Project 2015-10 Single Points of Failure
Proposed TPL-001-5

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Feb 15, 2018

RELIABILITY | ACCOUNTABILITY
• Project 2015-10 TPL-001-5
• This is the third posting
  ▪ One informal posting
  ▪ One formal posting
• TPL-001-5 addresses:
  ▪ FERC Order 754 (Single Points of Failure)
  ▪ FERC Order 786 (Maintenance Outages in the Near Term Transmission Planning Horizon; stability analysis for loss of long lead time equipment)
• Separate ballot for standard and implementation plan
Changes to TPL-001-5:

- “Revision to Table 1 – Steady State and Stability Performance Planning Events”
- Modified Category P5 event to include SPF
- Added a new Category P8 Planning Event
- Footnote 13 – describes the non-redundant Protection System components considered for Category P5 and new Category P8 events
- Table 1:
  - Performance requirements for new Category P8
    - System shall remain stable, no cascading or uncontrolled islanding, for a 3-phase fault and failure of a non-redundant component of a Protection System
    - When analysis indicates an inability to meet Performance Criteria, assessment must include CAP
• New P8 Planning Event defined for SPF to include a 3-phase fault and failure of a non-redundant component of a Protection System

• Creates a “Bright Line” distinction between Planning and Extreme events

• SPF P8 Planning Event:
  ▪ 3-phase fault are low probability – single phase not properly cleared often evolves to a 3-phase fault
  ▪ The specific locations of SPF are known
  ▪ SPF role in system disturbances – 1,600 data request results – SPCS/SAMS recommendation
  ▪ Lower probability event is reflected in the P8 performance requirements

• Extreme Events unchanged with SPF codified as a Planning Event in Category P8
• Changes to requirement R1 is not a prescriptive, continent-wide procedure
• Entity must have a process and procedure that conform with a technical rationale which must be made available
  ▪ Consistent with other requirements in TPL-001-4, such as Voltage Criteria, Low Voltage Ride Through, etc.
• Removed the six month time horizon for significant outages occurring within the period of the Near Term Assessment studies (Year 1 or 2 and Year 5)
• Categories P3 and P6 do not sufficiently cover planned maintenance outages
• Proposed revisions to requirement R2 also include stability studies for long lead equipment that does not have a spare equipment strategy
• The issue is “raising the bar” on a continent-wide basis
  ▪ Close coordination between Protection and Planning
  ▪ Some entities may require extensive coordination efforts that involve multiple substation outages
• “Raising the bar” issue was addressed in TPL-001-4 by:
  ▪ 5 year time period for those requirements that “raised the bar”
  ▪ Providing temporary relief from the performance requirements by permitting Operating Procedures during the phase in period to include Non-Consequential load loss and curtailment of Firm Transmission Service that would not otherwise be permitted by the requirements of TPL-001-4
• The relief provided in TPL-001-4 is not portable to TPL-001-5
  ▪ In TPL-001-4, a P5 (non-redundant relay failure) event which does not meet performance requirements must have Operating Procedure until the redundant relay is installed
  ▪ Options provided in bullets under 2.7.1 may cause a BES reliability issue that is more severe than a low probability P5 event
  ▪ There is not time to install the added redundancy of the protection system for P5 or the added P8

• The performance requirements in Categories P5 and P8 (Relay Failure) are achieved in the dynamic time frame

• The solution to a relay issue is often to implement the CAP

• Another reliability concern is the potential impact of a lower probability event (P8) vs. scheduling outages required for the CAP
The implementation plan is being balloted separately and contains:

- 3 year study period to perform the “raising the bar” events in P5 and P8
- 2 year period to identify CAPs
Questions and Answers