



STATE OF
CONNECTICUT
CONNECTICUT SITING COUNCIL

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DRAFT

Petition No. 1419

**Bloom Energy Corporation
Home Depot, 114 Federal Road
Danbury, Connecticut
Staff Report
September 4, 2020**

Introduction

On July 10, 2020, the Connecticut Siting Council (Council) received a petition from Bloom Energy Corporation (Bloom) for a declaratory ruling, pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 150 kilowatt (kW) fuel cell facility at the Home Depot store located at 114 Federal Road in Danbury, Connecticut.

On July 8, 2020, Bloom provided notice of the project to abutting property owners, City of Danbury (City) officials, Town of Brookfield (Town) officials (within 2,500 feet) and required state agencies and officials.

On July 14, 2020, the Council sent correspondence to the City and the Town stating that the Council has received the petition and invited the municipalities to contact the Council with any questions or comments by August 9, 2020. The Council has not received any comments to date.

On July 14, 2020, the Council deemed the petition incomplete and requested that Bloom provide proof of service of a copy of the petition for a declaratory ruling on the Town of Brookfield Planning Commission on or before August 10, 2020. On July 16, 2020, Bloom provided proof of service of a copy of the petition on the above referenced entity. By letter dated July 20, 2020, the Council deemed the petition complete for processing pursuant to RCSA § 16-50j-40.

On July 15, 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 August 9, 2020. On August 4, 2020, the Council received comments from the Connecticut Department of Transportation, which are attached hereto. No other comments were received.

While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies.¹

The Council issued interrogatories to Bloom on August 14, 2020. Bloom provided responses to the Council's interrogatories on August 19, 2020.

¹ *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)

Public Benefit

The project would be a “customer-side distributed resources” facility, as defined in 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.

Project Site

The proposed project site is located on the southern portion of an 8.99-acre parcel that hosts the Home Depot store. The property is located in the City’s CG-20 General Commercial zoning district and abuts residences to the south and west, commercial development to the north and east, and undeveloped land to the east. The proposed facility would be located on a grassy area behind the existing Home Depot building about 31.5 feet from the nearest property line to the south and about 207 feet to the nearest residential property line to the west of the facility.

Proposed Project

The facility would consist of one Bloom Energy 150-kW ES-5 solid oxide fuel cell Energy Server, model ES5-VA4AAN and associated equipment, including water deionizers, telemetry cabinets, disconnect switches, a transformer and utility cabinets. The fuel cell unit would be approximately 21-foot 6-inches long by 4-foot 4-inches wide by 7-foot 2-inches tall and installed on concrete pads within a new 17.5-foot by 39-foot gravel area between two paved driveways, south of the building.

The electric, natural gas and water interconnections would run underground from existing utilities associated with the Home Depot 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 all the electrical needs of the Home Depot store. Any excess electricity would be exported to the grid.

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 facility is used internally to increase the electrical efficiency of the fuel cell, 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, Home Depot 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 12 - 14 weeks of total construction time, i.e. 4 - 6 weeks for site prep, 4 weeks for installation and 4 weeks for commissioning. Construction hours are expected to be weekdays from 7:00 a.m. to 8:00 p.m., Saturday from 8:00 a.m. to 8:00 p.m. and Sundays from 10:00 a.m. to 8:00 p.m.

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 located within a DEEP-designated Aquifer Protection Area. 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
NO _x	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 (CH₄), sulfur hexafluoride (SF₆), 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 behind the Home Depot building and visibility would be limited by mature tree growth to the east, west and south, and the Home Depot building to the north.

No wetlands would be disturbed by the proposed project. The nearest wetland area is approximately 585 feet east of the proposed facility. The facility would be located on a previously disturbed area. Erosion and sedimentation controls for the proposed facility would comply with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*.

The site is not within a Federal Emergency Management Agency designated flood zone. The site is located within ¼-mile of a DEEP Natural Diversity Database (NDDDB) buffered area. The nearest NDDDB area is approximately 0.05 mile southeast of the Facility. DEEP NDDDB determined the proposed project would have no impacts on state-listed species. The site is previously disturbed and not expected to impact cultural resources.

Any noise associated with the construction of this project would be temporary in nature and exempt per DEEP Noise Control Regulations. Noise levels at the property boundary with the commercial development to the south are predicted to be 49.4 dBA. DEEP's Noise Control Regulations for a commercial emitter to a Class B (commercial) receptor is 62 dBA. The abutting parcel to the south is classified as a Class B receptor.

Public Safety

Before commissioning the proposed facility, Bloom would use atmospheric air under pressure 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 City's Fire Marshal and would provide any on-site training requested by 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.

