

ENVIRONMENTAL PLANNING - OFF SHORE WIND PARK

Client: LIPA (Long Island Power Authority)
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Site: Long Island Offshore, SE
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Long Island Off Shore Wind Park - Saltwater Interface off Long

TASKS

To prepare the DEIS (Draft Environmental Impact Statement), PWGC evaluated the potential impact of the proposed LIOWP on Long Island's groundwater resources in the project's vicinity. ENSR International (ENSR) contracted PWGC to perform an EIS (Environmental Impact Statement) under National Environmental Policy Act (NEPA) for environmental issues that included an extensive Hydrogeologic Analysis.

METHODOLOGY

PWGC reviewed USGS information on the study area and well logs in the study area from the NYS Department of Environmental Conservation (NYSDEC), Suffolk County Water Authority (SCWA), and any PWGC files/records.

Generated geologic cross-sections along the barrier beach and extrapolate sections N-S at Robert Moses, Jones Beach, and Gilgo.

Produced estimates based on existing saltwater interface/hydraulic head information and calculation of the expected interface location in the upper Glacial and Magothy aquifers.

RESULTS

The limited knowledge of the groundwater resources in the area of the wind park feeds the public's concerns about the WTG pile foundations' impact on the fresh/saltwater interface in the Magothy aquifer and the installation of the cables along the cable routes on the Upper Glacial aquifer. Following the review of the above information, boring logs from the barrier islands, and from geophysical survey results of the park's area PWGC surmised

A significant clay layer is expected just beneath the sea floor to at least 160 feet below the bottom. If so, the proposed piles would be located completely within the clay prohibiting entry into the Magothy aquifer and therefore, have no impact. However, the lower boundary of this clay has not been defined and questionable. If the clay is not as dense as anticipated, other potential scenarios do not yield significant potential impacts to the aquifer or the location of the saltwater/freshwater interface. As part of the foundation design, PWGC advised to perform and log soil borings to identify the extent of clay, and to sample and analyze pore water for salinity to determine if the water is salty.

Impact on groundwater does not seem to be an issue due to (1) cables' installed in groundwater that is already salty, (2) directional drilling to minimize soil disturbances, and (3) sufficient water depth in the area of the Glacial aquifer to place the cable above groundwater.

PWGC completed the investigation, prepared a hydrogeological report to document findings and conclusions, along with recommendations for additional data collection.

PWGC performed work to the client's satisfaction and quality expectations. The project started in July 2005 and was completed as planned by August 2005. PWGC performed this work for \$12,000, which was within budget.

PROJECT

Environmental Planning for the proposed Long Island Off-Shore Wind Park (LIOWP), located at the Saltwater Interface off Long Island, southeast of Jones Beach and southwest of Robert Moses State Parks. The LIOWP proposed wind turbine generators (WTGs) located off the South Shore of Jones Beach Island in a multiple row array with an embedded offshore substation platform (ESP), a buried cable collection system, and a cable connecting the offshore ESP to the onshore existing LIPA Sterling Substation.

Offshore Wind Park – History

2002 - Results of a preliminary Phase I wind assessment study conducted by LIPA, AWS and NYSERDA reveal untapped potential of over 5,000 MW of wind energy off Long Island's shores.

2003 – Release of Phase II Siting Assessment Results and LIPA's Request for Proposals to develop, construct, own and maintain a 100 - 140 MW offshore wind park

2004 - LIPA Board of Trustees approved negotiations for a Power Purchase Agreement with proposed developer FPL Energy in June.

2005 - LIPA and FPL Energy file a joint application with the US Army Corps of Engineers seeking authorization to install a 140 MW offshore wind energy park off the South Shore of Long Island.

2008 - Following an extensive regulatory and environmental review, Facility is expected to be operational.

The offshore wind park proposal, which may be the first ever in America, will consist of 40 turbines located 3.7 miles southwest of Robert Moses State Park. When complete, the 8-square-mile-area wind park will be one of the largest renewable projects in NY State, producing zero-emissions energy for approximately 44,000 Long Island homes - and save 13.5 million barrels of oil over the project's lifetime

