



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

November 8, 2016

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

RE: **PETITION NO. 1257** – 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-kW fuel cell with a 440-kW customer-side combined heat and power fuel cell located at the Eastern Connecticut State University Science Building, 83 Windham Street, Willimantic, Connecticut.

Dear Attorney Mahoney:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than November 22, 2016. To help expedite the Council's review, please file individual responses as soon as they are available.

Please forward an original and 15 copies to this office, as well as send a copy via electronic mail. In accordance with the State Solid Waste Management Plan and in accordance with Section 16-50j-12 of the Regulations of Connecticut State Agencies the Council is requesting that all filings be submitted on recyclable paper, primarily regular weight white office paper. Please avoid using heavy stock paper, colored paper, and metal or plastic binders and separators. Fewer copies of bulk material may be provided as appropriate.

Yours very truly,

Melanie Bachman
Acting Executive Director

MB/MP

c: Council Members

Petition No. 1257
Doosan Fuel Cell America, Inc.
83 Windham Street
Willimantic (Windham), CT
Interrogatories

1. Why is the existing 400-kilowatt (kW) fuel cell proposed to be replaced, e.g. age, more electric power capacity, upgrade to more efficient model, etc.? Would the proposed replacement fuel cell be considered an “upgrade?” If yes, explain why, e.g. because of the higher power output, higher efficiency, etc.
2. What is the age of the existing fuel cell, relative to its service life? What is the projected service life of the proposed replacement fuel cell?
3. What would Doosan Fuel Cell America, Inc. (Doosan) do with the existing fuel cell to be removed? For example, would it be refurbished at the factory for resale or recycled as (mostly) scrap metal? Is there significant monetary recovery for some/all of its contents?
4. Would Doosan replace or upgrade the existing concrete pad and fence to accommodate the proposed replacement fuel cell and its cooling module? Would bollards be used to protect the fuel cell facility from being accidentally struck by vehicles?
5. Provide a more detailed and “zoomed in” proposed site plan (than currently depicted on page 7 of the Petition) that includes but is not limited to the fuel cell, cooling module, concrete pads, fence design and bollards (if applicable), and utility connections.
6. Is the project located outside of the 100-year and 500-year flood zones? If no, would the proposed replacement fuel cell and cooling module be elevated as a flood mitigation measure, e.g. one foot above the 100-year flood elevation?
7. Is the fuel cell located within any environmentally sensitive areas?
8. Page two of the Petition states that the facility would be “...generating heat that will be used for space heating and cooling.” Would the fuel cell’s waste heat be used only for heat, dehumidification re-heat, and domestic hot water, or would it also be used for cooling, e.g. absorption cooling?

9. Would the facility only consume water during the initial commissioning start-up or every time the unit cycles on? How much water is used for a start-up? Would the fuel cell run on mostly a 24/7 basis as a baseload facility and thus have infrequent start-ups?
10. Would the fuel cell facility provide backup power in the event of a power outage? If yes, would the fuel cell first shut down and then automatically "black start" to restore power, or would it continue running seamlessly despite the loss of grid power (i.e. provide uninterruptible power)? Please explain.
11. Would any surplus power be sold to the grid?
12. Please provide an Emergency Response Plan for the proposed facility in accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.
13. Please identify media to be used for pipe cleaning procedures at the proposed facility in accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.
14. Please submit a noise analysis report to demonstrate compliance with the Connecticut Department of Energy and Environmental Protection (DEEP) noise control standards. In the Petition, Doosan predicts a noise level of not more than 62 dBA at 100+ feet away for the fuel cell. Is the cooling module included in this noise prediction? If no, please update this noise prediction and ensure compliance with DEEP noise control standards.
15. Which National Fire Protection Association (NFPA) or other codes and standards apply to fuel cell construction, installation and/or modification?
16. Provide a table showing state criteria thresholds and projected emissions from the proposed facility for all greenhouse gasses listed in the Regulations of Connecticut State Agencies Section 22a-174-1(49) with and without the use of waste heat.
17. Quantify the amount of phosphoric acid in the proposed replacement fuel cell.
18. Which emission rate in pounds of CO₂ per megawatt-hour (MWh) did Doosan use for the eGRID non-baseload generation for the ISO New England, Inc. electric system? Doosan estimates that annual carbon emissions would be reduced by about 300 metric tons per year. Is this only for displacement of non-baseload electric generation, or would the total carbon reduction be potentially higher because the use of waste heat would reduce the runtime of the building's boiler(s)?

19. Could offsets be used to mitigate air emissions impacts from the facility?
20. Discuss other mitigation techniques that could be used to offset air emissions from the proposed facility e.g. planting trees. If planting trees is listed as an option, estimate the number and size of trees required.
21. Natural gas has sulfur dioxide injected as an odorant. Is desulfurization required, e.g. to protect the fuel cell stack from sulfur? Explain. If yes, please submit a desulfurization plan narrative for the proposed fuel cell facility containing the following information:
 - a) Chemical reaction overview concerning what substances are produced from the desulfurization process, as well as plans for their containment and transport;
 - b) How much solid sulfur oxide would result from the desulfurization process, and methods and locations for containment, transport, and disposal;
 - c) Whether any of these desulfurization substances are considered hazardous, and if so, plans for the containment, transport, and disposal of hazardous substances;
 - d) Anticipated method of disposal for any other desulfurization substances; and
 - e) Whether any gaseous substances resulting from desulfurization can be expected to vent from the fuel cells, as well as the applicable DEEP limits regarding discharge of these gasses.
22. If the project is approved by the Council, approximately when would construction commence and when would it be completed? What are the estimated work hours and days of the week, e.g. Monday through Friday 7:00 a.m. to 5:00 p.m.?