Conclusion

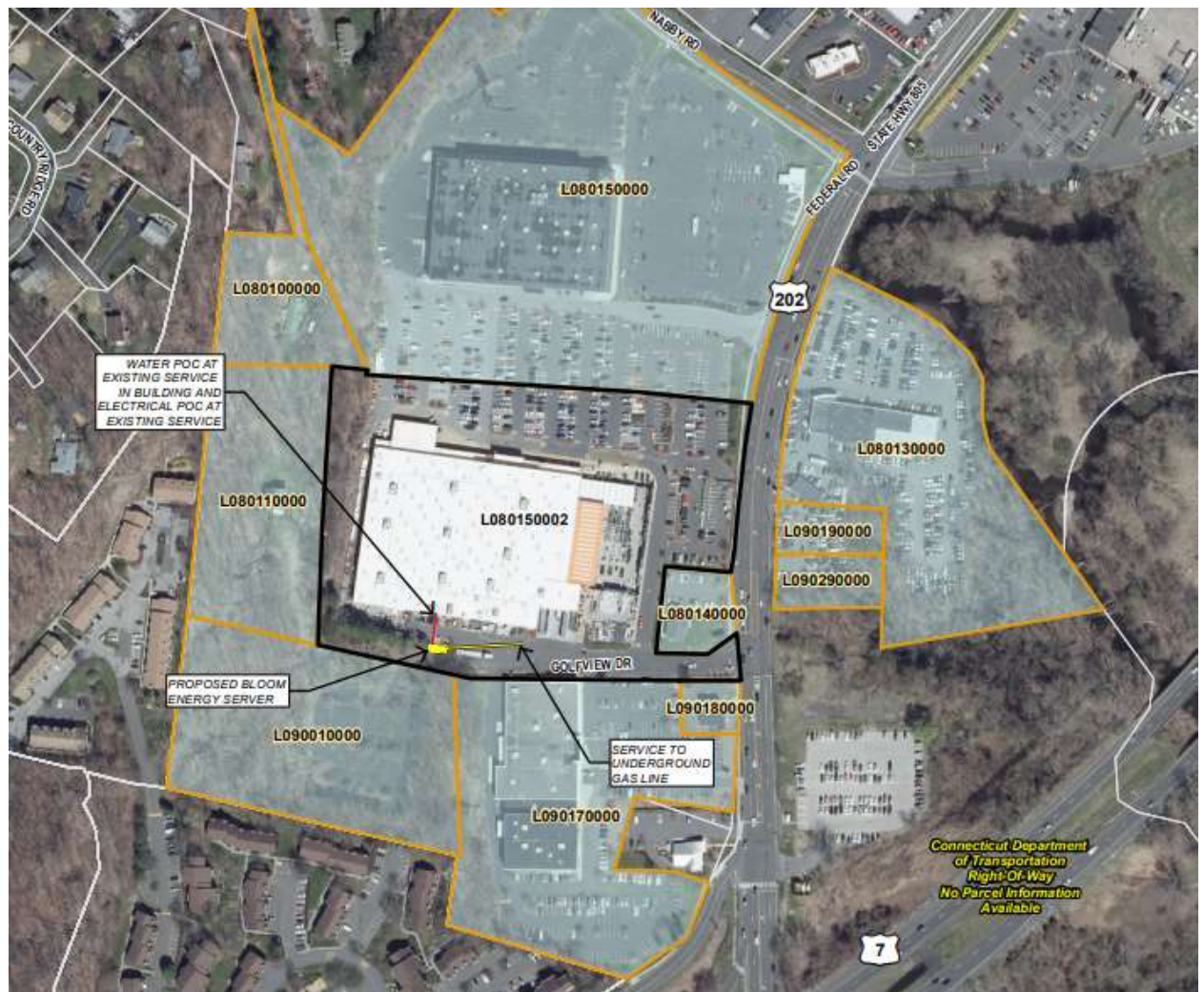
The project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. It would reduce the emission of air pollutants that contribute to smog and acid rain, and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

