

M14B Updates

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- Four separate sets of administrative updates to PJM Manual 14B – PJM Region Transmission Planning Process
 1. Update Section 2.3.6 – Baseline Thermal Analysis to align with analytical procedure
 2. Attachment G.10 – Update version of PRC-023 requirement references
 3. Update references to SPS (Special Protection Scheme) to RAS (Remedial Action Scheme) throughout manual
 4. Remove references to EE (Energy Efficiency) – data is now built into load forecast

2.3.6 Baseline Thermal Analysis

Baseline thermal analysis is a thorough analysis of the reference power flow to ensure thermal adequacy based on normal (applicable to system normal conditions prior to contingencies) and emergency (applicable after the occurrence of a contingency) thermal ratings specific to the Transmission Owner facilities being examined. It is based on a 50/50 load forecast from the latest available PJM Load Forecast Report (50% probability that the actual load is higher or lower than the projected load.) It encompasses an exhaustive analysis of all NERC P0-P7 events and the most critical common mode outages. Final results are supported with AC power flow solutions. The PJM Load Forecast uses a 50/50 distribution minus Energy Efficiency. Demand Response is not considered in the Load Forecast.

For normal conditions (NERC P0), all facilities shall be loaded within their normal thermal ratings. For each single contingency (NERC P1), all facilities shall be loaded within their emergency thermal ratings. ~~After each single contingency and allowing phase shifter, re-dispatch and topology changes to be made, post-contingency loadings of all facilities shall be within their applicable normal thermal ratings.~~

For the more severe NERC P2, P3, P4, P5, P6 and P7 contingencies, along with only transformer tap and switched shunt adjustments enabled, post-contingency loadings of all facilities shall be within their applicable emergency thermal ratings as required by the PJM or the Transmission Owner planning criteria. The study procedure for the NERC P3 and P6 contingencies (N-1-1) is described in detail in section 2.3.8.

G.10 NERC Standard PRC-023-3 – Transmission Relay Loadability

Background

The purpose of the standard is to ensure that 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. There are a number of requirements that specify how protective relays should be set so that they will not limit loadability of a circuit. One of the requirements of the Standard (R6) is for the Planning Coordinator to determine the facilities that must comply with requirements R1 through R5 of NERC standard PRC-023-3.

In accordance with Attachment B of PRC-023-3, the following circuits are subject to Requirement R6:

- Transmission lines operated at 100 kV to 200 kV and transformers with low voltage terminals connected at 100 kV to 200 kV, except Elements that connect the GSU transformer(s) to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant. Elements may also supply generating plant loads.
- Transmission lines operated below 100kV and transformers with low voltage terminals connected below 100 kV that are part of the BES, except Elements that connect the GSU transformer(s) to the Transmission system that are used exclusively to export energy directly from a BES generating unit or generating plant. Elements may also supply generating plant loads.

Process to determine PRC-023-3 Critical Facilities

the interconnecting project poses the concern.

- 2.2. The stability scope for interconnections in areas affected by established operating guides or ~~Special Protection System~~Remedial Action Schemes (SPSRAS) (for example see Manual 03) may include scenarios designed to test the proper operation of the existing guides or SPSRAS. In such cases, the scope may be augmented to examine and specify modified procedures or facilities that ensure the integrity of the system operation.

This is one example of many similar changes to this manual

Step 1: Develop Base case

The RTEP base case is developed for a reference year 5 years in the future. All RTEP identified system upgrades and Supplemental RTEP Projects are included in the system model. Load is modeled at a non-diversified forecasted 50/50 summer peak load level ~~reduced by energy efficiency as per the latest load forecast~~. All approved firm interchange is included with roll-over rights. Generation and Merchant Transmission projects that have proceeded at least through the execution of the Facility Study Agreement stage of the interconnection process are considered in the model along with any associated network upgrades. The starting point dispatch is developed as explained in the next step. PJM uses a uniform reduction of generation in place of discrete forced outages for this test due to the significant bias any one specific outage pattern can have on the final overload results.

This is one example of many similar changes to this manual

- PC First Read – 3/9/2017
- MRC First Read – 3/23/2017
- PC Endorsement – 4/13/2017
- MRC Endorsement – 4/27/2017



Please email all questions or comments to
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