



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

### CERTIFIED MAIL RETURN RECEIPT REQUESTED

January 31, 2020

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

RE: **PETITION NO. 1090A** – Bloom Energy Corporation request to amend its declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed Phase II construction, maintenance and operation of a second customer-side 250-kilowatt fuel cell facility and associated equipment to be located at the Danbury Fair Mall, 7 Backus Avenue, Danbury, Connecticut.

Dear Justin Adams and Nedal Sumrein:

At a public meeting held on January 30, 2020, the Connecticut Siting Council (Council) considered and approved the amendment to the declaratory ruling and ruled that the above-referenced Phase II project 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:

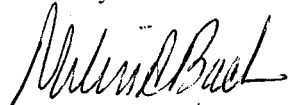
1. Approval of any minor project changes be delegated to Council staff;
2. The use of natural gas as a fuel system cleaning medium during fuel cell construction, installation or modification shall be prohibited;
3. Submit the following information to the Council 15 days prior to any fuel pipe cleaning 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 Danbury;
- 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/transferee 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 December 17, 2019, and additional information dated January 10, 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,



Melanie A. Bachman  
Executive Director

MAB/RDM/emr

Enclosure: Staff Report dated January 30, 2020

c: The Honorable Mark D. Boughton, Mayor, City of Danbury  
Sharon Calitro, Director of Planning & Zoning, City of Danbury



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

Web Site: [www.ct.gov/csc](http://www.ct.gov/csc)

**Petition No. 1090A**  
**Bloom Energy Corporation - Fuel Cell Facility**  
**Danbury Fair Mall, Danbury, Connecticut**

**Staff Report**  
**January 30, 2020**

### **Introduction**

On January 24, 2014, the Connecticut Siting Council (Council) issued a Declaratory Ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, approving a proposal from Bloom Energy Corporation (Bloom), for the installation of three 250 kilowatt (kW) solid oxide fuel cell units at the Danbury Fair Mall at 7 Backus Avenue in Danbury, Connecticut (Petition 1090). All three units were installed in an alcove area on the north side of mall, surrounded by the mall building and parking structures.

On December 17, 2019, Bloom submitted a request to amend the Petition 1090 Declaratory Ruling to the Council for the construction, operation and maintenance of an additional 250-kW fuel cell unit, referred to by Bloom as the Phase II facility, at the south end of the main mall building, near the Dick's Sporting Goods store.

On or about November 26, 2019, Bloom provided notice of the proposed amendment to the property owner (The Macerich Company), abutting property owners, and the City of Danbury (City). The City's Deputy Planning Director responded to Bloom on December 9, 2019 requesting landscape plantings to replace existing trees that would be removed to install the facility. Bloom is proposing to install landscape plantings.

On December 18, 2019, the Council sent correspondence to the City, stating that the Council has received the request to amend the declaratory ruling and invited the City to contact the Council with any questions or comments by January 16, 2020. No comments were received.

On December 18, 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 January 16, 2020. No comments were received.

On January 2, 2020, the Council issued interrogatories to Bloom. On January 10, 2020, Bloom submitted responses to the Council's interrogatories.

### **Public Benefit**

The Phase II facility 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 Phase II 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 Danbury Fair Mall consists of several connected buildings and parking areas located on six abutting parcels, totaling 69.58 acres, that are zoned General Commercial. Surrounding properties include commercial development to the south and west, Route 7 to the east and Interstate 84 to the north, beyond a wetland area north of the developed mall area.

### **Proposed Project**

The Phase II facility would be located in a landscaped area between a loading dock at the south end of the main mall building and north of Dick's Sporting Goods building. It would interconnect to the electrical switchboard at the south end of the mall building, and generated electrical output would be consumed primarily by building operations. Any excess electricity generated would be exported to the grid in accordance with Eversource Energy's (Eversource) interconnection technical requirements. The interconnection application was submitted to Eversource on December 15, 2019.

The electrical output of the fuel cell is sized based on historical average load demand at the interconnection point. The total export would tend to fluctuate above and below the design output based on variations in building demand. If the demand was significantly reduced below the initial design output, Bloom would continue to operate the fuel cell at full capacity and export the balance of the power to the grid.

The Bloom fuel cell uses non-combustion solid oxide technology that consumes natural gas as fuel to generate electrical power. The Bloom fuel cell units are designed to use generated heat to increase the electrical efficiency of the units. As a result, there would be no waste heat generated by the fuel cell units that would be useful in a combined heat and power system. The proposed facility would not have an Uninterruptible Power Module and would not provide backup or grid-isolated power.

The proposed facility would include the solid oxide fuel cell Energy Servers and associated water deionizers, telemetry cabinets, disconnect switches and utility cabinets located on an approximately 950 square foot concrete pad. The fuel cell unit would measure approximately 14.3 feet long by 8.5 feet wide by 6.7 feet high. Bollards would be installed on the west end of the project site, adjacent to a parking lot access drive.

Underground electric and water service would be installed to the pad from existing service within the building. Natural gas would extend underground through a paved area from existing service adjacent to the south wall of the building to the fuel cell pad.

The proposed Phase II fuel cell facility has an operational/contract life of 10 years. The solid oxide fuel cell media would be changed at five year intervals. At the end of the 10 year contract, the property owner 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 (4 weeks of site prep, 4 weeks of installation, and 4 weeks of commissioning).

### 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 facilities 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 <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.”

Three pine trees would be removed for construction of the project. Other existing landscape trees and shrubs would remain in the area although some would be trimmed to provide work area clearance. After installation is complete, Bloom would install three shrubs along the west edge of the project site to provide screening from the mall parking lot.

