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February 22, 2013

Michael Winka
Senior Policy Advisor, New Jersey Board of Public Utilities
POB 350 - 44 S Clinton Ave
Trenton, NJ 08625-0350

Re: Response to the New Jersey Board of Public Utilities Request for Comment on the Large FCCHP Program Requirements, Incentive Structure and Future Budget Allocation

Comments of ClearEdge Power

Dear Mr. Winka:

ClearEdge Power submits the following comments based on the public request from the New Jersey Board of Public Utilities related to the Fuel Cell and Combined Heat and Power (FCCHP) program's future requirements, structure and budget.

Respectfully submitted,

Lisa C. Ward
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STATE OF NEW JERSEY

BOARD OF PUBLIC UTILITIES

FUTURE FUEL CELL AND COMBINED HEAT AND POWER PROGRAM REQUIREMENTS AND FUNDING LEVELS

COMMENTS OF CLEAREDGE POWER

I. Introduction

ClearEdge Power is a company located in Hillsboro, OR and South Windsor, CT leading in the development, design, production and service of fuel cell technology for use in stationary, transportation, and space and defense applications. We appreciate the opportunity to comment on the future requirements and funding levels of the large fuel cell and combined heat and power program in the State of New Jersey.

We offer the following as comments with regard the Large Fuel Cell/CHP Program Working Group Memo, dated January 30, 2013, written by the New Jersey Board of Public Utilities representative, Michael Winka.

II. Comments

A. Definition for critical facilities for the next FC/CHP solicitation

The Connecticut Legislature and Department of Energy and Environmental Protection (DEEP) provided an excellent "critical facility" definition as part of Public Act 12-148 and the subsequent project feasibility application for the microgrid program. Connecticut Public Act 12-148 defines a critical facility as follows:

"Critical facility" means any hospital, police station, fire station, water treatment plant, sewage treatment plant, public shelter or correctional facility, any commercial area of a municipality, a municipal center, as identified by the chief elected official of any municipality, or any other facility or area identified by the Department of Energy and Environmental Protection as critical".

Due to the passage of Public Act 12-148, DEEP released a microgrid project feasibility application which extended the definition of critical facilities to include:

"Military bases, communications towers, fueling stations, food distribution centers, and mass transit. In addition, DEEP considers as critical facilities those facilities that have some or all of the following characteristics: provide support for national security; act as a command center; act as an emergency shelter; provide access to food, fuel, money, or medication".

To build upon the definitions provided by the State of Connecticut, ClearEdge Power would urge the State of New Jersey to also include the following facility types due to their inherent public benefit and emergency services capability:

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a. *Emergency Communication/Command Centers*
b. *Ambulatory/Emergency Medical Services*
c. *Emergency Management Services*
d. *Facilities of Refuge*
e. *Emergency Shelters and Rest Centers*
f. *Public Utilities (Water, Gas, Electricity)*
g. *Hospitals*
h. *Managed Care Facilities*
i. *Broadcasting/Public Information*
j. *Telecommunications*
k. *Airports and support infrastructure*
l. *Any facility that due to its inherent layout or configuration, e.g., university campus, high school, etc., which can be used to provide public benefits such as shelter, remote emergency command centers, etc.*

B. Solicitation Tiers

The 2014 solicitation for fuel cells and combined heat and power projects over 1 megawatt should include a tiered incentive, giving the largest amount of State funding to the projects at the most critical facilities operating on renewable fuels, such as anaerobic digester gas, on-site biogas or directed biogas.

The tiered structure should start at the current funding level, which for fuel cells is the smallest of 45% of project costs or $3M. This should be the base incentive for all fuel cell projects over 1 megawatt. An enhanced incentive, in addition to the base, should be given incrementally to the following project types over 1 megawatt, listed in order of priority from least to most:

1) Fuel cell/CHP installations for critical facilities in the private sector
2) Fuel cell /CHP installations for critical facilities in the public sector
3) Fuel cell/CHP installations supporting two or more critical facilities, in either the public or private sector
4) Fuel cell/CHP installations for any type of critical facility, public or private, using renewable fuel

We do not have a recommendation for the Board related to the incremental incentive amount. Based on the incentive amounts for the current programs, we have confidence the Board will define a fair enhancement for the critical facilities based on priority to the State.

In order to fully maximize the number of fuel cell or CHP projects installed at different critical facilities in the State, the efficiency requirement of 60% HHV should be reconsidered. We fully support systems with high efficiencies; however, the 60% HHV does not necessarily return the best payback for most applications and therefore may limit the speed of deployment of fuel cells in New Jersey. Under the current rules, a customer desiring to deploy a CHP fuel cell must burden the project with extra equipment and costs to meet the efficiency hurdle, even if the additional costs do not result in heating fuel savings to pay the initial costs back. As an example, the data center market is an excellent fit for fuel cells and

CHP, especially given their potential as a critical facility. Data center applications typically utilize byproduct heat to drive absorption chillers for cooling, which is only one type of "heat" produced by fuel cell systems. Because of this, the 60% HHV requirement is a difficult hurdle for project implementation. To overcome this obstacle more effectively, we would suggest an efficiency requirement of 50% HHV. This efficiency requirement is similar to efficiencies that meet the requirements of the State of California's Self-Generation Incentive Program. While this is lower than the current 60% HHV efficiency requirement, an absorption chiller application using fuel cell waste heat can actually increase in efficiency over time, since the amount of chilling capacity increases over the life of the fuel cell.

