



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

CERTIFIED MAIL RETURN RECEIPT REQUESTED

December 7, 2018

James Kenney
Installation Project Manager
Doosan Fuel Cell America, Inc.
195 Governor's Highway
South Windsor, CT 06074

RE: **PETITION NO. 1355** - 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 to be located at Carla's Pasta, 50 Talbot Lane, South Windsor, Connecticut.

Dear Mr. Kenney:

At a public meeting held on December 6, 2018, 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 Town of South Windsor;
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 October 23, 2018, 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,

Handwritten signature of Robert Stein, NAB. The signature is in black ink and includes the initials "NAB" to the right of the name.

Robert Stein
Chairman

RS/RDM/lm

Enclosure: Staff Report dated December 6, 2018

- c: The Honorable M. Saud Anwar, Mayor, Town of South Windsor
- Michele R. Lipe, AICP, Director of Planning, Town of South Windsor
- Matthew B. Galligan, Town Manager, Town of South Windsor
- Carla's Pasta, property owner



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

Petition No. 1355

**Doosan Fuel Cell America, Inc.
Carla's Pasta Manufacturing Facility
South Windsor, Connecticut
Staff Report
December 6, 2018**

Introduction

On October 23, 2018, the Connecticut Siting Council (Council) received a petition from Doosan Fuel Cell America, Inc. (Doosan) for a declaratory ruling, pursuant to Connecticut General Statutes §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 manufacturing facility located at 50 Talbot Lane in South Windsor, Connecticut.

The proposed Doosan fuel cell facility would replace a former 300 kW combined heat and power fuel cell facility that was approved by the Council on June 30, 2011 in Petition 993. The former fuel cell, manufactured by FuelCell Energy Inc., reached the end of its service life and was removed in 2017.

Doosan discussed the project with the Town of South Windsor Building Department and Planning and Zoning Department on September 28, 2018. Doosan mailed notification of the project to abutting property owners, Town of South Windsor (Town) officials, and required state agencies and officials on or about October 15, 2018.

On October 25, 2018, 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 November 23, 2018. The Council has not received any comments to date.

On October 30, 2018, 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 November 26, 2018. No comments were received.

Public Benefit

The project would be a "customer-side distributed resources" facility, as defined in Connecticut General Statutes (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

Carla's Pasta is located in an industrial area at the end of a cul-de-sac, abutting other industrial properties and woodland. The nearest residences are more than 300 feet to the south and east. The Doosan fuel cell facility would be located across from the main production building, in the same location as the former fuel cell facility.

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 Carla's Pasta electrical needs 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 used in the main production plant and would be transferred from the fuel cell via an existing heat recovery pipe located below the existing driveway.

The proposed fuel cell would be installed on an existing 38-foot by 32-foot concrete pad located within a fenced compound. The fuel cell power module, including a fan stack, is approximately 11 feet wide by 28.6 feet long by 10 feet tall. The concrete pad would be expanded to the east by 480 square feet to accommodate a cooling module and a gas interconnection point. The cooling module is approximately 7.8 feet wide by 16 feet long by 6 feet high. The fuel cell facility would be enclosed by a mix of existing 6-foot high and new 8-foot high chain-link fencing.

The former fuel cell electrical interconnection area, located within an existing cinder block building in the fenced compound, would be retrofitted for the new fuel cell facility. Electrical interconnection to the main production building would use an existing underground duct bank that runs beneath the existing production building driveway.

Project construction is expected to begin in the February 2019 and continue for 15 weeks followed by 4 weeks of testing. 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 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 pad.

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)
NO _x	0.01	0.15
CO ₂	495	1,650
	With waste heat recovery	
CO ₂	1,049	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

Current emission control technologies are not commercially available to reduce greenhouse gas emissions from the facility. 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 disposed of in accordance with regulatory criteria.

Visual impact from the proposed project would be minimal as it is located on Carla's Pasta property and would be enclosed by fencing with a screening material to block direct views in to the compound area.

No forest or prime farmland would be disturbed as the site is located on a concrete pad and in a grass area next to an asphalt driveway. The proposed site is located at the location of a decommissioned fuel cell facility and contains infrastructure that can be reused.

The site is not within a Federal Emergency Management Agency-designated flood zone. The site is within an industrial park and no known historic properties would be affected by 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 with employment of sound mitigation measures. The specified sound mitigation measures include the installation of an acoustic liner on the eight-foot high chain link fencing adjacent to the cooling module, the primary noise source for this facility. The acoustic dampening liner would reduce the anticipated facility noise level by approximately 6 dB.

The Project area is within a DEEP Natural Diversity Database (NDDDB) buffered area. Doosan submitted a NDDDB review request to DEEP on August 3, 2018. DEEP did not respond to Doosan's submittal.

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.

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

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



Proposed Pad Location: Side Facade

(block building contains electrical interconnection equipment)