



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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CERTIFIED MAIL RETURN RECEIPT REQUESTED

March 3, 2017

Dawn Mahoney, Esq.
General Counsel
Doosan Fuel Cell America Inc.
195 Governor's Highway
South Windsor, CT 06074

RE: **PETITION NO. 1263** - Doosan Fuel Cell America, Inc. petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required to replace an existing customer-side 400 kilowatt (kW) fuel cell facility with a 440-kW customer-side fuel cell facility located at Mount Sinai Hospital, 500 Blue Hills Avenue, Hartford, Connecticut.

Dear Attorney Mahoney:

At a public meeting held on March 2, 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. Doosan shall submit post-construction noise measurements with any further mitigation measures necessary to ensure noise control standard compliance;
2. Approval of any minor project changes be delegated to Council staff;
3. Acoustical barrier material shall be installed in accordance with the report prepared by Acoustical Technologies dated February 17, 2017 to ensure compliance with DEEP noise control standards;
4. A decommissioning plan shall be provided to the Council prior to construction;
5. The use of natural gas as a fuel system cleaning medium during fuel cell construction, installation or modification shall be prohibited;
6. 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;
7. 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;
 8. 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;
 9. 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 Hartford;
 10. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
 11. 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;
 12. 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
 13. 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 October 24, 2016, and additional information received on January 20, 2017 and February 17, 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,

A handwritten signature in black ink that reads "Robert Stein" followed by a stylized set of initials.

Robert Stein
Chairman

RS/MP/lm

Enclosure: Staff Report dated March 2, 2017

- c: The Honorable Luke Bronin, Mayor, City of Hartford
 Jamie Bratt, AICP, LEED AP, Director of Planning and Economic Development, City of Hartford
 The Honorable Joan A. Gamble, Mayor, Town of Bloomfield
 Mr. Philip K. Schenck, Jr., Town Manager, Town of Bloomfield
 Jose Giner, Director of Planning, Town of Bloomfield
 Patricia Walker, Doosan Fuel Cell America Inc.



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Petition No. 1263

Doosan Fuel Cell America, Inc.

Mount Sinai Hospital

Hartford, Connecticut

Staff Report

March 2, 2017

On October 25, 2016, the Connecticut Siting Council (Council) received a petition from Doosan Fuel Cell America, Inc. (Doosan) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required to replace an existing 400 kilowatt (kW) fuel cell facility with a new 440-kW fuel cell facility at Mount Sinai Hospital (MSH) located at 500 Blue Hills Avenue, Hartford, Connecticut.

Doosan mailed notification of the project to abutting property owners, City of Hartford officials, and required state agencies and officials on or about October 26, 2016. On or about November 2, 2016, Doosan mailed notification of the project to one abutting property owner that was not sent notice in the prior mailing and to the Town of Bloomfield, located within 2,500 feet of the proposed fuel cell facility. The Council has not received any written comments to date.

MSH is located within the Multi-Use Mix District (MX-2) of the City of Hartford. The proposed replacement fuel cell facility would be located on a concrete pad in the same location as the existing fuel cell facility. To the north of the site is Tower Avenue and residences on the north side of Tower Avenue. To the west of the site is Blue Hills Avenue and a parking area and a CVS Pharmacy on the west side of Blue Hills Avenue. To the south is residential. To the east of the subject property is the National Multiple Sclerosis Society building.

The proposed replacement facility uses non-combustion phosphoric acid technology that consumes natural gas as a fuel and uses water for fuel processing to generate electrical power. The facility would provide baseload power for use at MSH. Surplus power would not be sold to the grid. The facility would not provide backup power for MSH. Utility connections already exist at the site.

The proposed replacement fuel cell unit is totally enclosed and measures approximately 8 feet 4 inches wide by 27 feet 4 inches long by 9 feet 11 inches tall. The proposed replacement fuel cell has a cooling module which measures approximately 15 feet 11 inches long by 7 feet 10 inches wide by 6 feet high. The cooling module would be ground-mounted adjacent to the fuel cell. Doosan would utilize the existing fencing and concrete pads to accommodate the proposed replacement facility. Doosan would utilize bollards to protect the fuel cell from being accidentally struck by vehicles.

Doosan's replacement fuel cell product has a 20 year operational life with a projected 10 year overhaul.

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards. The proposed fuel cell facility would not discharge water under normal operating conditions. While an initial fill of 350 gallons of water is required, under normal operation, the fuel cell would generally not require water input at ambient temperatures below 86 degrees Fahrenheit. At higher temperatures, water consumption would be modest and up to one gallon per minute.

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



| Comparison of the Fuel Cell Facility with RCSA Criteria * | | |
|---|---------------------------------|-------------------------------------|
| Compound | Fuel Cell Facility (lbs/MWh) | CT Emissions standards (lbs/MWh) |
| NO _x | 0.01 | 0.15 |
| CO | 0.02 | 1 |
| CO ₂ | 815 | 1,650 |
| | With waste heat recovery | |
| CO ₂ | 1050 | 1,650 |
| | Without waste heat recovery | |

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

The project would result in a net carbon dioxide reduction for the environment because it would displace the existing generation portfolio which includes traditional fossil-fueled generation. MSH would utilize the waste heat which results in a lower CO₂ emissions rate for the fuel cell facility. Thus, the proposed replacement fuel cell facility would reduce net CO₂ emissions for the environment on the order of 446 metric tons per year as compared with the ISO New England Inc. (ISO-NE) Fossil Fuel Emissions Rate. The use of waste heat to pre-heat boiler water at MSH would also result in a carbon reduction benefit by reducing demand for boiler operation.

