



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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www.ct.gov/csc

CERTIFIED MAIL RETURN RECEIPT REQUESTED

June 7, 2019

Walter Bonola
Doosan Fuel Cell America, Inc.
195 Governor's Highway
South Windsor, CT 06074

RE: **PETITION NO. 1369** – Doosan Fuel Cell America, Inc. petition 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 440-kilowatt fuel cell facility and associated equipment to be located at the City of Bristol Water Pollution Control Facility, 75 Battisto Road, Bristol, Connecticut.

Dear Mr. Bonola:

At a public meeting held on June 6, 2019, 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 Fuel Cell Emergency Response Guide 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;

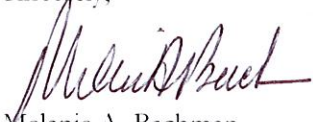
- g. Contact information for a special inspector hired by the project developer who is a Connecticut Registered Engineer with specific knowledge and experience regarding electric generating facilities or a National Board of Boiler and Pressure Vessel Inspector and written approval of such special inspector 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 Bristol.
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 26, 2019, and additional information dated May 24, 2019, 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,

A handwritten signature in black ink, appearing to read "Melanie A. Bachman". The signature is fluid and cursive, with a prominent initial "M".

Melanie A. Bachman
Executive Director

MAB/IN/emr

Enclosure: Staff Report dated June 6, 2019

- c: The Honorable Ellen Zoppo-Sassu, Mayor, City of Bristol
- Robert M. Flanagan, AICP, City Planner, City of Bristol
- City of Bristol, Water Pollution Control Facility, Property Owner



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Petition No. 1369

**Doosan Fuel Cell America, Inc.
City of Bristol Water Pollution Control Facility
Bristol, Connecticut
Staff Report
June 6, 2019**

Introduction

On April 26, 2019, the Connecticut Siting Council (Council) received a petition from Doosan Fuel Cell America, Inc. (Doosan) for a declaratory ruling, pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the installation of a 440 kilowatt (kW) fuel cell facility at the City of Bristol, Water Pollution Control Facility (BWPCF) located at 75 Battisto Road, Bristol, Connecticut.

On April 17, 2019, Doosan held a meeting with the Bristol Building Department and Zoning Enforcement Officer and also communicated with the Bristol Fire Marshal's Office to discuss the proposed work and address their concerns. Doosan mailed notification of the project to abutting property owners, City of Bristol (City) officials, and required state agencies and officials on or about April 25, 2019.

On April 29, 2019, 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 May 26, 2019. The Council has not received any comments to date.

On April 29, 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 May 26, 2019. No comments were received.

On May 22, 2019, the Council issued interrogatories to Doosan. On May 24, 2019, Doosan submitted responses to the Council's interrogatories.

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 BWPCF is located in the City of Bristol's industrial zone directly south of Battisto Road. Abutting properties on all sides, except for the northeast, are also zoned Industrial. To the northeast, abutting properties are zoned Business (BG). The nearest residential property is located over 1,000 feet to the west of the proposed site on the opposite side of Lake Avenue. The Doosan fuel cell facility would be installed on the BWPCF property in a location directly east of the Generator Building and southeast of the Operations Building.

Proposed Project

The proposed fuel cell facility would consist of one Doosan PureCell Model 400 fuel cell power module that utilizes a non-combustion phosphoric acid technology that interacts with natural gas to generate electrical power. The amount of phosphoric acid used in the process complies with applicable state and federal regulations.

The facility would be net metered and operate in parallel with the utility grid and would be able to provide approximately 84 percent of BWPCF electrical needs under normal conditions. Any excess electricity generated by the facility would be traded to the local electric grid in accordance with Eversource's Interconnection Technical requirements. The fuel cell facility would not provide backup power to the BWPCF. No waste heat from the fuel would be utilized because an appropriate use for the heat does not exist on the site. The annual electrical efficiency of the unit would be approximately 41 percent.

