

ELECTRIFICATION SERVICES

Engineering Advisory Services PACC and Power Systems Engineering



Electrification Services provides complete protection, automation, communication and control (PACC) systems for an entire substation, integrated into a modular building that is tested and delivered to site.

PACC is an integrated solution for Protection, Automation, Communication, and Control for high voltage substations. Electrification Services provides the design using Bentley Substation, MicroStation and AutoCAD software. Project Management, panel integration, and factory acceptance test (FAT) testing is provided. This includes complete wiring, ring-out, DC power up, and secondary injection testing.

Building preparation

- Building inspection
- Installation of termination cabinets
- Installation of AC and DC distribution panels
- Install grounding cable
- Layout floor dimensions for panels
- Drill and tap floor for installed equipment
- Run control cables and communication fiber optics in cable tray
- Install relay panels

Complete project lifecycle support

- Application engineering: review requirements, develop preliminary design, labor, and material cost
- Bid, negotiations, and project award
- Develop single line, panel layout drawings, and bill of materials
- Engineering design review with customer
- BOM approval, order building and all materials
- Develop detailed design including all AC and DC schematics
- Panel construction and wiring
- Panel integration into building
- Building inspection, testing, and FAT
- Building delivered and off-loaded at site

Inspection and testing

- Ring-out of all wiring to schematics
- Power up relays with DC
- Secondary injection from termination cabinets
- Test relays and devices for acceptance
- Perform FAT and documentation
- Check HMI communication to relays
- Markup as-built drawings
- Perform final inspection
- Prepare building for shipment



Power Systems Engineering

ABB power system studies provide customers with the information necessary to upgrade and maintain their power delivery infrastructure. The results focus on improving electrical safety, reducing operating costs, improving efficiency, increasing reliability, and improving system maintainability.

- Data collection
- Short-circuit, coordination, and arc flash analysis
- Arc flash training
- Review existing arc flash analysis
- Arc flash mitigation analysis
- Load flow analysis
- Harmonic analysis
- Grounding analysis
- Motor starting analysis
- Power factor analysis

System upgrades involve protective relays, automatic throw-over, reclosing, tripping, lock-out and blocking schemes, as well as optimizing power system operating set-points throughout the facility.

- Increase operating reliability
- Evaluate impact of adding new equipment
- Reduce operating costs
- Optimize system upgrades
- Identify source of failures

Benefits

- Solution-based program
- Minimizes on-site commissioning
- Reduces site construction labor requirements
- Schedule certainty
- Facilitates full SCADA monitoring and control
- Provides the foundation for enterprise-wide integration

ABB advantage

Trust ABB Electrification Services for top-quality, reliable solutions:

- Experienced engineering and technical support
- Relay coordination studies and settings
- Arc flash studies and mitigation
- Industry-specific application expertise
- Global service network
- Emergency service available

Contact us

For more information, call toll free at +1 888 434 7378 or visit electrification.us.abb.com/services.

ABB Inc.
305 Gregson Drive
Cary, NC 27511

[electrification.us.abb.com/
services](http://electrification.us.abb.com/services)

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Inc. does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB Inc.
Copyright© 2023 ABB
All rights reserved