

BONNEVILLE POWER ADMINISTRATION

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Transmission Planner Roadmap UPDATED 05/18/2020

Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
FAC-002-2	R1	Each Transmission Planner and each Planning Coordinator shall study the reliability impact of: (i) interconnecting new generation, transmission, or electricity end-user Facilities and (ii) materially modifying existing interconnections of generation, transmission, or electricity end-user Facilities. The following shall be studied: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA's LLIR process performs studies for line and load interconnection requests; BPA's LGIA and SGIA agreements perform studies for the customer as part of the agreement.	Customer	Customer responsibility to determine who's interconnection process to use.
FAC-002-2	R1.1	The reliability impact of the new interconnection, or materially modified existing interconnection, on affected system(s)	BPA's LLIR process performs studies for line and load interconnection requests; BPA's LGIA and SGIA agreements perform studies for the customer as part of the agreement.	Customer	Customer responsibility to determine who's interconnection process to use.
FAC-002-2	R1.2	Adherence to applicable NERC Reliability Standards; regional and Transmission Owner planning criteria; and Facility interconnection requirements;	BPA's interconnection studies adhere to applicable Standards, criteria, and Interconnection requirements.	Customer	Customer responsibility to determine who's interconnection process to use.
FAC-002-2	R1.3	Steady-state, short-circuit, and dynamics studies, as necessary, to evaluate system performance under both normal and contingency conditions; and	BPA's LLIR process performs studies for line and load interconnection requests; BPA's LGIA and SGIA agreements perform studies for the customer as part of the agreement.	Customer	Customer responsibility to determine who's interconnection process to use.
FAC-002-2	R1.4	Study assumptions, system performance, alternatives considered, and coordinated recommendations. While these studies may be performed independently, the results shall be evaluated and coordinated by the entities involved.	BPA's LLIR process performs studies for line and load interconnection requests; BPA's LGIA and SGIA agreements perform studies for the customer as part of the agreement.	Customer	Customer responsibility to determine who's interconnection process to use.
FAC-014-2	R4	The Transmission Planner shall establish SOLs, including IROLs, for its Transmission Planning Area that are consistent with its Planning Authority's SOL Methodology.		BPA	BPA will validate that the subset of customers do not have any SOL's IROL's per existing BPA SOL Methodology. Standard will be going away, in the interim BPA will keep

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FAC-014-2	R5	The Reliability Coordinator, Planning Authority and Transmission Planner shall each provide its SOLs and IROLs to those entities that have a reliability-related need for those limits and provide a written request that includes a schedule for delivery of those limits as follows:		BPA	BPA will validate that the subset of customers do not have any SOL's IROL's per existing BPA SOL Methodology. Standard will be going away, in the interim BPA will keep
FAC-014-2	R5.4	The Transmission Planner shall provide its SOLs (including the subset of SOLs that are IROLs) to its Planning Authority, Reliability Coordinators, Transmission Operators, and Transmission Service Providers that work within its Transmission Planning Area and to adjacent Transmission Planners.		BPA	BPA will validate that the subset of customers do not have any SOL's IROL's per existing BPA SOL Methodology. Standard will be going away, in the interim BPA will keep
IRO-017-1	R3	Each Planning Coordinator and Transmission Planner shall provide its Planning Assessment to impacted Reliability Coordinators. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA currently performs for its own needs only.	BPA	Customer required to provide BPA with TPL-001-4: R2.15, R2.7, & R2.8 data - annually
IRO-017-1	R4	Each Planning Coordinator and Transmission Planner shall jointly develop solutions with its respective Reliability Coordinator(s) for identified issues or conflicts with planned outages in its Planning Assessment for the Near-Term Transmission Planning Horizon. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]		BPA	Should be captured in the MOD-032 and the mid-cycle changes process
MOD-004-1	R6	At least every 13 months, the Transmission Planner shall establish a CBM value for each ATC Path or Flowgate to be used in planning during each of the full calendar years two through ten following the current year (the year in which the Transmission Planner is establishing the CBM values). This value shall: [Time Horizon: Long-term Planning]	na	BPA	BPA, as a Transmission Service Provider, BPA does not maintain Capacity Benefit Margin; therefore, the requirements of NERC Standard MOD-004-1 are not pertinent. BPA does not set aside firm transfer capability as CBM on any of its paths or flowgates in its service territory for any LSE or Resource Planner in its service territory, thus, this standard does not apply to LSE's within BPA's service territory.