The proposed fuel cell would be installed on an approximately 30-foot long by 11-foot wide concrete pad located within an approximately 42-foot 8-inches long by 25-foot 4-inches wide asphalt apron area. The fuel cell power module is approximately 27-foot 4-inches long by 8-foot 4-inches wide by 10 feet tall. The cooling module is approximately 16 feet long by 7-foot 10-inches wide by 6 feet high and located on 12-inch diameter concrete piers. No fence would be installed around the proposed fuel cell facility because the BWPCF is already secured and access to the site is restricted. Bollards around the fuel cell would not be necessary due to the distance from the on-site paved driveway; however, bollards would be used to protect the gas line/meter from accidental damage from lawn equipment.

The water line would run underground from the fuel cell to existing water supply in the operations building to the northwest. The natural gas line would run from the fuel cell to an approximately 6-foot by 8-foot concrete natural gas equipment pad to the south. Electrical connections would run underground to the electrical room to the north and a proposed fuel cell disconnect to be installed on a concrete pad immediately north (and outside) of the electrical room.

Project construction is expected to begin in July 2019 and continue for 15 weeks followed by 4 weeks of testing and startup. Construction hours are expected to be between 8:00 a.m. to 5:00 p.m. Monday through Friday.

The fuel cell and related infrastructure would have a minimum operational service life of 20 years; however, a component overhaul would be required after 10 years. Project decommissioning would include the disconnection and removal of equipment from the concrete pad.

Environmental Effects and Mitigation

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards. No water would normally be consumed or discharged once the facility is operational. The site is not within an Aquifer Protection Area. Water consumption would occur at initial system fill (about 350 gallons), and makeup water (up to one gallon per minute) would only be required at temperatures above 86 degrees F. Minimal discharge of de-ionized water would occur occasionally and would be directed to a site dry well.

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	1,049 Without waste heat recovery	1,650

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

Current emission control technologies are not commercially available to reduce greenhouse gas emissions from the facility.

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. Desulfurization creates zinc-sulfide, a non-hazardous waste, that would be contained within the fuel cell unit until facility refurbishment is required, usually after 10 years of operation. The waste zinc sulfide would be removed by trained personnel and properly disposed of or reprocessed for industrial uses.

The proposed site hosts a water pollution control plant with industrial buildings and concrete settling tanks within its proximity. The proposed facility would only be visible from passing traffic along Battisto Road. Thus, the proposed facility is not expected to cause any significant visual impacts.

None of the proposed project would be located on prime farmland soils. No tree removal or forest impacts would occur because the site the concrete pad and asphalt apron would be installed on a grass area.

The site is not within a Federal Emergency Management Agency-designated flood zone. The proposed project would not be expected to adversely impact any cultural (historic and archaeological) resources. No wetlands or watercourses are located in the vicinity of the proposed 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 fuel cell and cooling module would meet DEEP Noise Control Regulations at the adjacent property lines without any noise mitigation measures.

The Project area is not located within a DEEP Natural Diversity Database (NDDDB) buffered area. The proposed facility is approximately ¼- mile away from the nearest buffered area.

Public Safety

During construction, Doosan would use inert nitrogen gas or 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 facility would be remotely monitored by Doosan on a 24/7 basis to detect abnormalities in operation. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association (ANSI/CSA) America FC 1-2014 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.

If operational abnormalities occur, the fuel cell would shut down and an alarm callout notification would notify personnel at Doosan. The fuel cell would be designed with an integral stop button on the outside of the enclosure to enable shutdown during an emergency. There would also be a manual shut-off valve and electrical disconnect switch easily accessible to emergency personnel. A Fuel Cell Emergency Response Guide has been developed.

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.

