

## Overview

The North American Electrical Reliability Corporation (NERC) continues to expand its standards, striving to increase power grid reliability and resilience to system disturbances. History-making blackouts, unexpected equipment failures, power disturbances, and the growing cyber threat are all factors leading to regular releases of new and updated standards.

With each new or updated standard NERC specifies a set of requirements and rolling compliance deadlines making it a challenge to maintain compliance. Maintenance engineers and compliance managers must be current on the latest updates, have a detailed understanding of each standard's requirements, and have the expertise to know how to apply the standards to their electrical system.

NERC reliability standards include specific sections related to generation-owner requirements, impacting the documentation, design, modeling, and maintenance of their protection and control systems. They include NERC PRC-002, 005, 019, 024, 025, 027 and MOD-025, 026, 027, 032. Understanding and complying with these standards requires considerable knowledge of the technical aspects and methodology used to successfully implement the requirements.



## Ensure electrical system compliance with NERC PRC and MOD regulatory requirements

High Voltage Maintenance (HVM) maintains a team of dedicated NERC Compliance Specialists who have the expertise to help design and manage your compliance program. They will work with your maintenance engineers and compliance managers to create a customized compliance and Protection System Maintenance Plan (PSMP). Our experts document equipment records and system data, evaluate and verify settings, event recordings, and dynamic models to ensure accurate reporting in preparation for audits. We can provide system analyses, field testing, upgrade recommendations, and even a complete turnkey solution, starting with engineering design and procurement, through construction and acceptance testing. No matter what level of service you require, you can rely on HVM to ensure your facility is fully NERC compliant.

### Protection Systems Subject to NERC Requirements:

- Generator Protection
- Main Transformer Protection

- Station Service Transformer, Unit Auxiliary Transformer, and Excitation Transformer Protection
- Transmission Lines and Substation Bus Protection
- Undervoltage or Underfrequency Load-Shedding Protection
- Sudden Pressure Relaying
- Automatic Reclosing

### Equipment Subject to NERC Requirements:

- Protective Relays
- Reclosing and Supervisory Relays
- Sudden Pressure Relays
- Voltage and Current Sensing Devices (CT/PT)
- Station DC Supply
- Communication Systems
- Control Circuitry Associated with Protective Functions
- Control Circuitry Associated with Reclosing and Supervisory Relays
- Alarming Paths and Monitoring

## Our Services Include:

NERC Standard	Application	High Voltage Maintenance Services
PRC-002	GEN $\geq$ 500MVA, or GEN $\geq$ 300MVA where Gross Facility $\geq$ 1,000 MVA	<ul style="list-style-type: none"> <li>Evaluation of existing plant's sequence of event recorder (SER), fault recorder (FR), and dynamic disturbance recorder (DDR) performances</li> <li>Recommendation for SER/FR/DDR system upgrades</li> </ul>
PRC-005	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>PRC-005 scoping based on the Client's PSMP to identify protection system components that are due for maintenance</li> <li>Development of Method of Procedures (MOP) for maintenance testing</li> <li>Outage planning and maintenance testing</li> <li>Preparation of test reports</li> <li>Identification of unresolved maintenance issues and recommendation for components replacements or upgrades</li> </ul>
PRC-019	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>Evaluation of existing plant capabilities; voltage regulator limiters &amp; protection, and protective relay settings</li> <li>Recommendation for setting changes or relay retrofits to achieve compliance</li> </ul>
PRC-024	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>Evaluation of existing frequency and voltage relay settings</li> <li>Recommendation for setting changes or relay retrofits to achieve compliance</li> </ul>
PRC-025	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>Evaluation of existing distance, overcurrent, and directional overcurrent relay settings</li> <li>Recommendation for setting changes, or relay retrofits to achieve compliance</li> </ul>
PRC-027	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>Review of existing protection schemes to verify protection coordination between generation &amp; transmission owners</li> <li>Recommendation for setting changes or relay retrofits to achieve compliance</li> </ul>
MOD-025	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>Develop Method of Procedure for generator reactive power verification test</li> <li>Perform compliance testing for minimum and maximum load reactive power verification</li> </ul>
MOD-026	Eastern: GEN (ind. or agg.) > 100MVA Western: GEN (ind. or agg.) > 75 MVA ERCOT: GEN (ind.) > 50MVA, GEN (agg.) > 75	<ul style="list-style-type: none"> <li>Develop Method of Procedure for excitation control system model verification</li> <li>Perform compliance testing and model the generator &amp; excitation control system to match test results</li> <li>Prepare model quality test report</li> </ul>
MOD-027	Eastern: GEN (ind. or agg.) > 100MVA Western: GEN (ind. or agg.) > 75 MVA ERCOT: GEN (ind.) > 50MVA, GEN (agg.) > 75	<ul style="list-style-type: none"> <li>Develop Method of Procedure for turbine governor model verification</li> <li>Perform compliance testing and model the turbine governor control system to match test results</li> <li>Prepare model quality test report</li> </ul>
MOD-032	Individual GEN > 20MVA Aggregated GEN > 75MVA	<ul style="list-style-type: none"> <li>Review data requirements</li> <li>Obtain information for the steady-state, dynamic and short circuit modeling data from plant document and drawings</li> <li>Prepare the data reporting form</li> </ul>

## Summary

The experts at HVM are ready to help you through each step of the compliance process. With our expertise, we will assist you in developing and executing a plan to achieve full NERC compliance in accordance with the required deadlines.

## Order Information

To learn more about HVM's NERC compliance solutions, please contact us at 1 866-HVM-TEAM or visit [HVMcorp.com](http://HVMcorp.com).

**HVMcorp.com | HVM Headquarters, 5100 Energy Drive, Dayton, OH, 45414, USA | 1-866-HVM-TEAM (486-8326)**

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