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STEFANIE A. BRAND
Director

July 29, 2011

Via Hand Delivery and Electronic Mail
Honorable Kristi Izzo, Secretary
New Jersey Board of Public Utilities
Two Gateway Center
Newark, NJ 07102

Re: In the Matter of Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for 2009-2012: 2011 Programs and Budgets: Compliance Filings Fuel Cell Incentive Proposal BPU Docket Nos.: EO07030203 and EO10110865

Dear Secretary Izzo:

Enclosed please find an original and ten copies of comments submitted on behalf of the New Jersey Division of Rate Counsel in connection with the above-captioned matter. Copies of the comments are being provided to all parties by electronic mail and hard copies will be provided upon request to our office.

We are enclosing one additional copy of the comments. Please stamp and date the extra copy as "filed" and return it to our courier.

Thank you for your consideration and assistance.

Respectfully submitted,

STEFANIE A. BRAND
Director, Division of Rate Counsel

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In the Matter of Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for 2009-2012 Clean Energy Program: 2011 Programs and Budgets: Compliance Filings BPU Docket Nos. EO07030203 and EO10110865

Fuel Cell Incentive Proposal

Comments of the New Jersey Division of Rate Counsel

July 29, 2011

Introduction

The Division of Rate Counsel ("Rate Counsel") would like to thank the Board of Public Utilities ("BPU" or "Board") for the opportunity to present our comments on the proposed modifications to the 2011 Clean Energy Program ("CEP") incentives for fuel cells which were submitted to stakeholders for comment by the Office of Clean Energy ("OCE") in an e-mail notice issued July 20, 2011 (the "July 20 Notice"). OCE has requested comments on its proposal to (1) institute a new incentive for fuel cells without heat recovery and (2) modify the current incentive for fuel cells with heat recovery.

OCE's Proposed Modifications

CEP currently offers a $4 per watt incentive for fuel cells with waste heat recovery through the Pay-for-Performance Program ("P4P") with a cap of 60% of total project cost or $1 million (whichever is less). The OCE proposed the following modification to this program, shown in the table below:

Application Type	Minimum Efficiency	Incentive	Cap
Fuel Cell w/ waste heat utilization	60% (combined electric and thermal)	$2.00/watt	60% of total project cost or $1million (lesser of)
Fuel Cell (natural gas powered)	45% (electric only)	$1.00/watt	60% of total project cost or $1million (lesser of)

Rate Counsel's Recommended Modifications

Rate Counsel supports the OCE's proposed reduction in the P4P program incentive levels for fuel cell systems "with waste heat recovery." However, Rate Counsel recommends the following modifications to the OCE's incentive proposal for fuel cell systems "without waste heat recovery" (which are listed as "Fuel Cell (natural gas powered)" in the above table):

- $1.00 per watt incentive for fuel cell systems above 25 kW without waste heat utilization
- $0.20 per kWh performance incentive for fuel cell systems up to 25 kW without waste heat utilization. Incentives would be capped at $70,000 per project site during the first three years. A minimum capacity factor of 50% would be required.

Rate Counsel proposes a separate incentive structure for small scale fuel cell projects (under 25 kW, without waste heat recovery) for two reasons. First, performance incentives will encourage installation of fuel cells that will be used to displace power generated by fossil fuel plants. Small scale fuel cells such as Proton Exchange Membrane ("PEM") fuel cells (available in the range of 5 to 10 kW) are often used as back-up systems. If incentives are offered on a per watt basis, the OCE's proposed incentives will likely operate to promote back-up systems that will run infrequently and, thus, will produce few environmental benefits. Apparently, the New York State Energy Research and Development Authority ("NYSERDA") recognized this and modified its small scale fuel cell incentive program last year to include a performance-based incentive structure. Note that the NYSERDA fuel cell program does not require fuel cells to recover waste heat as PEM systems - the NYSERDA program's only eligible type of fuel cell system - rarely utilize waste heat.[1]

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[1] Descriptions of NYSERDA's small scale fuel cell incentive program are available at http://www.nyserda.org/funding/2157summary2.pdf and http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY44F&re=1&ee=1.

Second, small fuel cell systems are significantly more expensive on a per kW basis than large scale fuel cell systems. Thus, it would make sense to provide slightly higher incentives to small systems. According to a report prepared for the US EPA in 2008, the smallest fuel cell system (10 kW) suitable for residential and small commercial customers is the most expensive on a per kW basis, costing over $9,000 per kW while larger installations cost between $5,000 to $6,000 per kW.[2] A table of fuel cell costs is provided as an Attachment to these comments.[3]

Rate Counsel's proposed incentive structure for small systems is based on NYSERDA's small fuel cell program. However, Rate Counsel proposes a slightly higher incentive level of $0.20 per kWh (instead of $0.15 per kWh) to better promote smaller systems. The $0.20 per kWh incentive provides slightly higher total incentives per watt than the $1 per watt incentive currently proposed by OCE for fuel cells without waste heat recovery. The following chart shows effective incentive per watt installed based on performance incentives of $0.15 per kWh and $0.20 per kWh over the first three years at various capacity factors.

