Western Resource Adequacy Program Earlier Forward Showing (FS) Metrics / Monthly Volatility ("PRM") Proposal

Task Force Proposal
This Proposal has been prepared by the Program Review Committee's 2025 Workplan Task Force 02 – Earlier Forward Showing (FS) Metrics / Monthly Volatility ("PRM") Proposal (aka PRM Task Force).

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Task Force Co-Chairs: Leah Marquez Glynn (Tacoma) and Ed Mount (TEA).

I. Background

Overview

The Program Review Committee's (PRC) 2025 Workplan consolidated Concepts 2024-CRF-002 and 2024-CRF-017 into the PRM Task Force. The charge was to reevaluate the FS Planning Reserve Margin (FSPRM) and FS Capacity Requirement – including timing and modeling methodology – for the Western Resource Adequacy Program (WRAP), and to develop a Proposal for stakeholder review in accordance with BPM 302 *Program Review Committee Proposal Development and Consideration*.[1]

The Task Force discussed the issues in the submitted Change Request Forms (CRF) and is proposing changes to the WRAP, including:

- Adjusting timing of the FSPRM calculation (LOLE Study) to ensure FSPRMs for Binding Seasons are approved by the Board of Directors at least three (3) years ahead of the FS Deadline of that Binding Season,
- Modifying the duration of the binding Winter Season to better align observed risk with season duration, and
- Updating the methodology of the LOLE study to limit month-to-month variability.

Additionally, the Proposal includes how the WRAP will transition from the current state to the proposed state.

Impact

This Proposal will affect both the timing and modeling process for setting the FSPRMs. These changes will directly influence the FS Capacity Requirement as well as the currently defined Advance Assessment process.

II. Objectives – Principles of Engagement

The Task Force Co-Chairs developed the following principles to guide deliberations on Proposal timing and methodology. These principles provided the foundation for evaluating alternatives and building consensus around any proposed solutions:

[1] https://www.westernpowerpool.org/private-media/documents/V1.0_BPM_302_Proposal_Development_and_Consideration_12-07-2023.pdf

- **Analytically Driven** - Decisions should be grounded in analysis, with outputs based on clearly defined and repeatable methodologies.
- **Practical and Pragmatic** - Recommendations must reflect real-world constraints and operational feasibility, aiming for solutions that can be implemented effectively.
- **Risk-Informed** - Policies should consider and weigh tradeoffs, acknowledging uncertainty and varying levels of risk tolerance across stakeholders.
- **Transparent and Defensible** - Approaches should be explainable, justifiable, and easy to communicate – aligning with standard business and industry practices.

III. Solution

Sponsor Proposed Solution

The following CRFs outlined potential solutions at a high level, while suggesting a task force would be best positioned to develop details:

- 2024-CRF-002 / NVE / Earlier Forward Showing Metrics (Appendix I).
- 2024-CRF-017 / IPC / Monthly PRM Volatility (Appendix II).

Task Force Solution

The task force solution is split into three sections: 1) study timing, 2) Binding Season duration, and 3) methodological updates.

1) Study Timing Proposal

The Advance Assessment process will be split into two assessments: (i) the FSPRM assessment in which both the LOLE study is performed and the FSPRMs for the applicable Binding Season are set, and (ii) the Qualifying Capacity Contribution (QCC) assessment in which the Effective Load Carrying Capability (ELCC) and other QCC calculations are performed. Since QCC is out-of-scope and this Task Force[2] is not making a recommendation regarding QCCs, and per scoping discussions at the inception of the Task Force, the proposal is limited to bifurcating the Advance Assessment as described above. The study timeline referred to below is solely focused on the LOLE study to set the FSPRM.

[2] A Task Force for ELCC and other QCC topics is scheduled to begin early 2026 and discussion on timing on the ELCC and QCC calculations can be had in that venue.

Each year, a new LOLE study will be completed to set advisory FSPRMs in year T (for Winter beginning year T+5 and Summer year T+6) [3]. The Summer and Winter Season FSPRMs will be studied independently, meaning a separate LOLE study will be performed for each Season.

In year T+1, new data will be collected from all then-current Participants. If a change in participation has increased or decreased the total load in a Subregion by 10% or more (called "load trigger"), a new FSPRM study will be performed using the updated data. Those updated FSPRMs will be the binding FSPRMs for the Binding Season and be approved by the Board of Directors at least three (3) years ahead of the FS Deadline for the Binding Season.

In year T+1, based on the new data collected from all then-current Participants, if there has not been a change in participation or a change in participation has not increased or decreased the total load in a Subregion by 10% or more, the advisory FSPRMs that were set in Year T will be approved by the Board of Directors at least three (3) years ahead of the FS Deadline for the Binding Season.

The timeline for data collection and study for a LOLE study for a Binding Season will be as follows.

Table 1. FSPRM Advance Assessment Timeline

Activity/Milestone	Winter	Summer
Program Operator sends out updated Advance Assessment Data Request (for Winter T+5-T+6 and Summer T+6)	January 15 (T-1)	
Participant provides data to Program Operator for Advance Assessment	March 1 (T-1)	
Participant Review of input data	April 1 – April 15 (T-1)	October 1 – October 15 (T-1)
Program Operator provides Participants with draft Advisory FSPRM modeling outputs	November 18 (T-1)	May 31 (T)

[3] T refers to the Year in which the FSPRM for a Binding Season is approved; T-x refers to the Year that is x Years before T; and T+x refers to the Year that is x Years after T.

Participant reviews modeling output data and addresses any discrepancies with Program Operator		November 19 – December 19 (T-1)	June 1 – 30 (T)
Advisory studies complete		January 19 (T)	July 31 (T)
Program Operator sends out updated Advance Assessment Data Request (for Winter T+5-T+6 and Summer T+6)		January 15 (T-1)	
Participant provides data to Program Operator for Advance Assessment		March 1 (T+1)	
Participant Review of input data		April 1 – April 15 (T+1)	October 1 – October 15 (T+1)
Determine if load trigger is met[4]		April 30 (T+1)	October 31 (T+1)
If load trigger is met:	**Program Operator provides Participants with draft FSPRM modeling outputs**	November 18 (T+1)	May 31 (T+2)
	Participant reviews modeling output data and addresses any discrepancies with Program Operator	November 19 – December 19 (T+1)	June 1 – 30 (T+2)
	Studies complete	January 19 (T+2)	July 31 (T+2)
Deadline for Board of Directors review and approval of Binding FSPRM		April 19 (T+2)	October 31 (T+2)
FS Deadline for Binding Season		April 19 (T+5)	October 31 (T+5)

[4] If load trigger is not met, the advisory studies completed in year T are presented to the Board of Directors by the deadline for approval year T+2 as binding FSPRMs.

Binding Season	November 20 (T+5) – February 28/29 (T+6)	June 1 – September 15 (T+6)

(See more information in Section 2) regarding the proposed change to seasons.)

2) Binding Season Updates Proposal

Based on the historical risk seen in past years' LOLE studies, the Task Force proposes shortening the Winter Season to begin November 20 (removing November 1-19) and end February 28/29 (removing March 1-15) due to a lack of observed risk in those timeframes during recent LOLE model runs.

Although "Non-Peak Months" have previously been referred to colloquially when discussing WRAP policy, there has been no need to formally identify any such Non-Peak Months. Non-Peak Months are those that are incrementally less likely to experience adverse weather events or result in loss of load in the LOLE Study, based on Program Operator and Task Force review of historical risk profiles, load data, and temperature data.

The Task Force now proposes for November to be identified as a Non-Peak Month for Winter, and September to be defined as a Non-Peak Month for Summer. December, January, and February (for Winter Binding Season), and June, July, and August (for Summer Binding Season) will then be considered Seasonal Peak Months.

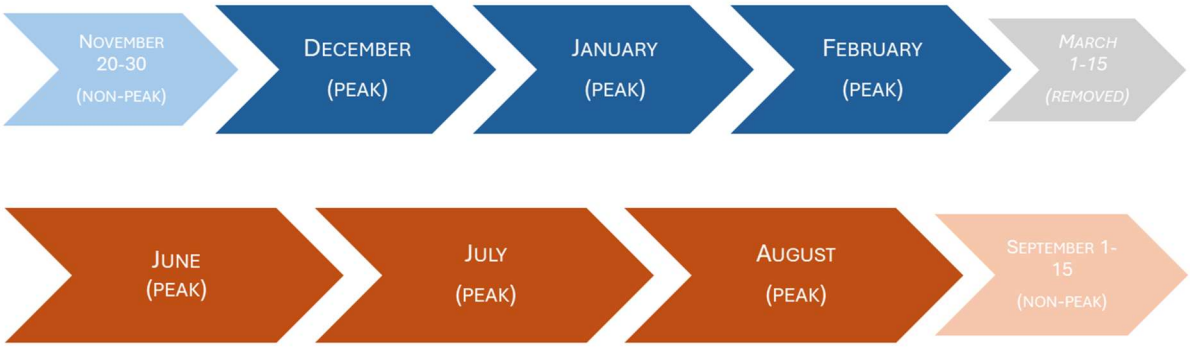

Figure 1. Illustration of Months in the Winter and Summer Seasons

3) LOLE Study Methodology Proposal

As a reminder, determination of the FSPRM and a Participant's FS Capacity Requirement starts with the LOLE Study and the determination of two key values: 1) an amount of capacity needed

to maintain the 1-in-10 LOLE per Season, and 2) the median peak load of each Participant (P50 Peak Load Forecast).

A. **Capacity needed**: the LOLE study identifies how much 'perfect' capacity the region needs to maintain the desired 1-in-10 LOLE per Season; WRAP's LOLE study results in a different amount of required capacity in each month of the Season.

B. **P50 Peak Load Forecasts**: WRAP utilizes Participants' median peak loads over the last five (5) years to allocate the total capacity need (from above) to the Participants.

To determine the Monthly FSPRMs, the amount of capacity needed in the month is divided by a load value to arrive at a percentage (%) (i.e., (monthly capacity needed – monthly P50 load) / monthly P50 load = FSPRM).

The Monthly FSPRM (%) values are what the WPP Board approves (three (3) years ahead of the FS Deadline, according to this Proposal). At the time of the FS Deadline, each Participant's FS Capacity Requirement is determined by multiplying the Board-approved FSPRM (%) by the Participant's P50 Peak Load Forecast (MW) using the most up-to-date data from the most recent Advance Assessment, updated with any new information since such data was collected.

While considering the LOLE methodology and proposed changes, the Task Force strived for and reached consensus by balancing the guiding principles of being:

- Risk informed (maintaining the 1-in-10 LOLE throughout the Season and not introducing additional risk);
- Practical and pragmatic (minimizing capacity variability in the Seasonal Peak Months);
- Analytically driven (maintaining the 1-in-10 LOLE metric); and
- Transparent and defensible (maintaining alignment with WPP Reserve Sharing Group (RSG) standards and industry standard of 1-in-10 LOLE).

This Proposal and the alternatives considered contemplate changes to both (A) how the LOLE study treats risk of loss of load to determine each month's total capacity requirement, and (B) how Participants' P50 loads are determined when calculating the FSPRM values for WPP Board approval and similarly when calculating Participants' FS Capacity Requirements. While the Proposal sets the FSPRM of a given Season at least three (3) years in advance, it does not change the current timing for determining the P50 Peak Load Forecast for such Season. As a task force focused on load forecasting methodology (and broader load-related questions) is planned for 2026, the PRM Task Force determined that load forecasting timing and methodology are out scope and focused exclusively on the calculation of the P50 Peak Load Forecast relative to FSPRM metric setting.

(A) Determination of Monthly Capacity Requirement

This Proposal suggests three key changes related to the LOLE study:

i) Clarification on historical weather years used to inform the model; and

ii) Adjustment to the treatment of contingency reserves (CR).

i. Limit historical weather data in LOLE Study to 40 years

The WRAP Tariff requires using at least 40 years of historical weather data to run the LOLE modeling. In order to save computational time, this Proposal includes using a rolling 40 years of weather data as opposed to continuously adding years, as well as slightly skewing the study toward more recent weather years (as compared to maintaining all previous years and adding the most recent).

ii. Commit to align LOLE study treatment of Contingency Reserves pending updates

Currently, the LOLE model includes an additional 6% of load as a proxy for the 3% load/3% generation CR requirement in BAL-002-WECC-3, treating this additional load as any other load (i.e. a loss of the contingency reserves is a "loss of load"). Based on modeling experience, the Program Operator estimates this policy decision results in approximately a 4% increase in the FSPRM. The BAL-002-WECC-3 standard may be retired in the future, changing the requirements from the 3% load/3% generation threshold to rely on the Most Severe Single Contingency (MSSC). In preparation for this change, a small working group in the RSG has developed a proposal to move away from the 3%/3% methodology for their pooling program and instead have the RSG footprint cover 200% of the previous year's largest MSSC. The total CR requirement would then be allocated to individual Balancing Authorities based on their weighted pro rata share of generation plus load relative to the total footprint generation plus load.

The Task Force reached consensus that it would like to maintain alignment between the CR requirements in the WRAP LOLE model and the RSG requirements. Since this change has not yet been effectuated in the RSG, the WPP will submit a Non-Task Force Proposal (NTFP) to the WRAP change control process once the new requirements are approved in the appropriate WECC and RSG forums. This NTFP will include the details to implement the changes necessary to maintain alignment between the programs. The expectation is that this change would result in a decrease in the required FSPRMs attributable to CR.

(B) Peak P50 Load Values

This Proposal does not suggest any changes to the calculation of the P50 Peak Load Forecast methodologies (using five (5) years of historical data, load growth assumptions, etc.), in part because a dedicated task force is scheduled to address load forecasting in 2026.