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MOD-004-1	R6.1	Reflect consideration of each of the following if available: Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Planner's area Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Planner's area Any reserve margin or resource adequacy requirements for loads within the Transmission Planner's area established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities	N/A	BPA	BPA, as a Transmission Service Provider, BPA does not maintain Capacity Benefit Margin; therefore, the requirements of NERC Standard MOD-004-1 are not pertinent. BPA does not set aside firm transfer capability as CBM on any of its paths or flowgates in its service territory for any LSE or Resource Planner in its service territory, thus, this standard does not apply to LSE's within BPA's service territory.
MOD-004-1	R6.2	Be allocated as follows: For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Planner.	N/A	BPA	
MOD-004-1	R8	Less than 31 calendar days after the establishment of CBM, the Transmission Planner shall notify all the Load-Serving Entities and Resource Planners that determined they had a need for CBM on the system being planned by the Transmission Planner of the amount of CBM set aside. [Time Horizon: Operations Planning]	na	BPA	BPA, as a Transmission Service Provider, BPA does not maintain Capacity Benefit Margin; therefore, the requirements of NERC Standard MOD-004-1 are not pertinent. BPA does not set aside firm transfer capability as CBM on any of its paths or flowgates in its service territory for any LSE or Resource Planner in its service territory, thus, this standard does not apply to LSE's within BPA's service territory.

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MOD-004-1	R9	The Transmission Service Provider that maintains CBM and the Transmission Planner shall each provide (subject to confidentiality and security requirements) copies of the applicable supporting data, including any models, used for determining CBM or allocating CBM over each ATC Path or Flowgate to the following: [Time Horizon: Operations Planning, Long-term Planning]	N/A	BPA	BPA, as a Transmission Service Provider, BPA does not maintain Capacity Benefit Margin; therefore, the requirements of NERC Standard MOD-004-1 are not pertinent. BPA does not set aside firm transfer capability as CBM on any of its paths or flowgates in its service territory for any LSE or Resource Planner in its service territory, thus, this standard does not apply to LSE's within BPA's service territory.
MOD-004-1	R9.1	Each of its associated Transmission Operators within 30 calendar days of their making a request for the data.	N/A	BPA	BPA, as a Transmission Service Provider, BPA does not maintain Capacity Benefit Margin; therefore, the requirements of NERC Standard MOD-004-1 are not pertinent. BPA does not set aside firm transfer capability as CBM on any of its paths or flowgates in its service territory for any LSE or Resource Planner in its service territory, thus, this standard does not apply to LSE's within BPA's service territory.
MOD-004-1	R9.2	To any Transmission Service Provider, Reliability Coordinator, Transmission Planner, Resource Planner, or Planning Coordinator within 30 calendar days of their making a request for the data.	na	BPA	BPA, as a Transmission Service Provider, BPA does not maintain Capacity Benefit Margin; therefore, the requirements of NERC Standard MOD-004-1 are not pertinent. BPA does not set aside firm transfer capability as CBM on any of its paths or flowgates in its service territory for any LSE or Resource Planner in its service territory, thus, this standard does not apply to LSE's within BPA's service territory.
MOD-020-0	R1	The Load-Serving Entity, Transmission Planner, and Resource Planner shall each make known its amount of interruptible demands and Direct Control Load Management (DCLM) to Transmission Operators, Balancing Authorities, and Reliability Coordinators on request within 30 calendar days.	N/A	BPA	BPA collects general information on customer (Load-Serving Entity (LSE)) Direct Control Load Management (DCLM), Demand-Side Management (DSM), Interruptible Demands, and rate making activities and practices consistent with NERC Standard MOD-016-1.1 a

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MOD-026-1	R1	<p>Each Transmission Planner shall provide the following requested information to the Generator Owner within 90 calendar days of receiving a written request : [Violation Risk Factor: Lower] [Time Horizon: Operations Planning]</p> <ul style="list-style-type: none"> - Instructions on how to obtain the list of excitation control system or plant volt/var control function models that are acceptable to the Transmission Planner for use in dynamic simulation, - Instructions on how to obtain the dynamic excitation control system or plant volt/var control function model library block diagrams and/or data sheets for models that are acceptable to the Transmission Planner, or - Model data for any of the Generator Owner’s existing applicable unit specific excitation control system or plant volt/var control function contained in the Transmission Planner’s dynamic database from the current (in-use) models, including generator MVA base. 	N/A	BPA	<p>In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.</p>
MOD-026-1	R6	<p>Each Transmission Planner shall provide a written response to the Generator Owner within 90 calendar days of receiving the verified excitation control system or plant volt/var control function model information in accordance with Requirement R2 that the model is usable (meets the criteria specified in Parts 6.1 through 6.3) or is not usable.</p>	na	Customer	<p>In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.</p>
MOD-026-1	R6.1	<p>The excitation control system or plant volt/var control function model initializes to compute modeling data without error,</p>	N/A	BPA	<p>In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.</p>

