

ERA
TECHNOLOGY

Power System Protection Service



ERA Technology ensures the optimum performance of AC and DC power system protection schemes by offering a comprehensive protection service for new and existing utility, industrial, off-shore and commercial power installations. The service spans working voltages from LV to EHV and includes:

- Protection system design
- Site audits
- Device selection
- Grading studies
- Relay specification
- Setting schedules.

Reliable protection

A reliable protection scheme is essential for the safe and economical operation of any power system.

Protection equipment that fails to operate or discriminate correctly under fault conditions can have serious implications for the power system through increased disruption, system damage and risks to site personnel.



Protection service for existing plant

In the case of existing power system plant, the ERA service usually starts with a comprehensive protection audit. A protection audit provides an effective assessment of a company's power distribution system without a commitment to a full-scale power system study. The service minimises the impact that a failure could have by reviewing the protection co-ordination - particularly after changes have been made to it.



ERA Technology's power system protection service provides the following benefits:

- Verifies fault levels and switchgear fault withstand
- Reduced outages and equipment damage
- Reduction in hazardous plant conditions leads to increased safety for on-site personnel
- Effective use of existing circuit protection
- Independent, expert advice on power system modifications
- Improved protection philosophies
- On-going support
- Maximising system availability.

Site survey and data collection

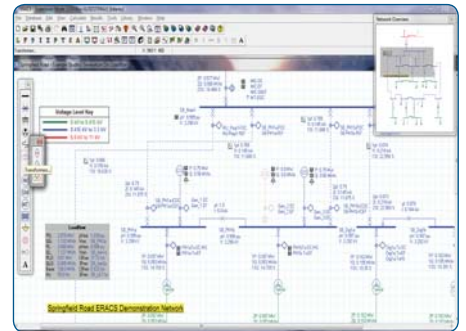
A site survey is conducted by experienced power system engineers in order to collect the protection data using a well-established methodology tailored to the site layout. Typically the survey includes a visit to all major switchrooms. Pro-form data sheets are used for collecting the information either directly from site equipment or from existing site records.

Protection service for new plant

A protection philosophy is developed based on the system requirement. Protection scheme design and device specifications are derived from this philosophy. Relay settings are calculated in order to provide optimum protection for the plant and site personnel. If the protective devices are already specified, then the adequacy of their application will be verified and settings provided.

Protection analysis report

Protection co-ordination studies are conducted using ERACS - the leading power system modelling software program developed by ERA Technology. Calculations are carried out for the main and unit protection devices (such as distance and differential relays) applied on generators, motors, transformers and transmission/distribution networks. These calculations are carried out in accordance with BS and IEC standards to validate the existing settings or to provide settings for new plants.



The protection studies for new or existing power system plant are fully documented in a final report covering the following:

- Protection philosophy
- Site survey record (if required)
- Network diagrams for each section studied
- Existing and proposed protection grading curves
- Methodology and setting calculations for unit protections
- Methodology and settings for system control (eg. auto-reclosing on transmission and distribution system)
- Existing and proposed relay setting schedules.

For further information please contact:

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