



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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CERTIFIED MAIL RETURN RECEIPT REQUESTED

February 21, 2017

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

RE: **PETITION NO. 1262** - Doosan Fuel Cell America, Inc. petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of 1380-kilowatt customer-side combined heat and power fuel cell facility to be located at the Borough of Naugatuck Waste Water Treatment Plant, 500 Cherry Street Extension, Naugatuck, Connecticut.

Dear Attorney Mahoney:

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. 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
 - 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 Borough of Naugatuck;
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 25, 2016 and additional information received on November 7, 2016, November 30, 2016, December 16, 2016, and January 30, 2017, and in compliance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.

February 21, 2017

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

A handwritten signature in blue ink that reads "Robert Stein MAB". The signature is written in a cursive style.

Robert Stein

Chairman

RS/MP/lm

Enclosure: Staff Report dated February 16, 2017

- c: The Honorable N. Warren Hess III, Mayor, Borough of Naugatuck
- Sue Goggin, Town Planner, Borough of Naugatuck
- The Honorable Christopher J. Bielik, First Selectman, Town of Beacon Falls
- Kevin McDuffie, Planning & Zoning Chairman, Town of Beacon Falls
- Patricia Walker, Doosan Fuel Cell America Inc.



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Petition No. 1262

Doosan Fuel Cell America, Inc.

Naugatuck Waste Water Treatment Plant

Naugatuck, Connecticut

Staff Report

February 16, 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 for the installation of a 1,380 kilowatt (kW) fuel cell facility at the Naugatuck Waste Water Treatment Plant (NWWTP) located at 500 Cherry Street Extension in Naugatuck, Connecticut. A field review of the project site occurred on November 29, 2016. Council member Larry Levesque; Council staff members Christina Walsh and Michael Perrone; Doosan representatives Claudio Borea and Walter Bonola; and Natalie Verlezza, Plant Engineer, Veolia attended the field review.

Doosan mailed notification of the project to abutting property owners, Borough of Naugatuck officials, and required state agencies and officials on or about October 25, 2016. On or about November 2, 2016, Doosan mailed notification to the Town of Beacon Falls, located within 2,500 feet of the proposed fuel cell facility. Doosan sent notice again via Certified Mail, Return Receipt Requested to all abutting property owners on December 14, 2016. The Council has not received any written comments to date.

The NWWTP is located within the Industrial District No. 1 Zone of the Borough of Naugatuck. The facility would be located on a paved area of the NWWTP property just east of an existing retaining wall. To the east of the subject property are railroad tracks and Route 8. To the north is industrial in nature. To the northwest is residential. To the south and southeast is largely undeveloped.

Doosan proposes to install three 460 kW fuel cells at the NWWTP to comprise a 1,380 kW fuel cell facility. The proposed 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 a portion of the needs of the NWWTP. Surplus power would not be sold to the grid. The facility would not provide backup power for the NWWTP. Utility connections would all be underground.

Each of the proposed fuel cell units are totally enclosed and measure 8 feet 4 inches wide by 27 feet 4 inches long by 9 feet 11 inches tall. Each fuel cell has a cooling module which measures 15 feet 11 inches long by 7 feet 10 inches wide by 6 feet high. The cooling modules would be installed on top of the fuel cells. Doosan is not proposing a fence for the fuel cell facility because the NWWTP is already a secure, fenced facility. Doosan would utilize bollards to protect the fuel cell from being accidentally struck by vehicles.

Doosan's 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 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. Even without the use of the waste heat, the proposed facility would still reduce net CO₂ emissions for the environment on the order of 110 metric tons per year.

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 facility would be minimal as it is on an industrial parcel used for water treatment. The nearest residence is approximately 320 feet to the northwest of the proposed facility. The existing retaining wall, other buildings on-site, and vegetation around the subject property would largely obstruct off-site views of the proposed fuel cell facility.