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MOD-026-1	R6.2	A no-disturbance simulation results in negligible transients, and	N/A	BPA	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.
MOD-026-1	R6.3	For an otherwise stable simulation, a disturbance simulation results in the excitation control and plant volt/var control function model exhibiting positive damping. If the model is not usable, the Transmission Planner shall provide a technical description of why the model is not usable. [Violation Risk Factor: Medium] [Time Horizon: Operations Planning]	N/A	BPA	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.
MOD-027-1	R1	Each Transmission Planner shall provide the following requested information to the Generator Owner within 90 calendar days of receiving a written request: [Violation Risk Factor: Lower] [Time Horizon: Operations Planning] - Instructions on how to obtain the list of turbine/governor and load control or active power/frequency control system models that are acceptable to the Transmission Planner for use in dynamic simulation, - Instructions on how to obtain the dynamic turbine/governor and load control or active power/frequency control function model library block diagrams and/or data sheets for models that are acceptable to the Transmission Planner, or - Model data for any of the Generator Owner's existing applicable unit specific turbine/governor and load control or active power/frequency control system contained in the Transmission Planner's dynamic database from the current (in-use) models.	N/A	BPA	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.

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MOD-027-1	R5	Each Transmission Planner shall provide a written response to the Generator Owner within 90 calendar days of receiving the turbine/governor and load control or active power/frequency control system verified model information in accordance with Requirement R2 that the model is usable (meets the criteria specified in Parts 5.1 through 5.3) or is not usable.	N/A	BPA	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.
MOD-027-1	R5.1	The turbine/governor and load control or active power/frequency control function model initializes to compute modeling data without error,	N/A	BPA	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.
MOD-027-1	R5.2	A no-disturbance simulation results in negligible transients, and	N/A	BPA	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.
MOD-027-1	R5.3	For an otherwise stable simulation, a disturbance simulation results in the turbine/governor and load control or active power/frequency control model exhibiting positive damping. If the model is not usable, the Transmission Planner shall provide a technical description of why the model is not usable. [Violation Risk Factor: Medium] [Time Horizon: Operations Planning]	N/A	Customer	In March of 2019, BPA officially notified Generator Owners that we would be the TP for BES generation in our PC footprint. This means that BPA is responsible for compliance for R1 & R6 (plus sub requirements) for MOD-026-1 & R1 & R5 (plus sub requirements) for MOD-027-1.
MOD-031-2	R2	Each Applicable Entity identified in a data request shall provide the data requested by its Planning Coordinator or Balancing Authority in accordance with the data request issued pursuant to Requirement R1.	BPA currently performs for its own needs only.	BPA	BPA customers actively participate in BPA's Load Forecasting process by either working with the Load Forecasting Analyst when requested, or by responding to the appropriate NERC document as described in the attached document.

