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Energy Plan Comments  
NYSERDA  
17 Columbia Circle  
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American Wind Power & Hydrogen LLC (AWP&H) submits these comments to address a number of Briefing Issues identified in the Draft Scope of 2009 New York State Energy Plan, particularly “Environmental Impact and Regulation of Energy Systems,” and to note the role of **megawatt-sized fuel cells** in addressing these concerns and current climate initiatives.

The US market for commercial fuel cell products and services is forecast to expand almost six fold through 2012 to \$975 million and reach \$3.3 billion by 2017.<sup>1</sup> The growth of this market will be bolstered by ongoing environmental concerns that will spur social interest in less polluting energy sources, as well as continued efforts to reduce US dependence on foreign oil.

The Renewable Portfolio Standard Program recognizes the benefits of fuel cells and noted that a 25 kW fuel cell is a “large fuel cell.” NYSERDA’s incentive program for fuel cells was capped accordingly.

California has recognized that fuel cells are available in megawatt sizes and has structured their incentive program to encourage larger projects. There are 26 fuel cell units in wastewater treatment plants and food manufacturing companies in California. These facilities have a combined capacity of about 20 mW. Recently, Connecticut supported the installation of fuel cells in 2.4 mW, 4.6 mW, and 9 mW sizes. These units are based on molten carbonate fuel cell technology.

AWP&H is preparing a feasibility study for the New York City Department of Environmental Protection’s Newtown Creek wastewater treatment plant that will show the benefits of molten carbonate fuel cells in the 2.4 mW to 9.6 mW range.

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Molten carbonate fuel cells operate at high temperature and are therefore able to feed methane directly to the fuel cell. Other fuel cells are low temperature fuel cells that require the methane to be converted to hydrogen first in a separate reformer. The resulting hydrogen is then fed to the fuel cell. As a consequence molten carbonate fuel cells are highly efficient and eminently suitable for the conversion of anaerobic digester gas from wastewater treatment plants and landfills without the necessity of a hydrogen generation process unit..

Negligible amounts of criteria pollutants are generated when electricity is generated from fuel cells. Also the high efficiency (47%) of the molten carbonate fuel cell, compared to the lower efficiency of combustion processes, results in less carbon dioxide being produced than when electricity is generated by a combustion process.

AWP&H will be please to supply more details to the Committee in the later stages of the development of the State's Energy Plan.

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