The current P50 Peak Load Forecast methodology utilized for the Winter Binding Season identifies a Seasonal Peak P50 Load Forecast (sometimes called a 'mega-peak') that is the

median non-coincident peak of December through February from a Participant's last five (5) years of historical load data. This results in using the same regional non-coincident peak (NCP) Seasonal Peak Load for all three (3) months when calculating the Monthly FSPRM values (though varying capacity values from the LOLE study will still result in slightly different Monthly FSPRM (%) values). The Seasonal Peak Load NCP value is higher than the individual monthly P50s and enables WRAP participants to better leverage load diversity across the region while maintaining a more stable FSPRM across these months. The Task Force proposes no change to how Winter Binding Season P50 loads are calculated.

The Task Force proposes implementing the same approach in the Summer Binding Season using a Seasonal Peak Load for June, July, and August.

For months defined as Non-Peak Months, the P50 Peak Load Forecast for that month will be applied, with no change from current approach.

Proposed Language Updates

Exact changes to language in BPMs and the WRAP Tariff are included in the redlines in Appendix III: Tariff and BPM Redlines.

IV. Implementation Plan and Feasibility

Assumptions

The Task Force relied on indicative PRM results, which utilized load and resource information from current Participants, historical weather data, current policy approaches, and public comments on the initial proposal from January 2026. While it is not assumed that all inputs and modeling constraints will remain static, it is assumed that the relative trends demonstrated by these indicative results will be repeated.

Risks

New information, extreme weather events, changes in participation, climate trends, or any number of other changes will result in modeling outcomes that differ from the indicative results viewed by the Task Force. If significant weather events occur outside of the shortened Winter Binding Season, WPP and stakeholders will need to consider a change to the season durations via a new WRAP change request – Participant provide hourly load and resource data over the entire year of each historical data period as part of the Advance Assessment Data Request, so the Program Operator will maintain the same dataset regardless of season duration.

Moving the LOLE Study timeline forward such that metrics can be set more than five (5) years into the future will mean the data used for modeling is less accurate as it is unable to capture

multiple years of potential changes in load and resources. The tradeoff for a potential decrease in load and resource accuracy is much earlier knowledge of the FSPRMs.

The current Advance Assessment timeline aligns with the 24-month withdrawal notice date required by a Participant to exit the WRAP, ensuring that only Participants participating in a Season are included in the modeling and metric setting for that Season. By setting the FSPRM three (3) years ahead of the FS Deadline for such Season, there is no longer alignment with the Advance Assessment timeline – meaning some Participants may be included in the modeling and metric setting who then subsequently give notice to withdraw from the program before the start of such Season for which the metrics were set. Again, the tradeoff here is the desire for earlier FSPRM metrics, but this introduces some additional uncertainty into the modeling inputs with changes to participation. The initial proposal from January 2026 proposed setting the FSPRMs at five (5) years ahead of the FS Deadline for such Season; changing to three (3) years was a compromise to capture any participation changes after the five (5) year advisory FSPRM study and the three (3) year FSPRM study (studied if there are significant participation changes) to help mitigate this risk.

Finally, the Task Force acknowledged that should any incremental risk introduced as a result of this proposal rise to a level that requires additional consideration, per the WRAP governance process, any stakeholder may submit a Non-Task Force Proposal to change policy in the Business Practice Manuals or WRAP Tariff at any point via the WPP website.

Schedule for Implementation

To make this transition, LOLE modeling will be conducted for a specific Binding Season and those resulting FSPRM values will be used for the same Binding Season in the preceding Forward Showing Year (or two). For example, the Program Operator will conduct an LOLE Study for Summer 2033 and the program will use the resulting FSPRMs as the binding FSPRMs for Summer 2032 in addition to Summer 2033. The timeline for transition to the new methodology and timeline are shown below in Table 2.

Table 2. Transition to updated Advance Assessment Timeline and Methodology

Binding Season	Data Collection	FSPRMs Approved	Proxy Used (if applicable)	Notes
Summer 2027	March 1 2025	January 31 2026		Modeling complete
Winter 2027-2028		June 30 2026		Modeling underway using previous methodology

Summer 2028	March 1 2026	January 31 2027		Use previous methodology
Winter 2028-2029		June 30 2027		Use previous methodology
Summer 2029	March 1 2027[5]		Summer 2031	
Winter 2029-2030			Winter 2030-2031	
Summer 2030			Summer 2031	
Winter 2030-2031		January 31 2028		Use proposed methodology
Summer 2031		June 30 2028		Use proposed methodology
Winter 2031-2032	March 1 2028		Winter 2032-2033	
Summer 2032			Summer 2033	
Winter 2032-2033		April 19 2029		Use proposed methodology
Summer 2033		October 31 2029		Use proposed methodology
Winter 2033-2034	March 1 2029	April 19 2030		Use proposed methodology
Summer 2034		October 31 2030		Use proposed methodology

[5] A single Data Collection must serve an odd number of Seasons to switch from studying Summer first to studying Winter first. This is due to changing the deadline date for approving FSPRMs from the start of the Season to the FS deadline, which is a seven-month adjustment.

Starting with Winter 2033-2034 and Summer 2034, advisory FSPRM values using the proposed methodology will exist and the load trigger criteria will be evaluated per Section 1) Study Timing Proposal.

Additionally, due to the changing Season durations, the FS submission tool will be updated to reflect the new Winter Season from November 20 through February 28/29. The Forward Showing for Winter 2027-2028 will be April 19, 2027.

Cost of Implementation

At this time, there is no identified additional cost to implementation.

Program Administrator / Operator Impacts

There will be changes to the Program Administrator and Program Operator work processes to implement this Proposal, including:

- Updates to modeling timelines.
- Deadline changes for the FS Submission, FS review period, and Cure Period as a result of changing the Winter Season start date.
- Updates to the FS submission tool to accommodate changed Season durations.
- Additional workload to develop and submit an NTFP for updates to the CR requirements in the modeling and FS Capacity Requirement.

Appendix I: Change Request Form 002

2024-CRF-002 / NVE / Earlier Forward Showing Metrics

WRAP Area: FS Capacity Requirement	Tarriff Change: Yes	Time Score: Medium
Lead Sponsor: Lindsey Schlekeway lindsey.schlekeway@nvenergy.com	Co-Sponsor:	
Summary: PRM, QCC, and Load Forecast Timing		
Description of the issue: The current timeline for receiving the PRM, resource QCC, and load forecast occur too late for a participant to plan to meet the requirement.		
Proposed solution to the issue described: a. PRM should be published no later than T-2 for the applicable binding season. (2 years ahead of the binding season) b. PRM should be approved by the Board no later than 1 month following the published deadline. c. The Resource QCC's should be provided to the participant no later than one or two months following the published PRM. d. The load forecast should be provided to the participant no later than one or two months following the published PRM.		
Specific document and language you would like changed: **Tariff section 14.3:** The FSPRM values used in the Forward Showing Submittals for a Binding Season shall be those values approved by the Board of Directors as the culmination of an Advance Assessment process. No later than twelve months before the FS Deadline for each Binding Season, WPP will determine and post the recommended FSPRM for each Subregion for each Month of such Binding Season. Participants shall provide their load, resource and other information reasonably required to perform the analyses and calculations required for the Advance Assessment, in accordance with the Advance Assessment information submission details and schedule specified in the Business Practice Manuals. No later than nine months before the FS Deadline for such Binding Season, the Board of Directors shall take its final action regarding approval of the FSPRM values for each Month of such Binding Season.		
Suggestion for how language could be updated to address issue: The FSPRM values used in the Forward Showing Submittals for a Binding Season shall be those values approved by the Board of Directors as the culmination of an Advance Assessment process. No later than ~~twelve~~ twenty-four months before the ~~FS Deadline for each~~ Binding Season, WPP will determine and post the recommended FSPRM for each Subregion for each Month of such Binding Season. Participants shall provide their load, resource and other information reasonably required to perform the analyses and calculations required for the Advance Assessment, in accordance with the Advance Assessment information submission details and schedule specified in the Business Practice Manuals. No later than ~~nine~~ twenty-three months before the FS Deadline for such Binding Season, the Board of Directors shall take its final action regarding approval of the FSPRM values for each Month of such Binding Season. The Program Operator will provide the resource QCC and load forecast to the participant no later than twenty-two months before the Binding Season.		

Describe the benefits that will be realized from this change: The change will allow for additional time for a participant to respond to the binding season requirement which reduces the program uncertainty.
Any data/information that would characterize the importance of the issue: The current timeline does not allow sufficient time for a participant to act to meet the Forward Showing Requirement. Additionally, if any modeling changes occurred then the participant maybe planning to an estimated requirement that maybe completely different than the resulting requirement that ends up being approved by the Board. Furthermore, the QCC and load forecast should be provided to the participant in order for the participant to plan to meet the requirement. Currently, the load forecast in particular is provided too close to the Forward Showing deadline and does not allow sufficient time for a participant to act. This creates additional program uncertainty and risk to the participant. The proposed timeline is still not sufficient for a participant to plan to meet the requirement and longer time horizons should be pursued, however, it is a proposal for a bare minimum that the program should strive to meet to reduce the uncertainty.

Appendix II: Change Request Form 017

2024-CRF-017 / IPC / Monthly PRM Volatility		
WRAP Area: FS Capacity Requirement	Tarriff Change: Yes	Time Score: Long
Lead Sponsor: Nicole Blackwell nblackwell@idahopower.com	Co-Sponsor:	
Summary: PRMs		
Description of the issue:		
Proposed solution to the issue described: The calculation of monthly PRMs should be evaluated to determine whether they are achieving the intended goals and accurately modeling the mitigation of loss of load probability, while also achieving stability and mitigating volatility. Monthly PRMs provide beneficial granularity and flexibility but have exhibited some concerning volatility month-to-month. Idaho Power has seen some shoulder season months with load + PRM total obligation significantly exceeding Idaho Power's own extreme weather load forecasts as well as its own long-term planning load forecasts + Idaho Power's PRMs. Idaho Power is asking for a comprehensive effort to evaluate, review, and consider alternatives to the calculation of the monthly PRMs. Idaho Power also supports the desire for stability that is reflected in change request 2024-CRF-002.		
Specific document and language you would like changed: -		
Suggestion for how language could be updated to address issue: -		
Describe the benefits that will be realized from this change: -		
Any data/information that would characterize the importance of the issue: -		

Appendix III: Tariff and BPM Redlines

The following BPMs and Tariff include redlines to reflect the changes in this proposal:

- WRAP Tariff
- BPM 101 – Advance Assessment
- BPM 102 – Forward Showing Reliability Metrics
- BPM 103 – Participant Forward Showing Capacity Requirements
- BPM 104 – Capacity Critical Hours
- BPM 105 – Qualifying Resources
- BPM 108 – Forward Showing Submittal Process
- BPM 109 – Forward Showing Transition Period
- BPM 401 – New Participant Onboarding

WESTERN RESOURCE ADEQUACY PROGRAM

TARIFF

OF

NORTHWEST POWER POOL

D/B/A

WESTERN POWER POOL

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PART I GENERAL PROVISIONS

1. Definitions

Unless the context otherwise specifies or requires, capitalized terms used in this Tariff shall have the respective meanings assigned herein for all purposes of this Tariff (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Parts, Sections, Schedules, or Attachments, are to Parts, Sections, Schedules, or Attachments of this Tariff.

Applicable Price Index: A published index of wholesale electric prices, or Locational Marginal Prices duly calculated and posted by a FERC-regulated market operator, in either case as designated under Part III of this Tariff for use in connection with an identified Subregion.

Administration Charge or WRAP Administration Charge: The charge established under Schedule 1 of this Tariff for recovery of the costs of the WRAP.

Advance Assessment: Analyses and calculations of Participant load, resource, and other information performed in advance of each Binding Season as set forth in Part II of this Tariff.

Aggregate Capacity Deficiency: As to a Binding Season, the sum of the maximum Monthly Deficiencies of all Participants that submitted FS Submittals for such Binding Season, as determined following completion of the Cure Period for such Binding Season.

Available Transfer Capability ("ATC"): Transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses.

Balancing Authority: The responsible entity that integrates resource plans ahead of time, maintains demand and resource balance within a Balancing Authority Area, and supports interconnection frequency in real time.

Balancing Authority Area: The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.

Base Charge: A component of the WRAP Administration Charge as established under Schedule 1 of this Tariff.

Base Costs: Base Costs shall have the meaning provided in Schedule 1 of this Tariff.

Base Services Cost Centers: The cost centers comprising the Base Charge as defined in Schedule 1 of this Tariff.

Base Services Percentage: Base Services Percentage shall have the meaning provided in Schedule 1 of this Tariff.

Binding Season: The Summer Season or the Winter Season.

Board of Directors or Board: The Board of Directors of the Northwest Power Pool d/b/a Western Power Pool.

Business Day: Any Day that is a Monday through Friday, excluding any holiday established by United States federal authorities.

Business Practice Manuals: The manuals compiling further details, guidance, and information that are appropriate or beneficial to the implementation of the rules, requirements, and procedures established by this Tariff. Business Practice Manuals do not include such internal rules or procedures as the Western Power Pool may adopt for its operation and administration, including but not limited to any corporate by-laws of the Western Power Pool, or for any services or functions provided by the Western Power Pool other than those established by this Tariff.

CAISO: The California Independent System Operator Corporation, a California nonprofit public benefit corporation.

Capacity Benefit Margin: An amount of transmission transfer capability permitted under open access transmission rules to be reserved by load serving entities to ensure access to generation from interconnected systems to meet generation reliability requirements.

Capacity Critical Hours ("CCH"): Those hours during which the net regional capacity need for the WRAP Region is expected to be above the 95th percentile, based on historical and synthesized data for the WRAP Region's gross load, variable energy resource performance, and interchange.

Capacity Deficiency: A shortfall in a Participant's Portfolio QCC relative to that Participant's FS Capacity Requirement, as further defined in Part II of this Tariff.

Cash Working Capital Fund: Cash Working Capital Fund shall have the meaning provided in Schedule 1 of this Tariff.

Cash Working Capital Support Charge: A charge assessed to Participants under Schedule 1 of this Tariff to fund the Cash Working Capital Fund.

Cash Working Capital Support Charge Rate: Cash Working Capital Support Charge Rate shall have the meaning provided in Schedule 1 of this Tariff.