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MOD-031-2	R4	<p>Any Applicable Entity shall, in response to a written request for the data included in parts 1.3-1.5 of Requirement R1 from a Planning Coordinator, Balancing Authority, Transmission Planner or Resource Planner with a demonstrated need for such data in order to conduct reliability assessments of the Bulk Electric System, provide or otherwise make available that data to the requesting entity. This requirement does not modify an entity's obligation pursuant to Requirement R2 to respond to data requests issued by its Planning Coordinator or Balancing Authority pursuant to Requirement R1. Unless otherwise agreed upon, the Applicable Entity: [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]</p> <ul style="list-style-type: none"> - shall not be required to alter the format in which it maintains or uses the data; - shall provide the requested data within 45 calendar days of the written request, subject to part 4.1 of this requirement; unless providing the requested data would conflict with the Applicable Entity's confidentiality, regulatory, or security requirements. 	BPA currently performs for its own needs only.	BPA	BPA customers actively participate in BPA's Load Forecasting process by either working with the Load Forecasting Analyst when requested, or by responding to the appropriate NERC document as described in the attached document.
MOD-031-2	R4.1	<p>If the Applicable Entity does not provide data requested because (1) the requesting entity did not demonstrate a reliability need for the data; or (2) providing the data would conflict with the Applicable Entity's confidentiality, regulatory, or security requirements, the Applicable Entity shall, within 30 calendar days of the written request, provide a written response to the requesting entity specifying the data that is not being provided and on what basis.</p>	BPA currently performs for its own needs only.	BPA	BPA customers actively participate in BPA's Load Forecasting process by either working with the Load Forecasting Analyst when requested, or by responding to the appropriate NERC document as described in the attached document.
MOD-032-1	R1	<p>Each Planning Coordinator and each of its Transmission Planners shall jointly develop steady-state, dynamics, and short circuit modeling data requirements and reporting procedures for the Planning Coordinator's planning area that include: [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]</p>	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.

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MOD-032-1	R1.1	The data listed in Attachment 1.	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
MOD-032-1	R1.2	Specifications of the following items consistent with procedures for building the Interconnection-wide case(s):	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
MOD-032-1	R1.2.1	Data format;	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
MOD-032-1	R1.2.2	Level of detail to which equipment shall be modeled;	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
MOD-032-1	R1.2.3	Case types or scenarios to be modeled; and	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
MOD-032-1	R1.2.4	A schedule for submission of data at least once every 13 calendar months.	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
MOD-032-1	R1.3	Specifications for distribution or posting of the data requirements and reporting procedures so that they are available to those entities responsible for providing the data.	Email coordination and concurrence	BPA	As BPA implements MOD-032-1, R1 as the Planning Coordinator, BPA assumes coordination compliance responsibility for the Requirement for the TP CFR project.
PRC-010-2	R1	Under Voltage Load Shedding	na	BPA	BPA does not or operate a UVLS Program. BPA does not implement the requirements of this Standard

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TPL-001-4	R1	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 P0 as the normal System condition in Table 1. [Violation Risk Factor: High] [Time Horizon: Long-term Planning]	BPA maintains system models, and posts typical scenarios to the SRWG website. The referenced BPA Deliverable documents data requirements BPA's PC Area.	Partial	
TPL-001-4	R1.1	System models shall represent:	see TPL-001-4 R1	BPA	
TPL-001-4	R1.1.1	Existing Facilities	see TPL-001-4 R1	BPA	
TPL-001-4	R1.1.2	Known outage(s) of generation or Transmission Facility(ies) with a duration of at least six months.	see TPL-001-4 R1	Customer	BPA will issue a Data Request to each participating customer annually requesting Long Duration Outage Information. Ties to IRO-017 R3
TPL-001-4	R1.1.3	New planned Facilities and changes to existing Facilities	see TPL-001-4 R1	BPA	
TPL-001-4	R1.1.4	Real and reactive Load forecasts	see TPL-001-4 R1	BPA	
TPL-001-4	R1.1.5	Known commitments for Firm Transmission Service and Interchange	see TPL-001-4 R1	Customer	BPA will issue a Data Request to each participating customer annually requesting known commitments
TPL-001-4	R1.1.6	Resources (supply or demand side) required for Load	see TPL-001-4 R1	BPA	
TPL-001-4	R2	Each Transmission Planner and Planning Coordinator shall prepare an annual Planning Assessment of its portion of the BES. This Planning Assessment shall use current or qualified past studies (as indicated in Requirement R2, Part 2.6), document assumptions, and document summarized results of the steady state analyses, short circuit analyses, and Stability analyses. [Violation Risk Factor: High] [Time Horizon: Long-term Planning]	BPA performs annually; studies are broken into 24 areas. The studies and final assessment are available by October.	Partial	

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TPL-001-4	R2.1	For the Planning Assessment, the Near-Term Transmission Planning Horizon portion of the steady state analysis shall be assessed annually and be supported by current annual studies or qualified past studies as indicated in Requirement R2, Part 2.6. Qualifying studies need to include the following conditions:	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.1.1	System peak Load for either Year One or year two, and for year five.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.1.2	System Off-Peak Load for one of the five years.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.1.3	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.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	

