NERC Compliance PRC-025

Power System Studies

KINECTRICS
a BWXT company

Project Objective

NERC Protective and Control (PRC) standards have been implemented as a comprehensive plan to increase performance and reliability of the North American Bulk Electricity System (BES) in response to the 2003 blackout which ocurred in the Northeast United States and Canada.

The intent of PRC-025-2 is to set load-responsive protective relays associated with generation facilities at a level to prevent unnecessary tripping of generators during a system disturbance for conditions that do not pose a risk of damage to the associated equipment.

Kinectrics was engaged by Liberty Power to provide an engineering study for compliance at one of their Cogeneration plants in California.



Client: Liberty

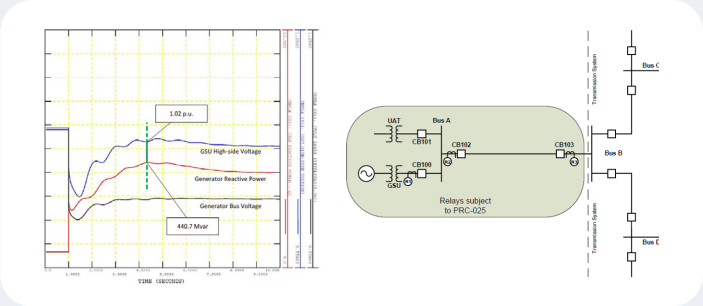
Location: Sanger, California

Project Scope:

- We performed a PRC-025 compliance study for a utility's cogeneration plant, consisting of one combustion turbine generating unit and one steam turbine generating unit.
- The generating units are connected to the grid and are normally operated during the day. The combined total power generation of the power plant is set by the grid operation order.

Value Added Results

We prepared a report that involved reviewing and verifying the setting of each applicable load responsive protective relay element according to its application and relay type as per standard and making recommendations on relay setting improvements. Typical relays and protection settings involve phase overcurrent (51V, 50/51) and phase distance (21P).



The study revealed that the settings of protective relays and relevant enabled functions, as part of the synchronous generators and step-up transformer protection system, were verified in this report and found to be compliant with the requirements of the NERC PRC-025 for the current operation protocols.

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