Central Hub: A designated point or named group of points on the transmission system within a Subregion identified by the Program Administrator that permits energy deliveries from multiple points within such Subregion.

Cost of New Entry ("CONE"): The estimated cost of new entry of a new peaking natural gas-fired generation facility, as determined under, and used in, Part II of this Tariff.

CONE Factor: A factor employed in the calculation of Deficiency Charges under Part II of this Tariff, to reflect whether, and the extent to which, the WRAP Region as a whole is expected to have a capacity deficiency during the period for which the Deficiency Charge is being calculated or a factor employed when a Participant has had repeated deficiencies in sequential years.

Committee of State Representatives ("COSR"): Committee of State Representatives, as established in Part I of this Tariff.

Contingency Reserve: As more fully described in the NERC WECC reliability standards, a quantity of reserves, consisting of generation, load, interchange, or other resources, that are deployable within ten minutes, equal to the greater of (i) the MW quantity of the loss of the most severe contingency and (ii) the megawatt quantity equal to the sum of 3% of hourly integrated load plus 3% of hourly integrated generation.

Critical Mass: *The threshold level of participation in a Subregion, as established in the Business Practice Manuals, below which each Participant of such Subregion may elect to participate as a Non-Binding Participant.*

Cumulative Delivery Failure Period: Any period of five consecutive years, ending with and including the most recent Energy Delivery Failure as of the time of determination of a possible Delivery Failure Charge.

Day: A calendar day.

Day-Ahead Price: A price for wholesale electric transactions designated as a day-ahead price in an Applicable Price Index.

Default Allocation Assessment: A charge assessed on non-defaulting Participants to recover the costs associated with a default by a Participant, as set forth in Part I of this Tariff.

Deficiency Charge: A charge assessed for a Capacity Deficiency or Transmission Deficiency, as set forth in Part II of this Tariff.

Delivery Failure Charge: A charge assessed for a Participant's failure to deliver a required Energy Deployment, as set forth in Part III of this Tariff.

Delivery Failure Charge Rate: A rate employed in the determination of a Delivery Failure Charge as more fully set forth in Part III of this Tariff.

Delivery Failure Factor: A factor used in the determination of a Delivery Failure Charge to recognize the relative severity or impact of an Energy Delivery Failure, as set forth in Part III of this Tariff.

Demand Response: A quantifiable load reduction or otherwise controllable load for which a Participant has two mutually-exclusive options to use to affect its FS Capacity Requirements in a FS for a Binding Season: (1) leave the effects of historically deployed demand response as part of its load provided for the Advance Assessment; or (2) utilize as a Demand Response Capacity Resource.

Demand Response Capacity Resource: A Qualifying Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements established under Part II of this Tariff utilized to meet a Participant's FS Capacity Requirement.

Demonstrated FS Transmission: A Participant's demonstration in its Forward Showing Submittal that it has secured WRAP Qualifying Transmission in a quantity sufficient to provide reasonable assurance, as of the time of the Forward Showing Submittal, of delivery of capacity

from the Qualifying Resources and the resources associated with the power purchase agreements in the Participant's Portfolio QCC.

Discounted Deficiency Change: *A reduced Deficiency Charge during the Transition Period that enables a deficient Participant that demonstrates commercially reasonable efforts but is unable to cure deficiencies to access Operations Program capacity.*

Dual Benefit Cost Centers: Dual Benefit Cost Centers shall have the meaning provided in Schedule 1 of this Tariff.

Effective Load Carrying Capability ("ELCC"): A methodology employed to determine the Qualified Capacity Contribution of certain types of Qualifying Resources, as more fully set forth in Part II of this Tariff.

Energy Declined Settlement Price: A pricing component used as part of the calculation of settlements for Holdback Requirements and Energy Deployments under Part III of this Tariff.

Energy Delivery Failure: A failure by a Participant to provide an Energy Deployment assigned to such Participant under Part III of this Tariff.

Energy Deployment: A delivery of energy that a Participant is required to provide during an Operating Day, as set forth in Part III of this Tariff.

Energy Storage Resource: A resource, not including a Storage Hydro Qualifying Resource, designed to capture energy produced at one time for use at a later time.

Excused Transition Deficit: A Participant's inability during the Transition Period to demonstrate full satisfaction of the Participant's FS Capacity Requirement, which, under certain conditions and limitations prescribed by Part II of this Tariff, permits *the Participant to pay a Discounted* Deficiency Charge.

Federal Power Marketing Administration: A United States federal agency that operates electric systems and sells the output of federally owned and operated hydroelectric dams located in the United States.

FERC: The Federal Energy Regulatory Commission.

Forced Outage Factor: The factor resulting from dividing the number of hours a generating unit or set of generating units is not synchronized to the grid system, not in reserve shutdown state and considered to be out of service for unplanned outages—or a startup failure, by the number of total hours in the period multiplied by 100% or a Program Administrator calculated equivalent forced outage factor that reflects the likelihood and extent to which a resource will be unavailable from time to time due to factors outside management control.

Forward Showing Program: The program and requirements as set forth in Part II of this Tariff.

Forward Showing Submittal ("FS Submittal"): The submissions a Participant is required to submit in advance of each Binding Season to demonstrate its satisfaction of the FS Capacity Requirement and FS Transmission Requirement, as set forth in Part II of this Tariff.

Forward Showing Year: A period consisting of a Summer Season and the immediately succeeding Winter Season.

FS Capacity Requirement: The minimum quantity of capacity a Participant is required to demonstrate for a Binding Season, as set forth in Part II of this Tariff.

FS Deadline: The deadline for Participants' submissions of their FS Submittals for a Binding Season, as established under Part II of this Tariff.

FS Planning Reserve Margin ("FSPRM"): An increment of resource adequacy supply needed to meet conditions of high demand in excess of the applicable peak load forecast and other conditions such as higher resource outages, or lower availability of resources, expressed as a percentage of the applicable peak load forecast, as determined in accordance with Part II of this Tariff.

FS Transmission Requirement: The minimum quantity of WRAP Qualifying Transmission a Participant is required to demonstrate for a Binding Season, as set forth in Part II of this Tariff.

High-Priced Day: The most recent day in the CAISO in which prices in the day-ahead market were at least $200/MWh.

Holdback Capacity: Capacity that is voluntarily supplied or is the result of a positive Sharing Calculation result that is bindingly committed to the WRAP after it is claimed by one or more Participants with a negative Sharing Calculation result.

Holdback Requirement: A MW quantity, as determined on a Preschedule Day, that a Participant is required to be capable of converting into an Energy Deployment on a given hour of the succeeding Operating Day, as more fully set forth in Part III of this Tariff.

ICE Index: A wholesale electric price index prepared and published by the Intercontinental Exchange.

Incremental Cash Working Capital Support Charge: Incremental Cash Working Capital Support Charge shall have the meaning provided in Schedule 1 of this Tariff.

Independent Evaluator: An independent entity engaged to provide an independent assessment of the performance of the WRAP and any potential beneficial design modifications, as set forth in Part I of this Tariff.

Installed Capacity: Nameplate capacity adjusted for conditions at the site of installation.

International Power Marketing Entity: An entity that (i) owns, controls, purchases and/or sells resource adequacy supply and is responsible under the WRAP program for meeting LRE obligations associated with one or more loads physically located outside the United States.

Legacy Agreement: A power supply agreement entered into prior to October 1, 2021.

Load Charge: A component of the WRAP Administration Charge as established under Schedule 1 of this Tariff.

Load Charge Rate: Load Charge Rate shall have the meaning provided in Schedule 1 of this Tariff.

Load Services Costs: Load Services Costs shall have the meaning provided in Schedule 1 of this Tariff.

Load Services Cost Centers: Load Services Cost Centers shall have the meaning provided in Schedule 1 of this Tariff.

Load Services Percentage: Load Services Percentage shall have the meaning provided in Schedule 1 of this Tariff.

Load Responsible Entity ("LRE"): An LRE is an entity that (i) owns, controls, purchases and/or sells resource adequacy supply, or is a Federal Power Marketing Administration or an International Power Marketing Entity, and (ii) has full authority and capability, either through statute, rule, contract, or otherwise, to:

(a) submit capacity and system load data to the WRAP Program Operator at all hours;

(b) submit Interchange Schedules within the WRAP Region that are prepared in accordance with all NERC and WECC requirements, including providing E-Tags for all applicable energy delivery transactions pursuant to WECC practices and as required by the rules of the WRAP Operations Program;

(c) procure and reserve transmission service rights in support of the requirements of the WRAP Forward Showing Program and Operations Program; and

(d) track and bilaterally settle holdback and delivery transactions.

Subject to the above-mentioned criteria, an LRE may be a load serving entity, may act as an agent of a load serving entity or multiple load serving entities, or may otherwise be responsible for meeting LRE obligations under the WRAP.

Locational Marginal Price: The cost of delivering an additional unit of energy to a given node, as calculated under a FERC-regulated wholesale electric tariff.

Loss of Load Expectation ("LOLE"): An expression of the frequency with which a single event of failure, due to resource inadequacy, to serve firm load would be expected (based on accepted reliability planning analysis methods) to result from a given FS Planning Reserve Margin.

Make Whole Adjustment: A component used as part of the calculation of settlements for Holdback Requirements and Energy Deployments under Part III of this Tariff.

Maximum Base Charge: The maximum amount prescribed in Schedule 1 of the Tariff that the Base Charge cannot exceed.

Maximum Load Charge Rate: The maximum rate prescribed in Schedule 1 of the Tariff that the Load Charge Rate cannot exceed.

Median Monthly P50 Peak Loads: Median Monthly P50 Peak Loads has the meaning prescribed by Schedule 1 of this Tariff.

Month: A calendar month.

Monthly Capacity Deficiency: A Participant's Capacity Deficiency for a given Month.

Monthly Deficiency: An identification under Part II of this Tariff whether, and the extent to which, a Participant's need for capacity or transmission for a given Month is greater than the capacity or transmission, respectively, the Participant can demonstrate for such Month.

Monthly FS Capacity Requirement: FS Capacity Requirement determined as to a Month.

Monthly FSPRM: The FS Planning Reserve Margin applicable to a given Month of a given Binding Season, as determined in accordance with Part II of this Tariff.

Monthly Transmission Deficiency: A Participant's Transmission Deficiency for a given Month.

Monthly Transmission Demonstrated: A Participant's Demonstrated FS Transmission for a given Month.

Monthly Transmission Exceptions: Exceptions from the FS Transmission Requirement approved under Part II of this Tariff for a Participant for a given Month.

Multi-Day-Ahead Assessment: A period of days preceding each Operating Day, and ending on the Preschedule Day, during which Sharing Calculations are successively performed based in each case on Operating Day conditions expected at the time of calculation.

North American Electric Reliability Corporation ("NERC"): A not-for-profit international regulatory authority that serves as the designated electric reliability organization for the continental United States, Canada, and a portion of Mexico.

Net Contract QCC: The QCC, which may be a positive or negative value, calculated, in sum and on net, for a Participant's power purchase agreements and power sale agreements, in accordance with Part II of this Tariff.

Non-Binding Season: As to a Participant, *any* Binding Season during which the *provisions of Section 15A.1* of this Tariff *apply*.

Non-Binding Participant: For any Binding Season, a Participant that has made an election by which such Binding Season is a Non-Binding Season for that Participant.

Open Access Transmission Tariff: A governing document on file with FERC establishing the rates, terms, and conditions of open access transmission service, or equivalent tariff of a transmission service provider that is not required to file its transmission service tariff with FERC.

Operating Day: A current Day of actual electric service from resources to load, for which Sharing Events are determined and Energy Deployments may be required, as set forth in Part III of this Tariff.

Operations Program: The program and requirements set forth in Part III of this Tariff.

P50 Peak Load Forecast: A peak load forecast prepared on a basis, such that the actual peak load is statistically expected to be as likely to be above the forecast as it is to be below the forecast.

Participant: A Load Responsible Entity that is a signatory to the WRAPA.

Portfolio QCC: As to a Participant, the sum of the Resource QCC provided by all of a Participant's Qualifying Resources plus the Net Contract QCC of such Participant, as adjusted to reflect RA Transfers as described in Section 16.2 7 and Planned Outages as described in Section 16.2.8.

Preschedule Day: The applicable scheduling Day for a given Operating Day as defined in scheduling calendar established by WECC.

Program Administrator: The Western Power Pool, in its role as the entity responsible for administering the WRAP.

Program Operator: A third party that has contracted with the Program Administrator to provide technical, analytical, and implementation support to the Program Administrator for the WRAP.

Program Review Committee ("PRC"): The stakeholder sector committee as established in Section 4.2 of this Tariff.

Pure Capacity: A MW quantity of capacity without any assigned forced outage rate employed in ELCC determinations under Part II of this Tariff.

Qualifying Capacity Contribution ("QCC"): The MW quantity of capacity provided by a resource, contract, or portfolio which qualifies to help satisfy a Participant's FS Capacity Requirement, as determined in accordance with Part II of this Tariff.

Qualifying Resource: A generation or load resource that meets the qualification and accreditation requirements established by and under Part II of this Tariff.

Real-Time Price: A price for wholesale electric transactions designated as a real-time price in an Applicable Price Index.

Resource Adequacy Participant Committee ("RAPC"): The committee comprised of representatives from each Participant as established in Part I of this Tariff.

Resource QCC: The QCC provided by a Qualifying Resource, as determined in accordance with Part II of this Tariff.

Run-of-River Qualifying Resource ("ROR"): A hydro-electric power project that does not have the capability to store a sufficient volume of water to support continuous generation at the project's stated maximum capacity for a period of one hour. Resource does not meet the definition of a Storage Hydro Qualifying Resource.

Safety Margin: An additional factor allocated among Participants with positive sharing calculations when warranted by certain conditions as prescribed by Part III of this Tariff.

Senior Official Attestation: A signed statement of a senior official of a Participant attesting that it has reviewed such Participant's information submission required under this Tariff, that the statements therein are true, correct and complete to the best of such official's knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed therein, and containing such further statements as required by this Tariff or the applicable Business Practice Manual for the information submission at issue.