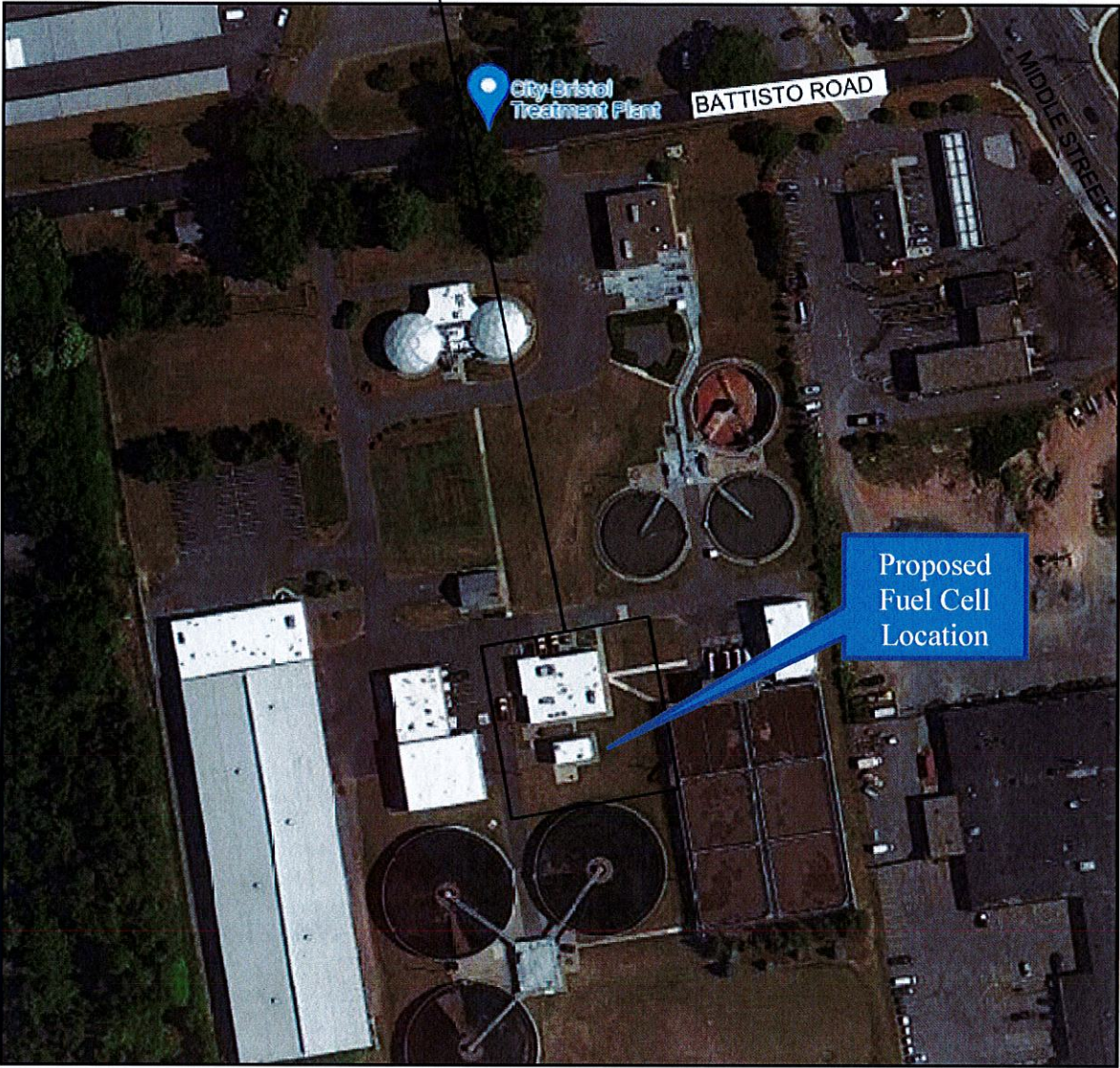
Recommendation

If approved, staff recommends the following conditions:

