



**Doosan Fuel Cell America, Inc.**  
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State of Connecticut Department of Energy & Environmental Protection  
Comments Regarding Docket No. 19-07-01RE02, the Review of Statewide Shared Clean Energy Facility  
Program Requirements – Year 2 Procurement

Doosan Fuel Cell America, Inc.

July 26, 2021

Via Electronic Mail

Mr. Michael Li  
Bureau Chief  
Connecticut Department of Energy & Environmental Protection  
Bureau of Energy and Technology  
79 Elm Street  
Hartford, CT 06106

Dear Mr. Li:

Doosan Fuel Cell America (“Doosan”) appreciates the opportunity to provide comments to the Connecticut Department of Energy and Environmental Protection (“DEEP”) per the July 8, 2021 Notice of Opportunity for Public Comment and Public Meeting on bid preferences for the Shared Clean Energy Facility Program (“SCEF”) Program for the Year 3 Procurement.

**Background**

Doosan Fuel Cell America, Inc. is a global leader in providing clean, continuous-duty, cost-competitive stationary fuel cell energy systems. Our PureCell® systems operate 24/7 with high efficiency and ultra-low emissions, allowing our customers to generate their own electricity and heat onsite while reducing their utility expenses and environmental emissions and unparalleled durability and reliability.

Worldwide Doosan has nearly 900 units and 400 MW operating, under construction or awarded. The reliability and resiliency attributes of our fuel cells are felt during grid outages where our systems continue to run, providing essential electricity and heat to critical facilities. Such was the case in the northeast during winter storm Alfred in 2011 and Superstorm Sandy in 2012. Doosan fuel cells kept the power running during these critical times of need.

The State of Connecticut continues to be an emerging market for our non-combustion energy systems, as fuel cells can contribute greatly to the State’s goals of reducing greenhouse gas emissions, reducing peak load, and improving the reliability of the electric utility system. Doosan fuel cells are currently supplying clean and secure power to a diverse set of customers in a variety of industries such as hospitals,



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universities, data centers, industrial manufacturers, municipalities, supermarkets, residential buildings and waste water treatment facilities who require clean, efficient power 24/7/365. Currently Doosan has nearly 25 MW installed in Connecticut along with another 30 MW either awarded or under construction, due in large part to the State's foresight in making fuel cells a Class I renewable energy source.

Stationary fuel cell applications offer customers a clean and efficient method of producing energy that provide resiliency, reliability, and price stability, while reducing stress on the electric grid. A wider deployment for distributed generation (DG) will lead to clean, efficient electric generation and will alleviate the need for additional transmission facilities, when developed where the demand is needed. Hydrogen is the key to meeting our climate goals and Doosan can offer a fuel cell product that runs on direct hydrogen, which will ultimately result in even more GHG reductions. It is important to remember, that fuel cells, with all their positive attributes, are replacing traditional combustion generation, not other renewable resources. Fuel cells are a more efficient way to produce power, than traditional centralized generation.

Doosan fuel cells operate with a 95% capacity factor, while reducing and eliminating GHG emissions and producing zero criteria air pollutants. We create resilient power that can operate independent of the grid. Our fuel cells can operate on renewable gas, hydrogen, and natural gas with increased energy efficiency. Doosan also provides load-following capability in either behind-the-meter or utility-scale applications. Therefore, we look forward to continuing to work with the State of Connecticut and or partners, though all means available, to deliver cheaper, cleaner, and more reliable power.

### **Doosan Comments on the Questions Detailed in July 8, 2021 DEEP Notice**

#### ***1. Discuss and provide support for any bid preferences that DEEP should consider for the Year 3 Procurement, and/or subsequent procurement years.***

Consistent with previous Doosan filings and comments submitted to DEEP and the Connecticut Public Utilities Regulatory Authority ("PURA"), Doosan supports the following bid preferences for the Year 3 SCEP Procurement and/or subsequent procurement years:

- Resilience
- Brownfields
- Landfills
- Distressed Municipalities
- Opportunity Zones
- Environmental Justice Communities

All the above bid preferences should be applied equally and fairly across technologies, and not favor one technology in a subjective fashion.