Sharing Calculation: A calculation used in the Operations Program under Part III of this Tariff to identify any hour in which any Participant is forecast to have a capacity deficit.

Sharing Event: An hour or hours of an Operating Day for which one or more Participants has a negative Sharing Calculation result, as determined in accordance with Part III of this Tariff.

Storage Hydro Qualifying Resource: A hydro-electric power project with an impoundment or reservoir located immediately upstream of the powerhouse intake structures that can store a sufficient volume of water to support continuous generation at the project's stated maximum capacity for a period of one hour or longer.

Subregion: An area definition approved by the Board of Directors and identified in the Business Practice Manuals, that is wholly contained within the WRAP Region, which is separated from one or more other Subregions by transmission constraints on capacity imports or on capacity exports that result, or are expected to result, in differing FSPRM determinations for that Subregion relative to such other Subregion.

Summer Season: A period of time that commences on June 1 of a Year and terminates on September 15 of the same Year.

System Sale: A bilateral agreement that conveys generating capacity from a group of generating resources from one party to another.

Transition Period: The Binding Seasons within the time period from June 1, 2025, through ~~March 15~~February 28, *2029*, plus the time period required to implement the requirements and procedures of Part II of this Tariff applicable to such Binding Seasons.

Transmission Deficiency: A shortfall in a Participant's demonstration of secured WRAP Qualifying Transmission, after accounting for any approved transmission exceptions, relative to that Participant's FS Transmission Requirement, as further defined in Part II of this Tariff.

Unforced Capacity: The percentage of Installed Capacity available after a unit's forced outage rate is taken into account.

Variable Energy Resource ("VER"): An electric generation resource powered by a renewable energy source that cannot be stored by the facility owner or operator and that has variability that is beyond the control of the facility owner or operator, including but not limited to a solar or wind resource.

VER Zone: A geographic area delineated in accordance with Section 16.2.5.2 of this Tariff for a given type of VER, where each VER of that type located in such area is anticipated to be comparably affected by meteorological or other expected conditions in such area to a degree that warrants distinct calculation of ELCC allocations for such VERs of that type in such area.

Voluntary Holdback: Capacity that is offered to the Operations Program by a Participant with excess supply that is not obligated to the WRAP through a positive Sharing Calculation result, some or all of which can used as part of the offering Participant's Holdback Requirement. For a Participant in a Subregion without a Central Hub, Voluntary Holdback for an hour must additionally include a total quantity for all identified points from Section 19.4 at which it can deliver that is no less than the amount of the Voluntary Holdback capacity for such hour.

Western Electricity Coordinating Council ("WECC"): A non-profit corporation that has been approved by FERC as the regional entity for the western interconnection and that also has NERC delegated authority to create, monitor, and enforce reliability standards.

Western Resource Adequacy Program Agreement ("WRAPA"): The participation agreement for the Western Resource Adequacy Program, as set forth as Attachment A to this Tariff, or as set forth for an individual Participant in a non-conforming version of such participation agreement accepted by FERC.

Western Resource Adequacy Program ("WRAP"): The Western Resource Adequacy Program, as established under this Tariff.

Western Power Pool ("WPP"): Northwest Power Pool, d/b/a Western Power Pool, which serves as Program Administrator for the WRAP under this Tariff and holds exclusive rights under section 205 of the Federal Power Act to file amendments to this Tariff.

Winter Season: A period of time that commences on November ~~1~~20 of a Year and terminates on February 28 (or February 29, as applicable)~~March 15~~ of the immediately following Year.

WRAP Cost Assignment Matrix: The matrix set forth in Schedule 1 of this Tariff to identify which WRAP costs are assessed to the Base Charge and the Load Charge components of the WRAP Administration Charge.

WRAP Qualifying Transmission: Transmission service that is i) NERC Priority 6 or NERC Priority 7 point-to-point transmission service, ii) network integration transmission service, or iii) any firm transmission product that constitutes the highest priority transmission service offered by a transmission service provider, is reserved in advance, cannot be curtailed for higher priority

transmission service, and is subject to curtailment only under reliability conditions necessary to maintain transmission system operations.

WRAP Region: The area comprising, collectively, (i) the duly recognized and established load service areas of all loads in the United States that all Participants are responsible for serving, (ii) the duly recognized and established load service areas of all loads in the United States that all load serving entities, on whose behalf a Participant acts in accordance with this Tariff, are responsible for serving, and (iii) the applicable location(s) on the United States side of the United States international border that form the basis for an International Power Marketing Entity's participation under the WRAP, in all cases excluding, for any Binding Season, any loads permitted by this Tariff to be excluded from Participants' Forward Showing Submittal for such Binding Season.

Year: A calendar year.

2. Role of Western Power Pool

2.1 WPP, acting under the direction of its Board of Directors, shall administer the WRAP as Program Administrator. Except as specified in Section 3 of this Tariff, WPP, as authorized by its Board of Directors, shall have the sole authority to submit to FERC amendments to the rates, terms, and conditions set forth in this Tariff under section 205 of the Federal Power Act, 16 U.S.C. § 824d. Nothing contained herein shall be construed as affecting in any way the right of any Participant or any other entity to apply to FERC for amendments to the rates, terms, and conditions contained herein under section 206 of the Federal Power Act, 16 U.S.C. § 824e, or any other applicable provision of that Act.

2.1.1 WPP president and staff shall support the Board of Directors in overseeing all aspects of the WRAP, including oversight and management of the Program Operator(s) in accordance with any Program Operator agreement(s) entered into by WPP under Section 2.2 of this Tariff.

2.1.2 WPP and its staff shall provide all legal, regulatory, and accounting support for the WRAP, including support for making filings with FERC as authorized by the Board of Directors.

2.1.3 WPP staff shall provide all logistical support necessary to facilitate implementation of the WRAP and specifically all logistical needs of the Board of Directors and reasonable logistical assistance to facilitate meetings and activities of the RAPC, PRC, and all subordinate organizational groups.

2.2 As Program Administrator, WPP shall undertake all actions as necessary to implement and administer the WRAP, including but not limited to engaging one or more Program Operator(s) to perform technical operations of the WRAP including both the Forward Showing Program and Operations Program. Except as otherwise provided herein, WPP may contract for certain activities required by this Tariff to be provided by one or more Program Operator(s) subject to oversight by the Board of Directors, provided, however, that the Program Operator shall operate solely as a contractor under the oversight of WPP, and WPP shall remain the sole point of compliance with this Tariff. WPP shall have the sole authority to enter into contracts for such engagements and is responsible for providing support and compensation for such Program Operator(s) pursuant to any contract(s).

2.2.1 WPP will contract with Program Operator(s) to assist WPP with providing reasonable technical support and expertise to all WRAP organizational groups as governed by the Program Operator’s contract with WPP.

3. Role of the Board of Directors and Limitations on Board Authority

3.1 Authority: Ultimate authority over all aspects of the WRAP as established under this Tariff shall be vested in the independent Board of Directors. Each member of the Board of Directors shall at all times exhibit financial independence from all Participants and classes of Participants, as further provided in the WPP Bylaws and policies. As set forth in Section 2.1 of this Tariff, the Board of Directors shall have the exclusive authority to approve and direct WPP to file amendments to this Tariff with FERC under section 205 of the Federal Power Act, 16 U.S.C. § 824d, subject to the limitations and prohibitions imposed under Section 3.4 of this Tariff. The Board of Directors shall also have the exclusive authority to approve the Business Practice Manuals and any amendments to the Business Practice Manuals, subject to the terms, conditions, and limitations imposed under this Tariff.

3.2 The Board of Directors generally shall meet in open session for all matters related to the WRAP; however, the Board of Directors may meet in closed session as the chair deems necessary to safeguard the confidentiality of sensitive information, including but not limited to discussing matters related to personnel, litigation, or proprietary, confidential, or security sensitive information. The Board of Directors shall not take action on any proposed amendment to this Tariff or the Business Practice Manuals in closed session. During open session, the chair of the Board of Directors will reasonably accommodate stakeholder requests to address the Board within the discretion of the chair.

3.3 The Board of Directors shall only consider amendments to this Tariff or the Business Practice Manuals after such amendments are first acted upon by the RAPC, subject to the following additional conditions:

3.3.1 In the event that the RAPC has voted to reject or has not voted to support a proposed amendment to this Tariff or the Business Practice Manuals, any stakeholder may appeal such decision to the Board of Directors, and the Board of Directors shall consider the appeal.

3.3.2 In the event that the RAPC has voted to reject or has not voted to support a proposed amendment to this Tariff or the Business Practice Manuals and a stakeholder has not appealed such decision, the Board of Directors may, on its own motion or motion of any member of the Board of Directors, consider the proposed amendment.

3.3.3 In the event that the COSR as a body opposes or appeals a RAPC decision to the Board of Directors regarding an amendment to this Tariff or the Business Practice Manuals, the process set forth in Section 4.3.3 of this Tariff shall apply prior to the Board of Directors' consideration of the RAPC decision.

3.3.4 In the event that the Board of Directors wishes to initiate an amendment to this Tariff or the Business Practice Manuals that has not undergone PRC

and RAPC review, the Board of Directors shall first submit such proposed amendment to the PRC for review under the processes set forth in Sections 4.1 and 4.2 of this Tariff.

3.3.5 Expedited Review Process: In the event that the RAPC determines that an expedited review process is necessitated by an exigent circumstance as set forth in Section 4.1.3.1.1 of this Tariff, the Board of Directors shall review the RAPC's recommended Tariff or Business Practice Manual amendment expeditiously and invite comment from the PRC, COSR, and stakeholders concurrently with its consideration of the RAPC proposal.

3.4 WPP is specifically prohibited from amending this Tariff to:

3.4.1 Alter, usurp, control, or otherwise materially modify the Participants' existing functional control and responsibility over their generation and transmission assets, including but not limited to planning and operation of such assets, Open Access Transmission Tariff administration, interfering with Balancing Authority duties and responsibilities, or imposing a must-offer requirement on any specific generation resources.

3.4.2 Administer Open Access Transmission Tariff service, engage in Balancing Authority operations, impose transmission planning requirements, or assume any transmission planning responsibilities with regard to any of the Participant's transmission assets.

3.4.3 Form any type of organized market, including but not limited to a capacity market, a regional transmission organization, a real-time market, or any other type of FERC-approved regional construct, unless such action is also approved by the RAPC under its voting procedures set forth in Section 4.1.6 of this Tariff.

3.4.4 Impose any requirements on Participants beyond the assessment of financial charges as specified in this Tariff or suspension or termination of participation for failure to meet any WRAP requirements.

3.4.5 Amend in any way this Section 3 of this Tariff without the approval of the RAPC under its voting procedures set forth in Section 4.1.6 of this Tariff.

3.4.6 Amend the RAPC voting thresholds set forth in Section 4.1.6 of this Tariff.

3.5 Subject to the limitations and prohibitions imposed under Section 3.4 of this Tariff, if the Board of Directors votes to file at FERC to expand the WRAP to include market optimization or transmission planning services, WPP will initiate a formal process with COSR and other stakeholders to conduct a full review of governance structures and procedures, including the role of states. If COSR does not support any revised governance structure that emerges from such WPP review process, the WPP will file, along with any WPP governance proposal to FERC, an alternative

governance structure on behalf of the COSR so long as such COSR alternative governance structure is supported by 75% of the COSR.

4. Organizational Groups for the WRAP

4.1 Resource Adequacy Participants Committee

4.1.1 Authority and Purpose: The RAPC shall be the highest level of authority for representation by Participants in the WRAP governance structure and shall represent the interests of Participants directly to the Board of Directors.

4.1.2 Composition: The RAPC shall be composed of one representative from each Participant. Such representative shall be a senior management official with binding decision-making authority on behalf of the Participant, or a designated representative of a Participant's senior management official. A designated representative shall be required to have binding decision-making authority on behalf of the Participant and shall have all voting rights delegated from the senior management official. Participant shall appoint a designated representative no less than one Business Day in advance of a meeting for that designated representative to be eligible to vote during the meeting.

4.1.3 Functions: The RAPC:

4.1.3.1 Shall consider and recommend that the Board of Directors approve or reject all proposed amendments to this Tariff or Business Practice Manuals prior to the Board of Directors considering such amendments, including any amendments reviewed and referred by the PRC.

4.1.3.1.1 Exigent Circumstances: When the RAPC determines that an amendment to the Tariff or the Business Practice Manuals requires expedited Board of Directors review due to exigent circumstances, it may propose such amendment directly to the Board of Directors without awaiting review by other committees and stakeholders. Exigent circumstances include: (i) a FERC-mandated amendment to this Tariff or the Business Practice Manuals; (ii) an amendment to this Tariff or the Business Practice Manuals to address an immediate reliability impact; or (iii) an amendment to this Tariff or the Business Practice Manuals that the RAPC has determined has significant impacts to utility service.

4.1.3.2 Shall consider and vote to recommend that the Board of Directors approve or reject any proposed amendments to this Tariff or the Business Practice Manuals.

4.1.3.3 May provide input to the Board of Directors on any proposed WPP rules that apply both to the WRAP and other WPP services.

4.1.3.4 May evaluate and provide input to the Board of Directors on the WRAP administration budget and budget allocation to Participants, including amendments to the WRAP Administration Charge as calculated in accordance with Schedule 1 of this Tariff.

4.1.3.5 Shall form and organize all of the organizational groups under its responsibilities.

4.1.3.6 May take other actions reasonably related to its role as the senior-level Participant advisory committee to the Board of Directors regarding WRAP matters.

4.1.4 Leadership: The RAPC shall select from among its members a chair and vice chair.

4.1.5 Meetings:

4.1.5.1 Meetings of the RAPC will generally be open to all stakeholders. WPP shall provide advanced written notice of the date, time, place, and purpose of each RAPC meeting. All RAPC decisional items shall be placed on the open meeting agenda and allotted adequate time for public comment and deliberation.