The proposed facility would emit no methane (CH₄), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs), which are greenhouse gasses defined in Regulations of Connecticut State Agencies Section 22a-174-1(49).

The proposed fuel cell would remove sulfur that is used as an odorant in natural gas and create zinc sulfide, a non-hazardous waste. The zinc sulfide would collect in a sealed vessel within the fuel cell. The zinc sulfide storage vessel is designed to last for 10 years. At the end of the life of the zinc sulfide storage vessel, it would be removed and shipped to the catalyst vendor for reclaim at their facility or disposal at a licensed vendor. The sealed vessel is deemed safe for transport in accordance with U.S. Department of Transportation requirements.

The visual impact from the proposed replacement facility is not expected to be significant because the site is already developed; the replacement fuel cell would have an enclosed, box shape; and the replacement fuel cell would be installed in the same location as the existing fuel cell. The nearest residence is approximately 290 feet to the north-northeast of the proposed replacement facility and on the opposite side of Tower Avenue.

The proposed replacement facility would not be located within a DEEP Natural Diversity Database shaded area. There are no wetlands in the vicinity of the project. No trees would be removed for the installation of the facility. The proposed facility would be located within a 100-year or 500-year flood zone. The proposed fuel cell facility would not be located within a DEEP-designated Aquifer Protection Area.

Any noise associated with the construction of this project would be temporary in nature and exempt per DEEP noise regulations. According to Section 22a-69-2.3 of the Regulation of Connecticut State Agencies, "hospitals" or "medical and other health services" such as MSH are considered a Class A (residential) land use for the purposes of DEEP noise control standards. The proposed replacement facility is not expected to comply with the 45 dBA nighttime standard for a residential emitter to a residential receptor without noise mitigation measures. Specifically, without noise mitigation measures, the property lines of the nearest homes on Tower Avenue would have noise levels of about 6 to 7 dBA above the 45 dBA standard. However, with eight-foot tall acoustical barrier material installed on the fence in the vicinity of the cooling module as specified on page two of the Noise Treatment Recommendations dated February 17, 2017, the project would comply with DEEP noise standards.

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. An Emergency Response Plan has been developed and submitted by Doosan.

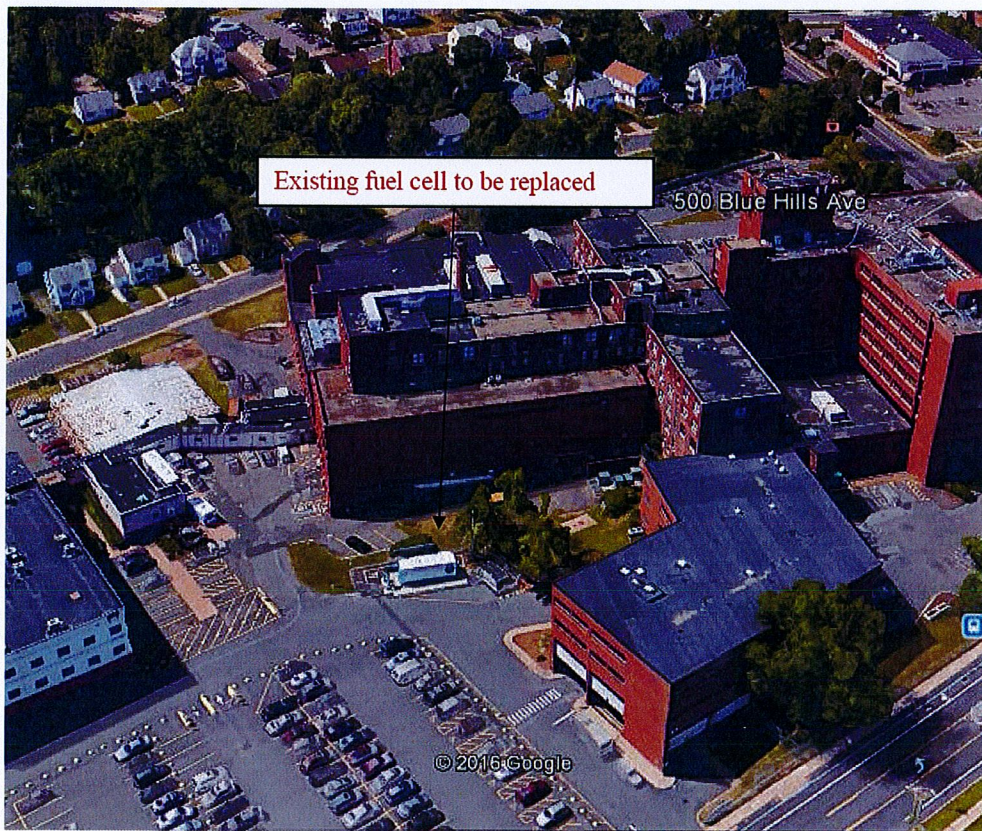
In accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission, Doosan would use atmospheric air under pressure as the media for pipe cleaning procedures at the proposed facility.

If approved, Doosan anticipates project construction to begin as soon as possible with construction taking less than three months. Construction work hours would be Monday through Friday 7 am to 5 pm.

The proposed installation would not have any 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.

Staff recommends the following conditions:

1. Approval of any minor project changes be delegated to Council staff;
2. Acoustical barrier material shall be installed in accordance with the report prepared by Acoustical Technologies dated February 17, 2017 to ensure compliance with DEEP noise control standards; and
3. A decommissioning plan shall be provided to the Council prior to construction.



Location of proposed project – Mount Sinai Hospital