PEREGRINE ENGINEERING CONSULTING

NERC PRC STANDARD SERVICES

WHAT IS IT

Generator automatic voltage regulator (AVR) and generator protective relay coordination is required from most Generation Owners/Operators by the North American Electric Reliability Corporation (NERC) Protection and Control standards (PRC-019-2, PRC-024-2, and PRC-025-2). The standards were developed and implemented in response to analysis of major disturbances across the North American interconnection regions in the last 25 years where generators have been found to have tripped for conditions that did not pose a direct risk to the installed equipment. It is expected that better attention to coordination of protection elements, and subsequent generator capability to support the system through transient and recovery stages, will increase the interconnected grid robustness and reliability.

WHY PEREGRINE

- Peregrine Engineering Consulting's engineers have a combined power generation test experience of over 100 years on more than 500 tested units from all major generator manufacturers. This allows us to adapt, and often anticipate, each type of equipment's capabilities and limitations.
- Turn-key solution comprising orientation, analysis, report delivery, and warranty support.
- Experts in power system modeling and analysis. Our team is cross trained on several OEM's digital and analog equipment including GE, Eaton\Cutler-Hammer, Basler, Siemens, Toshiba, and Westinghouse.
- A small company with highly trained engineers offers actively customer-centric experience with minimum overhead costs.

NERC PRC-019-2

Coordination of generator controls with generator protection

Coordination of voltage regulator's limiting and protection settings

Field overcurrent evaluation

Under excitation evaluation

Loss of field evaluation

NERC PRC-024-2

Protection relay coordination

Frequency analysis

Ride-through voltage analysis

V/Hz analysis

NERC PRC-025-2

Analysis of load-responsive protective relays

Analysis of generator step-up overcurrent relays

Project Lifecycle

Communicate

A dedicated Peregrine engineer will communicate with the customer to request information regarding the equipment capabilities such as the generator reactive capability curve and V/Hz curve

Gather

The engineer will request a limiter and protection device settings including: AVR, loss of field relays (40), over-excitation (24T), phase under-voltage (27P), phase over-voltage (59P), Under-Frequency (81U), Over-Frequency (81O), over-current, etc.

Analyze

The engineer analyzes the provided equipment capability information, limiters, and protection settings for compliance with the requisite PRC standards.

Deliver

A report is issued consolidating all settings, analysis, and findings along with, if necessary, recommended changes necessary for compliance.

Support

The customer is supported through the submittal and acceptance phase, providing technical support should the Transmission System Operator (TSO) or regulatory agency have additional questions.

SERVICES AVAILABLE

- NERC MOD Standards Services - Testing and Analysis
- NERC PRC Standards Services
- Power System Stabilizer (PSS) Tuning and Testing
- Power System Modeling Analysis and Studies
- Failure Analysis
- Expert Testimony

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