



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

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### **CERTIFIED MAIL RETURN RECEIPT REQUESTED**

February 21, 2017

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

RE: **PETITION NO. 1278** - Bloom Energy Corporation, as an agent for Medtronic Inc., petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, operation and maintenance of a Customer-Side 200-Kilowatt Fuel Cell Facility to be located at 20 Middletown Avenue and a Customer-Side 300 Kilowatt Fuel Cell Facility to be located at 195 McDermott Road, both located at the Medtronic campus in North Haven, Connecticut.

Dear Mr. Adams:

At a public meeting held on February 16, 2017, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal 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:

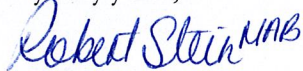
1. Approval of any minor project changes be delegated to Council staff;
2. Bloom adhere to DEEP's recommended Eastern Box Turtle Protection measures;
3. The use of natural gas as a fuel system cleaning medium during fuel cell construction, installation or modification shall be prohibited;
4. Submit the 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
  - b. 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 Town of North 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 December 9, 2016 and additional information received on December 20, 2016 and January 26, 2017, 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.

Very truly yours,



Robert Stein  
Chairman

RS/RDM/lm

Enclosure: Staff Report dated February 16, 2016

- c: The Honorable Michael J. Freda, First Selectman, Town of North Haven
- Laura Magaraci, Zoning Enforcement Officer, Town of North Haven
- The Honorable Toni N. Harp, Mayor, City of New Haven
- Michael Carter, Chief Administrative Officer, City of New Haven
- Karyn Gilvarg, A.I.A., Executive Director, City Plan Department, City of New Haven
- The Honorable Joseph Maturo, Jr., Mayor, Town of East Haven
- Christopher Soto, Planning & Zoning Enforcement Officer, Town of East Haven
- Alicia Surowiec, Bloom Energy Corporation



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### Petition No. 1278

#### Bloom Energy Corporation

#### Medtronic Campus, North Haven, Connecticut

#### Staff Report

February 16, 2017

On December 12, 2016, the Connecticut Siting Council (Council) received a petition (Petition) from Bloom Energy Corporation (Bloom), as an agent for Medtronic Inc., for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the installation of two separate solid oxide fuel cell units at the Medtronic Inc. campus located at 195 McDermott Road and 20 Middletown Avenue in North Haven, Connecticut.

Prior to filing the Petition, Bloom discussed the proposed project with the Town of North Haven Planning and Zoning Department. Bloom provided formal notification of the project to abutting property owners, Town of North Haven officials and required state agencies and officials on or about November 14, 2016 and December 19, 2016. The Council submitted interrogatories to Bloom on January 23, 2017. Bloom responded to the Council's interrogatories on January 26, 2017. The Council has not received any written comments on this Petition to date.

The Medtronic, Inc. campus consists of two abutting parcels that encompass 38 acres. Both parcels are zoned light-industrial and abut other industrially-zoned property as well as Interstate 91. Campus buildings consist an office building facing Middletown Road and a separate manufacturing building accessed from McDermott Road.

Bloom and Medtronic Inc. have entered into an agreement whereby Bloom would install, operate and maintain one ES-5 200-kW fuel cell adjacent to the office building and one ES-5 300-kW fuel cell adjacent to the manufacturing plant. The fuel cells would provide approximately 78 percent of the campus' needs under normal operating conditions. Any surplus electricity that is generated would feed into United Illuminating's electric distribution system for use by the grid.

The Connecticut Public Utilities Regulatory Authority classifies the Bloom ES-5 fuel cell as a Class I renewable energy source. The Bloom fuel cell uses non-combustion solid oxide technology that consumes natural gas as fuel to generate electrical power. The facility would be a customer-side, distributed resources project, designed only to provide electricity. The fuel cell would not have an Uninterruptible Power Module and would not provide backup or grid-isolated power. The fuel cell 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 either be dismantled and removed from the property or maintained on-site under a new contract.

The office building fuel cell would be located at the northwest end of a parking area, occupying four parking spaces. The fuel cell facility measures approximately 20 feet long by 20 feet wide by 7 feet tall, consisting of a fuel cell area and a utility equipment area. Utility and gas connections would extend underground to the fuel cell from existing service adjacent to the southwest side of the office building.

The manufacturing building fuel cell facility would be installed in a lawn area that separates an access road from a warehouse loading dock. The fuel cell facility measures approximately 60 feet long by 4 feet wide by 7 feet tall, consisting of a fuel cell area and a utility equipment area. Utility and gas connections would extend underground to the fuel cell from existing utility services adjacent to and within the manufacturing building.

