

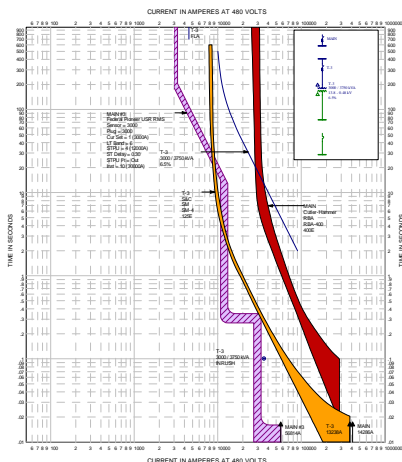
Power Studies

The Power System Studies are a critical tool in the planning, design, and operation of any power system. Power System Studies require regular examination to evaluate system performance and to make plans for future system expansion. Because systems are always going through modifications - when decisions based on engineering judgments are required we need to make them based on facts not opinions. For each study, a model of the complete electrical system and all its components are created, which can then be used to run the Power System Studies.

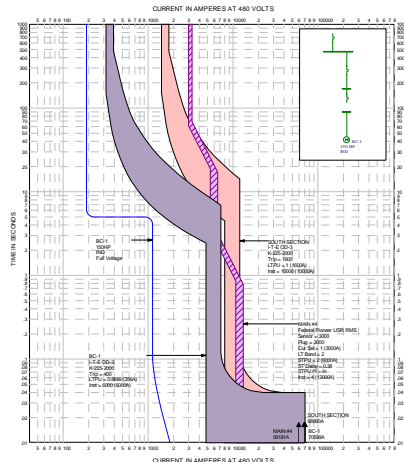
The most common studies that should be considered for a facility are:

Short Circuit Analysis - What are the short circuit fault levels available on various distribution points of a system, and do the circuit breakers, fuses, fused switches, starters, etc. have the capacity to interrupt these levels. Today's electrical power systems are always growing and as a result, the new equipment interrupting and momentary ratings must meet or exceed the system's available short circuit energy. All other fault sources are considered during these calculations.

Coordination Analysis – After determining the short circuit fault levels you ideally want to coordinate the protective devices and settings to isolate faults. The nearest protection device to the fault should be the first to trip, ensuring minimal impact and down time.



Transformer Protection Curve



Feeder Protection Curve

Load Flow Analysis – Models the system loads to identify voltage, current, and power levels at the various distribution points. Excellent tool for system planning - highlighting equipment overload conditions, poor voltage levels, optimum expansion, and/or contingency plans.

Motor Starting Analysis - Motor starting problems can be modeled and predicted before installation. The speed, slip, electrical output torque, load current, and terminal voltage data can be calculated at discrete time intervals from locked rotor to full speed. This study can help select the best method of starting, the proper motor design, or the required design to minimize the impact on the entire system.