

New York Power Authority

Environmental and operational impacts being addressed by virtual AIS AtoN's

Transmission circuit Y-49 is owned by the New York Power Authority and operated at 345KV with load averaging 600 MW providing critical power to Long Island. The cable system is comprised of 4 independent Self Contained Fluid Filled (SCFF) cables buried an average of 10 feet in the seabed crossing Long Island Sound between New Rochelle at the north end and Hempstead Bay at the south end on Long Island. The four cables are separated by approximately 600 feet in the middle of the Sound, but come together as you approach shore. Each cable is connected to a pressurizing plant that maintains a cable fluid pressure of 160 PSI to provide the cable insulation capability for operating at the 345KV level. Loss of pressure would cause the cable to fault and breach the protection barriers on the cable causing fluid loss into the Sound. The cables are terminated at the North Transition Station and the South Transition Station. The cable system operates utilizing three of the four cables with the forth cable considered a spare in case one cable is damaged. In the event of cable damage or a failure, the cable is switched out of the circuit and the spare cable is switched in and the system can then be brought back on-line. The switch operation can be performed in approximately 2-3 days limiting the loss of transmission capability. In the event of two cables being damaged, the transmission system could be off line for up to 9 months with significant impact to customers on Long Island.

Damage history includes two anchor strikes, one in 2003 and a second in 2014. In both instances, the cable was damaged causing a fault and fluid loss of over 6000 gallons of cable oil. Since the cable has to maintain pressure and fluid flow through the damaged section to prevent sea water from entering the cable, the pressure and flow rate are controlled to maintain the condition of the cable. This control is monitored and adjusted as required until the cable can be cut and capped prior to repairs. Once the cable is capped, the loss of cable fluid into the Sound is mitigated. This process usually will take about 2 months and is a 24/7 operation. During the period that the cable is leaking oil, measures are taken to prevent any serious environmental impact that includes having on site an environmental group to collect the oil, provide containment and shore clean-up. Once the damage point is located, and dependent on the extent of damage, other containment measures are applied.

Benefits from the installation of the Vesper Marine Virtual AIS Beacon combined with the intelligent UltraMap Asset Monitoring System are to track vessels in the area of the cable and provide an enhanced level of protection to eliminate anchor strikes and environmental impact through virtual buoys and safety alert notification to prevent anchoring within the cable field.

Robert J. Schwabe

Director Asset and Maintenance Management

New York Power Authority

123 Main Street

White Plains, New York 10601

(W) 914 287-3794

(M) 914 774-1878