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TPL-001-4	R2.1.4	<p>For each of the studies described in Requirement R2, Parts 2.1.1 and 2.1.2, 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 System response :</p> <ul style="list-style-type: none"> Real and reactive forecasted Load. Expected transfers. Expected in service dates of new or modified Transmission Facilities. Reactive resource capability. Generation additions, retirements, or other dispatch scenarios. Controllable Loads and Demand Side Management. Duration or timing of known Transmission outages. 	BPA area studies meet requirements; see BPA Detail Load Area Report	Customer	BPA will issue a Data Request to each participating customer annually.
TPL-001-4	R2.1.5	<p>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 studied. The studies shall be performed for the P0, P1, and P2 categories identified in Table 1 with the conditions that the System is expected to experience during the possible unavailability of the long lead time equipment.</p>	BPA establishes spare equipment strategy for its own BES assets only.	Customer	

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TPL-001-4	R2.2	For the Planning Assessment, the Long-Term Transmission Planning Horizon portion of the steady state analysis shall be assessed annually and be supported by the following annual current study, supplemented with qualified past studies as indicated in Requirement R2, Part 2.6:	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.2.1	A current study assessing expected System peak Load conditions for one of the years in the Long-Term Transmission Planning Horizon and the rationale for why that year was selected.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.3	The short circuit analysis portion of the Planning Assessment shall be conducted annually addressing the Near-Term Transmission Planning Horizon and can be supported by current or past studies as qualified in Requirement R2, Part 2.6. The analysis shall be used to determine whether circuit breakers have interrupting capability for Faults that they will be expected to interrupt using the System short circuit model with any planned generation and Transmission Facilities in service which could impact the study area.	BPA performs short circuit analysis for its own BES assets only	Customer	BPA will issue a Data Request to each participating customer annually.
TPL-001-4	R2.4	For the Planning Assessment, the Near-Term Transmission Planning Horizon portion of the Stability analysis shall be assessed annually and be supported by current or past studies as qualified in Requirement R2, Part 2.6. The following studies are required:	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	

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TPL-001-4	R2.4.1	System peak Load for one of the five years. System peak Load levels shall include a Load model which represents the expected dynamic behavior of Loads that could impact the study area, considering the behavior of induction motor Loads. An aggregate System Load model which represents the overall dynamic behavior of the Load is acceptable.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.4.2	System Off-Peak Load for one of the five years.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.4.3	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: ? Load level, Load forecast, or dynamic Load model assumptions. ? Expected transfers. ? Expected in service dates of new or modified Transmission Facilities. ? Reactive resource capability. ? Generation additions, retirements, or other dispatch scenarios.	BPA area studies meet requirements; see BPA Detail Load Area Report	Customer	BPA will issue a Data Request to each participating customer annually.

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TPL-001-4	R2.5	For the Planning Assessment, the Long-Term Transmission Planning Horizon portion of the Stability analysis shall be assessed to address the impact of proposed material generation additions or changes in that timeframe and be supported by current or past studies as qualified in Requirement R2, Part 2.6 and shall include documentation to support the technical rationale for determining material changes.	BPA area studies meet requirements; see BPA Detail Load Area Report	BPA	
TPL-001-4	R2.6	Past studies may be used to support the Planning Assessment if they meet the following requirements:	BPA's determination on using past studies is done with respect to its own short circuit analysis only	BPA	
TPL-001-4	R2.6.1	For steady state, short circuit, or Stability analysis: the study shall be five calendar years old or less, unless a technical rationale can be provided to demonstrate that the results of an older study are still valid.	BPA's determination on using past studies is done with respect to its own short circuit analysis only	BPA	
TPL-001-4	R2.6.2	For steady state, short circuit, or Stability analysis: no material changes have occurred to the System represented in the study. Documentation to support the technical rationale for determining material changes shall be included.	BPA's determination on using past studies is done with respect to its own short circuit analysis only	BPA	

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TPL-001-4	R2.7	<p>For planning events shown in Table 1, when the analysis indicates an inability of the System to meet the performance requirements in Table 1, the Planning Assessment shall include Corrective Action Plan(s) addressing how the performance requirements will be met. Revisions to the Corrective Action Plan(s) are allowed in subsequent Planning Assessments but the planned System shall continue to meet the performance requirements in Table 1. Corrective Action Plan(s) do not need to be developed solely to meet the performance requirements for a single sensitivity case analyzed in accordance with Requirements R2, Parts 2.1.4 and 2.4.3. The Corrective Action Plan(s) shall:</p>	<p>BPA establishes corrective action plans for its own BES assets only.</p>	<p>Customer</p>	<p>Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.</p>

