SECRETARY'S ENVIRONMENTAL ASSESSMENT REPORT FOR A COASTAL ZONE ACT PERMIT APPLICATION

Re: Diamond State Generation Partners, LLC

January 2012

Introduction

As required by the "Regulations Governing Delaware's Coastal Zone" (Section 8.3.4) dated May 11, 1999, and amended October 1, 2001, the Secretary is required to make an environmental assessment of the impact(s) of the project on the Coastal Zone of Delaware. This is done by evaluating the project's likely impact on the statutory and regulatory criteria and making a preliminary determination of the sufficiency of the Offset Proposal. The following is such an environmental assessment of the proposed project described in an application for a Coastal Zone Act (CZA) Permit, received from Diamond State Generation Partners, LLC ("Bloom Energy").

The fact that DNREC considers an application to be preliminarily, administratively complete does not constitute the Department's position as to whether the application should be approved or denied. That decision will not be made until after the public hearing. The purpose of the Secretary's written assessment is to assist the applicant and the public to focus on issues presented in the application. It constitutes an administrative determination that the application is sufficient to proceed to a public hearing. In addition, should the Department eventually issue the CZA Permit, it does not automatically guarantee the applicant will receive other required permits.

The Proposed Project

The Red Lion Fuel Cell Installation, located at 1593 River Road, New Castle, Delaware, will provide up to 47 MW of electrical power that will be connected to the PJM electrical grid. The project will consist of 235 Bloomenergy ES-5700 Energy Server fuel cells that will utilize natural gas. The project will be built in phases, the first phase consisting of 27 MW of capacity, and the second phase an additional 20 MW.

Each fuel cell has a base load electrical output of 200 kW with a maximum natural gas usage of 1.32 MMBtu/hr (i.e., 1,282 SCFM at 1030 Btu/SCF heating value). The fuel cells will produce electricity at 480V which will be transformed to 138 kV before being sent to the nearby Delmarva Power Red Lion substation. The project will also include a water de-ionization system, natural gas pressure regulating station, an administration, a maintenance building, and an access road. The site design will incorporate the requisite stormwater and process wastewater management provisions.

Sufficiency Statement

This application for a CZA Permit, including supplemental information, has been reviewed by the Department to determine its completeness. After a thorough review of the company's application and file, the Department considers this application to be administratively complete and sufficient for proceeding to public hearing.

Environmental Assessment

The following table shows the facility's maximum emissions at full build-out of 235 fuel cells, with a rated power capacity of 47 MW. The daily maximum energy production will be 1,128 MWh at full capacity.

Pollutant	Existing Emissions		Net Increase/Decrease		New Total Emissions		Percent Change (compare tons/year)
	Lbs./day	*Tons/year*	*Lbs./day*	*Tons/year*	*Lbs./day*	*Tons/year*	
NOx	0.0	0.0	2.37	0.432	2.37	0.432	NA
CO	0.0	0.0	112.8	20.58	112.8	20.58	NA
VOC	0.0	0.0	22.56	4.12	22.56	4.12	NA
SO_2	0.0	0.0	0.0372	0.007	0.0372	0.007	NA

There will be an increase in wastewater discharges of 1,267 gals/day or 462,480 gals/year. The project will not have a process wastewater discharge to surface water. Process wastewater that results from water treatment units (water softener and reverse osmosis system) will be infiltrated on site to recharge groundwater. The process wastewater is anticipated to meet Safe Drinking Water Act criteria and not impact groundwater quality.

The project will result in a reduction in the amount (volume) of stormwater that will run off from the property. This reduction is attributable to the use of bioretention basins. Stormwater quality will improve over current levels as pesticides, herbicides and fertilizers will no longer be applied to the developed land and be discharged in the stormwater as currently happens. Stormwater from the developed portion of the site will be routed through a grass filter (road and parking lot drainage) and through three bioretention basins to remove any sediment, oils and greases that potentially could be in the stormwater runoff from areas used by vehicles.

Water usage will normally be zero when facility is new and starts operation. As the facility ages, a fraction of the fuel cells will be under service at any given time and will require de-ionized water for a period of twelve hours as they start up. Groundwater from a new well will be

treated (de-ionized) using softeners and a reverse-osmosis system. The de-ionized water will be stored in on-site tanks, for use only when units are shut down and not producing electricity. Potable water will come directly from the well (approximately 50 gallons per day). Maximum daily groundwater consumption will be approximately 8,640 gallons, occurring one or two days per year or when a grid event occurs that requires the entire facility to shut down and then restart during such an event. The daily average groundwater consumption will be approximately 3,889 gallons.

The project will generate the following solid wastes:

Paper wastes – 3000 lbs per year.
Plastic wastes – 1000 lbs per year
Glass wastes – 500 lbs per year
Metal wastes –500 lbs per year
E-wastes – 10,000 lbs per year

All solid wastes will be collected by truck and recycled to the maximum extent practicable. No hazardous wastes will be generated.

The project avoids physical disturbance of wetlands and provides upland buffers between areas of disturbance and the neighboring wetlands. No other environmental impacts are anticipated.

Offset Proposal

Projected air emissions from the Bloom facility are considered minimal. The company, in its offset proposal, suggests that the 47 MW of electrical power produced by the fuel cells will replace 47 MW produced by fossil fuel-based facilities that satisfy current demand within the PJM grid. Bloom notes that the air emissions attributed to the proposed fuel cells are "substantially less" than air emissions produced by other existing fossil fuel-based electricity generation.

The company estimates its operation will result in the reduction of 0.56 million pounds of NOx emissions and 2.2 million pounds of SOx emissions from current emissions within the PJM grid. The company notes that its full operation also will avoid emissions of particulates, volatile organic compounds (VOCs) metals and hydrocarbons. While the actual resulting decrease in emissions within Delaware's Coastal Zone is difficult to quantify, the Coastal Zone Act regulations do allow for benefits to be accrued and quantified outside the zone. Air emission modeling has demonstrated, however, that emissions from upwind sources within the PJM service area do impact air quality in Delaware. In addition, the company will be prepared at its hearing to demonstrate the relationship between its operations and air quality inside Delaware's Coastal Zone.

Bloom also is supplementing its application by proposing to provide a payment in the amount of $20,000 as an additional form of offset for the conversion of 9.3 acres of farmland in the coastal zone into the proposed Red Lion Energy Center. The amount of this payment was calculated by averaging the cost per acre paid by the Delaware Department of Agriculture for farmland in Delaware's Coastal Zone during the2011 Round 16 purchase sequence. The payment will be used to help restore marshland in the vicinity of the project and within the Coastal Zone.

Conclusion

The company's application is preliminarily administratively complete.

Approved: _____

Collin P. O'Mara
Secretary

Date: 2/10/12