



## Electric/Power Industry

Led by our Electrical and Controls Department, including 30+ electrical engineers and designers with an accumulated 200+ years of engineering, design and construction experience in the fields of power distribution, industrial process control, and process automation, ITAC specializes in electrical and control systems and software development to serve the power generation industry. From basic 120V-230V facility electrical systems design, to some of our more specialized services including expertise in SCADA and HMI systems, design of resistance-grounded power systems, coordination studies, arc flash and shock hazard analyses (per NFPA 70E and IEEE 1584), ground fault analyses, and emergency and standby power systems design, ITAC engineers have proven experience in each of these critical areas.



### ELECTRIC POWER EXPERTISE

- Facility Electrical System Design (120V – 230kV)
- 3 Phase Power System Design and Analysis
- Load Flow Analysis
- Coordination Studies
- UPS System Design (Small to Large Scale)
- Arc Flash Analysis
- Ground Fault Analysis, Grounding System Studies, and Ground System Design
- Hazardous (Classified) Area Design
- Emergency/Standby Power

### CONTROLS SYSTEM SOFTWARE DESIGN

- PLC/DCS Configuration
  - Hardware Design
  - Software Design (Ladder, FB, STL)
  - Network Technologies (Ethernet/IP, DeviceNet, Profibus, Modbus, etc.)
- SCADA/HMI Configuration
  - Graphical User Interface Development
  - Data Collection/Historian
  - Custom Reporting
  - Database/SQL
- Control Panel Design
- Motion Control
  - Variable Frequency Drive Systems
  - Servo/Stepper Systems
  - Motor Control Centers (Low Voltage/Medium Voltage)
  - Coordinated Drive Systems
- Safety/Emergency Stop Circuit Design
- Instrumentation
  - Specifications
  - Installation Details
  - Configuration
  - Commissioning
- Process Design
  - S88 Batch Control
  - 21 CFR Part 11 Requirements
- Application Development
  - Software Functional Specification
  - Process Narrative
  - Controls Narrative
  - Sequence of Operation
- Software Development (Visual Basic, .Net, Visual C++, etc.)
- Commissioning/Startup Support
  - Installation Qualification (I/O Checkout)
  - Operational Qualification (Functional Checkout)
  - Validation Support and Documentation