

- + Reduce Operating Cost
- + Improve Efficiency
- + Increase Availability
- + Increase Safety
- + Improve Reliability

NATIONAL FIELD SERVICES

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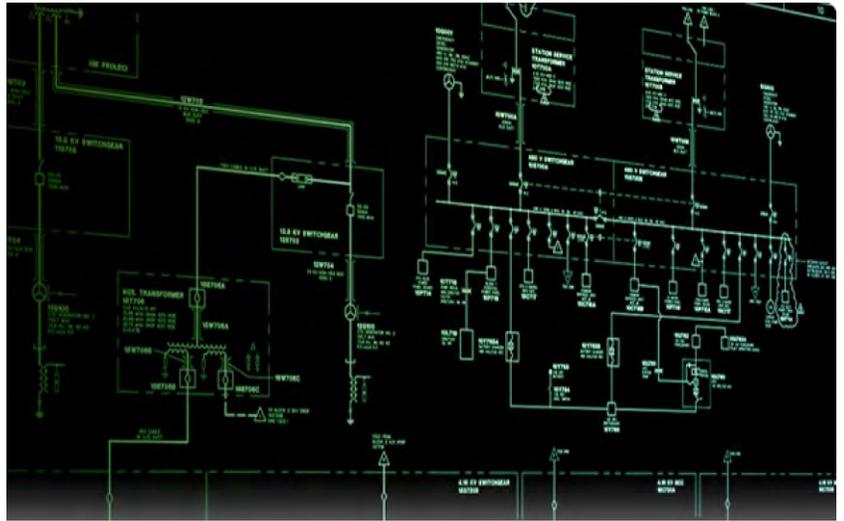
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Power System Studies

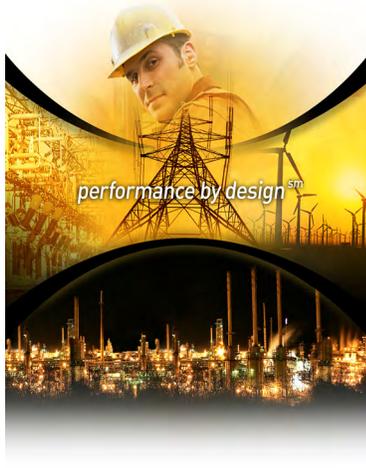
Improve System Reliability and Safety

Background

The engineering studies performed by National Field Services apply to a broad range of industries including power generation, primary metals, pulp and paper, petrochemical, cement, electronics, water treatment, and data processing centers. National Field Services offers numerous system studies designed to maximize power quality, improve system performance and reliability, and increase personnel safety. Our team of professional engineers utilize the industries most popular electrical engineering software, SKM Power Tools. This, along with our years of experience in testing and maintenance of power systems, enables us to provide you with an engineering document you can have complete confidence in. Let us discuss with you how investing in engineering studies can maximize your system reliability and reduce the risk of serious injury to personnel.

Short Circuit Study

A short circuit study can help minimize the consequences of a potential fault in your power system. For example, short circuit interrupting equipment such as circuit breakers and fuses should have short circuit ratings greater than the short circuit duties calculated by the study. When ratings are too low, equipment may fail to interrupt a short circuit or ground fault causing more wide spread effects. **CONT**



Short circuit study calculation procedures are in accordance with the American National Standards Institute (ANSI) and IEC 60909. Short circuit calculations are also useful when meeting the National Electric Code (NEC) requirement that short circuit interrupting devices have capabilities in excess of the duties imposed on the devices by the system.

Protective Device Coordination Study

A coordination study recommends settings for adjustable protective devices that minimize disturbances due to system faults. These devices include switchgear, protective relays, and circuit breaker trip devices, which provide automatic tripping during disturbances.

Recommendations may also be made for revising the type of protective device that is applied. The prime consideration of a coordination study is minimizing the part of the system that is disconnected to remove the fault or abnormal condition. This permits continued operation for the greatest possible remainder of the system. Study results are also used to specify protective relays and circuit breaker trip settings, and for establishing impedances of current limiting reactors.

Arc Flash Study

An arc flash study helps reduce the risk of serious personnel injury and possibly even death. It requires making sure that proper safety precautions are taken and adequate PPE is worn according to NFPA 70E, IEEE 1584, NEC 110.6, and OSHA standards. The study calculates the incident energy and arc flash boundary for any point in a power system. Custom flash labels are generated that comply with NEC 110.6 requirements helping further ensure a safe and productive work place.

One-Line Updates

In addition to the power system studies mentioned above, another valuable way to maximize your electrical investment is through documentation updates. By making sure your plant electrical one-line drawings are up-to-date, downtime can be significantly reduced through decreased troubleshooting time and potential problems can be readily identified before they cause an interruption. Additionally, this increases vital personnel safety by providing system information. Updated documentation, together with the power system study, provides a safer and more efficient working power system.

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