



Doosan Fuel Cell America, Inc.
101 East River Dr
East Hartford, CT 06108
T - 860 727 2200

September 18, 2020

PETITION NO. 1406- Doosan Fuel Cell America, Inc. petition for a declaratory, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a grid-side 9.66-megawatt fuel cell facility and associated equipment to be located at 600 Iranistan Avenue, Bridgeport, Connecticut, and associated electrical interconnection to the United Illuminating Company's existing Congress Street Substation.

RESPONSE TO COUNCIL INTERROGATORIES – SET 3

Dear Ms. Bachman,

We are submitting an original and fifteen (15) copies of responses to the Council's interrogatories dated September 15, 2020.

Respectfully Submitted,
Doosan Fuel Cell America, Inc.

Walter
Installation Project Manager
Walter.Bonola@doosan.com
Doosan Fuel Cell America, Inc.



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Proposed Site

38. Referring to Interrogatory Response 14, what is the current status of the building and site plans as the Council intends to review the plans prior to making a decision on this Petition.

R38- The final design plans are being developed and a completed set, suitable for submission to the City of Bridgeport Building department, is currently expected sometime in December. Having demonstrated that the project does not pose any “substantial adverse environmental effects” as set forth in Conn General Statute 16-50k (a) and having complied with all CTDEEP air and water standards we would expect that the project would be approved with contingency based on historical precedence for projects of this size and type.

39. Referring to Interrogatory Response 22, what is the status of the design of the thermal loop? Given that this project requires a thermal loop component per PURA’s decision 18-08-14 and Doosan has firm commitments for the use of fuel cell facility waste heat, does Doosan anticipate construction of the thermal loop at the same time as the fuel cell facility?

R39- As stated in the petition filing, Doosan will not own or operate the facility or thermal loop. Doosan has no relationship to the thermal loop commitments. It is currently expected that the thermal loop will be constructed by the project owner, NuPower Thermal LLC, concurrent to the construction of this fuel cell facility.

40. Referring to Interrogatory Response 34,

a) What is the anticipated commercial operation date of the fuel cell facility?

R40a: The fuel cells facility is currently expected to be commercially operational the first half of 2022

b) What is the anticipated commercial operation date of the thermal loop?

R40b: The thermal loop is currently expected to be commercially operational concurrent with the fuel cell facility commercial operation.

c) What “cure rights” would be assessed if the thermal loop does not come to fruition? Would the fuel cell facility have to be dismantled?

R40c: Various cure rights exist in the power purchase agreement between NuPower and UI. This agreement has been reviewed and acceded to by PURA. There are no “cure rights” that would require the fuel cell facility to be dismantled, the project owner would explore alternative beneficial uses for the infrastructure.

41. What type of thermal energy would be utilized/transmitted within the thermal loop? (both heat and hot water are mentioned)

R41- Water will serve as the heat transfer medium within the thermal loop. The fuel cells will heat hot water using on-board heat exchangers. This hot water will then flow through the thermal loop providing a source of thermal energy (heat) to end-use customers.



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42. Clarify the building elevation data in Interrogatory Response 15. It is not clear if the information is only for building elevations or elevations above grade. Additionally, this information was not included on the simple site plan provided in the petition. Do these elevations include the additional 2 feet of fill to raise the site above the 100 year flood zone?

R42- Elevation listed in the response to Interrogatory 15 are based upon NAVD 1988, ie elevation above sea-level. These elevations include the additional fill required to raise the site above the 100 year flood zone. Top floor deck will be at elevation 60'. Dry cooling modules will be placed on the top deck and will add an additional 70.7" to the total building structure/equipment elevation..

43. Referring to Interrogatory Responses 21 & 36, can the building be redesigned/reoriented on the site parcel to create a larger buffer to Interstate 95 to reduce the potential for vapor plume and lighting effects on highway vehicles?

R43- The facility cannot be reoriented on the site parcel due to setback requirements and the existing over-head power lines. The Department of Transportation commented on the proposed project June 10, 2020 and noted the facility abutted a state high-way right of way. No comments were made regarding concerns over lighting or vapor plume. The facility has been designed and oriented in such a way to minimize any potential for vapor plume and lighting effects on highway vehicles.

Doosan is mitigating the possibility of this plume by locating the fuel cell exhaust vents on the side of the structure opposite the adjacent highway and locating the dry air-coolers between the exhaust and the highway. The dry heated air provided by the dry air-coolers will serve to mix with the exhaust gas to evaporate fog-like water vapor plumes. All exterior lighting will utilize flush lens design to minimize fugitive light. All lighting on the roof top level will utilize side shielding as necessary to minimize distraction on the highway.

44. Referring to Interrogatory Responses 26, what is the additional cost, above the cost of the specified air-cooling modules, to install extra-quiet air-cooling modules at the time of construction?

R44: Use of alternative cooling modules is not anticipated. Acoustical testing of the completed project will be performed to assure compliance with state and local noise ordinances. If required the extra-quiet air cooling modules would add over \$800,000 in cost to the project.

45. Referring to the Department of Energy and Environmental Protection (DEEP) comments dated June 10, 2020, the comments indicate the air emission criteria within Table 1 on Petition p. 10 is not accurate. Please revise the table to include DEEP's current New Source Review emission permit criteria and the corresponding emission data from the proposed facility.

R45- Doosan's petition included two tables relating to air emissions. Both tables in the original petition filing are accurate and consistent with DEEP's current emission permit regulations. Doosan does not agree with this interrogatories premise that DEEP's comments dated June 10, 2020 indicate the petition filing had any inaccurate air emissions criteria.



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Table 1 on Petition pg. 10, and replicated below, contains CT state emission standards for new distributed generators per Section 22a-174-42 of the Regulations of Connecticut State Agencies (“RCSA”). Attachment 22 has a copy of the relevant sections of these regulations for the council’s background. Furthermore, as stated in the original petition filing, these regulations exempt fuel cell generators from the air permitting requirements for new distributed generators. Doosan provided emissions projections as additional background information to the council.

Table 1: CT Emissions Standards for a New Distributed Generator

| Air Pollutant | CT Emissions Standard (lbs/MWh) | PureCell Model 400 Fuel Cell System at Rated Power (lbs/MWh) |
|--------------------|---------------------------------|--------------------------------------------------------------|
| Oxides of Nitrogen | 0.15 | .02 |
| Carbon Monoxide | 1 | .01 |
| Carbon Dioxide | 1650 | 998 |

Table 2 on Petition pg. 11, and replicated below, includes information on GHG emissions from the proposed project. As the petition notes, and the DEEP comments dated June 10, 2020 confirms, there is no defined criteria threshold for these compounds. Doosan provided GHG emissions projections as additional background information to the council.

Table 2: PureCell® Model Emissions Data

| Emission Type | Projected Emissions | GWP in 40 CFR 98, Table A-1 | Projected CO2e |
|---------------|---------------------|-----------------------------|----------------|
| CO2 | 41,916 ton/yr | 1 | 41,916 ton/yr |
| CH4 | <0.42 ton/yr | 25 | <10.5 ton/yr |
| N2O | <0.21 ton/yr | 298 | <63 ton/yr |
| SF6 | N/A | 22,800 | N/A |
| HFC | N/A | 12 to 14,900* | N/A |
| PFC | N/A | 7,390 to 17,340 | N/A |



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LIST OF ATTACHMENTS:

Attachment 22: Regulations of Connecticut State Agencies: Sec. 22a-174-42. Distributed generators