The proposed facility is not within a DEEP Natural Diversity Database shaded area. The nearest wetland area is the Naugatuck River which is approximately 760 feet to the east of the project. No trees would be removed for the installation of the facility. The proposed facility would be located approximately 10 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. According to Doosan, the operation of the three fuel cells would result in a projected noise value of 62 dBA at the nearest property line. This property is also within the industrial zone and approximately 70 feet from the fuel cells. The projected 62 dBA noise level would be below the DEEP Noise Control regulatory level of 70 dBA for an industrial emitter to an industrial receptor. Residences along Cherry Street Ext. are located further northwest of the NWWTP. Doosan projects a noise value of approximately 44 dBA at these residential property boundaries which would be below the DEEP Noise Control regulatory level of 51 dBA for an industrial emitter to a residential receptor.

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.

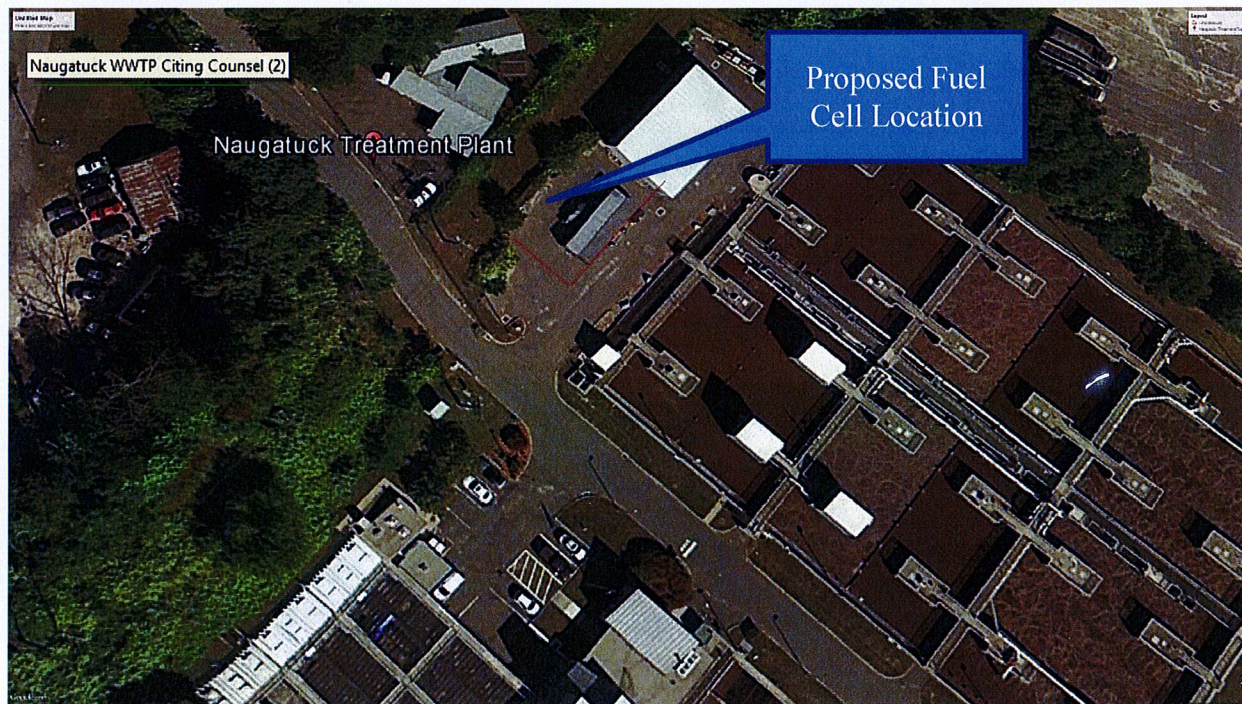
In accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission, Doosan would use atmospheric air under pressure as the media for pipe cleaning procedures at the proposed facility.

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

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



Location of proposed project – Naugatuck Waste Water Treatment Plant