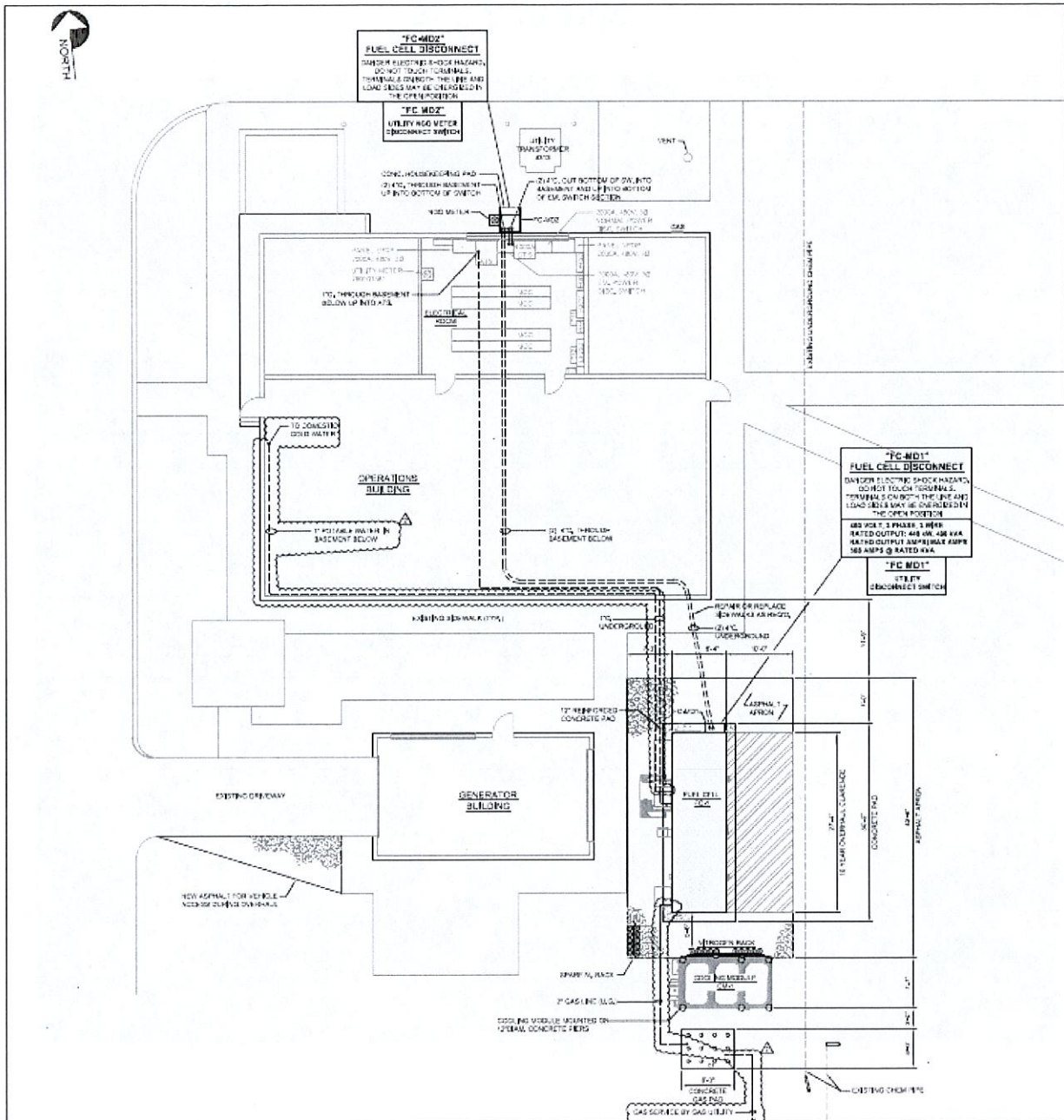
1. Approval of any minor project changes be delegated to Council staff; and
2. Provide a copy of the Fuel Cell Emergency Response Guide to local emergency responders prior to facility operation, and provide emergency response training, if requested.

Fuel Cell Location

PROJECT AREA



Site Plan



1 PARTIAL SITE PLAN
 SCALE: 1/8" = 1'-0"