DRAFT

Petition No. 1479
Bloom Energy Corporation
NBC Sports Group
1 Blachley Road, Stamford, Connecticut

Staff Report
March 4, 2022

Introduction

On January 18, 2022, 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 1.5 megawatt (MW) fuel cell facility and associated equipment (Petition or Project) to be located at the NBC Sports Group building at 1 Blachley Road, Stamford, Connecticut.

On January 10, 2022, Bloom provided notice of the Project to abutting property owners, City of Stamford (City) officials, and required state agencies and officials. One abutter contacted Bloom requesting general Project information. No other comments were received.

Bloom consulted with and provided Project plans to the City's Land Use Bureau on December 10, 2021. The City did not comment on the Project.

On January 20, 2022, the Council sent correspondence to the City stating that the Council has received the Petition and invited the municipality to contact the Council with any questions or comments by February 17, 2022. No comments were received.

On February 8, 2022, pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, the Council notified all state agencies listed therein, requesting comments regarding the proposed Project be submitted to the Council by February 17, 2022. No comments were received.

The Council issued interrogatories to Bloom on February 8, 2022. Bloom provided responses to the Council's interrogatories on February 22, 2022.

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. The Project was selected as part of the Low and Zero Emissions Renewable Energy Credit (LREC/ZREC) program. The Facility would be installed, maintained and operated by Bloom under a 15-year power purchase agreement with NBC Universal Media, LLC (NBC).

Project Site

The proposed facility is located on a 32.68-acre parcel, zoned M-D, Designed Industrial, that is developed with several buildings, a parking garage and parking lots. Multiple tenants utilize the on-site buildings. The fuel cell would be installed adjacent to the NBC Sports Group building in the northwest portion of the host parcel.

The surrounding area consists of high-density residential. The Rogers International School, a City K-8 school, is to the northeast at 202 Blachley Road. The nearest residential property line from the proposed facility is approximately 179 feet to the northwest.

Proposed Project

The facility would consist of five Bloom Energy 300-kW solid oxide fuel cell Energy Servers (model ES5-YASAAN) and associated equipment, including water deionizers, telemetry cabinets, disconnect switches, a transformer and utility cabinets. The fuel facility would consist of four energy servers measuring approximately 17.9 feet long by 8.6 feet wide by 6.7 feet tall and one energy server measuring 32.2 feet long by 4.3 feet wide by 7.1 feet tall. See Attached Site Plan for detail.

The fuel cell facility would be installed on concrete pads located in a paved area adjacent to the northwest corner of the building. A paved utility access way and a parking garage are located to the north of the proposed facility. A paved driveway and parking areas are located to the west, beyond which is a wooded area that buffers the host property from a residential area. A walled building compound that contains building fan units is to the east of the proposed facility.

To protect the fuel cell from potential vehicle damage, a guardrail would be installed along the north and west sides, facing the existing parking area and driveway.

The natural gas interconnection extends north from the proposed facility gas meter pad to existing service within the utility access way. Electric connections would extend east through the building to an existing building utility room. New meters and other electrical equipment would be installed within the room. A water connection would also occur within the building.

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 a portion of the electrical needs of the NBC Sports Group building. The proposed facility is sized to provide at least 72% of the average annual baseload of the building. Any excess electricity created during periods of low energy usage, would be exported to the local electric grid under the net metering tariff. The interconnection application was submitted to Eversource in October 2021 for review. Final interconnection approval is anticipated in July 2022.

The proposed Bloom fuel cell units are designed to optimize the electrical efficiency alone rather than operate as combined heat and power units. Heat generated by the proposed facilities is used internally to increase the electrical efficiency of the fuel cells, and consequently there is no useful waste heat generated.

The fuel cell facility has an operational life of 15 years. The solid oxide fuel cell media would be changed at five-year intervals. At the end of the 15-year contract, NBC 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 third quarter of 2022 with approximately 12 - 18 weeks of total construction time, i.e. 4 to 6 weeks for site prep, 4 to 6 weeks for installation and 4 to 6 weeks for commissioning. Construction hours would be Monday-Friday, 7AM – 5 PM.

The estimated cost of the facility is $1,738,989.

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 proposed fuel cell facility would operate without water discharge under normal operating conditions. Water consumption would only occur at system fill and during restart operations.

Air emissions produced during fuel cell operation would not trigger any regulatory thresholds and are shown below.

Fuel Cell Facility	
Compound	lbs/MWh
NOx	0.01
CO_2*	679-833

*DEEP amended its regulations in 2016 to eliminate the CO2 permit requirements from the New Source Review and Title V Programs as a result of a United States Supreme Court decision that overturned states' regulatory CO2 permit requirements (*Utility Air Regulatory Group v. U.S. Environmental Protection Agency*, 573 U.S. 302 (2014)

The proposed facility would emit no methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs), which are greenhouse gases defined in RCSA §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. The empty desulf units are the refurbished for reuse at other Bloom fuel cell locations.

Visual impact from the proposed Project would be minimal as it is located among buildings that would block views from the north, south and east. Views from the west would be blocked by mature wooded vegetation along the host property boundary.

