

WATERSIDE WEST 138/13.8 kV SUBSTATION PROJECT



Sargent & Lundy Services:

- ❑ Program Management
- ❑ Substation Engineering & Design
- ❑ Underground Transmission Design
- ❑ Commissioning
- ❑ Construction Management

Louisville Gas & Electric
Louisville, KY

Sargent & Lundy performed complete project services for LG&E's Waterside West Substation Project. This project was integral to the redevelopment of the riverfront in downtown Louisville, including construction of the new Louisville Arena. An existing open-air substation was decommissioned, demolished and replaced by a new multilevel, enclosed GIS facility.

- Eighty-two (82), 14kV metal-clad switchgear cubicles configured in two (2) lineups of double bus, double breaker on the top floor.
- The area between the first floor and grade will include a cable vault area that will house the 138kV transmission lines and 15kV distribution feeders entering the substation.



138-13.8kV Transformer Being Placed in the Waterside West Substation Enclosure

The project also included modifications of four 138-kV oil-filled underground transmission cables. Two circuits were replaced with XLPE cable and two circuits with high pressure gas-filled cable. A 69-kV underground line was reconducted to increase ampacity.

Sargent & Lundy's scope of work included overall program management, engineering and design, procurement support, construction management and commissioning.

The substation included the following major equipment:

- A 138 kV gas-insulated switchgear (GIS) containing an eight-breaker ring on the first floor.
- Four (4), 138-13.8kV, 30/40/50MVA transformers installed outside on the east side of the building at the first floor elevation in four sided, open top vaults.
- Thirty (30) - 15kV, three-phase, 0.65 Ohm, 600 A air core inductors installed in three-sided, open top, masonry enclosures will be installed on the second floor along with thirty (30) - 15kV, three phase, three-position (closed-opened-grounded) gang-operated, metalclad, manually operated disconnect switches. The design is for an ultimate of thirty-two (32) switches.



Waterside West Substation
Viewed from Second Street Bridge

Engineering was initiated in September 2006. Construction began in May 2007. The substation was energized in May 2008 for summer load transfer and the project was completed by the end of that year.