4.1.5.1.1 The RAPC may meet in closed session as the RAPC chair deems necessary; provided, however, that the RAPC shall allow the designated COSR support staff member as specified in Section 4.3 of this Tariff to attend any closed meeting. The RAPC shall not take action on any proposed amendment to this Tariff or the Business Practice Manuals in closed session.

4.1.5.2 The quorum for a meeting of the RAPC or any organizational group organized under it shall be one-half of the representatives thereof, but not less than three representatives, provided that a lesser number may serve as a quorum for the sole purpose of voting to adjourn the meeting to a later time.

4.1.6 Voting:

4.1.6.1 Each RAPC representative shall have one vote.

4.1.6.2 Voting in the RAPC shall utilize a “House and Senate” model.

4.1.6.2.1 Each Participant’s “House” vote shall represent the proportion of the Participant’s Median Monthly P50 Peak Load, as described in Section 2 of Schedule 1 of this Tariff, compared to the sum of all Participants’ Median Monthly P50 Peak Loads. A Participant may choose to divide its

House vote but is responsible for announcing such at the time of voting.

4.1.6.2.2 Each Participant shall receive a single, non-weighted "Senate" vote.

4.1.6.2.3 For an action to be approved by the RAPC, it must pass both "House" and "Senate" votes as follows. For purposes of voting, the percentages identified below specify the percentage threshold of the entire RAPC (whether in attendance or not) that is needed for passage of an action.

4.1.6.2.3.1 Actions to amend any of the limitations on Board authority set forth in Section 3.4 of this Tariff require an 80% affirmative approval by both the House and the Senate vote tallies to be approved.

4.1.6.2.3.2 Actions brought before the RAPC that have been approved by the PRC require a 67% affirmative approval by both the House and Senate vote tallies to be approved.

4.1.6.2.3.3 All other actions not specified in this Section 4.1.6.2.3 require a 75% affirmative approval by both the House and Senate vote tallies to be approved.

4.1.6.2.4 If at any time a single Participant's P50 load for voting purposes would result in that Participant possessing a veto over any votes taken under Section 4.1.5.2.3, such Participant's House vote shall be capped at 1% below the amount that would convey such a veto, such that no single Participant will possess a veto over any action taken under Section 4.1.6.2.3.

4.2 Program Review Committee

4.2.1 Authority and Purpose: The PRC is a sector-representative group comprised in accordance with Section 4.2.2 of this Tariff. The PRC is responsible for receiving, considering, and proposing amendments to this Tariff and the Business Practice Manuals. The PRC shall serve as a clearinghouse of all recommended amendments to this Tariff or the Business Practice Manuals, except for those designated by the RAPC as involving an exigent circumstance under Section 4.1.3.1.1 of this Tariff, amendments to Schedule 1 of this Tariff and cost allocation for the WRAP, and amendments to the WRAPA set forth as Attachment A of this Tariff. The PRC shall serve in an advisory capacity to the RAPC and, when applicable, the Board of Directors.

4.2.1.1 The PRC shall present all proposals received to the RAPC, along with the PRC's recommendation and summaries of all comments and feedback received.

4.2.1.2 The PRC's decisions are advisory-only and are not binding on the RAPC, the Board of Directors, or WPP.

4.2.2 Composition: The PRC shall be composed of up to twenty representatives from the following ten sectors: four representatives of RAPC Participant investor-owned utilities; four representatives of RAPC Participant publicly-owned (consumer or municipal) utilities; two representatives of RAPC Participant retail competition load serving entities; two representatives from RAPC Participant Federal Power Marketing Administrations; two representatives of independent power producers; two representatives of public interest organizations; one representative of retail consumer advocacy groups; one representative of industrial customer advocacy groups; one representative of load serving entities with loads in the WRAP that are represented by other LREs and are not otherwise eligible for any other sector; a representative from the COSR. Expectations for sectors to consider regional, operational, geographic, demographic, and other forms of diversity in selecting their sector representatives are set forth in more detail in the PRC charter, which shall be posted and maintained on the WRAP website or other appropriate public location.

4.2.3 The PRC shall establish a process and criteria for receiving and reviewing proposed amendments to this Tariff and the Business Practice Manuals. Such review will include procedures for stakeholder comment.

4.2.4 Meetings: The PRC shall meet primarily in open session; provided that the PRC may schedule closed meetings if it determines that doing so would be beneficial to safeguard the confidentiality of sensitive information. The PRC shall not take action on any proposed amendment to this Tariff or the Business Practice Manuals in closed session.

4.2.5 Voting: The PRC shall endeavor to operate by consensus. When voting is necessary, voting shall consist of one sector one vote, with an affirmative vote of six sectors (as specified in Section 4.2.2 of this Tariff) constituting approval of an action before the PRC.

4.2.5.1 For sectors with four seats, three sector representatives must agree with the action for the sector to be considered an affirmative vote for the action.

4.2.5.2 For sectors with two seats, both sector representatives must agree with the action for the sector to be considered an affirmative vote for the action.

4.2.6 Participants and other entities shall participate in no more than one PRC sector. If a Participant or other entity is eligible to participate in more than one sector, such Participant or other entity shall declare in which sector it will participate.

4.3 Committee of State Representatives

4.3.1. Composition: The COSR is a committee composed of one representative from each state or provincial jurisdiction (either public utility commission or state/provincial energy office) that regulates at least one Participant.

4.3.2 Leadership: The COSR shall determine its leadership, including a chair and vice chair. The chair or vice chair will be requested to attend all open sessions of the RAPC to provide input and advice.

4.3.2.1 The COSR shall designate a COSR support staff member to attend and audit closed meetings of the RAPC under a non-disclosure agreement.

4.3.3 Authority:

4.3.3.1 If the COSR determines that a proposal approved by the RAPC is substantially different from the proposal submitted to the RAPC by the PRC, the COSR may engage in additional public review and comment before the RAPC decision is presented to the Board of Directors; provided that this additional public review and comment does not unreasonably delay presentation to the Board of Directors.

4.3.3.2 If the COSR as a body opposes or appeals a RAPC decision to the Board of Directors, the Board of Directors will not consider the RAPC's decision until the RAPC engages with the COSR to discuss, in at least two public discussions, to attempt to reach a mutually agreeable solution.

4.3.3.2.1 If the appeal relates to an amendment that the RAPC designated as involving an exigent circumstance under Section 4.1.3.1.1 of this Tariff, COSR can require no more than one public discussion, provided that such additional discussion does not unreasonably hinder the timeline for Board of Directors consideration of the proposed amendment.

4.3.4 Voting, Meetings, and Quorum: The COSR may develop its own rules governing voting, meetings, and quorum for action. COSR shall be responsible for its own costs.

5. Independent Evaluator

5.1 WPP shall engage an Independent Evaluator to provide an independent assessment of the performance of the WRAP and any potential beneficial design modifications. The Independent Evaluator shall report directly to the Board of Directors.

5.2 The Independent Evaluator shall conduct an annual review of the WRAP, including but not limited to analyzing prior year program performance, accounting and settlement, and program design.

5.3 The Independent Evaluator shall prepare an annual report of its findings, and any recommended modifications to WRAP design, and present its findings to the WRAP committees and the Board of Directors, subject to any necessary confidentiality considerations. Any data included in the Independent Evaluator's report shall be reported on an aggregated basis as applicable to preserve confidentiality. The Independent Evaluator's annual reports shall be available to the public, except to the extent they contain information designated as confidential under this Tariff, or information designated as confidential by the Independent Evaluator.

5.4 The Independent Evaluator shall not:

5.4.1 Evaluate individual Participants.

5.4.2 Possess any decision-making authority regarding the WRAP or design modifications.

5.4.3 Evaluate WPP's day-to-day operations of the WRAP (except as part of review of prior year program performance).

6. WPP Invoicing and Settlement

6.1 WPP shall be responsible for issuing invoices to, and collecting from, Participants all charges under Schedule 1 of this Tariff for recovery of all WPP costs associated with administering the WRAP.

6.2 WPP shall be responsible for invoicing, collecting, and (as applicable) distributing revenues from Deficiency Charges under Part II of this Tariff and Delivery Failure Charges under Part III of this Tariff.

6.3 Participants are not required to provide credit assurances to WPP to cover charges under Schedule 1 of this Tariff, Deficiency Charges under Part II of this Tariff, or Delivery Failure Charge under Part III of this Tariff.

6.4 Participants shall make full payment of all invoices rendered by WPP for which payment is required to WPP within thirty calendar days following the receipt of the WPP invoice, notwithstanding any disputed amount, but any such payment shall not be deemed a waiver of any right with respect to such dispute. Any Participant that fails to make full and timely payment to WPP of amounts owed upon expiration of the cure period specified in Section 6.4.1 of this Tariff will be in default.

6.4.1 If a Participant fails to make timely payment as required by Section 6.4, WPP shall so notify such Participant. The notified Participant may remedy such asserted breach by paying all amounts due, along with interest on such amounts calculated in accordance with the methodology specified for interest on refunds in FERC's regulations at 18 C.F.R. § 35.19a(a)(2)(iii); provided, however, that any such payment may be subject to a reservation of rights, if any, to refer such matter to dispute resolution procedures under Section 9 of this Tariff. If the Participant has not remedied such asserted breach by 5:00 p.m. Pacific Prevailing Time on the second Business Day following WPP's issuance of a written notice of breach, then the Participant shall be in default.

6.4.2 In the event of a Participant's default under Section 6.4.1 of this Tariff, WPP in its discretion may pursue collection through such actions, legal or otherwise, as it reasonably deems appropriate, including but not limited to the prosecution of legal actions and assertion of claims in the state and federal courts as well as under the United States Bankruptcy Code. After deducting any costs associated with pursuing such claims, any amounts recovered by WPP with respect to defaults for which there was a Default Allocation Assessment shall be distributed to the Participants who have paid their Default Allocation Assessment in proportion to the Default Allocation Assessment paid by each Participant, as calculated pursuant to Section 6.4.3 of this Tariff. In addition to any amounts in default, the defaulting Participant shall be liable to WPP for all reasonable costs incurred in enforcing the defaulting Participant's obligations.

6.4.3 In the event of a Participant's default with respect to an invoice issued by WPP for charges under Schedule 1 of this Tariff, in order to ensure that WPP remains revenue neutral, the Board of Directors may assess against, and collect from, the Participants not in default a Default Allocation Assessment to recover the costs associated with the default. Such assessment shall in no way relieve the defaulting Participant of its obligations.

6.4.3.1 The Default Allocation Assessment shall be equal to:

(20% × (1/N) + (80% × (Participant Median Monthly P50 Peak Load / Sum Participants Median Monthly P50 Peak Load)

where:

N = the total number of Participants, calculated as of the date WPP declares a Participant in default.

Participant Median Monthly P50 Peak Load = for each Participant included in factor "N" above, the Participant's Median Monthly P50 Peak Load as determined in Section 2 of Schedule 1 of this Tariff, recalculated on the day the WPP declares a Participant in default.

All Participants Median Monthly P50 Peak Load = the sum of the Participant Median Monthly P50 Peak Load values for all Participants included in factor "N" above.

7. Credit Requirements and Settlement for Holdback and Delivered Energy

7.1 Credit and Settlement for Holdback and Delivered Energy: Settlement of holdback and delivered energy shall be completed bilaterally between Participants, subject to the following:

7.1.1 Neither WPP nor the Program Operator(s) shall take title to energy or be party to any settlement of holdback or delivered energy.

7.1.2 Participants shall establish credit with each other through one of the following mechanisms. Neither WPP nor the Program Operator(s) shall be involved in the calculation of credit or credit limits.

7.1.2.1 Establish credit directly with each Participant: Participants may establish credit directly with other Participants from whom they may receive delivered energy.

7.1.2.1.1 Such credit should be established in advance of the applicable season.

7.1.2.1.2 The amount of such credit and any credit limit shall be at the discretion of each Participant.

7.1.2.2 WPP shall conduct a competitive solicitation process to identify a third-party service provider to serve as central credit organization and clearing house for credit and settlement. Once such central credit organization is selected, Participants that have not already directly established credit with all other Participants under Section 7.2.2.1 of this Tariff shall establish credit with the central credit organization.

7.1.2.2.1 WPP will provide the central credit organization any Operations Program related information necessary for them to perform their obligations as set forth in the agreement between WPP and the central credit organization.

7.1.2.2.2 All costs associated with the central credit organization service shall be borne by Participants as established in the agreement between WPP and the central credit organization and either billed directly on a transactional basis or else recovered under Schedule 1 of this Tariff.

7.1.2.3 The obligation to arrange sufficient credit shall at all times be on the deficient Participant (i.e., a Participant with a negative sharing calculation in the Operations Program). If a deficient Participant has not made good faith and commercially reasonable efforts to

obtain sufficient credit with a delivering Participant, such delivering Participant shall so notify WPP and shall be excused from any obligation to deliver to such deficient Participant. Nothing in this Section 7 requires a Participant to violate its written risk or credit policy.

7.2 All settlement pricing calculated under this Tariff shall be final and no adjustments to settlement prices shall be allowed after the later of: (1) ninety Days after such settlement prices are posted by WPP; or (2) the final outcome of any dispute resolution process that is initiated by a Participant to dispute a settlement price pursuant to the Dispute Resolution Procedures set forth in Section 9 of this Tariff.

7.2.1 A Participant may invoke the Dispute Resolution Procedures set forth in Section 9 of this Tariff to address calculation errors in any settlement price, but may not invoke the Dispute Resolution Procedures to dispute data sources or to request the use of alternative data sources.

8. Force Majeure, Limitation of Liability, and Indemnification

8.1 Force Majeure: An event of Force Majeure means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, pandemic, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation, or restriction imposed by governmental military or lawfully established civilian authorities, or any other cause beyond a party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing. Neither WPP nor the Participant will be considered in default as to any obligation under this Tariff if prevented from fulfilling the obligation due to an event of Force Majeure. However, a Party whose performance under this Tariff is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Tariff. Notwithstanding the foregoing, the physical inability to perform because of an event of Force Majeure shall not relieve the party of any financial obligations incurred under this Tariff or as a result of the Force Majeure event, unless, and to the extent, such financial obligation is waived or excused under provisions of Part II or Part III of this Tariff expressly providing for such waiver or excuse.

