STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
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VIA ELECTRONIC MAIL

June 9, 2020

Justin Adams
Nedal Sumrein
Bloom Energy Corporation
4353 North First Street San
Jose, CA 95134

RE: **PETITION NO. 1404** - 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 1350-kilowatt customer-side fuel cell facility and associated equipment to be located at Southern Connecticut State University, East Campus, 501 Crescent Street, New Haven, Connecticut**.**

Dear Mr. Adams and Mr. Sumrein:

At a public meeting held on June 4, 2020, 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. Provide a copy of the Emergency Response Plan to local emergency responders prior to facility operation, and provide emergency response training, if requested;

3. The use of natural gas as a fuel system cleaning medium during fuel cell construction, installation or modification shall be prohibited;

4. 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;

5. 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;

6. 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;

7. 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;

8. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

9. 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;

10. 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

11. 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 April 24,

2020 and additional information received May 18, 2020, 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.

Sincerely,

s/Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/RDM/emr

Enclosure: Staff Report dated June 4, 2020

c: The Honorable Justin Elicker, Mayor, City of New Haven
Scott Jackson, Acting Chief Administrative Officer, City of New Haven
Aïcha Woods, A.I.A., Executive Director, City Plan Department, City of New Haven
John Alston, Jr., Fire Chief, City of New Haven
The Honorable Curt B. Leng, Mayor, Town of Hamden
Dan Kops, Town Planner, Town of Hamden

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Petition No. 1404
Bloom Energy Corporation

Southern Connecticut State University
501 Crescent Street, New Haven, Connecticut

Staff Report
June 4, 2020

Introduction

On April 24, 2020, 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 1350-kilowatt (kW) fuel cell facility and associated equipment to be located on the East campus of Southern Connecticut State University (SCSU) at 501 Crescent Street, New Haven, Connecticut.

On April 22, 2020 Bloom provided notice of the project to abutting property owners; City of New Haven officials (City); and required state agencies and officials.

On April 27, 2020, the Council sent correspondence to the City and the Town of Hamden (within 2,500 feet) stating that the Council has received the Petition and invited the City and the Town of Hamden to contact the Council with any questions or comments by May 24, 2020. The Council has not received any comments to date from either the City or the Town of Hamden.

Also on April 27, 2020, 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 May 24, 2020. On May 22, 2020, the Department of Transportation Bureau of Engineering and Construction submitted a no comment letter to the Council.

The Council issued interrogatories to Bloom on May 13, 2020. Bloom responded to the Council's interrogatories on May 18, 2020.

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 on the southern portion of a 72.88-acre parcel comprising a portion of the SCSU East Campus. The property is zoned RM-1, Low Middle Density Residential District. The southern portion of the campus abuts a city park to the east, campus property to the north, Crescent Street to the south, and a cemetery and another campus property to the west.

The proposed facility is located in a lawn area adjacent to a parking area behind Earl Hall and the Lyman Center. The nearest residentially developed property is approximately 424 feet to south of the proposed facility, beyond a wooded area on the south side of Crescent Street.

Proposed Project

The facility would consist of five Bloom solid oxide fuel cell Energy Servers: three 250-kW model ES5-EA2AAN, one 300-kW model ES5-YA1AAN and one 300-kW model ES5-YA8AAN, and associated equipment including water deionizers, telemetry cabinets, disconnect switches and utility cabinets. The fuel cell units would be installed in a linear arrangement on an approximate 110-foot by 15 foot concrete pad/service path area.

A water line would connect to existing service within Earl Hall. Underground gas service would connect to an existing gas main in Crescent Street. The Facility would be interconnected to the existing main switchgear at the edge of a parking lot adjacent to Earl Hall and the Student Center. The facility has been sized to provide approximately 66 percent of the annual average baseload of the East Campus. Any excess power being exported to the grid will be sold under the Net Metering tariff.

The proposed facility would be a customer-side, distributed resources project, designed only to provide electricity. The Bloom fuel cell units are designed to increase electrical efficiency, and as a result, there would be no useful waste heat generated by the fuel cell units. Although SCSU was initially interested in a combined heat and power application, it was not pursued due to the limited heat available from facility operation and the high costs to efficiently utilize the Bloom Energy Servers in such a system.

The fuel cell facility has an operational life of 20 years equal to a 20 year contract with SCSU. The solid oxide fuel cell media would be changed at five year intervals. At the end of the 20 year contract, SCSU 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 fourth quarter of 2020 with 14 weeks of construction time including site prep, installation, and facility commissioning. Construction hours are expected to be Monday to Friday from 7 AM to 5 PM.

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 nearest Aquifer Protection Area is approximately 6.1 miles north of the fuel cell facility. The proposed fuel cell facility would have virtually no water usage or discharge. Water consumption would occur at initial system fill and during restart operations.

