

Sargent & Lundy Services:

- ❑ Substation Engineering & Design
- ❑ Material and Equipment Procurement Support
- ❑ Commissioning Services
- ❑ Construction Field Services

Exelon/ComEd selected Sargent & Lundy to perform engineering, commissioning and construction services for ComEd at the 515 MW coal-fired State Line Generating Station located in Hammond, Indiana.

When ComEd became aware that the State Line Generating Station was going to be retired by Dominion Resources, ComEd selected S&L to assist in preparing a scope of work document to separate ComEd's facilities from the station. The 138kV switchyard that remains owned by ComEd had all of the relay and controls inside the generating station. The project was to install all new relay panels inside the existing switchyard control building and disconnect all high and low voltage connections into the station.

**Challenges:**

- Design and install the new relay panels and new field cables with limited outage windows
- An extension to the existing control building to accommodate a 250VDC battery
- The ComEd 345kV substation auxiliary power was provided from the station so a new 12kV feed had to be designed from the 138kV switchyard 2000 feet away and provide an emergency generator
- At the 345kV substation a new battery was installed to provide redundant 125 VDC to the relay panels
- Upon plant closure there would not be any auxiliary power back into the station for equipment still needed; therefore S&L had to design temporary aux power for these loads.

A new cable trough system, pedestal boxes and conduits were designed and installed prior to relay and protection cutovers. In addition to the work at the State Line site, five other remote substations required line and communication upgrades.

S&L assisted ComEd with outage and commissioning plans to provide a systematic and efficient method for the work. S&L worked very closely with ComEd's Testing Group throughout the project.

Phase I engineering was initiated in the fall of 2011 and engineering started in spring of 2012. The building extension work started in the summer of 2012. All below grade work cable trough and conduit was installed in the fall of 2012. The relay panels and new 250 VDC battery and chargers arrived in stages and installed immediately in place in the control building. The first of six consecutive outages started in January 2013. The final cutover was completed in May 2013. S&L construction services personnel were on site for pre-outage work and during the outages to manage materials and provide the interface between ComEd testing group, installation contractor and S&L engineering.

Sargent & Lundy is a ComEd Engineer of Choice (EOC) and has completed many successful projects for the utility. Projects range from circuit breaker replacements to complete greenfield substations.

