



ENHANCING THE RELIABILITY AND SAFETY OF YOUR POWER SYSTEM.

FXB ENGINEERING ADDRESSES ALL POWER SYSTEM REQUIREMENTS TO HELP ENSURE SAFE, RELIABLE, AND CONTINUOUS POWER.

For more than 46 years, FXB Engineering has completed hundreds of power system assessments, studies, and upgrade for our customers, a few include:

- Glaxo-Smith Kline
- Comcast
- NFL Films
- A Large Broadcasting Company
- State Street
- XO Communications
- Virgin Island Water & Power Authority
- Transit Wireless



FXB Engineering can address all of your power system requirement to ensure safe, reliable and continuous power.

We are focused on helping facilities solve complex power issues that may involve equipment or the automation of resources to manage their energy. Our capabilities include:

SOLUTIONS FOR OSHA COMPLIANCE



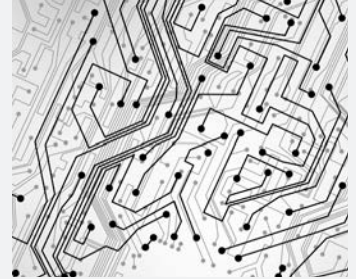
POWER SYSTEMS ASSESSMENT SERVICES



POWER SYSTEM DESIGN / UPGRADES



POWER SYSTEMS ANALYTICAL STUDIES



Our value to you:

- Our professional engineers are licensed in 31 states in the U.S. to meet state licensing requirements.
- Our engineers have advanced expertise and in-depth knowledge of power distribution, equipment, industry standards and codes.
- We provide power system engineering support with corrective action recommendations that mitigate future power system issues.

Our industry expertise:

For more than 46 years, FXB Engineering has been completing power systems assessments, studies and designs for our customers. Our professional engineers have established and reliable project management skills that streamline data discovery and will minimize any disruption on your business flow. You will receive consistent engineering designs, reliable studies and impactful analysis.

FACT:

From 2003-2010, there were 1,738 electrical deaths due to contact with electric current.

Source: Electrical Safety Foundation International (ESFI)

FXB has serious engineering professionals that can provide solid expertise that ensures safety and streamlines power systems.

Solutions for OSHA Compliance

Our process:

FXB Engineering provides onsite OSHA compliance audits that are comprised of six areas:

Develop an Electrical Safety Policy

This policy is critical to ensuring the safety of employees and conditions in which they work. The policy would cover areas such as lock out procedures, train staff, PPE, safe work area methodology, arc flash and shock protection and labeling.

Conduct Power Systems Study

With any renovation or modification to a facility, arc flash hazard analysis is recommended. We provide effective arc flash studies and proper labeling procedures with minimal intrusion to your workflow.

PPE & Proper Tools

Employees working in areas where there are potential electrical hazards must be provided personal protective equipment. Additionally, properly-rated equipment to test voltages and insulated tools for workers are recommended.

Safety Training & Employee Assessments

Electrical workers are not considered to be qualified by OSHA until they have received safety training specific to the hazards of arc flash, arc blast, shock, and electrocution.

Enhancing safety & reliability

The Occupational Safety and Health Administration (OSHA) mandates that work on electrical equipment must be performed in a manner that does not expose the worker to undue risk of injury. OSHA enforces electrical workplace safety standards outlined in the National Fire Protection Association's NFPA 70E: Standard for Electrical Safety in the Workplace®.

FXB Engineering promotes compliance to NFPA 70E not only for safety, but also for equipment productivity. We help you avoid arc flash accidents that can destroy equipment and place the facility in a costly downtime mode. Basic compliance is established with a proven process; FXB will go further by assisting the facility manager with proactive measures, both for safety and operability.

Arc Flash Hazard Awareness

This is crucial in optimizing the safety and performance of the power system. The goal of arc flash mitigation is to reduce the arc flash energy, and thus the PPE, to a level that permits normal tasks to be performed. We can help you choose the most cost-efficient alternative to reduce arc flash energy and improve worker safety.