8.2 Limitation of Liability:

8.2.1 Neither WPP nor the Program Operator shall be liable, whether based on contract, indemnification, warranty, tort, strict liability or otherwise, to any Participant, other entity owning a Qualifying Resource, third party, or other person for any damages whatsoever, including, without limitation, direct, incidental, consequential, punitive, special, exemplary, or indirect damages arising or resulting from any act or omission in any way associated with service provided under this Tariff or any agreement hereunder, including, but not limited to, any act or omission that results in an interruption, deficiency or imperfection of service, except to the extent that the damages are direct damages that arise or result from the gross negligence or intentional misconduct of WPP or Program Operator, in which case WPP shall only be liable for direct damages.

8.2.2 Neither WPP nor the Program Operator shall be liable for damages arising out of services provided under this Tariff or any agreement entered into hereunder, including, but not limited to, any act or omission that results in an interruption, deficiency, or imperfection of service, occurring as a result of conditions or circumstances beyond the control of WPP, or resulting from electric system design common to the domestic electric utility industry or electric system operation practices or conditions common to the domestic electric utility industry.

8.2.3 To the extent that a Participant or other person has a claim against WPP, the amount of any judgment or arbitration award on such claim entered in favor of such entity shall be limited to the value of WPP's assets. No party may seek to enforce any claims under this Tariff or any Agreements entered into

hereunder against the directors, managers, members, shareholders, officers, employees, or agents of WPP, or against the Program Operator, who shall have no personal liability for obligations of WPP by reason of their status as directors, managers, members, shareholders, officers, employees, or agents of WPP or by virtue of their status as Program Operator.

8.2.4 To the extent that WPP is required to pay any money damages or compensation or pay amounts due to its indemnification of any other party as it relates to any services provided, acts, or omissions under this Tariff or any agreement entered into hereunder, WPP shall be allowed to recover any such amounts under Schedule 1 of this Tariff as part of the WRAP Administration Charge. Notwithstanding the foregoing, WPP shall be prohibited from recovering under this Tariff any costs associated with any damages, compensation, or indemnification costs that arise: (i) with regard to any acts or omissions that occur outside of this Tariff and any agreements entered into hereunder, or (ii) if a court of competent jurisdiction determines that the damages are direct damages that arise or result from the gross negligence or intentional misconduct of WPP or the Program Operator.

8.2.5 A Participant's liability to another Participant under this Tariff for failure to comply with obligations under this Tariff shall be limited to any charges or payments calculated pursuant to this Tariff; provided, however, that nothing in this Section 8.2.5 shall limit or is intended to foreclose any Participant's liability that may arise under any bilateral agreements between Participants.

8.3 Indemnification: The Participants shall at all times indemnify, defend, and save WPP (and any of its Program Operator(s), agents, consultants, directors, officers, or employees) harmless from any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties arising out of or resulting from the performance of activities under this Tariff by WPP, any Program Operator(s), or agents, consultants, directors, officers, or employees of WPP, except in cases of gross negligence or intentional wrongdoing by WPP or the Program Operator. WPP shall credit any proceeds from insurance or otherwise recovered from third parties to Participants who have paid to indemnify WPP under this Section 8.3.

8.4 Actions upon Unavailability of Program Operator(s): In the event that the Program Operator(s) become(s) unwilling, unable, or otherwise unavailable to perform contractual duties necessary for WPP to discharge its obligations under this Tariff and WPP's agreement(s) with the Program Operator(s), WPP shall engage with Participants as soon as practicable to determine what actions to take, including but not limited to filing with FERC a request to waive one or more provisions of this Tariff up to and including immediate suspension of all rights and obligations under this Tariff until a replacement Program Operator(s) can assume all relevant Program Operator functions.

9. Dispute Resolution Procedures

9.1 Internal Dispute Resolution Procedures: Subject to the limitations set forth in Section 7.2.1 of this Tariff, any dispute between a Participant and WPP under the Tariff (excluding amendments to the Tariff or to any agreement entered into under the Tariff, which shall be presented directly to the FERC for resolution) shall be referred to a designated senior representative of WPP and a senior representative of the Participant for resolution on an informal basis as promptly as practicable. In the event the designated representatives are unable to resolve the dispute within thirty days (or such other period as the parties may agree upon) by mutual agreement, such dispute shall then be referred to the chief executive officer or comparable executive of each party for resolution. In the event that the executives are unable to resolve the dispute within thirty days (or such other period as the parties may agree upon), such dispute may be submitted to arbitration and resolved in accordance with the arbitration procedures set forth below.

9.2 External Arbitration Procedures: Any arbitration initiated under the Tariff shall be conducted before a single neutral arbitrator appointed by the parties to the dispute. If the parties fail to agree upon a single arbitrator within ten days of the referral of the dispute to arbitration, each party shall choose one arbitrator who shall sit on a three-member arbitration panel. The two arbitrators so chosen shall within twenty days select a third arbitrator to chair the arbitration panel. In either case, the arbitrators shall be knowledgeable in electric utility matters, including electric transmission and bulk power issues, and shall not have any current or past substantial business or financial relationships with any party to the arbitration (except prior arbitration). The arbitrator(s) shall provide each of the parties an opportunity to be heard and, except as otherwise provided herein, shall generally conduct the arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association and any applicable FERC regulations.

9.3 Arbitration Decisions: Unless otherwise agreed by the parties, the arbitrator(s) shall render a decision within ninety days of appointment and shall notify the parties in writing of such decision and the reasons therefor. The arbitrator(s) shall be authorized only to interpret and apply the provisions of the Tariff and/or any agreement entered into under the Tariff and shall have no power to modify or change any of the above in any manner. The decision of the arbitrator(s) shall be final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction. The decision of the arbitrator(s) may be appealed solely on the grounds that the conduct of the arbitrator(s), or the decision itself, violated the standards set forth in the Federal Arbitration Act and/or the Administrative Dispute Resolution Act. The final decision of the arbitrator must also be filed with the FERC if it affects jurisdictional rates, terms and conditions of service or facilities.

9.4 Costs: Each party shall be responsible for its own costs incurred during the arbitration process and for the following costs, if applicable: (i) the cost of the arbitrator chosen by the party to sit on the three-member panel and one half of the

cost of the third arbitrator chosen; or (ii) one half the cost of the single arbitrator jointly chosen by the Parties.

9.5 Rights Under the Federal Power Act: Nothing in this section shall restrict the rights of any person to file a complaint with the FERC under relevant provisions of the Federal Power Act or of WPP to file amendments to this Tariff under the relevant provisions of the Federal Power Act.

10. Treatment of Confidential and Commercially Sensitive Information of Participants

10.1 Terms: For purposes of this Section 10 only, the term "WPP" shall also include, as applicable, any directors, officers, employees, agents, or consultants of WPP, the Independent Evaluator established under Section 5 of this Tariff, and any central credit organization established under Section 7 of this Tariff. WPP shall be bound by the rights, obligations, and conditions set forth in this Section 10. For purposes of this Section 10, the term "Disclosing Entity" shall include any Participant that discloses information to WPP that the Disclosing Entity deems and identifies as confidential or commercially sensitive. WPP's collection and handling of non-Participant data shall be governed by separate non-disclosure agreements with such non-Participants.

10.2 Treatment of Confidential or Commercially Sensitive Information: WPP shall identify in the Business Practice Manuals categories of Participant-specific data and information received from Participants that shall be treated as confidential or commercially-sensitive, which WPP shall not disclose publicly or to any other Participant or other entity except as provided for in this Section 10. In addition, WPP shall maintain the confidentiality of all of the documents, data, and information provided to it by any Participant that such disclosing Participant deems and specifically identifies as confidential or commercially sensitive. Notwithstanding the foregoing, WPP need not keep confidential: (i) information that is publicly available or otherwise in the public domain; or (ii) information that is required to be disclosed under this Tariff or any applicable legal or regulatory requirement (subject to the procedures set forth in Section 10.4 of this Tariff).

10.2.1 WPP staff may develop and release publicly composite or aggregated data based upon Participant confidential or commercially sensitive information, provided that such composite or aggregated data cannot be used to identify or attribute a disclosing Participant's confidential or commercially sensitive data. Such release of composite or aggregated data shall be governed by the following process.

10.2.1.1 Prior to the initial release of such composite or aggregated data, WPP staff shall present the form and format of such data to each Participant whose confidential information or data will be used to create the composite or aggregated data. If any such Participant objects to the form and format as revealing or allowing for attribution of confidential or commercially sensitive Participant-specific data, WPP staff shall determine whether to modify the form and format or to retain the proposed form and format for release. If WPP staff elects to retain the proposed form and format, the Participant shall have the right to appeal to the RAPC and WPP staff shall be prohibited from releasing the composite or aggregated data in the proposed form and format until the Participant's appeal rights as specified in this Section 10.2.1

are exhausted.

10.2.1.2 If a Participant appeals a WPP staff decision regarding the form and format of composite or aggregated data to the RAPC, the RAPC shall consider whether the form and format reveals or allows for attribution of confidential or commercially sensitive Participant-specific data. If the RAPC determines that the proposed form and format is sufficient to protect against the release of confidential or commercially sensitive Participant-specific data, WPP staff is authorized to release the composite or aggregated data in the proposed form and format unless the Participant timely appeals the RAPC decision to the Board of Directors.

10.2.1.3 If a Participant appeals a RAPC decision regarding the form and format of composite or aggregated data to the Board of Directors, the Board of Directors shall consider whether the form and format is sufficient to protect against the release or attribution of confidential or commercially sensitive Participant-specific data. If the Board of Directors determines that the proposed form and format is sufficient to protect against the release of confidential or commercially sensitive Participant-specific data, WPP staff is authorized to release the composite or aggregated data in the proposed form and format.

10.2.1.4 Once a proposed form and format of composite or aggregated data is approved by the WPP staff and is not appealed or appeals are unsuccessful, such form and format may be used for all future disclosures of composite or aggregate information and no Participant may dispute such release. If WPP staff proposes to alter the form and format, including but not limited to changing the granularity of data, WPP staff shall be required to follow the process set forth in this Section 10.2.1 and Participants shall have the right to appeal such changes in form and format as set forth herein. Notwithstanding the foregoing, if the composition of Participants in the WRAP changes in such a way that the form and format of composite or aggregated data is no longer sufficient to protect against disclosure or attribution of confidential or commercially sensitive Participant-specific data, an aggrieved Participant shall have a one-time right to raise the issue promptly with WPP Staff for presentation to and review by the Board of Directors, and the Board of Directors in its sole discretion shall decide whether the change in composition results in the form and format of the composite or aggregated data becoming insufficient to

protect against the release or attribution of confidential or commercially sensitive Participant-specific data; provided, however, that if an aggrieved Participant does not raise its concerns with the Board of Directors promptly following the change in composition, such Participant shall have waived its right to contest the release of such composite or aggregated data.

10.2.2 Notwithstanding anything to the contrary in this Section 10.2, if the RAPC unanimously votes to disclose publicly any particular category of Participant-specific data, such data shall no longer be deemed confidential regardless of any such designation by a disclosing Participant, and this election shall be binding on any current and future Participants until such time as the RAPC votes unanimously to prohibit public release of such category of data. A list of the categories of Participant-specific data that the RAPC unanimously votes to make public shall be included in the Business Practice Manuals.

10.3 Access to Confidential or Commercially Sensitive Information: Except as otherwise provided in Section 10.2 of this Tariff, no Participant, entity owning a Qualifying Resource, or any third party shall have the right hereunder to receive from WPP or to otherwise obtain access to any documents, data or other information that has been identified as or deemed to be confidential or commercially sensitive under Section 10.2 of this Tariff by a disclosing Participant. The provisions of this Section 10.3 do not apply to WPP (including any Independent Evaluator, member of the Board of Directors, or any WPP officer, employee, agent, or consultant that requires access to confidential or commercially sensitive information); provided that access to Participant-specific confidential or commercially sensitive information shall be solely for the purpose of performing the duties or functions under this Tariff or otherwise advising or assisting WPP. WPP shall develop internal policies and controls governing the handling and protection of confidential or commercially sensitive Participant-specific data by members of the Board of Directors, officers, employees, agents, consultants, or any Independent Evaluator.

10.4 Exceptions: Notwithstanding anything in this Section 10 to the contrary:

10.4.1 If WPP is required by applicable laws or regulations, or in the course of administrative or judicial proceedings, to disclose information that is otherwise required to be maintained in confidence pursuant to this Section 10, WPP may disclose such information; provided, however, that as soon as practicable after WPP learns of the disclosure requirement and prior to making such disclosure, WPP shall notify any affected disclosing Participant of the requirement and the terms thereof. Any such disclosing Participant may, at its sole discretion and own cost, direct any challenge to or defense against the disclosure requirement and WPP shall cooperate with such disclosing Participant to take all reasonable available steps to oppose

or otherwise minimize the disclosure of the information permitted by applicable legal and regulatory requirements. WPP shall further cooperate with such disclosing Participant to the extent reasonably practicable to obtain proprietary or confidential treatment of confidential or commercially sensitive information by the person to whom such information is disclosed prior to any such compelled disclosure.

10.4.2 WPP may disclose confidential or commercially sensitive information, without notice to any affected disclosing Participant(s), in the event that FERC, during the course of an investigation or otherwise, requests information that is confidential or commercially sensitive. In providing the information to FERC, WPP shall take action, consistent with 18 C.F.R. §§ 1b.20 and/or 388.112, to request that the information be treated by FERC as confidential and non-public and, if appropriate, as Critical Energy Infrastructure Information and that the information be withheld from public disclosure. WPP shall provide the requested information to FERC within the time provided for in the request for information. WPP shall notify any affected disclosing Participant(s) within a reasonable time after WPP is notified by FERC that a request for disclosure of, or decision to disclose, the confidential or commercially sensitive information has been received, at which time WPP and any affected disclosing Participant may respond before such information would be made public.