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***2. Should a bid preference for projects located on brownfields or landfills continue to be applied for Year 3? If yes, explain why and at what weighting value. If no, explain why not.***

Doosan believes that a bid preference that provides a twenty (20) percent price reduction for projects built on landfills and brownfields, for scoring purposes, should continue to be applied. The price reduction will continue to facilitate competition between multiple technologies facilitates competition between multiple technologies and Doosan reemphasizes that the discussion should not be limited to solar considerations.

As previously stated, Doosan fuel cell systems provide 24/7, clean, load-following power at close to 100% capacity factors. Importantly, this high capacity factor corresponds to the production of clean, renewable electric energy (MWh) per unit of power capacity (MW) that is on the order of six (6) times that of solar power systems and on the order of three times that of wind power systems. Therefore, our fuel cells produce more renewable energy than wind or solar power systems per unit of capacity installed. This translates into substantially more GHG reductions per MWh. In addition, the energy density of fuel cell systems significantly reduces the land footprint required for onsite generation, as small as 1/20<sup>th</sup> of an acre for one MW of generation (compared to 6-8 acres for 1 MW of solar), allowing for operation in high density areas and increased acreage available for habitat restoration and preservation. Therefore, a preference for fuel cell systems should be considered in the SCEF program, based simply on the size of our footprint. If the objective is to repurpose old contaminated brownfield sites, then fuel cells are the perfect development solution opportunity.

***3. How should DEEP acquire cost information for project development while maintaining the competitiveness of the procurement? For example, what is the price premium on land, development and other project costs for developing on a brownfield and/or landfill? Similarly, what is the price premium for other recommended qualitative preferences?***

Doosan has no comment at this time.

***4. For each bid preference identified in response to Question 1 and/or 2, what clear standards, terms, parameters, or metrics should be used to evaluate whether a project qualifies for the bid preference?***

Doosan has no comment at this time.

***5. Discuss and provide support for a bid preference for projects located in and benefitting distressed municipalities and/or environmental justice communities. What are those potential benefits and how should they be quantified? What are the potential drawbacks and/or concerns with siting projects in distressed municipalities and/or environmental justice communities? What metrics should DEEP use to evaluate whether a project located in a distressed municipality and/or environmental justice community qualifies for a bid preference? How should distressed municipalities and/or environmental justice communities be identified for qualification purposes under the Request for SCEF Proposals (RFP) for the Year 3 Procurement?***



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The greatest benefit to distressed municipalities and environmental justice communities remains air quality benefits. Doosan suggests that a key metric for projects located in these communities by the reduction and/or avoidance of criteria air pollutant emissions, or the maintenance of stringent air quality emissions standards.

Fuel cell systems are zero-emission with respect to nitrogen oxides, carbon monoxide, sulfur oxides, and particulate matter and commonly displace traditional emergency backup generators (almost exclusively diesel combustion generators) that emit criteria air pollutants and greenhouse gases (GHG). This displacement is especially critical given that some of Connecticut's most densely populated areas are nonattainment zones that suffer from poor air quality and face major challenges in achieving clean air for the many citizens that live and work within these areas. These especially include economically disadvantaged communities that are often disproportionately burdened by air pollution and the risks of COVID-19.

***6. Relative to Question 5, how can DEEP and the Authority ensure such a community or municipality: (a) is willing to host a proposed project; and (b) has adequate opportunity to provide feedback about the proposed project?***

Doosan has no comment at this time.

***7. Recognizing Conn. Gen. Stat. § 22a-20a does not apply to SCEF, is there anything in the statute that could be adapted to provide a bid preference in SCEF, such as a Community Environmental Benefit Agreement (CEBA)? If yes, what clear standards, terms, parameters, or metrics should be used to evaluate whether a project qualifies for such a bid preference?***

Doosan has no comment at this time.

