

REGIONAL GREENHOUSE GAS INITIATIVE

Comments of Plug Power Inc. on Draft Model Rule

Introduction

Plug Power Inc. supports the carbon dioxide emission reduction program embodied in the Regional Greenhouse Gas Initiative (RGGI) model rule.

Plug Power is a leading provider of clean, reliable on-site energy—focused on a future fueled by distributed energy, and grounded in putting fuel cell technology to work today. Plug Power has gained extensive experience in the design and operation of proton exchange membrane (PEM) fuel cell systems since its inception in 1997. The Company's focus on natural gas-powered fuel cell systems has resulted in the successful deployment of over 650 fuel cell systems with increasing functionality and reliability and decreasing cost. GenCore® commercial fuel cell products provide backup power for telecommunications, utility and uninterruptible power supply applications. Fueled by hydrogen, these systems provide extended backup power reliably and efficiently over a wide range of outdoor conditions with zero emissions.

Plug Power's comments on the Draft Model Rule are limited to two issues:

1. The allocation allowance to the Consumer Benefit or Strategic Energy Purpose Accounts should be 100%.
2. The definition of the Consumer Benefit or Strategic Energy Purpose Account should make it clear that fuel cells and fuel cell-related research are eligible.

The allocation allowance to the Consumer Benefit or Strategic Energy Purpose Accounts should be 100%.

For the reasons stated in the presentation of Laurence DeWitt of the Pace Energy Project at the stakeholders' meeting of May 2, 2006, Plug Power supports the proposal that one hundred percent of allowances should be allocated to the public and auctioned.

The allowances should be allocated through regulated distribution utilities. State utility commissions should then determine the manner in which the Accounts will be used for strategic energy programs or direct customer reimbursement. It should also be made clear that any programs funded from the Accounts should supplement, not supplant, existing programs.

The definition of the Consumer Benefit or Strategic Energy Purpose Account should make it clear that fuel cells and fuel cell-related research are eligible.

The apparent intent of the Model Rule is for the definition of Strategic Energy purposes to include fuel cells. However, the definition could be interpreted to exclude fuel cells. The ambiguity of fuel cell eligibility under renewable energy programs and greenhouse gas reduction programs stems from the fact that fuel cells are a bridge technology. Further development is required before fuel cells can be used on a large scale as a non-carbon-emitting power source.

For that reason, Plug Power proposes that the definition of “Consumer benefit or strategic energy purpose account” be amended to read: “... promotion and development of renewable or non-carbon-emitting energy technologies ...”

By adding the words “and development” to the definition, the Model Rule will make clear that Strategic Energy Purposes include development of complementary technologies such as fuel cells.

Fuel cells will complement intermittent renewable generation by converting off-peak generation into capacity that is available on demand.

A fuel cell is an electrochemical device that combines hydrogen and oxygen to create electricity, heat and water. 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. In the long term, fuel cells offer the promise of being a pollution-free method of converting hydrogen into electricity and heat in a wide range of applications, both stationary and mobile.

Fuel cells will be an ideal complement to intermittent renewable technologies such as wind. As intermittent technologies proliferate to the point where they generate large amounts of power during off-peak times, the marginal value of the off-peak energy will be greatly reduced and may even become negative. Optimistic scenarios for widespread deployment of intermittent renewable generation indicate a need for power storage technologies to convert off-peak production into peak production. This is a function that PEM fuel cells can fulfill in a renewable/hydrogen energy economy, because a hydrogen-fueled PEM fuel cell can deliver power instantaneously from a cold start.

At this time, hydrogen is not readily available in most locations. For that reason, fuel cells must convert hydrocarbons into hydrogen through a reformation process. Any greenhouse gas emissions produced by a fuel cell are associated with the conversion of hydrocarbons into hydrogen, which is a function of the fuel reformation process and not a function of the fuel cell itself. Because the reformation process is relatively expensive and technically complex, the use of hydrocarbons is seen as a temporary expedient in the long-term development of fuel cells.

The U.S. Dept of Energy's report entitled "A National Vision of America's Transition to a Hydrogen Economy" (February 2002) identifies a "chicken-and-egg" problem involving the need to develop hydrogen conversion technologies – such as fuel cells – and a hydrogen delivery system simultaneously, when each relies on the other for its commercial viability. Developing conversion technologies such as fuel cells will build demand for hydrogen production and delivery systems. Because fuel cells will play an integral role in a future hydrogen economy, it is imperative to develop the conversion technology in order to break through the "chicken-and-egg" dilemma.

For these reasons, fuel cell development should play an important role in an energy strategy devoted to replacing fossil fuels with non-carbon-emitting generation sources. Recognizing this, the New York Public Service Commission took a pragmatic approach to the definition of renewables in establishing New York's Renewable Portfolio Standard. The Commission stated:

"... law, policy, science and advocacy present countless definitions of what is a "renewable" resource. In different legal contexts, "renewable" can be given any one of a myriad of definitions. Rather than attempt to resolve the definition in the abstract, efforts in the proceeding were focused on what resources should be eligible for RPS incentives."

New York State Public Service Commission, Case 03-E-0188, Order Regarding Retail Renewable Portfolio Standard, September 24, 2004, page 32.

In other words, the Commission focused on the overall needs and objectives of the program, rather than a literal interpretation of the word "renewable," in establishing eligibility for the program. Using that approach, the Commission included fuel cells as an eligible technology under New York's Renewable Portfolio Standard. *Id.* at 8.

Conclusion

Plug Power strongly supports the RGGI initiative and looks forward to participating in its implementation.

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