Both fuel cells would be surrounded by bollards to provide protection from accidental vehicle impact. The outer panels of the fuel cells are locked, preventing access to interior components. Both fuel cell locations are remote from public areas and would be under existing campus security surveillance.

The project would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards. Bloom's fuel cell design only requires an initial water input of approximately 75 gallons for the 200-kW unit and 112 gallons for the 300-kW unit, after which no additional water is consumed or discharged during normal fuel cell operations. The proposed fuel cells are not located within an aquifer protection area. Neither site is within a designated 100-year or 500-year flood zone or within a DEEP-designated Coastal Management Area. The nearest wetland is located approximately 1,000 feet west of both installations.

The proposed project is within a DEEP Natural Diversity Database marked area. In correspondence to Bloom dated December 9, 2016, DEEP recommended implementation of an Eastern Box Turtle Protection Program for the proposed project which includes contractor awareness, exclusionary fencing, and a construction work time frame of April 1 to September 30. Both fuel cell installations on the Medtronic campus are within previously disturbed areas and not within box turtle habitat which includes old fields, deciduous forests, powerlines and logged areas.

Air emissions produced during fuel cell operation would be below the applicable DEEP limits, as shown in the table below – thus, no air permit is required:

Comparison of the Fuel Cell Facility with Applicable Air Emission Criteria		
Compound	Fuel Cell Facility (lbs/MWh)	Emission Standard (lbs/MWh)
NO <sub>x</sub>	<0.01	0.07 <sup>1</sup>
CO	<0.05	0.1 <sup>1</sup>
CO <sub>2</sub>	679-833	1,650 <sup>2</sup>

<sup>1</sup> Low Emissions Renewable Energy Credit Program

<sup>2</sup> Regulations of Connecticut State Agencies Section 22a-174-42(b)(3)(C); 22a-174-42(d)(2)(B)(ii) & Table 42-2

The proposed project would result in a net carbon dioxide reduction for the environment because it would displace emissions from traditional fossil-fueled generation. The proposed project would reduce net CO<sub>2</sub> emissions for the environment by at least 25 percent per year when compared to the ISO-NE fossil fuel output emissions rate.

The fuel cells would emit no methane (CH<sub>4</sub>), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (known as HFCs) or perfluorocarbons (known as PFCs), which are greenhouse gasses defined in Regulations of Connecticut State Agencies Section 22a-174-1(49), and emit negligible amounts of sulfur oxides, a component of acid rain.

Each fuel cell has a desulfurization process to remove the sulfur compounds which were added to the natural gas as an odorant, with sulfur compounds collected within a canister containing sulfur filter media. There are no air emissions related to the desulfurization process. When a desulfurization canister is taken out of service, typically after five years, it is taken by a Bloom contractor to a licensed out of state facility. The desulfurization canister has been certified by the U.S. Department of Transportation for transport of this material.

Bloom utilizes an U.S. Environmental Protection Agency (EPA) exemption that provides for the regulation of the desulfurization canisters up to the point of removal of any waste. The EPA exemption has also been incorporated into Connecticut's Hazardous Waste Management Regulations. Thus, Bloom would dispose of desulfurization canister substances at an EPA-permitted Transportation, Storage and Disposal Facility.

Each fuel cell has internal and remote 24/7 operational monitoring. Abnormal operation would cause the fuel cell to automatically shut down. The fuel cell can also be shut down through a remote operations center as well as by manual switches on the unit. The fuel cell would be 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 for the proposed installation has been developed by Bloom and is included within the Petition.

Any noise associated with the construction of this project would be temporary in nature and exempt per DEEP noise regulations. According to Bloom, the operation of the office building 200-kW fuel cell would result in a projected noise value of 39.8 dBA at the nearest receptor, a commercial building 280 feet to the west, and well below the DEEP Noise Control regulatory level of 62 dBA for a commercial emitter to a commercial receptor. The operation of the manufacturing building fuel cell would result in a projected sound level of 30.1 dBA at the nearest receptor, a commercial building 850 feet to the northeast, and well below the DEEP Noise Control regulatory level of 66 dBA for an industrial emitter to a commercial receptor.