10.5 Notwithstanding any efforts undertaken pursuant to Section 10.4 to prevent or limit the release of a Participant's confidential or commercially sensitive information, in the event that FERC or a court of competent jurisdiction orders or otherwise permits the public release of a Participant's confidential or commercially sensitive information, the affected Participant shall have a one-time right to elect to terminate its participation in the WRAP under the expedited termination provisions set out in Section 11.2 of the WRAPA.

10.6 WPP shall handle any information identified or deemed to be Controlled Unclassified Information/Critical Energy Infrastructure Information in accordance with FERC's regulations set forth at 18 C.F.R. § 388.113 and any applicable FERC policies or other regulations, including but not limited to restricting access to such information on a password-protected portion of WPP's website or similar precautions.

10.7 Nothing in this Section 10 is intended to limit a Participant's ability to disclose or release publicly its own confidential or commercially sensitive information or data, or to limit a Participant's ability to authorize WPP's disclosure of such material to a specified recipient.

11. Timing

11.1 In the event that any deadline specified in this Tariff shall fall on a day that is not a Business Day, the deadline shall be extended to the next Business Day.

12. Application and Registration

12.1 Any entity wishing to participate in the WRAP must submit an application and registration in accordance with the Business Practices Manuals and must execute the WRAPA as set forth in Attachment A of this Tariff, or a non-conforming version of such participation agreement that is approved by FERC for an individual Participant. Such application and registration must be submitted in accordance with the timelines set forth in the Business Practices Manuals in advance of the next Binding Season.

12.2 Each Participant must register all of its resources and loads, regardless of whether such resources will be used to satisfy the WRAP requirements and regardless of whether certain loads will be subject to the requirements of the WRAP. Participants may modify their registration of resources and loads in accordance with the timing procedures set forth in the Business Practices Manuals.

12.3 In the event that more than one Participant attempts to register the same resource or load, the following procedure will be used to assign the resource or load to a Participant:

12.3.1 If a Participant attempts to register a load or resource that has already been registered by a different Participant, the resource or load will remain registered by the original Participant registering the resource or load until such time as both Participants mutually inform WPP that a change to the registration is required.

12.3.2 If two or more Participants attempt to register the same resource or load during the same registration window, WPP shall request that the Participants determine among themselves the appropriate registration of the resource or load before that resource or load is included in the WRAP.

PART II FORWARD SHOWING PROGRAM

13. Overview

13.1 In the Forward Showing Program, as set forth in this Part II of the Tariff, and as further detailed in the Business Practice Manuals, each Participant shall, in advance of each Binding Season, show as to such Binding Season: (i) the total capacity, referred to and defined herein as the FS Capacity Requirement, required by the provisions of this Tariff for such Binding Season for reliable service to the loads for which such Participant is responsible; (ii) the demonstration of capacity, referred to and defined herein as the Qualifying Capacity Contribution, or QCC, provided by the Qualifying Resources the Participant provides or procures to meet its FS Capacity Requirement; and (iii) a quantity of WRAP Qualifying Transmission, referred to and defined herein as the FS Transmission Requirement, needed for reliable delivery of the QCC of the Participant's Qualifying Resources from such resources to the loads for which the Participant is responsible.

13.2 As also set forth in this Part II of the Tariff, and as further detailed in the Business Practice Manuals: (i) WPP shall, in advance of each Binding Season, review the Forward Showing Submittals of each Participant for such Binding Season; (ii) WPP shall identify to the Participant any deficiencies in the Participant's Portfolio QCC (whether as to contracts or directly owned or controlled resources) relative to the FS Capacity Requirement, and any deficiencies relative to the FS Transmission Requirement, within sixty days of the Forward Showing Submittal deadline; (iii) the Participant shall have an opportunity to cure such deficiencies, within sixty days of notification of deficiency; and (iv) if the Participant fails to cure all such deficiencies on or before the deadlines prescribed herein, the Participant shall be assessed a Forward Showing Deficiency Charge.

14. Forward Showing Program Process and Timeline

14.1 The Forward Showing Program has two Binding Seasons, defined as the Summer Season and the Winter Season. The Summer Season is the period beginning on June 1 of each Year and ending on September 15 of that same Year. The Winter Season is the period beginning on November 20~~1~~ of each Year and ending on February 28 (or February 29, as applicable)~~March 15~~ of the succeeding Year. This Tariff does not establish resource or showing obligations outside the periods defined by the Summer Season and Winter Season.

14.2 Each Participant shall submit its Forward Showing Submittals for each Month of each Binding Season, with all required supporting materials and information as detailed in the Business Practice Manuals, on or before the FS Deadline for the Binding Season. The FS Deadline for each Binding Season shall be seven months before the start of such Binding Season.

14.2.1 Forward Showing Submittal:

14.2.1.1 Absent the exception in Section 14.2.1.2, each Participant shall submit a separate Forward Showing Submittal for loads for which it is responsible if transmission constraints between areas where its loads are located, including, without limitation, when Participant is responsible for loads in more than one Subregion, prevent application, in the manner more fully described in the Business Practice Manuals, of Resource QCC or Net Contract QCC from one load area to the FS Capacity Requirement of another load area.

14.2.1.2 Notwithstanding Section 14.2.1.1, a Participant responsible for loads in two Subregions may submit for a given Month a single Forward Showing Submittal for such loads, and may employ for determination of its FS Capacity Requirement for such Month the lower of the two FSPRM values determined for the Subregions where its loads are located, if the Participant demonstrates in such Forward Showing Submittal, in accordance with the procedures and requirements set forth in the Business Practice Manuals, WRAP Qualifying Transmission in a quantity, in addition to that required by the FS Transmission Requirement, equal to the difference in the two FSPRM values multiplied by the Participant's P50 Peak Load Forecast for such Month, with a point of delivery in the Subregion with the higher FSPRM value and the point of receipt in the Subregion with the lower FSPRM value. Each such showing shall identify the MW quantity, Month of service, point of receipt, and point of delivery of such WRAP Qualifying Transmission, and such other information as specified in the Business Practice Manuals, and shall verify that the offered rights are WRAP Qualifying Transmission.

14.2.2 Each Participant's Forward Showing Submittal shall include a Senior Official Attestation.

14.3 The FSPRM values used in the Forward Showing Submittals for a Binding Season shall be those values approved by the Board of Directors as the culmination of an Advance Assessment process. No later than twelve months before the FS Deadline for each Binding Season, WPP will determine and post the recommended FSPRM for each Subregion for each Month of such Binding Season. Participants shall provide their load, resource and other information reasonably required to perform the analyses and calculations required for the Advance Assessment, in accordance with the Advance Assessment information submission details and schedule specified in the Business Practice Manuals. No later than nine months before the FS Deadline for such Binding Season, the Board of Directors shall take its final action regarding approval of the FSPRM values for each Month of such Binding Season.

14.3.1 In connection with an Advance Assessment process, or otherwise in connection with consideration of a change to the Business Practice Manuals, the Board of Directors may determine that designation of Subregions would encourage the relief, in whole or part, of transmission constraints on the transfer of capacity within the WRAP Region (whether through development or commitment of transmission, of Qualifying Resources, or by other means) to the benefit of the WRAP Region and the advancement of the objectives of the WRAP. Each such Subregion shall be identified in the Business Practice Manuals.

14.3.2 Any Participant may choose to offer in the Advance Assessment process WRAP Qualifying Transmission owned or controlled by such Participant for delivery of capacity from one Subregion to another Subregion, for use by other Participants under the terms of Part III of this Tariff during any or all identified Months of the applicable Binding Season. Each such offer shall identify the MW quantity, Month of service, point of receipt, and point of delivery of such transmission service rights, and such other information as specified in the Business Practice Manuals, and shall verify that the offered rights are WRAP Qualifying Transmission. No Participant is obligated to offer any such transmission service rights in the Advance Assessment process, but any offer so made and not withdrawn before the deadline during the Advance Assessment process specified in the Business Practice Manuals shall be considered a binding offer of the identified transmission service rights which may not be withdrawn before the end of the last Day of the Month for which such transmission service is offered. WPP shall take account of such offered transmission service rights, along with other transmission deliverability reasonably anticipated to be available for use by Participants for WRAP purposes during the applicable Binding Season in its determination of the recommended FSPRM values for each Month of the applicable Binding Season for the WRAP Region and for each affected Subregion.

14.4 No later than sixty Days after the FS Deadline for a Binding Season, WPP will (i) provide the values of the Participant's FS Capacity Requirement and FS Transmission Requirement for each Month of the Binding Season; (ii) affirm that the Portfolio QCC of such Participant for each Month of the Binding Season equals or exceeds the FS Capacity Requirement of such Month for such Participant or notify such Participants of any deficiencies in the Forward Showing Submittal that result in a failure to demonstrate satisfaction of the FS Capacity Requirement; and (iii) affirm that the Demonstrated FS Transmission plus approved Monthly Transmission Exceptions of such Participant for each Month of the Binding Season equals or exceeds the FS Transmission Requirement of such Month for such Participant or notify such Participants of any deficiencies in the Forward Showing Submittal that result in a failure to demonstrate satisfaction of the FS Transmission Requirement.

14.5 Within 120 Days after the FS Deadline, the Participant shall (i) submit revisions to its Forward Showing Submittal, including, without limitation, additions or revisions to the Participant's Resource QCC, Net Contract QCC, or Demonstrated FS Transmission; (ii) in order to fully cure all identified deficiencies and demonstrate that such Participant's Portfolio QCC for each Month of the Binding Season equals or exceeds its FS Capacity Requirement; and (iii) fully provide Demonstrated FS Transmission for each Month of the Binding Season that equals or exceeds its FS Transmission Requirement for the same Month of the Binding Season where WPP identified deficiencies.

14.5.1 Any Participant that fails to cure identified deficiencies in its Forward Showing Submittal within the period prescribed above shall be assessed a Deficiency Charge.

15. Transition Period

15.1 Except as specified in Section 15.1.1, the Binding Season beginning November 20~~1~~, 2027, will be the first Binding Season for which all Participants will assume the obligations of demonstrating capacity and making surplus capacity available to other Participants and will receive the benefits of reliance upon other Participants' surplus capacity. Any Binding Season during the Transition Period occurring before November 20~~1~~, 2027, shall be a Non-Binding Season, as specified in Section 15A of this Tariff.

15.1.1 No later than January 15, 2026, a Participant may elect the Binding Season beginning June 1, 2027, as the first Binding Season for which it will assume the obligations of demonstrating capacity and making surplus capacity available to other Participants and will receive the benefits of reliance upon other Participants' surplus capacity by providing written notice of its election.

15.2 Within two years prior to the start of the first Binding Season of the WRAP, a Participant who has elected to participate in the first Binding Season may request a vote of all Participants who have elected to participate in the first Binding Season to delay implementation of the first Binding Season for up to two Seasons. Delayed implementation of the first Binding Season shall be approved if 75% of the Participants who elected to participate in the first Binding Season vote in favor of such delay, with approval requiring a vote of 75% of both the House and Senate vote tallies (as described in Sections 4.1.6.2.1 and 4.1.6.2.2 of this Tariff) of all Participants who elected to participate in the first Binding Season.

15.2.1 The deferral vote may only occur for the first Binding Season of the WRAP. If the Participants who elected to participate in the first Binding Season of the WRAP vote to delay implementation of the first Binding Season, all compliance charges for the Forward Showing Program and Operations Program are automatically deferred; except that the Participants may vote to delay implementation only of the Operations Program portion of the first Binding Season and retain the binding Forward Showing Program portion of the first Binding Season.

15A. Non-Binding Seasons

15A.1 A Participant will participate as a Non-Binding Participant for certain Binding Seasons in the Transition Period, as detailed in Section 15.1 of this Tariff, and when Critical Mass is not achieved for a given Binding Season, as detailed in Section 15A.2 of this Tariff. As to a Non-Binding Season, the Participant:

15A.1.1 Shall not be subject to Deficiency Charges, Transmission Deficiency Charges, Holdback Requirements, Energy Deployment obligations, or Delivery Failure Charges;

15A.1.2 Shall submit Forward Showing Submittals but shall not be required to cure deficiencies;

15A.1.3 Shall not have a mandatory Holdback Requirement as a result of the Sharing Calculation;

15A.1.4 May only receive Holdback Capacity offered voluntarily by other Participants in accordance with Part III of this Tariff; and

15A.1.5 Shall have all rights and be subject to all obligations under Part I of this Tariff and the Participant's WRAPA, including, without limitation, voting rights, committee participation, and the obligation to pay the WRAP Administration Charge.

15A.2 Once WPP has given notice to Participants that their Subregion does not have Critical Mass for a given Binding Season, each such Participant will have 30 days to provide notice to WPP if it intends to participate as a Non-Binding Participant for that Binding Season. Such notice and election will be given similarly for each season without Critical Mass participation.

16. Components of the Forward Showing

16.1 FS Capacity Requirement. The FS Capacity Requirement shall be determined for each Participant on a monthly basis by applying the applicable Monthly FSPRM for a Month to such Participant's peak load forecast for that Month. The Participant's peak load forecast for a given Month of a Binding Season will be the P50 Peak Load Forecast for the Binding Season multiplied by a shaping factor based on the historical relationship, for such Participant, of the seasonal peak for the Winter Season or Summer Season, as applicable, and the monthly peaks for the Months in such season, as more fully described in the Business Practice Manuals.

16.1.1 P50 Peak Load Forecast. The P50 Peak Load Forecast is a peak load forecast prepared on a basis, such that the actual peak load is statistically expected to be as likely to be above the forecast as it is to be below the forecast. The Business Practice Manuals shall specify an approved load forecasting methodology for use by all Participants for their WRAP-required load forecasts which shall include (i) a base monthly peak derived from a recent historical period that recognizes additions and removals of load during the historical period, (ii) adjustments for known additions and removals of load during the forecast window; and (iii) a specified load growth factor.