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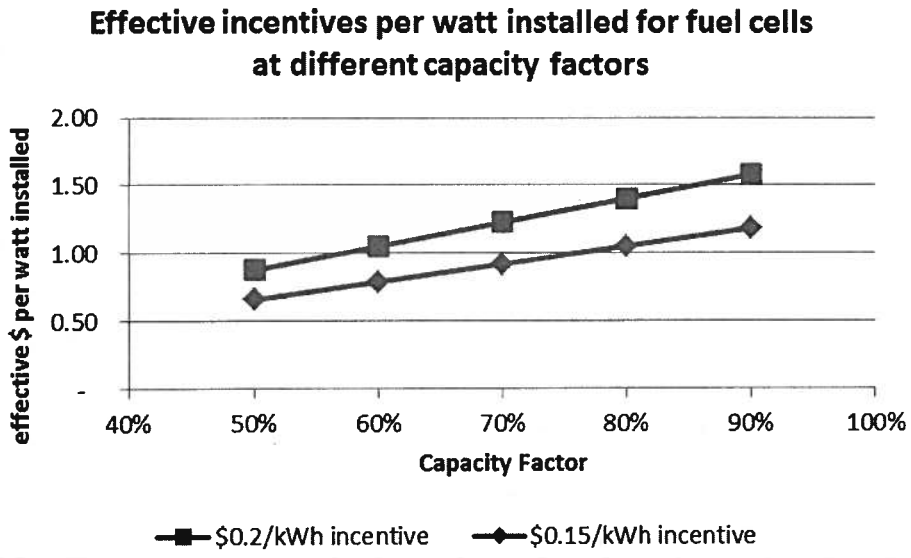
[2] "Technology Characteristics: Fuel Cells", a report prepared by Energy and Environmental Analysis, Inc. for the US Environmental Protection Agency (December 2008), p. 14. This report is a part of the US EPA's "Catalog of CHP Technologies" available at http://www.epa.gov/chp/basic/catalog.html.

[3] While the cost estimates are a few years old, we believe the cost difference among different fuel cell technologies has not changed significantly.



It is our understanding that NYSERDA received no new applications for the small fuel cell program since the program's launch last year. While no study was conducted to examine reasons for the lack of applications, the incentive level is likely to be one of the major reasons. As noted in OCE's fuel cell incentive proposal, California has a higher incentive for smaller systems as well: $2.5 per watt for systems ≤1 MW, and $1.25 per watt for >1 MW to 2 MW systems. In sum, Rate Counsel proposed incentives for small fuel cell systems without heat recovery would be more in line with the incentives for such systems offered by New York and California.

Conclusion and Recommendations

Rate Counsel's comments are summarized as follows:

- Adopt the OCE's proposed reduction in the incentive level for fuel cells with heat utilization; and
- Modify the OCE's proposed incentive for fuel cell systems without waste heat utilization by implementing a larger incentive for small systems.

ATTACHMENT

TABLE: Estimated Capital Cost for Typical Fuel Cell Systems in Grid Interconnected CHP Applications (2007 $/kW)

Installed Cost Components Fuel Cell Type	**System 1** PAFC	**System 2** PEM	**System 4** MCFC	**System 5** MCFC
Nominal Capacity (kW)	200	10	300	1200
Equipment				
Fuel Cell Package	$4,500	$8,000	$4,000	$3,870
Heat Recovery and other equipment	$80	$0	$60	$30
Interconnect/Electrical	$150	$500	$120	$40
Total Equipment	$4,730	$8,500	$4,180	$3,930
	$0	$0	$0	$0
Labor/Materials	$330	$600	$290	$280
Total Process Capital	$5,060	$9,100	$4,470	$4,210
Project and Construction Management	$710		$630	$590
Engineering and Fees	$240		$210	$200
Project Contingency	$240		$210	$200
Project Financing (interest during construction	$70		$60	$60
Total Plant Cost $/kW	$6,310	$9,100	$5,580	$5,250

Source: "Technology Characteristics: Fuel Cells", a report prepared by Energy and Environmental Analysis, Inc. for the US Environmental Protection Agency (December 2008), p. 14. This report is a part of the US EPA's "Catalog of CHP Technologies" available at http://www.epa.gov/chp/basic/catalog.html