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November 17, 2008

Jaclyn A. Brilling, Secretary
Public Service Commission
3 Empire State Plaza
Albany, NY 12223-1350

Dear Secretary Brilling:

Attached please find the comments of Plug Power Inc. to the two (2) Proposed Rule Makings listed below, published in the NYS Register on October 1, 2008, relative to the Commission Proceeding Regarding a Retail Renewable Portfolio Standard (Case 03-E-0188):

(i) I.D. No. PSC-40-08-00007-P, Modification of the RPS Tier Allocations, Annual Targets, Schedule of Collections and Administration Entity; and

(ii) I.D. No. PSC-40-08-00016-P, Modification of the RPS Base forecast, Goals, Tier Allocations, Annual Targets and Schedule of Collections.

Thank you.

Very truly yours,

Katrina Fritz Intwala

Katrina Fritz Intwala

Attachment

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New York State
Public Service Commission

Case 03-E-0188 **Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard**

COMMENTS OF PLUG POWER INC.
On SAPA Notices 03-E-0188SA18 and 03-E-0188SA19

I. Introduction

Plug Power Inc. ("Plug Power") respectfully submits the following comments on the Renewable Portfolio Standard (RPS) program. We believe the RPS is critical to accelerating the adoption of technologies such as fuel cells, which hold great promise for reducing greenhouse gas emissions and air pollution, while lessening our dependence on foreign oil. Furthermore, we believe accelerating the market adoption of our products supports the New York State Department of Public Service (the "Department") in its efforts to ensure safe, secure, and reliable access to electric and gas services for New York State's residential and business consumers, at just and reasonable rates. Plug Power's products are the efficient and environmentally sound innovative technologies and strategic infrastructure investment the Department is seeking to further pursuant to its statutory mission.

Plug Power, headquartered in Latham, New York, in the Capital Region, develops and manufactures fuel cell systems and related fuel processing technology. Plug Power has been in business since 1997 and employs more than 200 people in New York. Plug Power currently produces three product lines based on proton exchange membrane (PEM) fuel cell technology: GenDrive™, a complete line of fuel cell power units and hydrogen refueling technology, is already supplying the motive power requirements for electric lift trucks used in large warehouse, distribution and manufacturing operations; GenCore® fuel cell systems provide backup power to wireless towers, remote telecom facilities, and other critical uninterruptible power infrastructure; and GenSys® provides continuous power to critical infrastructure facilities and is currently in field trials in rural India. Plug Power has also recently unveiled a commercial prototype of a continuous power fuel cell that is expected to provide electricity, heat and hot water to residential and light commercial customers.

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A fuel cell is an electrochemical device that utilizes hydrogen and hydrogen-rich fuels to generate electricity and useful heat in a remarkably efficient way. After electricity is produced in the fuel cell stack, the hydrogen combines with oxygen from the air to produce only heat and water as a by-product. Because the conversion of hydrogen occurs without combustion, fuel cells do not produce the emissions normally associated with combustion such as carbon dioxide, oxides of nitrogen, carbon monoxide and particulates. Fuel cells are secure, reliable and high-quality power at the point of demand, with some systems able to provide high quality thermal energy as well as electric energy. They are extremely fuel efficient, generating power using far less fuel than needed by comparable technologies. In the long term, fuel cells offer the promise of pollution-free power.

The U.S. Department of Energy ("DOE") has promoted (in part) a vision of the future that includes a hydrogen based energy delivery system, which begins with small-scale distributed generation ("DG") systems fueled by hydrogen. These DG systems provide stationary power and may also generate hydrogen for hydrogen-fueled vehicles. DOE has funded several projects that evaluate the potential for the generation of hydrogen through renewable power, i.e., wind-to-hydrogen, solar-to-hydrogen, geothermal-to-hydrogen and hydro-to-hydrogen. The common denominator is that renewably generated electricity is used to power an electrolyzer to generate hydrogen.

