



Project 2015-09 Compliance Update

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Transmission Planning

Reliability Standards & Compliance Subcommittee

April 21, 2023

- Project 2015-09 Establish and Communicate System Operating Limits
 - Purpose is to revise requirements for determining and communicating SOLs
 - Revisions necessary to improve alignment with approved TPL and proposed TOP and IRO standards
 - Standards impacted include but not limited to:
 - FAC-003-5, PRC-002-3, PRC-023-5 & PRC-026-2

- **Title:** Transmission Vegetation Management
- **Purpose:** To maintain a reliable electric transmission system by using a defense-in-depth strategy to manage vegetation located on transmission rights of way (ROW) and minimize encroachments from vegetation located adjacent to the ROW, thus preventing the risk of those vegetation-related outages that could lead to Cascading
- **Responsible Entities:** TOs & GOs

- Under current version of the standard, transmission facilities and generation facilities operated below 200kV identified as part of an IROL are included.
- Under FAC-003-5 R4.2.2 and R4.3.1.2, PJM as PC and TP is required to identify critical lines under 200kV, that:
 - “If lost or degraded are expected to result in instances of instability, Cascading, or uncontrolled separation that adversely impacts the reliability of the Bulk Electric System for a planning event.”
- Identification Criteria:
 - The applicable facilities include BES facilities <200 kV and PJM market monitored facilities.
 - Applicable events for this requirement are TPL-001-4/5 Planning events (P1 ~ P7).
 - Instability, Cascading, or uncontrolled separation include voltage collapse from steady state analysis as well as instability from stability study.
 - Each year PJM to prepare a list of facilities under the above conditions based on the latest RTEP analysis and communicate with impacted TOs/GOs.
- Standard goes into effect April 1, 2024.

- **Title:** Disturbance Monitoring and Reporting Requirements
- **Purpose:** To have adequate data available to facilitate analysis of Bulk Electric System (BES) Disturbances
- **Responsible Entities:** PC->RC, TOs & GOs

- Under current version of the standard, the Planning Coordinator (PC) within the Eastern Interconnection is responsible for identifying BES Elements requiring DDR data.
- PRC-002-3 transfers responsibility to the Reliability Coordinator (RC).
- Standard goes into effect April 1, 2024.
- No change from TO/GO perspective. PJM to continue re-evaluating list at least once every 5 calendar years under R5.
 - Publication of previous list occurred in December 2021.
- TOs/GOs still required to provide SER/FR data for BES buses identified in R1 and BES Elements identified in R5 to RC (PJM), Regional Entity or NERC upon request under R11.

- **Title:** Transmission Relay Loadability
- **Purpose:** Protective relay settings shall not limit transmission loadability; not interfere with system operators' ability to take remedial action to protect system reliability and; be set to reliably detect all fault conditions and protect the electrical network from these faults
- **Responsible Entities:** PC, TOs, GOs & DPs with load-responsive phase protection systems

- Under current version of the standard, circuits that are part of a monitored Facility of an IROL are included under Criteria B2 of Attachment B.
- Criteria B2 is now replaced with the following language:
 - *“The circuit is selected by the Planning Coordinator or Transmission Planner based on Planning Assessments of the Near-Term Transmission Planning Horizon that identify instances of instability, Cascading, or uncontrolled separation, that adversely impact the reliability of the Bulk Electric System for planning events.”*
- Standard goes into effect April 1, 2024.
- PJM will now identify circuits based on the annual RTEP baseline assessment that satisfy the criteria under B2.
- PJM to continue publishing the list annually in the 4th quarter.

- **Title:** Relay Performance During Stable Power Swings
- **Purpose:** To ensure that load-responsive protective relays are expected to not trip in response to stable power swings during non-Fault conditions
- **Responsible Entities:** PC, TOs & GOs that apply load-responsive protective relays

- Under current version of the standard, BES Elements that are part of an SOL are subject to inclusion under Requirement R1.
- Requirement R1 is updated to reference Near-Term Planning Assessments.
- Standard goes into effect April 1, 2024.
- PJM will now identify BES Elements based on the annual RTEP baseline assessment that satisfy the criteria under Requirement R1.
- PJM to continue publishing the list annually in the 4th quarter.

PRC-026-21 — Relay Performance During Stable Power Swings

B. Requirements and Measures

R1. Each Planning Coordinator shall, at least once each calendar year, provide notification of each generator, transformer, and transmission line BES Element in its area that meets one or more of the following criteria, if any, to the respective Generator Owner and Transmission Owner: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

Criteria:

1. Generator(s) where an angular stability constraint, identified in Planning Assessments of the Near-Term Transmission Planning Horizon for a planning event, ~~exists~~ that is addressed by ~~a~~ limiting the output of a generator ~~System Operating Limit (SOL)~~ or a Remedial Action Scheme (RAS), and those Elements terminating at the Transmission station associated with the generator(s).
2. ~~An Element associated with that is monitored as part of an SOL identified by the Planning Coordinator's methodology¹ based on an~~ angular instability identified in Planning Assessments of the Near-Term Transmission Planning Horizon for a planning event, ~~constraint~~.
3. An Element that forms the boundary of an island in the most recent underfrequency load shedding (UFLS) design assessment based on application of the Planning Coordinator's criteria for identifying islands, only if the island is formed by tripping the Element due to angular instability.
4. An Element identified in the most recent annual Planning Assessment of the Near-Term Transmission Planning Horizon where relay tripping occurs due to a stable or unstable² power swing during a simulated disturbance for a planning event.

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