Additionally, not all critical facilities have a large thermal load, making electric only fuel cell installations attractive. The current electric-only efficiency requirement of 45% within the first year is an unattainable hurdle for some leading fuel cell companies in the industry Additionally, some fuel cells with high first year electrical efficiency values degrade quickly, resulting in a lower average electrical efficiency over a few years following installation. In order to drive true market competition and allow all companies the same opportunities for electric-only projects, and in order to ensure high overall efficiency for fuel cell customers, we would suggest a first year electrical efficiency requirement of 42% or a lifetime (10 year) electrical efficiency average of 40% on a lower heating value basis.

C. Pipeline of FC/CHP Projects

[redacted]

D. Regulatory items – standby charges and gas tariffs

Proceeding GO12070600, which is currently underway at the New Jersey Board of Public Utilities, was established per the directive from Bill 219, which required all electric distribution companies to examine the standby charge law related to distributed generation. Based on most submissions from the four New Jersey electric utilities in November 2012, the current standby charge law should be extended with no rate structure updates. Industry understands the need for the electric utilities to account for peak demand without including distributed generation (DG). However, penalizing New Jersey consumers who choose to install on-site generation through the use of standby charges and extended demand charge periods will significantly deter the development of distributed generation within the State. This will ultimately lessen the environmental savings and the installed capacity of DG the State could realize as directed by the Energy Master Plan.

The BPU should consider updating the standby charge law to: 1) create more strict availability and/or capacity factor requirements for DG installed in-state and 2) set fixed, statewide costs for standby charges and demands charges with ratcheted costs of 30 days or less. By setting more stringent rules for the capacity factor of DG, the electric utilities can

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rely more heavily on continuous on-site generation and discontinue significant standby and demand charges on its DG customers.

Promotion of DG can also be done through favorable gas tariffs. Most DG, fuel cells and combined heat and power generators operate using natural gas as an input fuel. DG customers often use large amounts of natural gas in known quantities, consumed at a consistent rate (as opposed to most natural gas-fueled equipment), which is based on number of expected kilowatt–hours per year. Because most DG utilizes a known, large quantity of natural gas, these customers should be eligible for fixed rates over extended periods of time. New Jersey Natural Gas offers DG customers a five-year fixed rate on an individual project basis. This pathway should be thoroughly examined by the BPU and potentially implemented statewide as a tariff. A fixed gas rate allows DG project developers and customers to accurately model their DG project costs over time. Without the removal of gas price risk, cogeneration projects are far less likely to move forward.

Separately, but equally important is the idea that DG customers operating on natural gas should have lower gas rates than other New Jersey consumers of natural gas. When natural gas fed DG is sited, the natural gas utility obtains a new, large scale end user. To compensate for the amount of natural gas consumed, the natural gas utilities should offer distribution only rates for DG customers. PSE&G, Elizabethtown Gas and New Jersey Natural Gas already offer a similar rate for DG customers. All New Jersey natural gas utilities should offer the same natural gas rate for consistency in the marketplace.

E. Strategic long term plan

The State of New Jersey should continue to review and update regulatory policies that would help facilitate the installation of clean, on-site generation. A regulatory hurdle for DG developers is the lack of standardized interconnection requirements for base load technologies. Most utilities outside of New Jersey require a reverse power relay for all DG installations that do not qualify for the net metering tariff. To overcome the cost impact of the reverse relay requirement and lifetime operation costs, the New Jersey electric distribution companies (EDCs), in conjunction with the BPU, should strongly consider standardizing the interconnection requirements for fuel cells. This should include a separate track for high capacity factor DG (> 80%) with a certified inverter and would require a detented meter instead of a revere power relay. This would decrease installation costs for stationary fuel cell projects while simultaneously maximizing on-site power usage, as well as the maximizing the environmental attributes of the fuel cell.

A majority of end users who use fuel cell systems to generate their on-site power do not become net exporters of power to the utility. As a result, the amount of power exported to the utility does not usually factor into a fuel cell project's value proposition. A standard interconnection process with a detented meter option can play a twofold financial role in the development of stationary fuel cell projects:

- Reduced installation cost. Through the use of a detented meter, the need for a grid-protection relay to prevent power export to the utility grid is nonexistent. Without

this piece of interconnection equipment, the utility will not allow momentary export of power, thereby introducing the need for a certified relay.

- A detented meter would allow higher electrical output from the fuel cell to be achieved by allowing electric-load following with no power import buffer.

By requiring the EDCs to standardize fuel cell interconnections, the BPU can streamline the installation of fuel cells statewide. Standardization of the required interconnection equipment would also help the overall value proposition for larger DG installations at critical facilities; installation costs would be lower, allowing State funding to support a higher number of grid resiliency projects. Fuel cells actually offer a larger carbon emission reduction than variable output technologies, like wind and solar, due to their high system efficiencies and high capacity factor.

The key to the long term strategy will be the continuation of state supported programs, which would indicate New Jersey's commitment to the Energy Master Plan goals and the State's resiliency goals in the aftermath of Hurricane Sandy. Maintaining dedicated funding for distributed generation programs sends a clear message to the market, allowing project developers adequate time to develop high-quality, long term projects. Given that small and large fuel cell programs were only re-opened in January 2012, it would be short sighted of the State to move the funding dedicated to these programs by June 2013 if the funding is not adequately utilized. Fuel cell and CHP projects have a long development timeframe, typically 12 to 18 months. To continue the development of clean DG projects in the State, stable and dedicated programs are required for at least 5 years to make an appreciable impact.

III. Conclusion

Thank you for the opportunity to comment on the Fuel Cell and Combined Heat and Power (FCCHP) program's future requirements, structure and budget. We would be pleased to provide you with additional information or clarification as needed.

Respectfully Submitted:

By: _____

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