Fuel cells are a natural complement to intermittent renewable technologies such as wind and solar. Fuel cells have the ability to generate electricity regardless of weather conditions and can act as a power storage technology, converting off-peak generated wind and solar energy to peak power. Fuel cells also can provide highly reliable electricity. Some studies estimate that power quality and reliability issues cost our economy alone as much as $150 billion per year in lost materials and productivity, while others have reported estimates as high as $400 billion per year. When fueled by hydrogen from a renewable energy source such as solar, wind, or hydropower, or if the fuel source is bio-fuel, like ethanol from plant wastes, CO2 emission are net zero.

II. The RPS.

Plug Power does not support modifying the RPS tier allocation or creating a new tier to increase the target level of photovoltaics and other on-peak resources in high cost areas unless fuel cells are included as an eligible technology. Additionally, the adoption of an additional goal of 100 MW of photovoltaics and other on-peak resources should not be limited to high cost areas. If the Department pursues the increase of on-peak resources it should be done in addition to the existing main tier and customer-sited tier goals.

As a "clean tech" industry, with over 200 "green collar" jobs in New York, we believe that the RPS is not just good for the environment, but can be good for the economy of the

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State of New York as well. It is more than a likelihood that deploying fuel cell products made by Plug Power will lead to the maintenance and creation of jobs in New York, it is a certainty. When the Department included a fuel cell category in the customer sited tier (CST) in the original the RPS, it was the first time that a fuel cell category was included among the many innovative programs the Department has implemented. The customer-sited tier of the RPS provides for two categories of fuel cells, those that are classified as small fuel cell track (i.e., fuel cell systems of 25 kW or less) and large fuel cell track (i.e., fuel cell systems larger than 25 kW). Under the Operating Plan, small fuel cell funding is set at $500,000 for 2007, 2008 and 2009 for a total of $1.5 million whereas general fuel cell funding (comprising small and large fuel cell track) is set at $3.23 million for each year of the same period for a total of $9.7 million.[2]

We do not support changing the tier structure or the eligible technologies at this time, absent inclusion of fuel cells in any increase in goals and a recognition that fuel cells can provide both a robust on-peak resource, and a reliable, dispatchable distributed generation technology that are a natural complement to intermittent renewable technologies such as wind and solar. Fuel cells have the ability to generate electricity regardless of weather conditions and can act as a power storage technology, converting off-peak generated wind and solar energy to peak power. Fuel cells also can provide highly reliable electricity.

With the release of NYSERDA PON 1150 in December of 2007, Plug Power has had the opportunity to market to customers the availability of funding assistance for the purchase and installation of our product. In the Department's previous proposal to revise the funding of the CST (PSC-31-08-00023-P), the Department gave justification for not increasing funding to fuel cells and small wind projects, suggesting that these programs have not been as robust as the other eligible technologies and "therefore, the Commission is not considering additional funding for those two programs at this time."[3]

To the extent there is any concern over the level of demand for the CST funding currently available for fuel cells, please note it has been less than a year that funding has been available for fuel cells under PON 1150. And, unlike wind and solar which had very robust funding allocations under the research and demonstration category of the Systems Benefit Charge (SBC) program since its inception in 1998, fuel cells have traditionally competed for research and demonstration funding in the Combined Heat and Power category, a category that includes internal combustion technologies that have been commercially available for decades, the equivalent of asking a wind or solar project to

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1 Renewable Portfolio Standard - Operating Plan for Customer-Sited Tier Program (2006-2009) (Issued Februrary 12, 1007) ("Operating Plan"), p. 11.

2 Renewable Portfolio Standard Customer-Sited Tier Fuel Cell Program, Program Opportunity Notice 1150, NYSERDA ("PON 1150").

3 psc-31-08-00023-p, P. 2.

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compete against a combined cycle natural gas power plant. The commercialization of solar and wind was fostered by the SBC, and the RPS has been able to build on that. Before modifying tier allocations to increase the target level of photovoltaices and other on-peak resources in high cost areas, the Department should consider other barriers to entry such as building code, fire code, and product approval processes that have acted to prevent the rapid deployment of photovoltaics and fuel cells in New York City.