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R2.7.1	<p>List System deficiencies and the associated actions needed to achieve required System performance. Examples of such actions include:</p> <ul style="list-style-type: none"> - Installation, modification, retirement, or removal of Transmission and generation Facilities and any associated equipment. - Installation, modification, or removal of Protection Systems or Special Protection Systems - Installation or modification of automatic generation tripping as a response to a single or multiple Contingency to mitigate Stability performance violations. - Installation or modification of manual and automatic generation runback/tripping as a response to a single or multiple Contingency to mitigate steady state performance violations. - Use of Operating Procedures specifying how long they will be needed as part of the Corrective Action Plan. - Use of rate applications, DSM, new technologies, or other initiatives. 	BPA establishes corrective action plans for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.
TPL-001-4	R2.7.2	<p>Include actions to resolve performance deficiencies identified in multiple sensitivity studies or provide a rationale for why actions were not necessary.</p>	BPA establishes corrective action plans for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R2.7.3	If situations arise that are beyond the control of the Transmission Planner or Planning Coordinator that prevent the implementation of a Corrective Action Plan in the required timeframe, then the Transmission Planner or Planning Coordinator is permitted to utilize Non-Consequential Load Loss and curtailment of Firm Transmission Service to correct the situation that would normally not be permitted in Table 1, provided that the Transmission Planner or Planning Coordinator documents that they are taking actions to resolve the situation. The Transmission Planner or Planning Coordinator shall document the situation causing the problem, alternatives evaluated, and the use of Non-Consequential Load Loss or curtailment of Firm Transmission Service.	BPA establishes corrective action plans for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.
TPL-001-4	R2.7.4	Be reviewed in subsequent annual Planning Assessments for continued validity and implementation status of identified System Facilities and Operating Procedures.	BPA establishes corrective action plans for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.
TPL-001-4	R2.8	For short circuit analysis, if the short circuit current interrupting duty on circuit breakers determined in Requirement R2, Part 2.3 exceeds their Equipment Rating, the Planning Assessment shall include a Corrective Action Plan to address the Equipment Rating violations. The Corrective Action Plan shall:	BPA establishes corrective action plans and short circuit analysis for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.
TPL-001-4	R2.8.1	List System deficiencies and the associated actions needed to achieve required System performance.	BPA establishes corrective action plans and short circuit analysis for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R2.8.2	Be reviewed in subsequent annual Planning Assessments for continued validity and implementation status of identified System Facilities and Operating Procedures.	BPA establishes corrective action plans and short circuit analysis for its own BES assets only.	Customer	Customer will receive "preliminary" study results every January indicating whether a CAP is necessary. If a CAP is necessary, a preliminary CAP is due back from customer during the annual TPL-001-4 data request due to BPA at the end of April.
TPL-001-4	R3	For the steady state portion of the Planning Assessment, each Transmission Planner and Planning Coordinator shall perform studies for the Near-Term and Long-Term Transmission Planning Horizons in Requirement R2, Parts 2.1, and 2.2. The studies shall be based on computer simulation models using data provided in Requirement R1. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.1	Studies shall be performed for planning events to determine whether the BES meets the performance requirements in Table 1 based on the Contingency list created in Requirement R3, Part 3.4.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.2	Studies shall be performed to assess the impact of the extreme events which are identified by the list created in Requirement R3, Part 3.5.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.3	Contingency analyses for Requirement R3, Parts 3.1 & 3.2 shall:	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.3.1	Simulate the removal of all elements that the Protection System and other automatic controls are expected to disconnect for each Contingency without operator intervention. The analyses shall include the impact of subsequent:	BPA establishes contingency list annually, and coordinates with TPs.	BPA	

