

## ANALYTICAL STUDIES



Our analytical studies will help identify potential issues with your power system and determine solutions to eliminate or mitigate their effects. Each study will include a detailed report of findings along with corrective recommendations to help maximize the reliability and operational efficiency of your system.

### **Protective Device Time-Current Coordination Analysis**

Our engineers will evaluate your electrical system's protective devices, including relays, fuses and circuit breakers, and the equipment to which they are applied to ensure they are providing your power equipment with the appropriate protection. The final report will include suggested settings for all adjustable devices that will isolate faulty circuits, maximize system protection, and reduce possible equipment damage.

### **Short Circuit Analysis**

We will calculate the fault current levels throughout the power system and compare the interrupting duties of the devices being analyzed with the available fault currents. If underrated equipment is identified we will provide recommendations to help you comply with industry codes and standards as well as improve workplace safety.

### **Load Flow Analysis**

A load flow analysis can be used to address present electrical system deficiencies or identify system requirements to meet future demands. Our engineers will use design data or field measurements to calculate various scenarios to stabilize system voltages, evenly distribute plant load, and improve power factor.

### **Harmonic Analysis**

We will identify sources of power quality issues that can reduce system efficiency and increase operating costs.

### **Motor Starting Analysis**

Our engineers will use this analysis to calculate the voltage, current, and the accelerating torque of motors during the starting process. This data can be used to prevent damage to equipment due to voltage sags, and extend motor life by reducing thermal and mechanical stress during startup.

### **Switching Transient Modeling and Analysis**

Our engineers will determine stresses that system components are exposed to and recommends corrective measures, including alternative switching schemes, adding additional components, and modifying the power system configuration.

### **Reliability Analysis**

A reliability analysis can be used to quantify the probability that a system or component will operate as intended. This will allow our engineers to identify potential modes of failure and recommend solutions to improve power system reliability.

### **Substation Ground Grid Analysis**

Our engineers will evaluate high-risk areas of the switchyard and provide suggestions to optimize grid geometry and reduce potential risks during ground faults.

### **Stability Analysis**

Our engineers will evaluate various power system scenarios corresponding to switching actions or the initiation of a fault. This will provide you with a better understanding of your system's response to unfavorable conditions and allow for better contingency planning.