

High Voltage Substation Project Profiles



Safe, Reliable, Cost-Effective Solutions for the Electrical Power Industry.

E.ON US

All Kentucky Substations—LG&E and KU—5 Year Maintenance Contract

- 22 full time engineers and technicians to provide maintenance and new equipment installations for substations and generating facilities through 345kV
- Equipment includes power transformers, circuit breakers, reclosers, switchgear, bus, support structures, protective relaying
- Activities involve new equipment installation and commissioning, troubleshooting/correcting problems, maintenance (predictive, preventive, corrective, and emergency)

National Grid—Kent County Substation

Commissioning of Complete Upgrade of Substation

- Replacement of existing 345kV and 115kV oil circuit breakers with SF6 breakers
- New relaying cabinets, point-to-point wiring checks and update drawings, replace electro-mechanical relays including uploading and testing relay programming files
- Types of Relays Included: Transmission/Distribution/Generation—GE, ABB, Schweitzer
- Project Notes: Project included testing of new CCVT's, CT's and Instrument Transformers

First Energy—East Towanda Substation

230kV Oil Circuit Breaker CT Removal

- Inspect interrupter and contact area
- Filter oil and test for moisture and carbon
- Unbolt bushing, replace CT's, re-install bushing and regasket
- Project Notes: Project included service to all three phase tanks

E.ON—Kentucky Utilities—Lexington, KY

Substation Installation—Briar Hill and Hardin

- Utility grade substation 69kV-4.16kV and 345kV Substation Expansion to allow for additional circuit
- Specification, design, engineering, bid assembly and purchasing of all substation material and labor
- Provide Project Management and Onsite Construction Supervisor to coordinate and execute construction and in-service coordination with the Utility to meet the in-service cut-in schedule established by Utility

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Satellite Service Center Location
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CA Multiple Locations—Commissioning 138kV SF6 Breaker

- Commissioning services for 145kV, 2000A SF6 circuit breaker
- Commissioning activity included: SF6 gas filling and testing, timing test, Doble power factor test, contact resistance, insulation resistance and verification of all wiring, CT turns ratio and saturation and polarity on all taps, current loop tests, trip testing of breaker
- Provide detail engineering drawing mark-ups and test reports

Duke Energy

OH Multiple Locations—Smart Grid Upgrades

- Contract to perform upgrades for 35 lineups of switchgear—GE, ITE, Westinghouse
- Upgrade design and add third PT to B phase of switchgear in order to accommodate new relays for smart grid communications
- Perform final testing

Citizens Thermal

Indianapolis, IN—Tap Changer Repair and Filtration Unit

- Replace tap changer and filtration unit on 12 MVA Cooper transformer—34.5kV-4160V
- Install online filtration unit
- Perform drain, repair, vacuum, re-fill, and final testing

Arizona Public Service

Phoenix, AZ—500kV and 230kV Transformer Maintenance

- Perform maintenance of 500kV, 75 MVA GE reactor transformer
- Perform maintenance of 230kV, 150 MVA GE transformers
- Activities included re-gasket, dehydration, degasification of transformer oil and oil processing
- Commissioning services included Doble power factor test, transformer turns ratio, insulation resistance

Progress Energy Transmission

Orlando, FL—115kV Transformer Maintenance

- Perform maintenance of 115kV, 100 MVA GE transformers
- Activities included re-gasket, dehydration, degasification of transformer oil and oil processing and re-commissioning of transformers
- Commissioning services included Doble power factor test, transformer turns ratio, insulation resistance

Vandolah Power

Vandolah, FL—230kV GSU Transformer Maintenance

- Perform maintenance of 230kV, 200 MVA ABB generating station GSU transformers
- Activities included re-gasket, dehydration, internal tank inspection, leak test, degasification of transformer oil, oil processing, replace bushing and re-commission transformer
- Commissioning services included Doble power factor test, transformer turns ratio, insulation resistance

Public Service New Mexico—Albuquerque, NM

Peace River Electrical Co-Operative (PRECO) - Wachula, FL

Lake Utilities—Lakeland, FL

230kV GSU Transformer Maintenance/69kV Transformer Maintenance/138kV Transformer Maintenance

- Perform maintenance of 230kV, 150 MVA ASEA main GSU transformer/69kV Transformer/138kV Transformer
- Activities included re-gasket, dehydration, degasification of transformer oil and oil processing
- Commissioning services included Doble power factor test, transformer turns ratio, insulation resistance

North American Stainless

Ghent, KY—345kV Substation Maintenance

- Extra high voltage (EHV) substation outage testing services including clearing with dispatch, switching, testing, lockout/tagout, substation personnel training, and grounding
- Transformer testing included Doble power factor test, test all bushings, excitation testing on HV winding, turn-to-turn ratio test
- Circuit breaker testing included Doble power factor, dissipation power factor, watts-loss on bushings, moisture analysis on SF6 insulation, hi-potential, timing and motion analysis
- Lightning arrester replacement
- Equipment included 345kV, 140 MVA transformers, 345kV circuit breakers, and 345kV lightning arresters
- 345kV substation lightning protection and ground grid testing

Alcoa

Evansville, IN—138kV Substation Maintenance and Unit 4 GSU Testing and Repair

- Equipment including 138kV circuit switchers, 138kV oil circuit breakers, 15kV oil circuit breakers
- Onsite testing including Doble power factor, contact resistance, breaker timing, oil processing, oil testing
- Generator breaker testing, contact resistance, timing test, hi-potential test, install new blast valve seals
- Replace all transformer fans, pumps and all associated wiring
- Onsite re-gasket of 138kV transformer
- Electrical tests on GSU including Doble power factor testing, transformer turns ratio, visual inspection of tank, oil processing, oil analysis
- All fans and pumps were rewired and coolers cleaned
- Commissioning 500kV GSU transformer

SunCoke Energy—Haverhill

Franklin Furnace, OH—69kV Substation Commissioning

- Commissioning of 69kV substation including system testing of protective relaying, end-to-end testing of Utility tie protection
- Equipment list included low and medium voltage switchgear, 80MW generator, 69kV SF6 breaker and 50 MVA transformer
- Onsite re-gasket of 69kV, 50 MVA transformer, reprocess oil, perform degasification and replace PRD