WARNING

Power System Design & Upgrades

Our process:

FXB Engineering can meet requirements for the most challenging design and upgrades. We serve hundreds of our customers in every industry segment - from critical systems to HVAC - and our portfolio of design and construction projects includes:

- Substation design & enhancements
- Switchgear modernization
- Control and protection system upgrades
- Generator backup design and construction
- Power factor correction and filter design
- UPS system design

Projects can be customized from basic design consultation to feasibility studies to a complete power system solution. Detailed reports are provided to identify potential issues along with corrective recommendations.

Our capabilities include:

- Physical layout and design of the installation
- Codes and standards evaluation
- Analytical studies
- Equipment installation / commissioning

Power System Assessment Services

FXB Engineering's goal is to provide customers with a road map to optimize future ROI and operational expenditures. Assessment services are customized based on need to reduce risk to facility from:

- Reliability issues
- Process disruptions
- Code violations
- Outdated workplace safety requirements

Our capabilities include:

- Power Quality Analysis
- Power System Grounding Evaluation
- Equipment Condition Evaluation (End of Life Study), Risk Assessment, and Contingency Planning
- Equipment installation and commissioning



How does it Impact a Facility

The impact of a transformer failure that serves a hospital kitchen and food service area would be quite different — certainly a lower restore priority — than the impact on any critical care area such as operating rooms, ICU, and emergency room.

Power System Analytical Studies

Our process:

FXB Engineering can help you fine-tune your electrical system for optimal operation. There's more to an electrical system than just troubleshooting problems. We help you identify potential issues and either eliminate or mitigate their effects. The analysis and diagnosis of any engineered system is a proactive measure against improper system operation and the possibility of loss. Managing an electrical system and the energy it delivers requires:

- A comprehensive understanding of the system's normal and abnormal operation
- Knowledge of a wide variety of equipment
- The successful application of industry codes and standards

Our analytical studies help ensure that electrical systems operate as intended. Each study we perform includes a detailed report of findings along with recommendations to help maximize the reliability and operational efficiency of your system. Examples of analysis are as follows:

Protective device time-current analysis.

This analysis evaluates an electrical system's protective devices, including relays, fuses, and circuit breakers, and the equipment to which they are applied.

Benefits

- Minimizes system downtime
- Increases system protection and reduces damage
- Isolates faulty circuits without loss of power to other parts of the system
- Optimizes the protective device setting for reliability and arc flash protection

Short circuit analysis.

This analysis calculates the fault current levels throughout an electrical network. The interrupting duties of the devices being analyzed are compared with the available fault currents. The final report includes comparisons of short circuit levels to equipment ratings and recommendations for improvements.

Benefits

- Reduces system downtime
- Addresses concerns about equipment
- Minimizes or eliminates equipment damage
- Promotes electrical workplace safety

Load flow analysis.

A load flow analysis addresses present electrical system deficiencies or identifies system requirements to meet future demand. FXB Engineering translate design load data or field measurements into an accurate system model.

Benefits

- Minimizes downtime by stabilizing system voltages
- Prevents overloaded transformers and conductors
- Optimizes equipment utilization by even distribution
- Prevents load-related nuisance tripping

Arc flash hazard study

FXB Engineering recognizes that this is crucial in the optimization, safety and performance of the power system. We conduct an arc flash study to determine the present degree of arc flash hazards and label the equipment.

Benefits

- Establish a safe work area & training materials
- Ensure adequate supplies of PPE and proper tools
- Predictive maintenance services for equipment
- Identifies most cost-efficient alternative to reduce arc flash energy

Get industry-leading expertise to address all of your power system needs.

FXB Engineering

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Contact Peter J. Bonnes, P.E. for more information on how FXB Engineering can assist with your power system.

