



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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CERTIFIED MAIL RETURN RECEIPT REQUESTED

August 16, 2019

Donald Emanuel
Installation Manager
Doosan Fuel Cell America, Inc.
195 Governors Highway
South Windsor, CT 06074
donald.emanuel@doosan.com

RE: PETITION NO. 1374 – 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 440-kilowatt customer-side combined heat and power fuel cell facility and associated equipment to be located at Carla's Pasta, 280 Nutmeg Road, South Windsor, Connecticut.

Dear Mr. Emanuel:

At a public meeting held on August 15, 2019, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal meets air and water quality standards of the 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. 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
 - c. 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 South Windsor;
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 June 28, 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,



Melanie A. Bachman
Executive Director

MAB/RDM/emr

Enclosure: Staff Report dated August 15, 2019

c: The Honorable Andrew Paterna, Mayor, Town of South Windsor
Michele R. Lipe, AICP, Director of Planning, Town of South Windsor
Michael Maniscalco, Town Manager, Town of South Windsor



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Petition No. 1374

**Doosan Fuel Cell America, Inc.
Carla's Pasta Manufacturing Facility
280 Nutmeg Road, South Windsor
Staff Report
August 15, 2019**

Introduction

On June 28, 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) combined heat and power fuel cell facility at the Carla's Pasta new manufacturing facility located at 280 Nutmeg Road in South Windsor, Connecticut. On June 28, 2019, the Council issued a Notice of Incompletion to Doosan regarding deficiencies in filing requirements per Regulations of Connecticut State Agencies Section 16-50 j-39a. On July 1, 2019, Doosan submitted the additional required information.

The proposed Doosan fuel cell facility would be installed to support a building expansion at the Carla's Pasta manufacturing plant. Previously, on December 7, 2018, the Council approved a 440 kW combined heat and power Doosan fuel cell at Carla's Pasta's original manufacturing plant at 50 Talbot Lane. The new manufacturing plant expansion is to the south of the original building, with access from a new driveway extending from Nutmeg Road.

Doosan sent notification of the project to abutting property owners on March 19, 2019. Doosan mailed notification of the proposed project to the Town of South Windsor (Town) officials, and required state agencies and officials on or about April 1, 2019.

On July 2, 2019, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the municipality to contact the Council with any questions or comments by July 31, 2019. The Council has not received any comments to date.

On July 2, 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 July 31, 2019. No comments were received.

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 Carla's Pasta fuel cell site would be located to the west of the new manufacturing building on the 280 Nutmeg Road parcel. The parcel is zoned industrial and abuts other industrially zoned properties to the north, south and west and residentially-zoned property to the east. The nearest residential property is approximately 760 feet east of the proposed fuel cell location on Edgewood Drive.



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 complies with applicable state and federal regulations.

The facility would operate in parallel with the utility grid and would be able to provide 50 percent of electrical needs of the new manufacturing building under normal conditions. Any excess electricity generated by the facility would be transferred to the local electric grid in accordance with the interconnection agreement with Eversource. The fuel cell facility would be able to power critical plant infrastructure in the event commercial power is lost to the building. The combined heat and power unit would be able to recover useful heat from electricity generation, and when used, can result in an electrical efficiency factor of up to 90 percent. The waste heat would be transferred from the fuel cell via a new heat recovery pipe installed beneath the new manufacturing plant access drive.

The proposed fuel cell would be installed within a 1,500 square foot utility compound containing concrete pads for fuel cell equipment and crushed stone. An eight-foot high chain link fence would enclose the compound. The fuel cell power module is approximately 11 feet wide by 28.6 feet long by 10 feet tall. The cooling module is approximately 7.8 feet wide by 16 feet long by 6 feet high. A natural gas service pad, protected by bollards, would be located outside of the fuel cell compound adjacent to the south fence line. The fuel cell compound would connect underground to the electrical room of the new manufacturing plant.

Project construction is expected to begin in mid-August 2019. Construction would take approximately 15 weeks, followed by approximately 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 estimated cost of construction of the facility is \$585,000.

The fuel cell and related infrastructure would have an 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 all equipment from the concrete pads.

Environmental Effects and Mitigation

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards as no water would be consumed or discharged once the facility is operational. The site is not within an Aquifer Protection Area. The proposed fuel cell facility would have virtually no water usage or discharge. Water consumption would only occur at system fill and makeup water. Minimal discharge of de-ionized water would occur in rare instances.

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	0.02	1.0
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

The use of waste heat generated for fuel cell operation into the building's processes would offset the consumption of natural gas use, resulting in a reduction of CO₂ by approximately 820 tons/year.

The fuel cell desulfurization system would remove sulfur that is used as an odorant in natural gas because it is a fuel cell system catalyst 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 sent to a reclamation facility. The collection vessel would be sent back to Doosan.

No core forest or prime farmland would be disturbed by construction of the facility. The proposed site is located in an active construction area for the new manufacturing plant. No known historic properties would be affected by the proposed facility.

The site is not within a Federal Emergency Management Agency-designated flood zone. There are no wetlands or watercourses near the site. The site is not within an Aquifer Protection Area.

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 west property line (industrial zone) with the use of an acoustic liner installed on the north and part of the west sections of the eight-foot high compound fence to mitigate anticipated noise from the cooling module, the primary noise source for the fuel cell facility. The acoustic dampening liner would reduce the anticipated facility noise level by approximately 6 dB.

Visual impact from the proposed project would be minimal as it would be screened by woodland and industrial buildings on and around the Carla's Pasta property.

The Project area is within a DEEP Natural Diversity Database (NDDDB) buffered area. A NDDDB listed-species on the property was re-located as part of the Carla's Pasta manufacturing building construction project.

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 1-2004 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 can be remotely shut down and personnel dispatched to service the facility. Manual shut off switches are also available to emergency or Carla's Pasta personnel. A Fuel Cell Emergency Response Guide has been developed for inclusion with the overall Carla's Pasta Manufacturing Facility Emergency Response Plan. Doosan would provide outreach to local emergency responders prior to operation of the fuel cell.

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 condition:

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

Fuel Cell Location

