The Transmission Operator, Transmission Planner and PSE&G Transmission Owner are required to incorporate the requirements of the latest revision of the Artificial Island Operating Guide A-5-500-EEE-1686, into all future stability studies, and provide PSEG Nuclear with at least 24 months notice of any violations to the guide due to future system modifications which could impact generation output at Artificial Island.

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.
- PJM will identify any facilities that must meet Requirements 1 through 5 of the standard to prevent potential cascade tripping that may occur when protective relay settings limit transmission loadability. The Planning Coordinator shall maintain a list of circuits subject to PRC-023-2 per application of Attachment B and provide the list of facilities to all Regional Entities, Reliability Coordinators, Transmission Owners, Generator Owners, and Distribution Providers within 30 days of establishment of the initial list and within 30 days of any changes to the list.

Process to determine PRC-023-3 Critical Facilities

As part of the development of the RTEP once each calendar year, PJM staff will conduct an assessment at least once each calendar year, with no more than 15 months between assessments, as part of the RTEP development process. PJM will by applying the criteria in accordance with Attachment B of PRC-023-3 to determine the circuits for which Transmission Owners, Generator Owners, and Distribution Providers must comply with Requirements R1 through R5 determine.
what facilities are applicable to the PRC-023-2 standard. PJM will maintain a list of
circuits subject to PRC-023-3 per application of Attachment B and provide the list of
circuits to all Regional Entities, Reliability Coordinators, Transmission Owners,
Generator Owners, and Distribution Providers within its Planning Coordinator area
within 30 calendar days of the establishment of the initial list and within 30 calendar
days of any changes to that list. The test will monitor all required facilities in
accordance with Attachment B of PRC-023-32 as described below.

NERC Standard PRC-023-32 Transmission Relay Loadability - Attachment B

If any of the following criteria apply to a circuit, the applicable entity must comply
with the standard for that circuit:

- The circuit is a monitored Facility of a permanent flowgate in the Eastern
  Interconnection, a major transfer path within the Western Interconnection as defined
  by the Regional Entity, or a comparable monitored Facility in the Québec
  Interconnection, that has been included to address reliability concerns for loading of
  that circuit, as confirmed by the applicable Planning Coordinator.

- The circuit is a monitored Facility of an IROL, where the IROL was determined in the
  planning horizon pursuant to FAC-010.

- The circuit forms a path (as agreed to by the Generator Operator and the
  transmission entity) to supply off-site power to a nuclear plant as established in the
  Nuclear Plant Interface Requirements (NPIRs) pursuant to NUC-001.

- The circuit is identified through the following sequence of power flow analyses
  performed by the Planning Coordinator for the one-to-five-year planning horizon
  
    o Simulate double contingency combinations selected by engineering judgment,
      without manual system adjustments in between the two contingencies (reflects a
      situation where a System Operator may not have time between the two
      contingencies to make appropriate system adjustments).

    o For circuits operated between 100 kV and 200 kV evaluate the post-contingency
      loading, in consultation with the Facility owner, against a threshold based on the
      Facility Rating assigned for that circuit and used in the power flow case by the
      Planning Coordinator.

    o When more than one Facility Rating for that circuit is available in the power flow
      case, the threshold for selection will be based on the Facility Rating for the
      loading duration nearest four hours.

    o The threshold for selection of the circuit will vary based on the loading duration
      assumed in the development of the Facility Rating.

      • If the Facility Rating is based on a loading duration of up to and
        including four hours, the circuit must comply with the standard if the
        loading exceeds 115% of the Facility Rating.

      • If the Facility Rating is based on a loading duration greater than four
        and up to and including eight hours, the circuit must comply with the
        standard if the loading exceeds 120% of the Facility Rating.
• If the Facility Rating is based on a loading duration of greater than eight hours, the circuit must comply with the standard if the loading exceeds 130% of the Facility Rating.
  o The Radially operated circuits serving only load are excluded.
• The circuit is selected by the Planning Coordinator based on technical studies or assessments, other than those specified in the NERC Standard PRC-023-32 Transmission Relay Loadability - Attachment B Criteria above, in consultation with the Facility Owner.
• The circuit is mutually agreed upon for inclusion by the Planning Coordinator and the Facility owner.