz, Planner, Town of Waterford

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Petition No. 1365
Bloom Energy Corporation
Fuel Cell Facility - Connecticut College
New London, Connecticut

Staff Report
May 9, 2019

Introduction

On March 27, 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 installation of a 1.2 megawatt (MW) fuel cell facility at Connecticut College, 5 Reservoir Street in New London, Connecticut.

On February 25, 2019, a Bloom representative informed staff of the City of New London Economic Development and Planning Department of the proposed project, and provided an opportunity to comment on the proposal. Bloom did not receive any comment.

On March 11, 2019, Bloom provided notice of the project to abutting property owners; City of New London officials; Town of Waterford officials (within 2,500 feet of the project site); and required state agencies and officials.

On April 1, 2019, the Council sent correspondence to the City of New London and the Town of Waterford stating that the Council has received the Petition and invited the municipalities to contact the Council with any questions or comments by April 26, 2019. The Council has not received any comments to date.

On April 1, 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 April 26, 2019. No comments were received.

The Council issued interrogatories to Bloom on April 3, 2019. Bloom provided responses to the Council's interrogatories on April 8, 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).

Project Site

The Project site is located at the corner of Mohegan Avenue (Route 32) and Reservoir Street on the Connecticut College campus. The facility would be installed in a wooded area southeast of an existing campus utility house and northeast of an existing campus electrical building along Reservoir Street. The facility would be approximately 32 feet from Reservoir Street and 39 feet from Route 32.

The nearest off-site residential property from the project site is approximately 860 feet to the east/southeast, located on Oneco Road. The campus itself is approximately 92 acres and is developed with 48 buildings, internal roadways and parking lots.

Route 32 runs immediately to the east, with additional Connecticut College parcels farther to the east between Route 32 and the Thames River. The parcels to the north, south, and west are a mix of residential and additional educational institutional uses, including additional Connecticut College properties and the U.S. Coast Guard Academy. The campus is zoned Institutional.

Proposed Project

The facility would consist of five Bloom solid oxide fuel cell Energy Servers, with four servers rated at 250 kW and one server rated at 200 kW. 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 was sized to provide at least 80 percent of the average Connecticut College baseload. Electricity generated by the Facility would be consumed primarily at the Site, and any excess electricity would be exported to the grid. The minimal amount of thermal load of the fuel cell precludes efficient deployment of a combined heat and power application.

The fuel cells are approximately 7 feet high by 8.5 feet wide and up to 29.2 feet long. Associated equipment includes water deionizers, telemetry cabinets, disconnect switches and utility cabinets, all within locked panel enclosures. The equipment would be located on concrete pads in a new 67-foot by 43.5 foot paved area. A new 8-foot wide, 70-foot long paved drive would extend from an existing parking area to the facility pad. The proposed facility would interconnect to existing electric, water and gas service adjacent to the site.

The fuel cell facility has an operational life of 20 years. The solid oxide fuel cell media would be changed at five year intervals. At the end of the 20 year contract, the facility would be dismantled and removed from the property, maintained on-site under a new contract or purchased at fair market value.

Bloom anticipates construction to start in the third quarter of 2019 with 12-14 weeks of total construction time (4 weeks of site prep, 4 weeks of installation, and 4 weeks of commissioning). Construction hours are expected to be between 8:00 a.m. and 10:00 p.m. Monday through Saturday.

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

Projected Project Cost Estimates April 5, 2019	
Install Labor	$ 120,000
Ancillary Equipment	$310,000
Design	$ 83,000
Construction	$ 600,000
Shipping/Rigging	$70,000
Other (utility fees, contingency)	$310,000
Total	**$ 1,493,000**

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 five miles west of the site in East Lyme. The proposed fuel cell facility would have virtually no water usage or discharge. Water consumption would only occur at system fill and makeup water. Minimal discharge of de-ionized water would occur in rare instances.

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_2	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_2 emissions for the environment by at least 25 percent per year when compared to the Independent System Operator-New England fossil fuel output emissions rate.

The proposed facility would emit no methane (CH_4), sulfur hexafluoride (SF_6), 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 catalyst contaminant. There would be no air emissions related to the desulfurization process and sulfur compounds would be collected within a desulfurization unit using a filter media (desulf unit). 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 a licensed out of state facility where the material 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 in a small wooded area on the Connecticut College campus. Fifteen trees would be removed to install the facility. Other existing trees around the proposed facility would be maintained and protected during construction, offering screening from Reservoir Road and Route 32.

According to the Connecticut Environmental Conditions Online resource, no prime farmland would be disturbed at the site. 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 within the DEEP Coastal Boundary and occurs on developed college campus.

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.

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 for the facility is included within the Petition. Bloom would offer training to the New London Fire Department, as well as to Connecticut College personnel.

The proposed facility would not be enclosed by a fence. The fuel cell has built in safety features and in-system checks to prevent and alert unauthorized access to facility components.

Conclusion

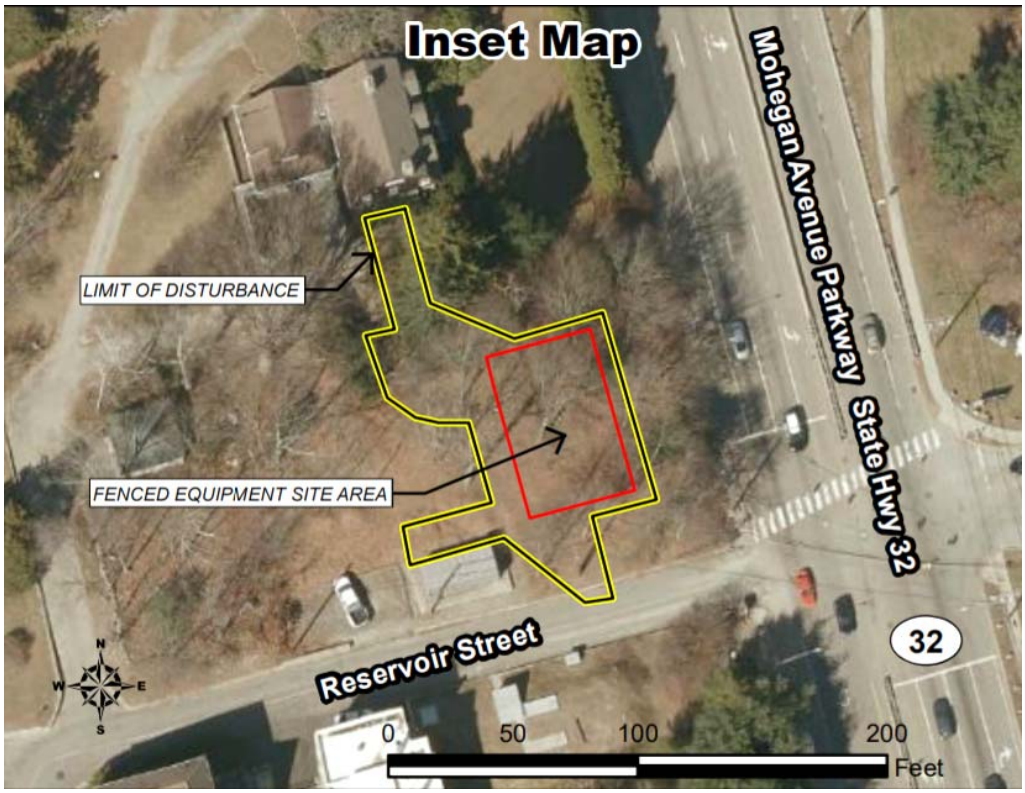
The project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. It would reduce the emission of air pollutants that contribute to smog and acid rain, and 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