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R3.3.1.1	Tripping of generators where simulations show generator bus voltages or high side of the generation step up (GSU) voltages are less than known or assumed minimum generator steady state or ride through voltage limitations. Include in the assessment any assumptions made.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.3.1.2	Tripping of Transmission elements where relay load ability limits are exceeded.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.3.2	Simulate the expected automatic operation of existing and planned devices designed to provide steady state control of electrical system quantities when such devices impact the study area. These devices may include equipment such as phase-shifting transformers, load tap changing transformers, and switched capacitors and inductors.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.4	Those planning events in Table 1, that are expected to produce more severe System impacts on its portion of the BES, shall be identified and a list of those Contingencies to be evaluated for System performance in Requirement R3, Part 3.1 created. The rationale for those Contingencies selected for evaluation shall be available as supporting information.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R3.4.1	The Planning Coordinator and Transmission Planner shall coordinate with adjacent Planning Coordinators and Transmission Planners to ensure that Contingencies on adjacent Systems which may impact their Systems are included in the Contingency list.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R3.5	Those extreme events in Table 1 that are expected to produce more severe System impacts shall be identified and a list created of those events to be evaluated in Requirement R3, Part 3.2. The rationale for those Contingencies selected for evaluation shall be available as supporting information. If the analysis concludes there is Cascading caused by the occurrence of extreme events, an evaluation of possible actions designed to reduce the likelihood or mitigate the consequences and adverse impacts of the event(s) shall be conducted.	BPA establishes contingency list annually, and coordinates with TPs.	BPA	
TPL-001-4	R4	For the Stability portion of the Planning Assessment, as described in Requirement R2, Parts 2.4 and 2.5, each Transmission Planner and Planning Coordinator shall perform the Contingency analyses listed in Table 1. The studies shall be based on computer simulation models using data provided in Requirement R1. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA establishes contingency list annually, and coordinates with TPs.	Partial	BPA Planning will work with Customers to identify how this requirement will be met.
TPL-001-4	R4.1	Studies shall be performed for planning events to determine whether the BES meets the performance requirements in Table 1 based on the Contingency list created in Requirement R4, Part 4.4.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.1.1	For planning event P1: No generating unit shall pull out of synchronism. A generator being disconnected from the System by fault clearing action or by a Special Protection System is not considered pulling out of synchronism.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.1.2	For planning events P2 through P7: When a generator pulls out of synchronism in the simulations, the resulting apparent impedance swings shall not result in the tripping of any Transmission system elements other than the generating unit and its directly connected Facilities.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.1.3	For planning events P1 through P7: Power oscillations shall exhibit acceptable damping as established by the Planning Coordinator and Transmission Planner.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R4.2	Studies shall be performed to assess the impact of the extreme events which are identified by the list created in Requirement R4, Part 4.5.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.3	Contingency analyses for Requirement R4, Parts 4.1 and 4.2 shall :	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.3.1	Simulate the removal of all elements that the Protection System and other automatic controls are expected to disconnect for each Contingency without operator intervention. The analyses shall include the impact of subsequent:	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input on their protection systems
TPL-001-4	R4.3.1.1	Successful high speed (less than one second) reclosing and unsuccessful high speed reclosing into a Fault where high speed reclosing is utilized.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires customer input on which of their facilities has high speed reclosing
TPL-001-4	R4.3.1.2	Tripping of generators where simulations show generator bus voltages or high side of the GSU voltages are less than known or assumed generator low voltage ride through capability. Include in the assessment any assumptions made.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires customer input on their generator low voltage ride through capability
TPL-001-4	R4.3.1.3	Tripping of Transmission lines and transformers where transient swings cause Protection System operation based on generic or actual relay models.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input on their protection systems
TPL-001-4	R4.3.2	Simulate the expected automatic operation of existing and planned devices designed to provide dynamic control of electrical system quantities when such devices impact the study area. These devices may include equipment such as generation exciter control and power system stabilizers, static var compensators, power flow controllers, and DC Transmission controllers.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires customer input on applicable devices

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R4.4	Those planning events in Table 1 that are expected to produce more severe System impacts on its portion of the BES, shall be identified, and a list created of those Contingencies to be evaluated in Requirement R4, Part 4.1. The rationale for those Contingencies selected for evaluation shall be available as supporting information.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.4.1	Each Planning Coordinator and Transmission Planner shall coordinate with adjacent Planning Coordinators and Transmission Planners to ensure that Contingencies on adjacent Systems which may impact their Systems are included in the Contingency list.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input
TPL-001-4	R4.5	Those extreme events in Table 1 that are expected to produce more severe System impacts shall be identified and a list created of those events to be evaluated in Requirement R4, Part 4.2. The rationale for those Contingencies selected for evaluation shall be available as supporting information. If the analysis concludes there is Cascading caused by the occurrence of extreme events, an evaluation of possible actions designed to reduce the likelihood or mitigate the consequences of the event(s) shall be conducted.	BPA establishes contingency list annually, and coordinates with TPs.	Partial	Requires Customer input