No wetlands, forest or prime farmland soils would be disturbed by the proposed Project as it is located entirely within paved areas on a developed commercial property. Erosion and sedimentation controls for the proposed facility would comply with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

The proposed Project is within a DEEP Natural Diversity Database (NDDB) buffer area. DEEP provided a NDDB Determination letter to Bloom on January 13, 2022 stating that it does not anticipate the proposed Project would have a negative impact on State-listed species. DEEP indicated the box turtle, a State Special Concern species, occurs in the general area and if a turtle is encountered during construction, that it be moved outside of the work zone.

The site is not within a Federal Emergency Management Agency- designated flood zone nor within an Aquifer Protection Area (APA). The nearest APA is 1.8 miles to the north. The site is not within the DEEP designated coastal boundary, defined under Connecticut's Coastal Management Act.

The site is previously disturbed and would not impact historic or cultural resources.

Public Safety

Before commissioning the proposed facility, Bloom would use compressed air as pipe cleaning media 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 manually. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association (ANSI/CSA) America FC 1-2004 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 Stamford Fire Marshal and would provide on-site training to local officials.

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. In addition, manual emergency shut down push buttons would be located at the site.

Noise associated with the construction of this Project would be temporary and exempt from DEEP Noise Control Regulations. Operational noise levels at the boundary of the nearest residential property (197 feet to the west) to the facility are predicted to be 43 dBA. DEEP's Noise Control Regulations thresholds for a Class B (commercial) emitter to a Class A (residential) receptor is 55 dBA (day) and 45 dBA (night). The residential property is classified as a Class A receptor. The fuel cell would have a noise dampening foam material at the doors and exhaust of the fuel cell to lower its noise emissions by up to 5 dBA. The noise calculation included the noise dampening material.

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. Furthermore, the Project was selected under the state's LREC/ZREC Program.

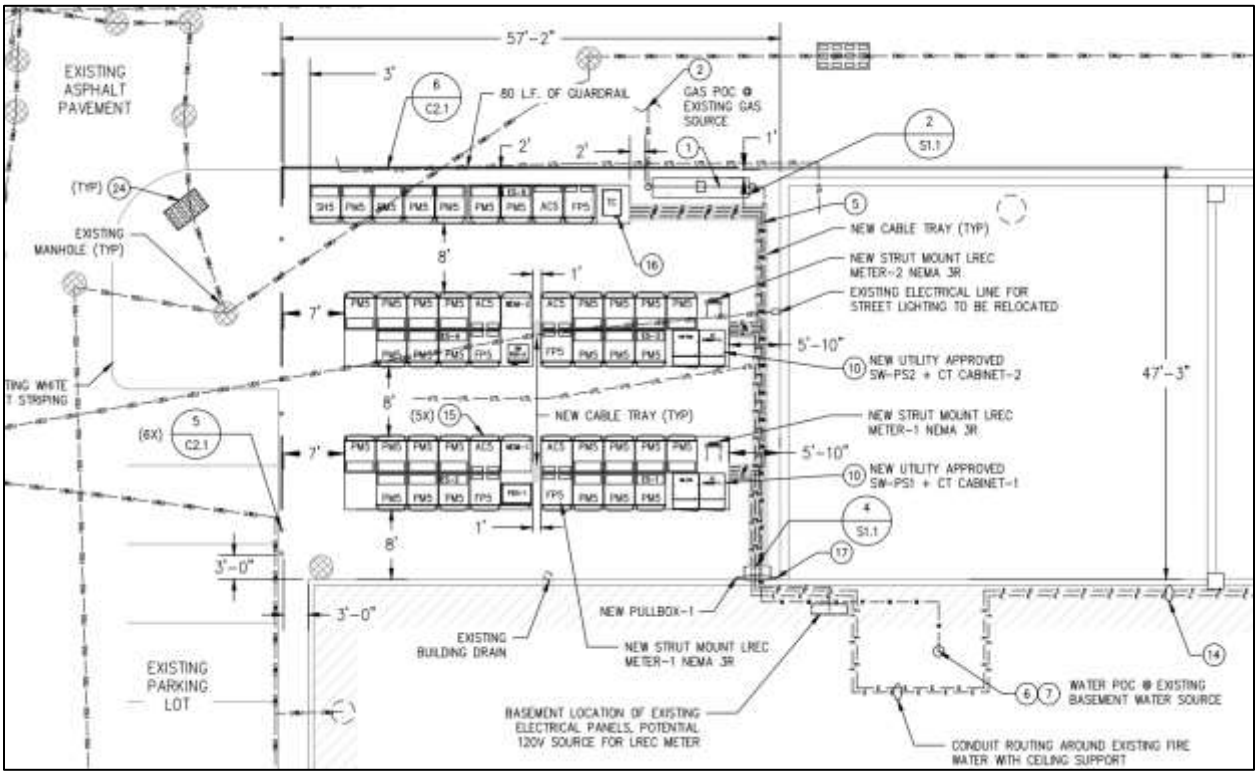
Recommendations

If approved, staff recommends the following conditions:

1. Approval of any Project changes be delegated to Council staff; and
2. Provide a copy of the Fuel Cell Emergency Response Plan to local emergency responders prior to facility operation, and provide emergency response training.

Fuel Cell Location

Site Plan



Photograph of Site Plan Area