



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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CERTIFIED MAIL RETURN RECEIPT REQUESTED

March 20, 2017

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

RE: **PETITION NO. 1270** - 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 200-kilowatt fuel cell facility with a 460-kilowatt customer-side combined heat and power fuel cell facility to be located at the Fairfield Wastewater Treatment Facility, 183 Richard White Way, Fairfield, Connecticut.

Dear Attorney Mahoney:

At a public meeting held on March 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. 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

March 20, 2017

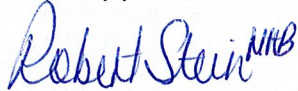
Labor, Department of Public Safety, Department of Public Works, and the Department of Emergency Management and Homeland Security;

4. Compliance with the following codes and standards during fuel cell construction, installation or modification, as applicable:
 - a. NFPA 54
 - b. NFPA 853; and
 - b. 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 Town of Fairfield;
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/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
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 October 28, 2016, and additional information received on November 30, 2016, December 15, 2016, January 30, 2017, and February 24, 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/MP/lm

Enclosure: Staff Report dated March 16, 2017

- c: The Honorable Michael C. Tetreau, First Selectman, Town of Fairfield
Joseph E. Devonshuk, Planning Director, Town of Fairfield
Patricia Walker, Doosan Fuel Cell America Inc.



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Petition No. 1270

Doosan Fuel Cell America, Inc.

Fairfield Wastewater Treatment Facility

Fairfield, Connecticut

Staff Report

March 16, 2017

On November 1, 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 200 kilowatt (kW) fuel cell facility with a new 460-kW fuel cell facility at Fairfield Wastewater Treatment Facility (FWWTF) located at 183 Richard White Way, Fairfield, Connecticut.

Doosan mailed notification of the project (via First Class Mail) to abutting property owners, City of Fairfield officials, and required state agencies and officials on or about November 1, 2016. On or about November 29, 2016, Doosan mailed notification of the project to State and local agencies and officials via Certified Mail. On or about December 14, 2016, Doosan mailed notification of the project to abutting property owners via Certified Mail Return Receipt Requested. The Council has not received any written comments to date.

FWWTF is located within the Flood Plain District of the Town of Fairfield. 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 residential. To the east of the site are floodplain areas and residential areas farther to the east. To the south is the Fairfield Regional Fire School and floodplain areas and residential areas farther to the south. To the west of the property is the Fairfield Animal Control, and the Fairfield School Bus Parking Lot is located to the northwest.

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 FWWTF and would provide about 58 percent of the building's energy usage. The plant will be net metered and any excess power will be sold to the grid. The facility would not provide backup power for FWWTF. Utility connections already exist at the site and would be upgraded as necessary to accommodate the larger fuel cell unit.

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. No fencing around the fuel cell facility or cooling module is proposed because the FWWTF is already a secure fenced 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 of the fuel cell stacks.

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 With waste heat recovery	1,650
CO ₂	1050 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

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. FWWTF would utilize the waste heat which results in an approximately 22 percent 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 466 metric tons per year as compared with the ISO New England Inc. (ISO-NE) Fossil Fuel Emissions Rate. Also, by using waste heat to supplement the FWWTF's boiler, this would result in an additional carbon reduction benefit (unrelated to the ISO-NE emissions rates).

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 620 feet to the north-northeast of the proposed replacement facility and located on the south side of Longdean Road.

The proposed replacement facility would not be located within a DEEP Natural Diversity Database shaded area. The nearest wetland is approximately 500 yards to the west of the proposed site. No trees would be removed for the installation of the facility. The proposed facility would be located approximately four feet above the 100-year base flood elevation. 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. Regarding operation of the facility, Doosan's noise consultant, Acoustical Technologies, Inc. (ATI), notes that the FWWTF property is considered a Class B (commercial) noise emitter under DEEP Noise Control Regulations. The noise levels at the closest residences are not expected to exceed the most stringent 45 dBA nighttime noise limit for DEEP. The Harvest Supply store at 295 Richard White Way is a commercial business and a Class B receptor under DEEP regulations. Thus, the DEEP noise limit for a Class B emitter to a Class B receptor would be 62 dBA. ATI predicts a worst-case noise level of 49 dBA at the Harvest Supply Property. Thus, the proposed project fully complies with DEEP 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.

