

**STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION**

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**Proceeding on Motion of the Commission  
Regarding a Retail Renewable Portfolio  
Standard**

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**Case 03 -E- 0188**

**RESPONSE OF PLUG POWER INC. TO SAPA NOTICE PSC-45-04-00013-P**

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**December 23, 2004**

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**Introduction**

The Commission stated in its Order that the purpose of the customer-sited tier is “ensuring continued and accelerated development in New York State of emerging technologies.” Implementation of the fuel cell portion of the RPS should emphasize the continued development of equipment that is technologically viable though not yet cost-competitive.

Plug Power concurs in the comments filed by the Renewable Energy Technology Environmental Coalition (RETEC). With respect to fuel cells, Plug Power offers the following additional comments.

**Summary of Recommendation**

A portion of the customer-sited tier should be allocated for customers of 25 kW or less.

A combination of the RFP/PON approach for general projects, and a standard offer approach for small projects, will best implement the Commission’s purpose in establishing the customer-sited tier with respect to fuel cells.

Eligibility criteria and performance guarantees should be used to ensure that awards are granted only for fuel cells that are ready for commercial performance.

**A portion of the customer-sited tier should be allocated for customers of 25 kW or less.**

The Commission articulated five criteria to be used in determining costs and benefits:

- creating or sustaining jobs in New York
- supporting load pockets during peak demand
- supporting fuel diversity
- opportunity for small customers to participate
- environmental benefits

Each of these criteria supports the establishment of an aggressive program to develop small fuel cell projects.

Creating or sustaining jobs in New York: Providing opportunities for small fuel cells to participate in the RPS will greatly enhance efforts to maintain and attract high-tech energy jobs in upstate New York. Plug Power, for example, currently employs approximately 300 people in New York State. As of the end of 2003, Plug Power had paid over \$146,000,000 in wages and compensation to its employees, and over \$50,000,000 to suppliers located within New York. Plug Power employees had paid approximately \$8,000,000 in State income taxes.

Opportunity for small customers to participate: This criterion establishes the clearest mandate to provide for a small fuel cell component in the RPS. The implementation of the customer-sited tier should be structured to encourage widespread participation by small customers, and should be reevaluated on an annual basis.

Customers with demand less than 25 kW will be providing approximately half of the financial support for the RPS. These customers should have a reasonable opportunity to participate directly in the program by having generation units installed onsite. Also, increasing the public recognition and acceptance of distributed generation technologies is an important part of “accelerating development in New York State of emerging technologies.” This goal will be furthered by increasing small customers’ usage of, and exposure to, clean distributed generation equipment.

Supporting load pockets during peak demand: Small fuel cells can be installed in a variety of locations, with few if any siting or permitting problems. Because the Commission has expanded the Standardized Interconnection Requirements to include networks, it will be relatively simple to install small fuel cells inside load pockets. Although large numbers of small units may be needed to mitigate a load pocket situation, the diversity represented by large numbers of small units enables utilities to rely on the power production of a high percentage of those units at any given time.

Power from fuel cells is available on demand, which means that fuel cells will be available at peak times. For this reason, they are an ideal complement to intermittent

resources such as wind and solar (although solar also tends to be operating at its highest capacity factor during peak times).

Because a large number of small units creates diversity, capacity from small fuel cells can be relied on at peak times. This is especially important in addressing load pocket situations.

Supporting fuel diversity: At present, most fuel cells will use natural gas or propane to produce hydrogen. In the near term, they represent a highly efficient use of these fuels. In the long term, the development of end-use technologies such as fuel cells is essential to driving the development of a hydrogen infrastructure. The source of hydrogen is immaterial to the fuel cell, and the current use of natural gas reflects the absence of an infrastructure to produce and deliver hydrogen from other renewable sources. Because the purposes of the RPS are to develop long-term solutions, fuel cells represent a contribution to fuel diversity in the context of the RPS.

Environmental benefits: As the EIS noted, fuel cells represent by far the cleanest use of fossil fuels, and when pure hydrogen is available, fuel cells will have no emissions at all. This makes them particularly appropriate in high-density load pocket areas.

**A standard offer should be used for small customers, and an RFP process should be used for the remainder of the fuel cell allocation.**

Because the RPS is intended to bring renewable technologies into the marketplace, competitive processes should be used, where appropriate, in implementing the RPS. In the fuel cell industry, a transparent market does not yet exist and the costs of providing equipment and service are not only opaque but are in a constant state of change. In some market sectors, such as small customers, there are not enough viable competitors to warrant the development of a competitive process. Procurement methods used by NYSERDA should be developed in recognition of these facts.

