

Mapping Document

Project 2015-10 Single Points of Failure TPL-001

Standard: TPL-001-5		
Requirement in Approved Standard	Translation to New Standard or Other Action	Description and Change Justification
<p>TPL-001-4, Requirement R1</p> <p>Each Transmission Planner and Planning Coordinator shall maintain System models within its respective area for performing the studies needed to complete its Planning Assessment. The models shall use data consistent with that provided in accordance with the MOD-010 and MOD-012 standards, supplemented by other sources as needed, including items represented in the Corrective Action Plan, and shall represent projected System conditions. This establishes Category PO as the normal System condition in Table 1.</p> <p>1.1 System models shall represent:</p> <p>1.1.1. Existing Facilities</p> <p>1.1.2. Known outage(s) of generation or Transmission Facility(ies) with a duration of at least six months.</p>	<p>TPL-001-5, Requirement R1</p> <p>Each Transmission Planner and Planning Coordinator shall maintain System models within its respective area for performing the studies needed to complete its Planning Assessment. The models shall use data consistent with that provided in accordance with the MOD-010 and MOD-012MOD-032 standard, supplemented by other sources as needed, including items represented in the Corrective Action Plan, and shall represent projected System conditions. This establishes Category PO as the normal System condition in Table 1.</p> <p>1.1 System models shall represent:</p> <p>1.1.1. Existing Facilities</p> <p>1.1.2. Known outage(s) of generation or Transmission Facility(ies) with a duration of at</p>	<p><u>Requirement R1 body.</u> Updated referenced standard number in body of requirement.</p> <p><u>Requirement R1 Part 1.1.2</u> Consistent with FERC Order 786 Para 40, the six-month threshold that could exclude planned maintenance outages is eliminated. Consultation with the Reliability Coordinator given that the Planning Coordinator and Transmission Planner maintain System models that represent known outages is consistent with IRO-017-1 Requirement R1, as well as IRO-017-1 Requirement R4 which requires the Planning Coordinator and Transmission Planner to jointly develop solutions with its respective Reliability Coordinator(s) for identified issues or conflicts with planned</p>

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<p>1.1.3. New planned Facilities and changes to existing Facilities</p> <p>1.1.4. Real and reactive Load forecasts</p> <p>1.1.5. Known commitments for Firm Transmission Service and Interchange</p> <p>1.1.6. Resources (supply or demand side) required for Load</p>	<p>least six months as selected in consultation with the Reliability Coordinator for the Near-Term Planning Horizon for analyses pursuant to Requirement R2, Parts 2.1.3 and R 2.4.3.</p> <p>1.1.3. New planned Facilities and changes to existing Facilities</p> <p>1.1.4. Real and reactive Load forecasts</p> <p>1.1.5. Known commitments for Firm Transmission Service and Interchange</p> <p>1.1.6. Resources (supply or demand side) required for Load</p>	<p>outages in its Planning Assessment for the Near-Term Transmission Planning Horizon.</p>
<p>TPL-001-4, Requirement R2</p> <p>Parts 2.1, 2.1.1, 2.1.2, 2.1.4 and 2.1.5</p> <p>Parts 2..2, 2.2.1</p> <p>Part 2.3</p> <p>Parts 2.4, 2.4.1, 2.4.2</p> <p>Part 2.5</p> <p>Parts 2.6, 2.6.1, 2.6.2</p> <p>Parts 2.7, 2.7.1, 2.7.2, 2.7.3, 2.7.4</p> <p>Parts 2.8, 2.8.1, 2.8.2</p>	<p>TPL-001-5, Requirement R2</p> <p>Parts 2.1, 2.1.1, 2.1.2, 2.1.4 and 2.1.5</p> <p>Parts 2..2, 2.2.1</p> <p>Part 2.3</p> <p>Parts 2.4, 2.4.1, 2.4.2</p> <p>Part 2.5</p> <p>Parts 2.6, 2.6.1, 2.6.2</p> <p>Parts 2.7, 2.7.1, 2.7.2, 2.7.3, 2.7.4</p> <p>Parts 2.8, 2.8.1, 2.8.2</p>	<p>No modifications made.</p>

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<p>TPL-001-4, Requirement R2</p> <p>Part 2.1.3. P1 events in Table 1, with known outages modeled as in Requirement R1, Part 1.1.2, under those System peak or Off-Peak conditions when known outages are scheduled.</p>	<p>TPL-001-5, Requirement R2</p> <p>Part 2.1.3. P1 events in Table 1, with known outages modeled as in Requirement R1, Part 1.1.2, under those System peak or Off-Peak conditions when known outages are scheduled.</p>	<p>No modifications made.</p>
<p>TPL-001-4, Requirement R2</p> <p>Part 2.4.3. For each of the studies described in Requirement R2, Parts 2.4.1 and 2.4.2, sensitivity case(s) shall be utilized to demonstrate the impact of changes to the basic assumptions used in the model. To accomplish this, the sensitivity analysis in the Planning Assessment must vary one or more of the following conditions by a sufficient amount to stress the System within a range of credible conditions that demonstrate a measurable change in performance:</p> <ul style="list-style-type: none"> • Load level, Load forecast, or dynamic Load model assumptions. • Expected transfers. 	<p>TPL-001-4, Requirement R2</p> <p>Part 2.4.4. For each of the studies described in Requirement R2, Parts 2.4.1 and 2.4.2, sensitivity case(s) shall be utilized to demonstrate the impact of changes to the basic assumptions used in the model. To accomplish this, the sensitivity analysis in the Planning Assessment must vary one or more of the following conditions by a sufficient amount to stress the System within a range of credible conditions that demonstrate a measurable change in performance:</p> <ul style="list-style-type: none"> • Load level, Load forecast, or dynamic Load model assumptions. • Expected transfers. 	<p><u>TPL-001-5, Requirement R2, Part 2.4.4</u></p> <p>TPL-001-4, Part 2.4.3 moved to TPL-001-5, Part 2.4.4</p>