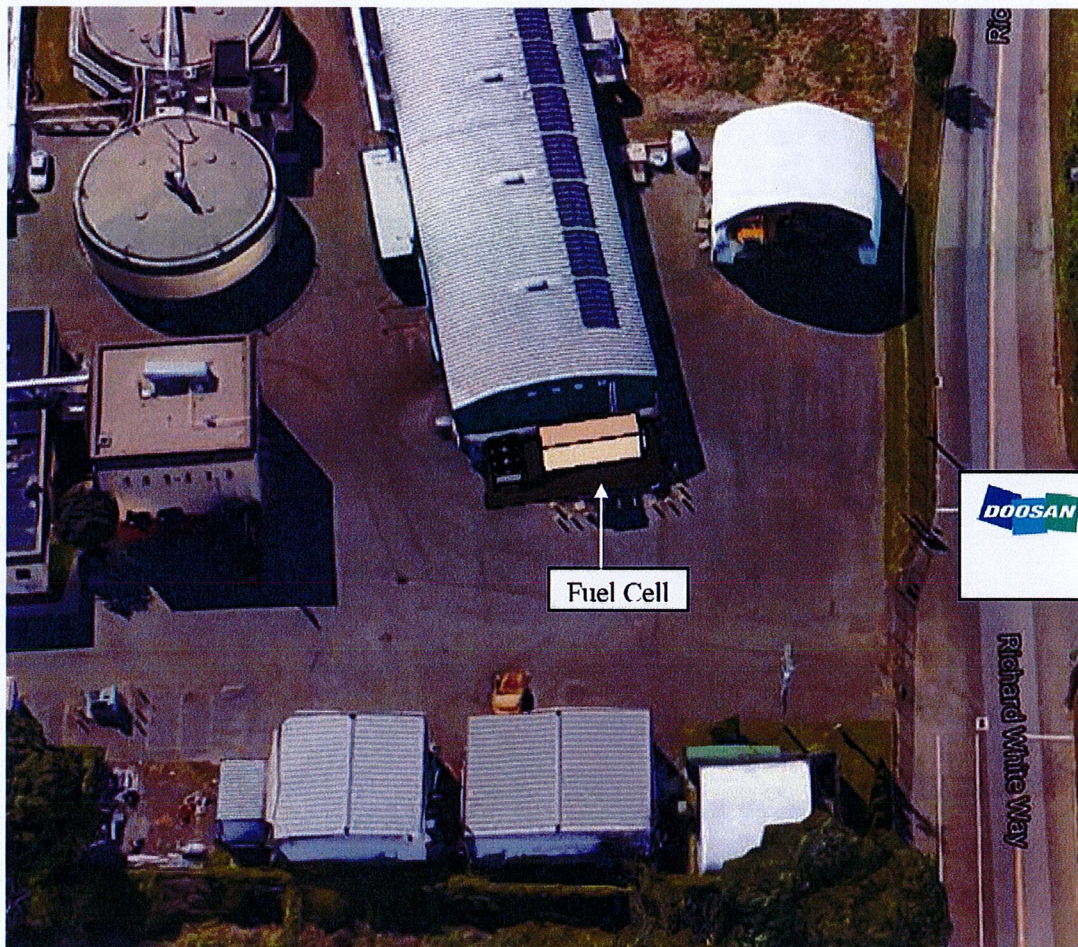
In accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission, Doosan would use atmospheric air under pressure as the media for pipe cleaning procedures at the proposed facility.

If approved, Doosan anticipates project construction to begin as soon as possible with construction taking up to six months. Construction work hours would be Monday through Friday 7 am to 5 pm. A decommissioning plan has been provided.

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 condition:

1. Approval of any minor project changes be delegated to Council staff.



Location of proposed project – Fairfield Wastewater Treatment Facility