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R5	Each Transmission Planner and Planning Coordinator shall have criteria for acceptable System steady state voltage limits, post-Contingency voltage deviations, and the transient voltage response for its System. For transient voltage response, the criteria shall at a minimum, specify a low voltage level and a maximum length of time that transient voltages may remain below that level. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA establishes criteria, which TPs may leverage.	BPA	
TPL-001-4	R6	Each Transmission Planner and Planning Coordinator shall define and document, within their Planning Assessment, the criteria or methodology used in the analysis to identify System instability for conditions such as Cascading, voltage instability, or uncontrolled islanding. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA establishes criteria, which TPs may leverage.	BPA	
TPL-001-4	R7	Each Planning Coordinator, in conjunction with each of its Transmission Planners, shall determine and identify each entity's individual and joint responsibilities for performing the required studies for the Planning Assessment. [Violation Risk Factor: Low] [Time Horizon: Long-term Planning]	BPA initiates coordination between PC and TP via email.	BPA	

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-001-4	R8	Each Planning Coordinator and Transmission Planner shall distribute its Planning Assessment results to adjacent Planning Coordinators and adjacent Transmission Planners within 90 calendar days of completing its Planning Assessment, and to any functional entity that has a reliability related need and submits a written request for the information within 30 days of such a request. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]	BPA makes its own studies and assessment available annually upon completion.	BPA	BPA Planning will work with Customers to identify how this requirement will be met.
TPL-001-4	R8.1	If a recipient of the Planning Assessment results provides documented comments on the results, the respective Planning Coordinator or Transmission Planner shall provide a documented response to that recipient within 90 calendar days of receipt of those comments.	BPA makes its own studies and assessment available annually upon completion.	BPA	BPA Planning will work with Customers to identify how this requirement will be met.
TPL-007-3	R1	Each Planning Coordinator, in conjunction with its Transmission Planner(s), shall identify the individual and joint responsibilities of the Planning Coordinator and Transmission Planner(s) in the Planning Coordinator's planning area for maintaining models and performing the study or studies needed to complete GMD Vulnerability Assessment(s). [Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]	BPA initiates coordination between PC and TP via email.	BPA	BPA approaches R1 as the "lead entity" for our PC footprint and will therefore be responsible for compliance with this requirement. BPA will coordinate with TPs in our PC footprint and this coordination should be sufficient for compliance with this requirement.

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Standard	Req	Purpose / Requirement Language	Current implementation	Category	Notes
TPL-007-3	R2	Each responsible entity, as determined in Requirement R1, shall maintain System models and GIC System models of the responsible entity's planning area for performing the study or studies needed to complete GMD Vulnerability Assessment(s).		BPA	BPA will assume TP compliance responsibility for all TP requirements in this standard. TP CFR customers will retain compliance responsibility for requirements impacting GO/TO entities.
TPL-007-3	R5	Each responsible entity, as determined in Requirement R1, shall provide GIC flow information to be used for the transformer thermal impact assessment specified in Requirement R6 to each Transmission Owner and Generator Owner that owns an applicable Bulk Electric System (BES) power transformer in the planning area. The GIC flow information shall include:	BPA communicates applicability to impacted Generator Owners and Transmission Owners	BPA	BPA will assume TP compliance responsibility for all TP requirements in this standard. TP CFR customers will retain compliance responsibility for requirements impacting GO/TO entities.
TPL-007-3	R5.1	The maximum effective GIC value for the worst case geoelectric field orientation for the benchmark GMD event described in Attachment 1. This value shall be provided to the Transmission Owner or Generator Owner that owns each applicable BES power transformer in the planning area.		BPA	BPA will assume TP compliance responsibility for all TP requirements in this standard. TP CFR customers will retain compliance responsibility for requirements impacting GO/TO entities.
TPL-007-3	R5.2	The effective GIC time series, GIC(t), calculated using the benchmark GMD event described in Attachment 1 in response to a written request from the Transmission Owner or Generator Owner that owns an applicable BES power transformer in the planning area. GIC(t) shall be provided within 90 calendar days of receipt of the written request and after determination of the maximum effective GIC value in Part 5.1.		BPA	BPA will assume TP compliance responsibility for all TP requirements in this standard. TP CFR customers will retain compliance responsibility for requirements impacting GO/TO entities.