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<ul style="list-style-type: none"> • Expected in service dates of new or modified Transmission Facilities. • Reactive resource capability. • Generation additions, retirements, or other dispatch scenarios. 	<ul style="list-style-type: none"> • Expected in service dates of new or modified Transmission Facilities. • Reactive resource capability. • Generation additions, retirements, or other dispatch scenarios. 	
	<p>TPL-001-5, Requirement R2</p> <p>Part 2.4.3. P1 events in Table 1, with known outages modeled as in Requirement R1, Part 1.1.2, under those System peak or Off-Peak conditions when known outages are scheduled.</p>	<p><u>TPL-001-5, Requirement R2, Part 2.4.3</u></p> <p>Modified the standard to add a Stability analysis requirement for P1 events in Table 1, with known outages under appropriate System conditions, that includes similar language to that used for the steady state analysis stated in Requirement R2, Part 2.1.3.</p>
	<p>TPL-001-5, Requirement R2</p> <p>Part 2.4.5. When an entity's spare equipment strategy could result in the unavailability of major Transmission equipment that has a lead time of one year or more (such as a transformer), the impact of this possible unavailability on System performance shall be assessed. Based upon this assessment, an analysis shall be</p>	<p><u>TPL-001-5, Requirement R2, Part 2.4.5</u></p> <p>Consistent with FERC Order 786 Para 89, modified the standard to add Requirement R2, Part 2.4.5, which includes similar language to that used for the steady-state analysis stated in Requirement R2, Part 2.1.5 to address stability analysis for spare equipment strategy.</p>

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	performed for the selected P1 and P2 category events identified in Table 1 for which the unavailability is expected to produce more severe System impacts on its portion of the BES. The analysis shall simulate the conditions that the System is expected to experience during the possible unavailability of the long lead time equipment.	
TPL-001-4, Requirement R3	TPL-001-5, Requirement R3	No modifications made.
TPL-001-4, Requirement R4 Parts 4.1, 4.1.1, 4.1.2, 4.1.3 Parts 4.3, 4.3.1, 4.3.1.1, 4.3.1.2, 4.3.1.3, 4.3.2 Parts 4.4, 4.4.1 Part 4.5	TPL-001-5, Requirement R4 Parts 4.1, 4.1.1, 4.1.2, 4.1.3 Parts 4.3, 4.3.1, 4.3.1.1, 4.3.1.2, 4.3.1.3, 4.3.2 Parts 4.4, 4.4.1 Part 4.5	No modifications made.
TPL-001-4, Requirement R4 4.2. Studies shall be performed to assess the impact of the extreme events which are	TPL-001-5, Requirement R4, 4.2. Studies shall be performed to assess the impact of the extreme events which are	<u>TPL-001-5, Requirement R4, Part 4.2</u> Modified the standard to differentiate between extreme events 2e-2h in the stability column of Table 1 from all other

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identified by the list created in Requirement R4, Part 4.5.	<p>identified by the list created in Requirement R4, Part 4.5.</p> <p>4.2.1. If the analysis concludes there is Cascading caused by the occurrence of extreme events, excluding extreme events 2e-2h in the stability column, an evaluation of possible actions designed to reduce the likelihood or mitigate the consequences of the event(s) shall be conducted.</p> <p>4.2.2. If the analysis concludes there is Cascading caused by the occurrence of extreme events 2e-2h in the stability column, an evaluation of possible actions designed to prevent the System from Cascading shall:</p> <p style="padding-left: 40px;">4.2.2.1. List System deficiencies, the associated actions needed to prevent the System from Cascading, and the associated timetable for implementation. List System deficiencies, the associated actions, and an associated timetable for implementation needed to prevent the System from Cascading.</p>	<p>extreme events with respect to additional documentation required when analysis concludes Cascading occurs. While the extreme events 2e-2h in the stability column of Table 1 remain as extreme events within TPL-001-5, the additional documentation specified in Requirement R4, Part 4.2.2.1 is indicated due to the reliability risk given a three phase fault and extended Delayed Clearing that may arise from the occurrence of these events. Likewise, when analysis concludes there is Cascading, Requirement R4, Part 4.2.2.2 specifies that these events be reviewed in subsequent annual Planning Assessments.</p>

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	4.2.2.2. Be reviewed in subsequent annual Planning Assessments for continued validity and implementation status.	
TPL-001-4, Requirement R5	TPL-001-5, Requirement R5	No modifications made.
TPL-001-4, Requirement R6	TPL-001-5, Requirement R6	No modifications made.
TPL-001-4, Requirement R7	TPL-001-5, Requirement R7	No modifications made.
TPL-001-4, Requirement R8	TPL-001-5, Requirement R8	No modifications made.