Power Delivery

Burnham Taylor 345 kV Transmission Cable Installation

Exelon Corporation
ComEd
Chicago, Illinois

Sargent & Lundy Services:

- Transmission Line Engineering & Design
- Substation Engineering & Design
- Collection System Engineering & Design
- Material and Equipment Procurement Support
- Construction Field Services

Sargent & Lundy performed engineering and construction management for the installation of the 345 kV XLPE Cable and reconfiguration of the HPFF cable systems between the Taylor Street 345 kV GIS Substation and the 345 kV Garfield Terminal. The project included modifying the overhead connections and the installation of 345 kV series line inductors and breakers at Calumet Substation. The double circuit transmission line ran from Downtown Chicago south on State Street approximately 6.2 Miles to Garfield Terminal.

The conceptual design for the addition of two 345 kV cross lined polyethylene (XLPE) cable circuits and the modification of the existing 345 kV high pressure fluid filled (HPFF) transmission infrastructure was a challenge in the selection of route, design of the conduit systems, and circuit design. The objectives for the project were to maintain the balance between a reliable and robust design that would minimize disruption of traffic during the installation of the conduit and cables.

S&L's scope of work included engineering, design and construction management of:

- 6.2 miles of double circuit XLPE transmission cable in Downtown Chicago
- Installation of cable under the Chicago River in an existing tunnel, crossing of heavy rail tracks, and tunneling under the Stevenson Expressway in fractured limestone
- Modification and installation of GIS and AIS 345 kV terminations, protection and control modifications for the existing circuits, and installation of series inductors, circuit breakers, and buses to accommodate the new lines. All protection and control and physical design in the substations
- Scheduling, construction management, and commissioning support for the four substations and 4 transmission lines
- 345 kV XLPE Terminations at Garfield Substation

Sargent & Lundy LLC

For more information, contact Marty Dore at 312-269-6478 • Fax: 312-269-9373
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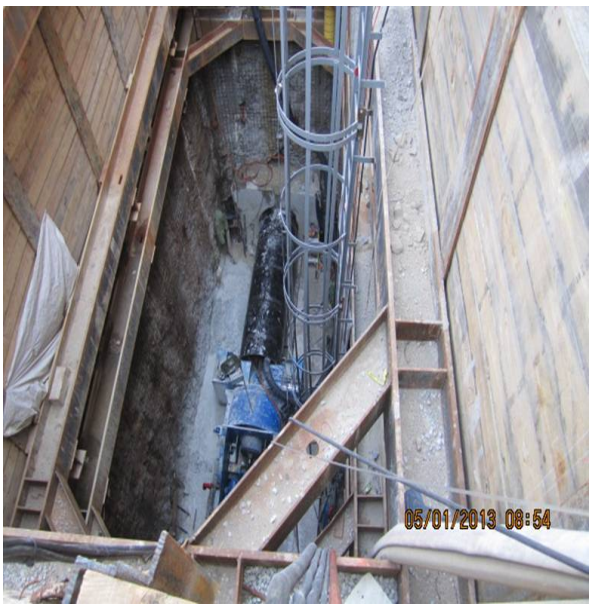
On the substation work S&L provided electrical and structural engineering, grading design, support for procurement of material and equipment, construction quality control and substation commissioning services. Our transmission line scope of work included transmission line structure spotting, transmission line design and support for procurement of major materials.



Tunnel Boring Under the Stevenson Expessway

Engineering design began in the spring of 2011 to design the 345 kV underground cable route, highway and railroad crossings. The project substation physical designs and protection and control upgrades were complete ahead of schedule to meet the aggressive schedule. The outage allowed for the cutover of the 4 major underground transmission circuits into the Downtown Chicago grid were from mid September 2013 to Mid January 2014. The two HPFF circuit modifications, new GIS terminations, and joints were complete in two months, allowing for more time to complete the 345 kV XLPE installations. The circuits were commissioned and placed into commercial operation in early March 2014.

Installing 345 kV HPFF Terminations at Taylor Substation

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