



PRC-023

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Planning Committee
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- Transmission Relay Loadability
- Purpose of the standard
 - Ensure that protective relay settings will not limit transmission line loadability
 - Ensure that protective relays do not interfere with their ability to take remedial action to protect the system
 - Ensure that protective relays are set to detect all fault conditions

- Standard was approved by FERC in March 2010
 - Planning Coordinator must be compliant with requirement R3 of the standard 18 months after regulatory approval
 - September 2011 implementation deadline for R3
- Standard was approved by the NERC Board in February 2008
- Standard approved by FERC in May 2009
- Standard was discussed most recently at the July 09 PC meeting

- R3. The Planning Coordinator shall determine which of the facilities (transmission lines operated at 100 kV to 200 kV and transformers with low voltage terminals connected at 100 kV to 200 kV) in its Planning Coordinator Area are critical to the reliability of the Bulk Electric System to identify the facilities from 100 kV to 200 kV that must meet Requirement 1 to prevent potential cascade tripping that may occur when protective relay settings limit transmission loadability.
 - R3.1. The Planning Coordinator shall have a process to determine the facilities that are critical to the reliability of the Bulk Electric System.
 - R3.1.1. This process shall consider input from adjoining Planning Coordinators and affected Reliability Coordinators.
- R3.2. The Planning Coordinator shall maintain a current list of facilities determined according to the process described in R3.1.
- R3.3. The Planning Coordinator shall provide a list of facilities to its Reliability Coordinators, Transmission Owners, Generator Owners, and Distribution Providers within 30 days of the establishment of the initial list and within 30 days of any changes to the list.

- **Applicability of Approved Standard**
 - Transmission lines operated at 200 kV and above
 - Transformers with low voltage windings connected at 200 kV and above
 - Transmission lines operated at 100 kV to 200 kV that are designated by the Planning Coordinator as critical to the BES
 - Transformers with low voltage windings connected at 100 kV to 200 kV that are designated by the Planning Coordinator as critical to the BES
 - Generators with load-responsive phase protection systems
 - Distribution providers with load responsive phase protection provided the facility has bi-directional flow capabilities

- Requirements for TO, GO and Distribution Provider
 - In general - set relays so that they don't operate when they are not supposed to. Prevent potential for cascading trippings
- Requirements for Planning Coordinator
 - Determine which facilities between 100 kV and 200 kV are critical to the reliability of the BES
 - Need to have a process to determine critical facilities
 - Need to consider input from adjacent Planning Coordinators
 - Maintain a list of critical facilities
 - Provide the list to TO, GO, Distribution Provider, adjacent Planning Coordinators and Reliability Coordinators

- Identify 100 kV to 200 kV facilities loaded at 115% of rate B for any N-1-1. System adjustments will not be considered after the first contingency in preparation for the second contingency.
- PJM Manual M03: If not specifically calculated by the Transmission Owner, PJM defaults the Load Dump rating to 115% of the Emergency rating. Each Transmission Owner must confirm that tripping should not occur when loaded at the load dump rating for at least 15 minutes.



Proposal to Select Critical Facilities 100-200kV

- Result of PJM Facilities 100-200 kV loaded at 115% or above for any N-1-1 outage

Number of Critical Facilities	
115 kV Facilities	44
138 kV Facilities	189
161 kV Facilities	2
Total	235

- Consider input from adjoining Planning Coordinators and Reliability Coordinators
- Document the proposed process (PJM Manual language)
- Provide the list of critical facilities to TO, GO, Distribution Provider, adjacent Planning Coordinators and Reliability Coordinators