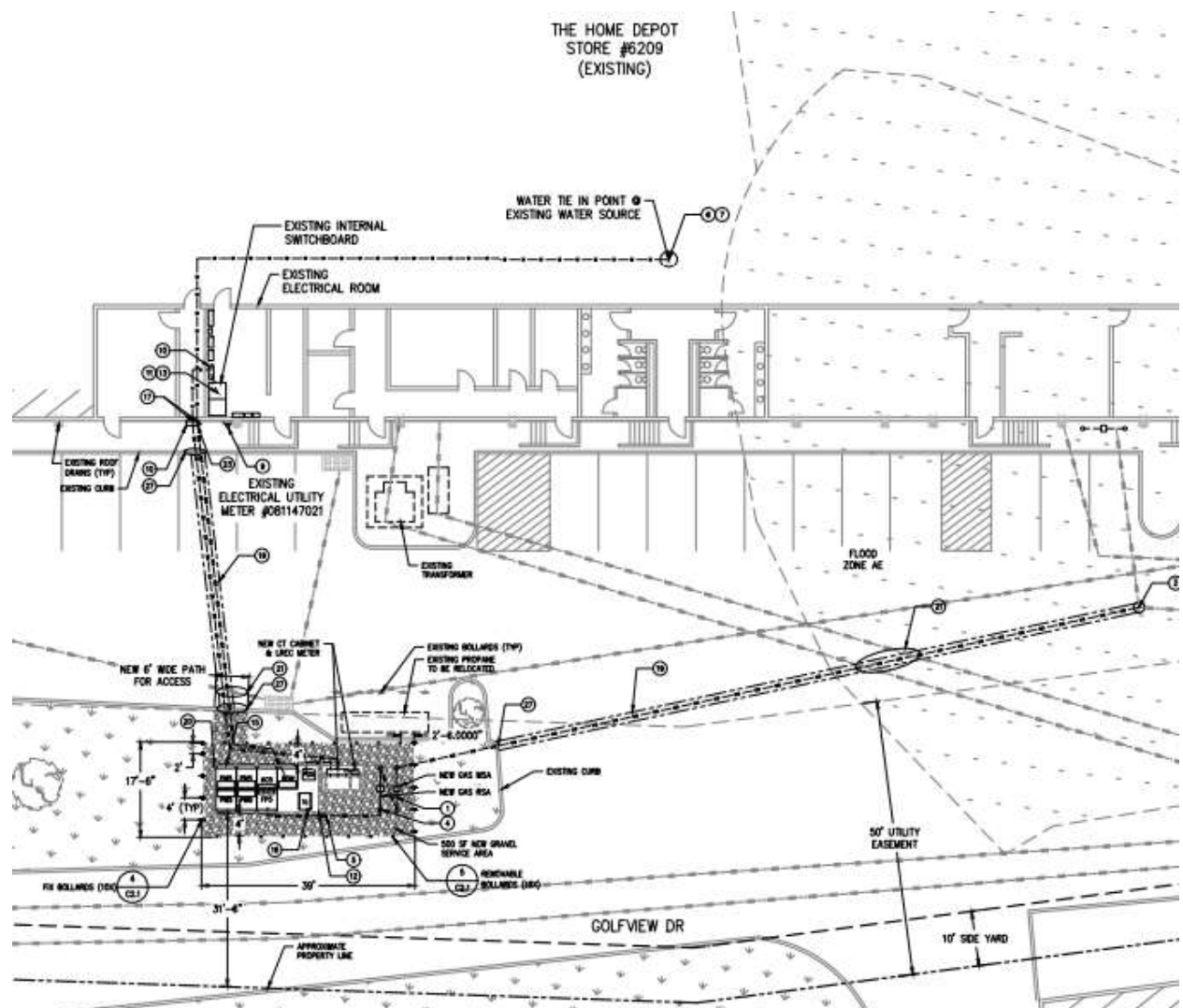
If approved, staff recommends the following conditions:

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

Fuel Cell Location



Site Plan



Attachment 1

Comments from the Department of Transportation



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

Phone:

August 6, 2020

Ms. Melanie Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Dear Ms. Bachman:

Subject: Petition 1419
150-Kilowatt Fuel Cell Facility
114 Federal Road
City of Danbury

The Department of Transportation has reviewed the above-mentioned Petition and offer the following comments.

The description of the proposed facility states it will interconnect to the Site's distribution system and operate in parallel with the grid to provide the Site's electrical requirements. Any electricity generated in excess of the Site's requirement will be exported to the grid. It appears that exporting excess electricity would require underground or overhead encroachment of State Right of Way on State Route 805

(Federal Road) in Danbury which the facility has its access drives. If this interconnect is existing, no encroachment permit will be required, however, if a new interconnection is proposed then an encroachment permit is required.

If a permit is required the District 4 Permit Office will need to review three complete sets of construction plans which show all work abutting the state highway right of way, all site work, any required easements and standard details for highway construction prior to issuing the encroachment permit.

Should you have any questions, please contact Ms. Latoya Smith, Utility Engineer (Utilities) at Latoya.Smith@ct.gov.

Very truly yours,

Andrzej Mysliwiec

Andrzej Mysliwiec
Transportation Supervising Engineer
Division of Facilities and Transit
Bureau of Engineering and Construction

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