

# High Voltage Substation Project Profiles



*Committed to providing cost-effective solutions that make you more effective!*

## **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

## **Pacific Gas & Electric / Black & Veatch**

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

## **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

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**Satellite Service Center Location**  
Alabama

### **Tampa Electric Company (TECO)**

Tampa, FL - 230kV Transformer Maintenance

- Perform maintenance and upgrade of 230kV, 400 MVA McGraw Edison main GSU transformer
- Perform maintenance of 115kV, 75 MVA GE transformers
- Activities included re-gasket, dehydration, degasification of transformer oil and oil processing, cooler replacements and cooler pump rebuilds, tap changer rebuilds
- Commissioning services included Doble power factor test, transformer turns ratio, insulation resistance

### **Public Service New Mexico**

Albuquerque, NM—230kV GSU Transformer Maintenance

- Perform maintenance of 230kV, 150 MVA ASEA main GSU 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

### **Peace River Electrical Co-Operative (PRECO)**

Wachula, FL—69kV Transformer Maintenance

- Perform maintenance of 69kV, 50 MVA transformer bank
- Activities included re-gasket, dehydration, degasification of transformer oil and oil processing
- Commissioning services included Doble power factor test, transformer turns ratio, insulation resistance

### **Lakeland Utilities**

Lakeland, FL—138kV Transformer Maintenance

- Perform maintenance of 230kV, 150 MVA Westinghouse 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

- 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

### **Alcoa**

Evansville, IN—Unit 4 GSU Testing and Repair

- 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