

## PROJECT OVERVIEW

The Neptune RTS Project is a 660-MW (500 kV) high-voltage, direct current (HVDC) submarine electric transmission cable that connects power generation resources in New Jersey to electricity consumers on Long Island. The cable extends from the GPU/First Energy, Inc., substation in Sayreville, New Jersey to the Long Island Power Authority Newbridge Road substation in Levittown, Long Island, a distance of 65 miles.



Converter stations are located at Sayreville and at Duffy Avenue on Long Island. The majority of the route – more than 50 miles -- is underwater in the New York Harbor and the Atlantic Ocean; 14 miles are buried in the existing right-of-way of the Wantagh State Parkway. The Project was completed in the summer of 2007, ahead of schedule and within budget.

### Technology

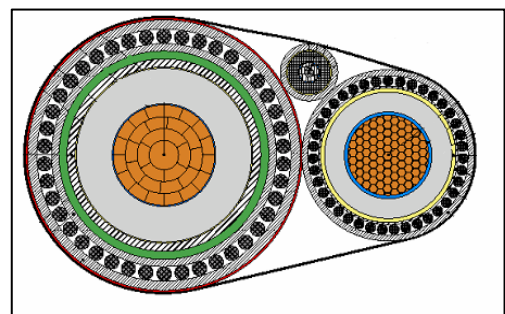
The Neptune RTS project uses proven, state-of-the-art, solid-state, HVDC undersea transmission technology. It was constructed in an environmentally sound manner, avoiding major fishery and other environmentally sensitive locations. The Neptune RTS sub-sea cable eliminates the need for new transmission line corridors through urban and suburban neighborhoods and rural areas. Neither the cable nor the converter stations generates air emissions, and thus contributes to providing environmentally friendly electricity resources on Long Island.

The transmission line itself consists of three cables, installed entirely under water and underground. The converter station in New Jersey transforms alternating current (AC) power into direct current (DC) power for transmission to Long Island, while the Long Island converter station transforms DC power back into AC power for distribution to customers. The stations consist of valve and control buildings and an outdoor bank of electrical equipment similar to a conventional electric substation.

### Why Was This Project Needed?

In May 2004, the Long Island Power Authority (LIPA) chose the Neptune cable as the centerpiece of its long-range plan to provide approximately 1000 MW of new, urgently needed power sources to Long Island by 2010. Neptune RTS increases the amount of electrical capacity and energy available to Long Island electricity consumers.

Because the cable is a transmission connection to the Pennsylvania, New Jersey, Maryland (PJM) system, it increases the capacity and energy available to Long Island in a more flexible and reliable manner than simply siting new generating facilities on Long Island. Moreover, it adds capacity and makes available more energy without adding local impacts associated with new power generation. Finally, because the cable connects to existing resources, more energy is available relatively quickly compared to the long process of siting and permitting new generation plants.



HVDC Underwater Cable Cross-Section

## What Environmental Studies Were Conducted?

Neptune RTS received a Certificate of Environmental Compatibility and Public Need from the State of New York Public Service Commission. As required by law, the Certificate was issued after extensive review by state and federal environmental agencies that focused on potential environmental impacts, as well as local neighborhood impacts and the overall need for the facility. Under the Certificate, Neptune RTS complied with a wide range of conditions designed to assure that the facility were constructed in an environmentally sound manner.

Neptune RTS also received a Waterfront Development Permit from the New Jersey Department of Environmental Preservation, and a Section 404 Permit from the Army Corps of Engineers, authorizing construction on land and in the water.



Converter Station at Duffy Avenue, Long Island, Nearing Completion in Spring 2007

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