

# SIEMENS

*Ingenuity for life*

## Power Systems Engineering

An unmatched range of consulting engineering, analytical studies, and specialized field services

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Aligning with your specific needs, Siemens can scale service agreements and on-call services across an unrivaled portfolio of Power Systems Engineering Services, delivered by highly trained experts you can trust.

### An Extensive Lineup of Specialized Field Services for Total Power Solutions

Siemens offers experienced power systems specialists to help optimize your systems, backed by a national network of 100+ field offices across the country. Our professional engineers and certified technicians will help you:

- Maximize system reliability and availability
- Determine correct capital equipment ratings and associated protective relay system configuration and settings
- Improve safety for employees and subcontractors
- Optimize system performance
- Improve power quality
- Establish "Selective Coordination" for protection systems in emergency power applications per NEC 700, 701, 708
- Extend equipment lifecycles
- Reallocate maintenance resources to core business needs
- Protect sensitive electronics
- Reduce operation, maintenance, and repair costs.



In addition, the power system specialists from Siemens also provide Streamlined Power System Construction Studies (PSCS) according to the Division 16000 specifications included in most construction projects. That means we can:

- Verify selected equipment is correctly applied prior to release for manufacture
- Determine protective device settings required for selective coordination
- Provide setting tabulations for implementation during commissioning
- Confirm that applicable code requirements are satisfied.

# Service Offerings for Power Systems Engineering

## Short Circuit Study

Power system specialists from Siemens will determine the maximum duty that your system's protective devices, transformers, and interconnections will be subjected to in the event of three-phase and/or line-to-ground fault conditions. In addition, we will provide basic information required to establish protective relay settings.

## Coordination Study

Under fault conditions, systems should isolate the faulted area to minimize disturbance to the remaining system and simultaneously limit damage to equipment. We will review the characteristics of your protective devices and provide the settings necessary to ensure that your system functions optimally should a fault occur.

## Harmonic Analysis

As AC drives have become increasingly prevalent in industry, we have seen the introduction of destructive harmonics to many systems. The power quality experts from Siemens will determine the extent and severity of harmonics in your system then recommend the appropriate means of mitigating potential damage.

## Transient Stability Study

This study is particularly valuable for facilities that generate their own power and those with very large motors. Our power system specialists will study the transient response of rotating equipment following system disturbances and analyze system behavior in relation to the power company tie.

## Protective Device Evaluation

With the objective of achieving optimum protection, we will perform the necessary calculations required to select the interrupting rating of power fuses, circuit breakers, and other protective devices.

## Power Quality Assessment

In recent years, with the proliferation of sensitive electronic equipment, power quality has become a major concern for industry. We perform structured, step-by-step studies with timely diagnosis and expert solutions to the complex challenges of utility and end-user power quality issues.

## Arc Flash Study

NFPA 70E requires that an Arc Flash Hazard Analysis be performed prior to work on electrical equipment. Siemens will determine the incident energy levels, arc flash boundary (AFB), and required level of personal protective equipment (PPE).

## Grounding Study

With the goal of ensuring proper protection and reducing the possibility of excessive transient overvoltages during line-to-ground faults, Siemens engineers will determine and recommend the most appropriate form of system grounding (including derived, low resistance and high resistance).

## Voltage Unbalance Study

Voltage flicker and poor voltage regulation are a common concern on systems with large arc furnaces. The experts from Siemens use this study to develop comprehensive solutions that limit the effects of voltage irregularities and protect sensitive equipment.

## Applications Engineering

Ensuring that large capital equipment such as power transformers and above NEMA motors are properly rated and fulfill design requirements is a complex and difficult process. The consequence of an incorrect rating can add considerably to equipment costs as well as play havoc with schedules. Siemens will develop the necessary basis of design so that your new or existing equipment is correctly applied and properly specified for subsequent manufacturing, modification, or repair.

**To schedule an Arc Flash Hazard Analysis, or for general information about Electrical Services from Siemens, call 1-877-784-9322.**

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