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White Paper

Grid Precision with NERC PRC-019-2 Regulation

What is NERC PRC-019-2?

The North American Electric Reliability Corporation (NERC) plays a crucial role in ensuring the reliability and stability of the Bulk Power System across North America. Among its standards, NERC PRC-019-2 stands out as a vital guideline for coordinating generating unit or plant capabilities, voltage regulation controls, and protection systems. Effective since May 2015, this standard aims to verify the coordination of critical elements within the power grid to prevent unnecessary disconnections and limit damage during abnormal operating conditions.

NERC PRC-019-2 outlines specific requirements and procedures aimed at ensuring the coordination of generating unit capabilities, voltage regulation controls, and protection systems. The standard mandates that every five years, generator owners and transmission owners with applicable facilities must coordinate the voltage regulating system controls with the applicable equipment capabilities and settings. This coordination involves verifying the operation of in-service limiters before the protection system to prevent unnecessary generator disconnections and ensuring that protection system devices are set to isolate or de-energize equipment to limit damage during abnormal conditions.

The standard also emphasizes the importance of adapting to changing conditions. Utilities must perform coordination checks within 90 days of identifying or implementing system, equipment, or setting changes that could affect coordination. These changes may include adjustments to voltage regulation settings, protection system settings, or equipment capabilities. By promptly assessing and addressing these changes, utilities can maintain effective coordination and mitigate the risk of coordination-related failures.

NERC PRC-019-2 plays a vital role in enhancing the resilience of the power grid. By ensuring that generating units, voltage regulation controls, and protection systems work together effectively, utilities can better withstand various operational challenges, including voltage fluctuations, equipment failures, and transient disturbances. This coordination improves the grid's ability to recover swiftly from disruptions, minimizing downtime and service interruptions for consumers.

How can SynchroGrid help?

SynchroGrid offers solutions spanning from NERC PRC-002 to PRC-027, including specialized support for NERC PRC-019-2 compliance. Our platform utilizes generator data, relay settings, and system information to assess and visualize critical grid elements. By mapping limit functions, equipment capabilities, and system settings, we ensure precise coordination of voltage regulation controls and protection systems as required by regulations. This comprehensive assessment allows utilities to identify and address potential coordination issues, optimize settings, and enhance system reliability and operational efficiency while maintaining compliance with NERC PRC-019-2.

SynchroGrid routinely provides comprehensive PRC-019 services for our clients, ensuring compliance with the NERC PRC-019-2 standard across all generator types in their systems. Our meticulous approach involves coordinating voltage regulating system controls, in-service limiters, and protection functions to align with equipment capabilities and relevant protection system settings. By setting in-service limiters to operate before the protection system, we avoid unnecessary generator disconnections. Protection system devices are configured to isolate or de-energize equipment when operating conditions exceed set limits. SynchroGrid provides clear evidence of this coordination, affirming our clients' adherence to PRC-019-2 requirements.

Specifically, for one of our client's generator units, we verified all settings as per PRC-019-2 and provided detailed reports for NERC auditing. Our services included reviewing all settings, delivering a NERC PRC-019-2 compliance report with recommendations, suggesting setting adjustments for non-compliant protective relays and limiters, and offering project support during the installation of new settings.

***Reference**:*

https://www.nerc.com/pa/Stand/Reliability%20Standards/PRC-019-2.pdf