For the reasons express in the RETEC filing, a standard offer is the appropriate vehicle for most of the customer-sited tier. Marketing to small customers will be difficult if it is contingent on the uncertainties and delays of an RFP process. Moreover, in the case of fuel cells 25 kW or smaller, there is not at present enough competition to warrant a competitive process. That situation could change during the time-span of the RPS, in which case modifications to the procurement process may be needed.

For fuel cells in general, however, this analysis does not hold. There are several fuel cell companies that are likely to participate in RPS projects. The costs of fuel cell projects across a range of manufacturers and fuel cell technologies are very difficult to estimate for purposes of establishing a standard offer. The fuel cell industry is an emerging industry. Technology develops rapidly and true costs change constantly. Purchases tend to be accomplished through negotiated contracts. Even if contract prices are available, an

elaborate investigation of proprietary information would be needed to understand how a contract price relates to the true cost of manufacturing, installing and servicing a project.

Given the variety of sizes and technologies in the fuel cell industry, a standard offer for all fuel cells presents the risk that the allocation could be dominated by one fuel cell technology, or one size of project. This would frustrate the purpose of the RPS to encourage development of the industry. An RFP process would allow the fuel cell allocation to be used in a manner that encourages development across all sectors of the industry.

For these reasons, with the exception of the allocation for small projects, fuel cell procurement under the RPS should be accomplished through an RFP process.

**The fuel cell allocation should be completed by 2010.**

The overall allocation of \$58 million for fuel cells projected in the Recommended Decision is a reasonable starting point for allocation among the technologies.

For reasons articulated in earlier filings, fuel cell subsidies under the RPS should be programmed to end in 2011. The years 2006-2010 are crucial years for the fuel cell industry, and by 2011 fuel cells should be able to compete with main tier technologies. The Recommended Decision suggested allocating fuel cell spending most heavily in the years 2006-08; that is a reasonable approach.

**Eligible equipment should be pre-certified.**

NYSERDA should maintain a list of certified fuel cell systems that are eligible to receive awards under this tier. This will allow participants to react swiftly to marketing opportunities rather than having to experience delays in having their equipment deemed eligible after an application for an award is submitted. Maintaining a list will provide NYSERDA with the opportunity to evaluate potentially eligible equipment in a time frame that is not subject to the demands of an imminent marketing opportunity.

Criteria for eligibility should consider:

- The likelihood of meeting performance guarantees
- The field record of the product and its precursors
- The availability of trained installation and service personnel
- Third party safety certifications, UL listing, documentation manuals
- Whether the equipment is presently being manufactured and marketed.

Precertification, combined with some form of performance guarantees, will be the best method of ensuring that only field-ready fuel cell systems are able to participate in the RPS.

## **New technologies.**

The Commission has specifically designated three technologies for this tier, and any addition to the tier should be subject to Commission approval after a process that includes public participation.

Criteria for admitting new technologies should be based on the reasons for the formation of the customer-sited tier:

- Technologies should have the potential for wide-spread application
- Technologies should offer significant environmental and/or energy security benefits
- Technologies should be technically mature, beyond beta-testing
- Technologies should be capable of commercialization with incentives in the range needed by the three technologies that are presently included in the tier.

In evaluating other technologies for inclusion, consideration should also be given to the level of participation in the customer-sited tier by the three technologies that have already been designated. If there are more applications than funds available, the Commission should not add more technologies without a compelling reason.

## **Generally applicable rules**

Performance guarantees. The customer-sited tier should always be seen as a program that invests in mechanically viable equipment that is not yet price competitive. It should only be used to support products that have a proven record of field performance. Products that have not advanced beyond beta-testing should not be eligible.

In the fuel cell industry, products are evolving at a rapid pace. For that reason, along with the use of a list of eligible equipment, consideration should be given to a variety of factors including a manufacturer's record, the record of products that are precursors of a proposed project, and minimum performance guarantees that should be required of each project.

Milestones. It is also important to establish milestones to ensure that award winners deliver a functioning project within a reasonable time. Milestone periods should begin with the date of award, not the date of a contract, because it may take an indefinite period of time for a contract to be put into place.

In the case of small projects of 25 kW or less, milestone dates can be made relatively short. For projects involving an existing host, delivery should occur within six months of an award, and the project should be operational within an additional three months. For projects involving new construction, the project should be operational within one month of occupation of the new construction, but not exceeding eighteen months from the date of award. These milestones will assure that limited allocations will not be taken up by speculative projects.

Accelerating development. The Commission explained that the purpose of this tier is to ensure the “continued and accelerated development” of emerging technologies. Fuel cell equipment that was manufactured years ago, using technology that is not presently being developed and which holds little or no promise of future development, should not be eligible under the customer-sited tier. Only equipment that is presently being manufactured and marketed should be eligible for participation.

Respectfully submitted,

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