Visual impact from the proposed Phase II facility would be minimal as it is located in the central location of the property, adjacent to the mall building, a loading dock, and a parking lot. There are no residential properties near the installation.

The project would have no negative effect on any species listed in DEEP’s a Natural Diversity Database. The project is not located within a Federal Emergency Management Agency-designated flood zone or within a DEEP designated Aquifer Protection Area. Wetlands and detention basins occur around the perimeter of the developed mall area, remote from the project site.

The project would require minimal excavation and grading. Prior to construction, appropriate erosion and sedimentation controls would be installed and subsequently maintained until completion of the project. Sediment protections would be installed within nearby parking lot catch basins.

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 using nitrogen 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 would be installed in compliance with applicable building, plumbing, electrical, and fire codes.

A Fire Prevention and Emergency Planning Plan (ERP) for the facility is included within the Petition. Bloom would submit the ERP to the Fire Marshal for review and approval, and would provide training to emergency responders, if requested.

### **Conclusion**

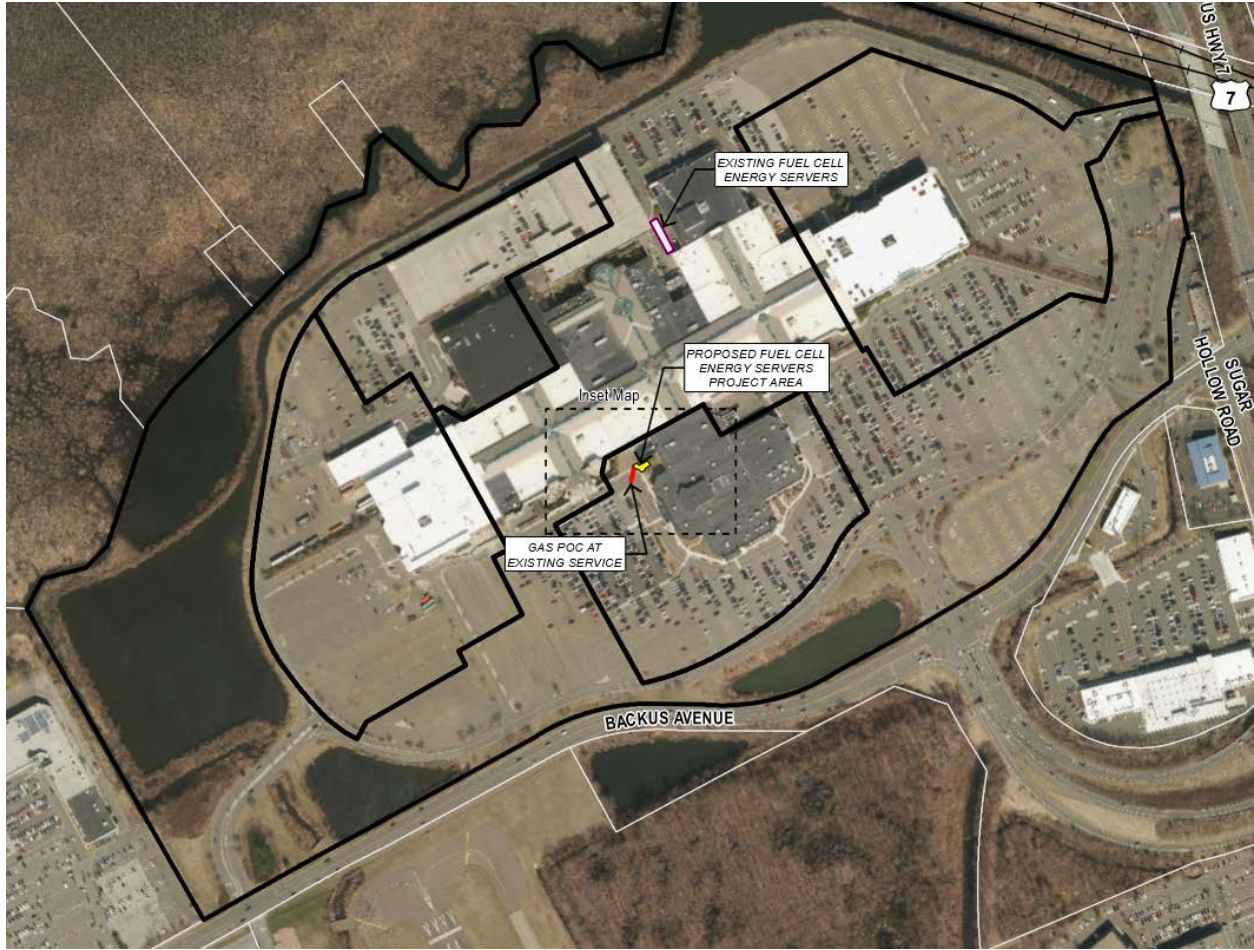
The amended project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. It would reduce the emission of air pollutants that contribute to smog and acid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

### Location of Phase II Facility



**Legend**

-  Site
-  Existing Fuel Cell Energy Servers
-  Project Area
-  Gas Supply Line
-  Railroad
-  Approximate Assessor Parcel Boundary (CTDEEP)

*Map Notes:*  
Base Map Source: CTECO 2016 Aerial Photograph  
Map Scale: 1 inch = 450 feet  
Map Date: November 2019



### Exhibit 1B Site Schematic

Proposed Bloom Energy  
Danbury Fair Mall  
7 Backus Avenue  
Danbury, CT



### Phase II Facility Site Plan