***8. How does a resiliency bid preference comport with the legislative intent of §16-244z of the General Statutes of Connecticut? How do such resilience projects comport with the Modified Program Requirements relative to SCEF subscriber credits?***

A resiliency bid preference clearly comports with the legislative intent of §16-244z of the General Statutes of Connecticut. Resilient SCEF projects provide significant benefits to SCEF subscribers.

***9. Should a bid preference for resilient projects, e.g., microgrids, mobile projects, be applied for Year 3? If yes, explain why and at what standard and weighting value. If no, explain why not.***

Doosan supports a Year 3 a bid preference of 30 % for scoring projects that support resilience by maintaining backup power during an outage, especially for critical infrastructure and microgrids. Resilience is often discussed across state agencies and the legislature in the aftermath of a major grid outage event, which are increasing in frequency in Connecticut. Many policymakers raise the importance



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of resiliency, but no value is ever given to projects that are designed to be truly resilient. In Connecticut, neither the Value of Distributed Energy Resources Draft Study nor the draft Integrated Resources Plan require any type of mandate to create resilient power resources.

Including a bid preference for resilience of the SCEF program is an important step in securing near-term continuous and backup power resources that can operate producing both heat and power, during the longest duration outages and maintain power in both public and private critical facilities including fire stations, police stations, hospitals, supermarkets, gas stations, university campuses, schools that also serve as emergency shelters, and telecommunications (including the 911 emergency call system). Both behind-the-meter and in front-of-the-meter projects should be included in this bid preference, to provide the broadest benefits, and to further support the installation of microgrids – without diesel generators.

***10. What other information not provided in response to any of the above questions would be useful in establishing bid preferences for the Program or increasing the benefits of the Program to environmental justice communities?***

Doosan strongly supports the inclusion of resilience as a heavily weighted bid preference that could have an immediate impact on environmental justice communities by replacing diesel generators, thus improving air quality, and creating immediate health benefits to members of the community. Clean distributed generation, such as that produced by fuel cell systems, has unique features and capabilities to address the need for air quality in geographically diverse communities and serve as alternative power and heat generation sources for users in those communities.

Valuing long-duration resilience, in the scoring of SCEF projects, will offset the use of diesel generators, especially in lower-income communities that are often disproportionately impacted by poor air quality and its enduring negative health effects. The reductions of carbon and criteria air pollutants from stationary fuel cells can also make a direct positive impact on local communities. Fuel cell systems commonly displace traditional emergency backup generators (almost exclusively diesel combustion generators) that emit criteria air pollutants and greenhouse gases (GHG). This displacement is especially critical given that some of Connecticut's most densely populated communities suffer from poor air quality and face major challenges in achieving clean air for the many citizens that live and work within these areas. These especially include economically disadvantaged communities that are often disproportionately burdened by air pollution and the risks of COVID-19.

Through the fuel flexibility of fuel cells and the ability to operate continuously and follow fluctuating electrical (and thermal) loads, fuel cell systems can also provide a critical role in enabling increased penetration of renewable solar and wind resources on the grid. These features of fuel cell systems allow them to reduce pollutant emissions and improve air quality over and above the improvements that can be made with solar, wind, and energy storage systems alone. By providing always-on zero criteria pollutant emission power, fuel cells can increase adoption of intermittent renewable wind and solar resources in Connecticut while significantly increasing the generation of decarbonized and pollutant-free electricity.



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## **Conclusion**

Doosan appreciates the opportunity to comment and encourages DEEP to establish Year 3 bid preferences for projects will resiliency benefits that can be sited on brownfields, landfills and in distressed municipalities. Doosan's investment in the State of Connecticut has been substantial. Our company remains committed to the Connecticut market for renewable energy and we look forward to continuing to make positive impacts into local communities.

Respectfully submitted:

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