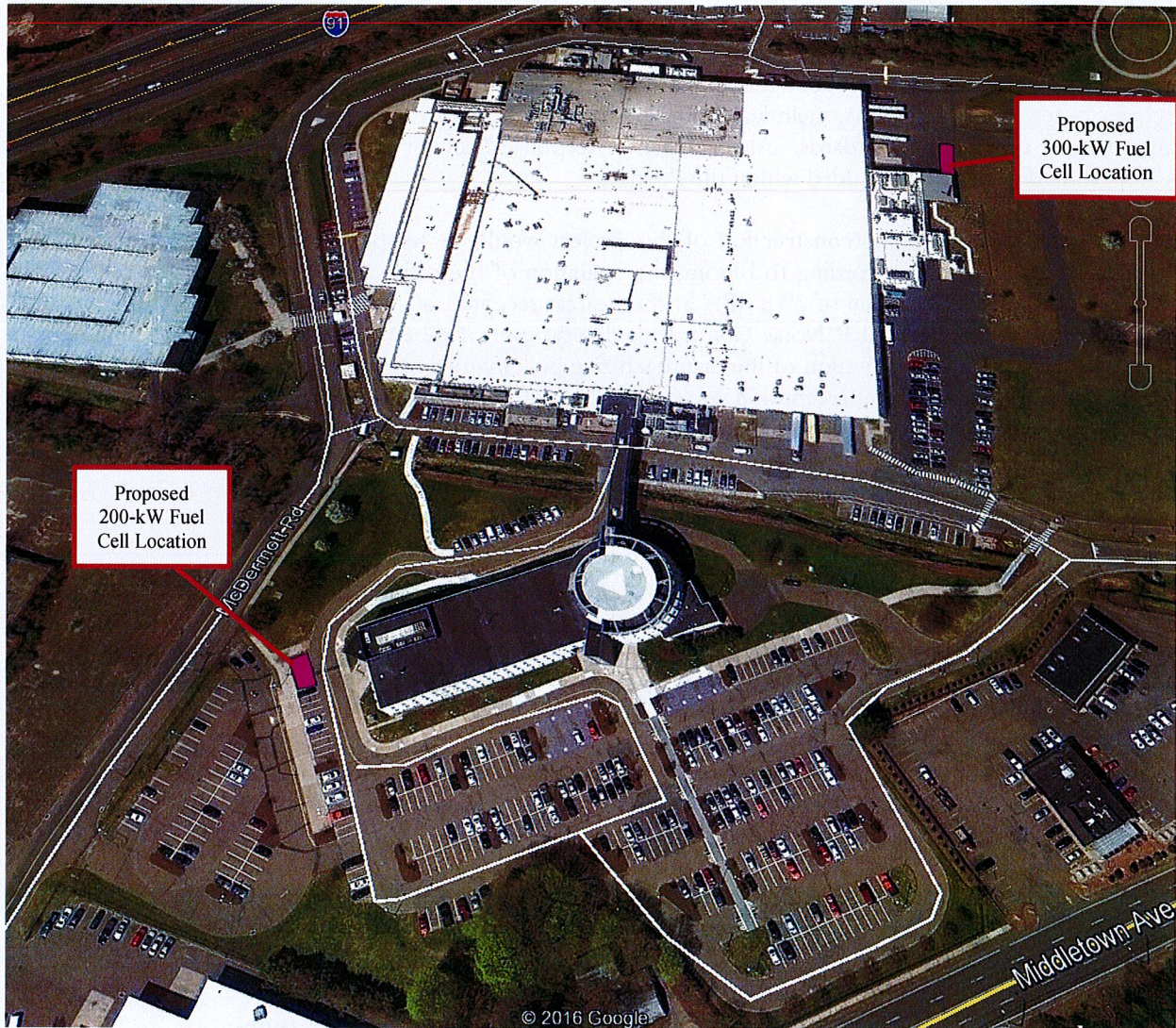
Visual impact from the proposed project would be minimal as it is remote from public roads and is located in a developed industrial/commercial area. The nearest residence to either fuel cell unit is 690 feet southeast of the office fuel cell unit.

Construction at each location would require minimal grading. Appropriate erosion and sedimentation controls would be established prior to construction. Bloom anticipates commencing project construction in April 2017 with construction taking approximately 8 weeks. Construction work hours would conform to Town of North Haven construction ordinances.

The proposed project would not have any substantial adverse environmental effect and would meet DEEP air and water quality standards. It would reduce the emission of air pollutants that contribute to smog and acid rain, and to a lesser extent, global climate change.

Staff recommends the following conditions:

1. Approval of any minor project changes be delegated to Council staff; and
2. Bloom adhere to DEEP's recommended Eastern Box Turtle Protection measures.



Location of Project – Medtronic Inc. Campus, North Haven