In crafting the RPS originally, the Department recognized that there may be a need to make annual modifications to the allocations based on an analysis of market readiness of the technologies and the distribution and installation industry in New York. Significantly, the Commission provided a number of criteria that should be examined as part of any analysis to modify funding allocations:

- Cost effectiveness relative to the retail price of electric power;
- Market risk as indicated through consumer awareness, the potential market size, and the availability of deployment services to meet consumer demand;
- The net environmental impacts relative to clean fossil technology;
- Technical risk as indicated through the stage of product manufacturing, proven field experience and the ability of the technology to meet reasonable performance standards for the expected life of the technology, which should at least extend beyond 2013;
- The likelihood that manufacturing and/or deploying the technology will maintain or increase employment in New York State;
- Benefits to the New York State electric system through reduction in the peak load or the cost of power;
- Fuel diversity impact through a reduction in the use of fossil fuels, and
- The potential for residential and small business sector participation.

If these criteria are applied to fuel cells in general and Plug Power in particular, the criteria support increasing funding for fuel cells and at the very least maintaining the tier categories. Fuel cells hold the promise of meeting or exceeding any other technology when viewed through the prism of these criteria. They can be widely adopted by residential and small business sectors. Plug Power has hundreds of units at customer sites including T-Mobile, New York State Police, NYSERDA, and is working with New York and worldwide utilities to facilitate deployment of residential systems.

Fuel cells have the capacity to drastically reduce the use of fossil fuels. With respect to sources of hydrogen in New York, existing plants largely derive hydrogen by utilizing hydro-power, which is well beyond 98% green. For example, Linde, one of the world's largest hydrogen producers, utilizes the by-product hydrogen stream from a sodium chlorate plant and purifies it and liquefies it using 97% hydro-power. The sodium

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chlorate plant uses that same power and salt water as its only manufacturing inputs. This hydrogen is considered very green.

Because fuel cells can follow load, are distributed generation and can be sued to complement wind and solar power systems, they bring significant benefits to the New York State electric system. Fuel cells can be dispatched to run during peak loads without regard to weather conditions and when costs of green house gas emissions begin to be internalized to the cost of power, fuel cells running off of renewably generated hydrogen will provide a mitigating impact to the rising cost of power.

With respect to cost effectiveness, market risk, market size, and the availability of deployment services to meet consumer demand; fuel cells used in material handling applications (fork lift trucks) make a compelling economic case in many markets. Companies such as Wal-Mart, Nissan, and Bridgestone are using fuel cells and hydrogen refueling in distribution centers and warehouses today. These companies are seeing positive value generated by labor savings, productivity improvements and reduced maintenance. They are also being used in military supply logistics. With its significant distribution and warehousing network, and tremendous demand on the grid, New York is a key market for this technology.

Refueling of fuel cells requires less than one minute, greatly decreasing vehicle and operator downtime. Fueling dispensers can be located strategically around a factory or warehouse and eliminate the need for a battery room and free up additional commercial space. Demand on the grid is reduced, labor costs associated with changing batteries are eliminated and there is less wear on equipment caused by battery droop.

A recent FCC ruling mandates eight hours of backup power for cell sites, remote switches and digital loop carrier system remote terminals that are normally powered from local AC commercial power. Network reliability requirements are increasing due to increased competition and new services, causing a correlated increase in power consumption and network reliability requirements. Overlay work requires the ability to add incremental power, while weak infrastructures warrant extended runtimes (24 to 48 hours). There are fuel cells being used today at sites across the State of New York. Carriers are aware of the pending regulations, looking to extend their backup power capability and evaluating diesel generators, lead-acid batteries and fuel cells as potential options. The use of fuel cells will avoid incremental emissions that could result from this mandate

Plug Power is also supportive of updating the base forecast using a post-Energy Efficiency Portfolio Standard forecast of electricity usage in New York State and increasing the goal to 30% by 2015. As stated by the Commission, "Advancing renewable energy offers significant opportunities for New York to improve energy

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security and reliability as well as to create new business and jobs while reducing the public health and environmental impacts of energy use." The Commission should act expeditiously to authorize collections on ratepayer bills to fully fund the RPS. The small incremental cost represents an investment in our energy future from which all consumers will benefit. Recent history has shown us that rising and volatile fuel prices challenge all households. Investment in clean, domestically produced power generation manufactured in New York mitigates price volatility, creates jobs, enhances the reliability of the grid in an environmentally responsible manner. Plug Power is uniquely positioned to assist New York in achieving all of these goals.

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