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 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 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 for 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 among several campus buildings and a parking lot. A row of six-foot tall shrubs would be installed along the north and east side of the fuel cell pad for screening. Bollards would be installed along the south and east sides of the facility.

No wetlands would be disturbed by the Project or are proximate to the site. The site is not within a Federal Emergency Management Agency-designated flood zone or within a quarter-mile of a DEEP Natural Diversity Database buffered area. Due to the previously disturbed nature of the site, no historic or cultural resources would be impacted. Two trees in the lawn area would be removed to construct the facility.

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 both DEEP Noise Control Regulations and City Noise ordinances at the nearest residential property line (a wooded area along the south side of Crescent Street). Exterior noise at the rear areas of Earl Hall and the Lyman Center has been modeled to be 54.1 dBa and 64.4 dBa, respectively. These buildings are within the site parcel and are not off-site receptors.

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. An emergency response plan (ERP) for the facility is included within the Petition. Bloom would submit the ERP to the City Fire Marshal for review and approval, and would provide additional information, as necessary.

The fuel cell system is controlled electronically and has internal sensors that continuously measure system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped and individual system components are automatically shut down. Although the fuel cell is adjacent to a sidewalk, all valves, switches and insulated components are secured within locked panels and cabinets. A perimeter fence around the facility is not required per the National Fire Protection Association 853 - Standard for the Installation of Stationary Fuel Cell Power Systems, or the 2020 National Electrical Code, Article 692- Fuel Cell Systems.

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.

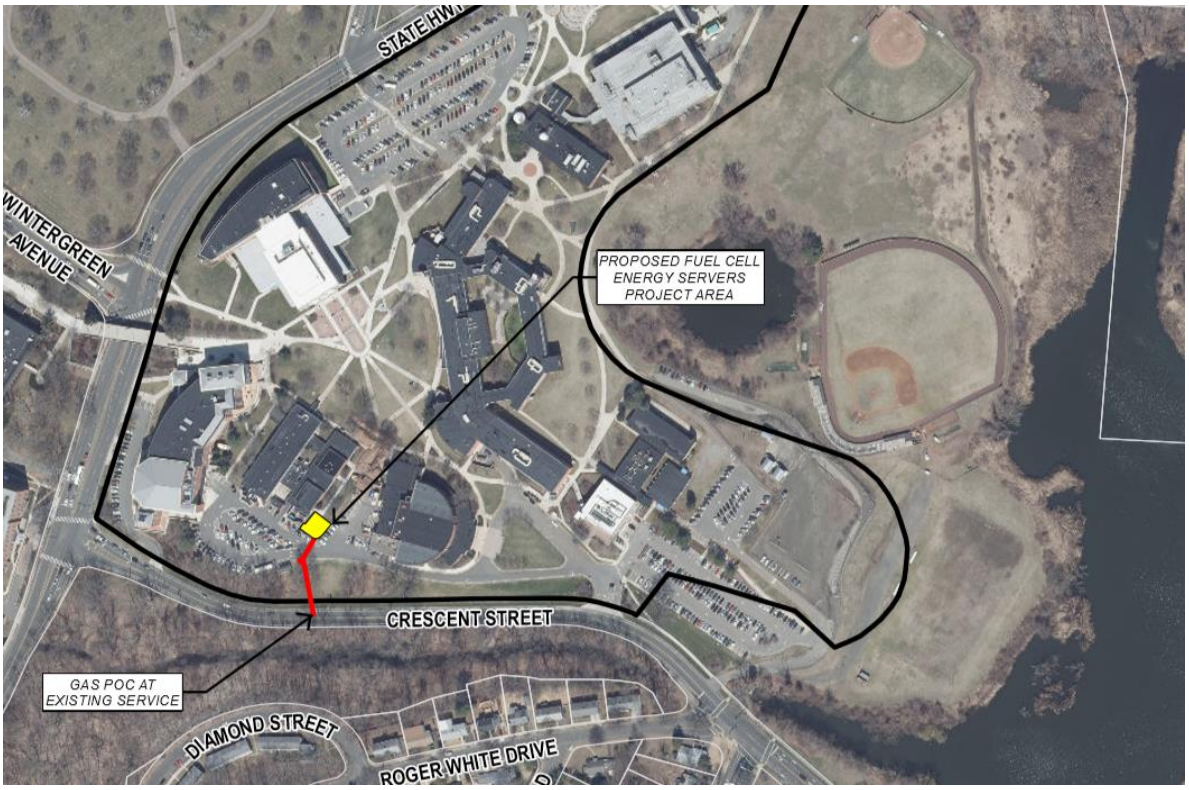
Recommendations

If approved, staff recommends the following conditions:

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

2. Provide a copy of the ERP to local emergency responders prior to facility operation, and provide emergency response training, if requested.

Fuel Cell Location



Site Plan