16.1.2 FS Planning Reserve Margin

16.1.2.1 The FSPRM is an increment of resource adequacy supply needed to meet conditions of high demand in excess of the applicable peak load forecast and other conditions such as higher resource outages, expressed as a percentage of the applicable peak load forecast. The FSPRM shall be determined based on probabilistic analysis, taking account of uncertainties in generation and load, as the margin above peak load that provides an expectation of no more than a single event-day of loss of load in ten years (sometimes referred to herein as the "1-in-10 LOLE") for each Binding Season. The FSPRM shall be determined in a manner that accounts for the governing principles of QCC value determinations set forth in Section 16.2.5 of this Tariff and shall employ the applicable peak load for the applicable Binding Season and Months. Additional details, assumptions, methodologies, and procedures for determination of the FSPRM shall be as set forth in the Business Practice Manuals.

16.1.2.2 WPP shall calculate in the Advance Assessment process the recommended Monthly FSPRM for each Month of each Binding Season, for approval by the Board of Directors as set forth in this Part II.

16.1.2.3 The FSPRM shall employ (i) a simulated resource stack using capacity accreditation principles consistent with those used for WRAP QCC determinations; (ii) an adjustment in the total WRAP-required QCC value as needed to meet a 1-in-10 LOLE for each Binding Season, and (iii) while maintaining the 1-in-10 LOLE for each Binding Season in (ii), include a monthly reduction of capacity to ensure that each Month has at least 0.01 annual LOLE. The FSPRM for a Month shall be the simulated QCC as adjusted to meet the 1-in-10 LOLE for each Binding Season minus the P50 Peak Load Forecast for the Month, divided by the P50 Peak Load Forecast for the Month.

16.1.2.4 The FSPRM shall include an approximation of Contingency Reserves as set forth in the Business Practice Manuals.

16.1.3 Contingency Reserves Adjustment. A Participant's FS Capacity Requirement will be adjusted as set forth in the Business Practice Manuals to account for changes in Contingency Reserve requirements resulting from energy contract purchases and contract sales.

16.1.4 A Participant responsible for loads located in a Subregion for which an FSPRM value has been determined that is higher than the FSPRM value determined for a different Subregion may, in lieu of demonstrating a MW increment of Portfolio QCC otherwise required to satisfy such Participant's FS Capacity Requirement for a given Month, demonstrate in its Forward Showing Submittal, in accordance with the procedures and requirements set forth in the Business Practice Manuals, WRAP Qualifying Transmission, in a quantity, in addition to that required by the FS Transmission Requirement, that is no greater than the difference in the two FSPRM values multiplied by the Participant's P50 Peak Load Forecast, with the point of delivery in the Subregion with the higher FSPRM value and the point of receipt in the Subregion with the lower FSPRM value. The MW quantity of the additional WRAP Qualifying Transmission so demonstrated shall reduce for such Month, by the same MW quantity, the Portfolio QCC the Participant would otherwise be required to demonstrate to satisfy its FS Capacity Requirement for such Month. Each such demonstration shall identify the MW quantity, Month of service, point of receipt, and point of delivery of such transmission service rights, and such other information as specified in the Business Practice Manuals, and shall verify that the offered rights are WRAP Qualifying Transmission.

16.2 Qualified Capacity Contribution

16.2.1 For each Participant and each Binding Season, the Forward Showing shall show and support the Portfolio QCC, which shall be the sum of the QCC of the Participant's Qualifying Resources ("Resource QCC"), the QCC of its contracted capacity ("Net Contract QCC"), and any transfers of capacity

already accredited by another Participant ("Total RA Transfer," which could be positive or negative). The Portfolio QCC effective for a Binding Season shall be the value determined by WPP.

16.2.2 A resource will not be assigned a Resource QCC or counted toward Portfolio QCC unless it is a Qualifying Resource. Qualifying Resources are those that, before they are included in a Forward Showing Submittal, are first registered with WPP. A Participant seeking registration of a resource must submit a request for registration providing the resource information described in the Business Practice Manuals.

16.2.3 The minimum resource size for registration of a resource is 1 MW, provided, however, that Participants with responsibility for individual resources of less than 1 MW may aggregate them to meet the 1 MW minimum requirement, under the conditions and limitations specified in the Business Practice Manuals.

16.2.4 A Participant may include in its Forward Showing Submittal a request for an exception from its FS Capacity Requirement for an insufficiency of its Portfolio QCC solely due to (i) a catastrophic failure of one or more Qualifying Resources due to an event of Force Majeure as defined by Section 8.1 of this Tariff that (ii) the Participant is unable to replace on commercially reasonable terms prior to the FS Deadline as a result of the timing and magnitude of such catastrophic failure and its consequences. As more fully set forth in the Business Practice Manuals, such exception request shall be supported by a Senior Official Attestation. The exception request must include complete information on the nature, causes and consequences of the catastrophic failure, and must describe the Participant's specific, concrete efforts prior to the FS Deadline to secure replacement Qualifying Resources for the applicable Binding Season. WPP will consider the exception criteria established by this section, the information provided in the exception request, the completeness of the exception request, and other relevant data and information, in determining whether to grant or deny an FS Capacity Requirement exception request. WPP shall provide such determination no later than sixty days after submission of such Participant's FS Submittal containing such FS Capacity Requirement exception request. A Participant granted an exception hereunder must complete a monthly exception check report demonstrating that either the circumstances necessitating the exception have not changed; or that Qualifying Resources have become available, and the Participant has acquired them and no longer requires the exception. Failure to timely submit a required monthly report will result in assessment of a Deficiency Charge, unless the deficiency is cured within seven days of notice of non-compliance. A Participant denied an exception request hereunder may appeal such denial to the Board of Directors in accordance with the procedures and deadlines set forth in the Business Practice Manuals. In such event, the requested exception shall be denied or permitted as, when

and to the extent permitted by the Board, in accordance with the procedures and timing set forth in the Business Practice Manuals. WPP shall give notice of any exception granted hereunder in the time and manner provided by the Business Practice Manuals.

16.2.5 QCC: WPP shall determine QCC values for the resource types specified below in accordance with the governing principles specified below for each resource type, and consistent with further details specified for each resource type in the Business Practice Manuals.

16.2.5.1 For resources that use conventional thermal fuels, including but not limited to, coal, natural gas, nuclear, and biofuel, WPP will determine QCC based on an Unforced Capacity methodology that employs resource-specific capability testing and capability requirements to determine an Installed Capacity value, and a forced outage calculation methodology based on historical performance during Capacity Critical Hours over a specified multi-year period (excluding outages properly reported as "outside management control"), or based on class-average forced outage data, as specified in the Business Practice Manuals, if there is insufficient data on historical performance.

16.2.5.2 For resources that are Variable Energy Resources, including, but not limited to, wind and solar resources, WPP will determine QCC based on an ELCC methodology, that accounts for synergistic portfolio effects within and among VER types at different resource penetration levels that influence the extent to which the WRAP Region can rely on those VER categories to meet overall capacity needs.

16.2.5.2.1 For such purpose, a separate ELCC value will be calculated in the aggregate for all VER resources of a given type in an identified VER Zone, to be delineated in the Business Practice Manuals based on factors such as geography, performance, meteorological considerations, and penetration.

16.2.5.2.2 As more fully described in the Business Practice Manuals, the zonal aggregate VER-resource-type value will be calculated by (i) conducting a benchmark LOLE study that includes all resource types except the VER resource type being studied, employing a model and assumptions consistent with those used to calculate FSPRM, and adding, or subtracting, the same MW quantity of Pure Capacity to every hour of the applicable Binding Season until, respectively, an initial LOLE value above 0.1 day per

Binding Season becomes 0.1 day per Binding Season, or an initial LOLE value below 0.1 day per Binding Season becomes 0.1 day per Binding Season; (ii) conducting an LOLE study that includes all resource types including the VER resource type being studied, employing a model and assumptions consistent with those used to calculate FSPRM, and adding, or subtracting, the same MW quantity of Pure Capacity to every hour of the applicable Binding Season until, respectively, an initial LOLE value above 0.1 day per Binding Season becomes 0.1 day per Binding Season, or an initial LOLE value below 0.1 day per Binding Season becomes 0.1 day per Binding Season; and (iii) subtracting the Pure Capacity value determined under subpart (ii) from the Pure Capacity value determined under subpart (i) (for which calculation a Pure Capacity value subtracted from each hour in either subpart (i) or subpart (ii) will be assigned a negative value; (iv) repeating steps (i) through (iii) for each Binding Season of the study period employing historical, or as necessary, synthesized, data; and (v) basing the aggregate value of the studied VER resource type for the studied VER Zone on the results of the calculation in step (iii) for the Binding Seasons studied, which may include differential weighting of the Binding Seasons studied as appropriate to improve the quality and predictive capacity of the final result.

16.2.5.2.3 The aggregate capacity calculated for each VER resource type in each VER Zone will then be allocated to VERs of that type in that VER Zone based on each such resource's average historical performance if at least three years of historical performance or three years of synthesized forecast data during the WRAP Region's CCH is available at the time of such allocation. If three years historical performance or synthesized forecast data is not then available, the average ELCC from the VER Zone will be assigned.

16.2.5.3 For resources that are Energy Storage Resources, WPP will determine QCC based on an ELCC methodology comparable to that used for VERs. The ELCC methodology will model Energy Storage Resources at the level of their usable capacity that can be sustained for a minimum duration of four hours. An Energy

Storage Resource need not have a nameplate rating that assumes a minimum of four hours in order to receive a QCC determination, but the QCC in that case will be scaled to reflect the capability that can be sustained for four hours, as more fully described in the Business Practice Manuals.

16.2.5.4 A Participant's Demand Response used as a Demand Response Capacity Resource must be controllable and dispatchable by the Participant or by the host utility, and must have met certain testing requirements consistent with Business Practice Manuals. WPP will determine Demand Response Load Modifier QCC by multiplying the load reduction in MWs by the number of hours the resource can demonstrate load reduction capability (for a period of up to five continuous hours) divided by five. The effects of Demand Response used as a Demand Response Capacity Resource must not be included in load provided for a Participant's Advance Assessment.

16.2.5.5 For Storage Hydro Qualifying Resources, the Participant will calculate a QCC based on a methodology detailed in the Business Practice Manuals that: (i) considers each resource's actual generation output, residual generating capability, water in storage, reservoir levels, and flow or project constraints over the previous ten-year historical period; (ii) determines the project's QCC by assessing the historical generation during CCHs on any given day and ability to increase generation during CCHs on the same day, subject to useable water in storage, inflows/outflows, and expected project operating parameters/constraints and limitations; (iii) incorporates forced outage rates; and (iv) determines QCC as average contribution to the CCH for each Winter Season and Summer Season over the previous ten years. If ten years of historical data is not available for the Storage Hydro Qualifying Resource, the Participant may alternatively employ data on the same metrics from a demonstrably comparable facility or apply another method that provides reasonable confidence in the reliability of the predicted values, as more fully set forth in the Business Practice Manuals. The Participant's QCC calculation shall be subject to review and validation by WPP. In connection with such review, the Participant shall provide WPP with the following information necessary to calculate a QCC for Storage Hydro Qualifying Resources: (i.a) historical reservoir elevation levels; (ii.a) historical plant generation; (iii.a) elevation versus capacity curves; (iv.a) any minimum or maximum reservoir level constraints; (v.a) forced outage rates; (vi.a) volume of water versus reservoir elevation storage tables; and (vii.a) turbine discharge versus generation efficiency curve.

16.2.5.6 For Run of River Qualifying Resources, WPP will determine QCC based on the monthly average performance of such resource during Capacity Critical Hours, as further specified in the Business Practice Manuals

16.2.5.7 For resources that (i) are not within the meaning of any of Sections 16.2.5.1 through 16.2.5.5, and that (ii) either (a) are not dispatchable; or (b) require the purchaser of energy from the resource to take energy as available from such resource, including but not limited to a qualifying facility as defined under the Public Utility Regulatory Policies Act of 1978, WPP will determine QCC based on the monthly average performance of such resource during Capacity Critical Hours, as further specified in the Business Practice Manuals.

16.2.6 Net Contract QCC: WPP shall determine Net Contract QCC for the agreement types specified below in accordance with the governing principles specified below for each agreement type, and consistent with further details specified for each agreement type in the Business Practice Manuals. Net Contract QCC may be either positive or negative, to take account of, for example, a Participant's agreements for the sale of capacity to any other party.

16.2.6.1 Absent one of the exceptions described and limited below, capacity supply agreements qualifying for a Net Contract QCC in the WRAP must be resource specific, and therefore must include, among other requirements, an identified source, an assurance that the capacity is not used for another entity's resource adequacy requirements, an assurance that the seller will not fail to deliver in order to meet other supply obligations, and affirmation of WRAP Qualifying Transmission from the identified resource to the point of delivery/load. The specific resources identified in a capacity supply agreement qualifying for Net Contract QCC shall meet the same Resource QCC accreditation requirements for the given resource type, as specified in Section 16.2.5.

16.2.6.2 A system sales contract can qualify for a Net Contract QCC value, provided that if the seller is not a Participant, the system capacity that is the subject of the agreement must be deemed surplus to the seller's estimated needs, there must be an assurance that the seller will not fail to deliver in order to meet other commercial obligations, and there must be an assurance that the seller will have WRAP Qualifying Transmission from the identified resource to the point of delivery/load. Surplus status may be demonstrated by a Senior Official Attestation with pertinent supporting details for such surplus status, including

written assent of the non-Participant Seller, secured by the purchasing Participant. Such attestation is not required if the seller is a Participant, because the information needed to verify surplus status is already available.

16.2.6.3 A supply agreement entered into prior to October 1, 2021 ("Legacy Agreement") can qualify for a Net Contract QCC value; provided that where a legacy agreement does not identify the source, it must be possible for WPP to presume a source or sources for the contract, including with the written assent of the supplier under such Legacy Agreement, conveyed in the form and manner set forth in the Business Practice Manuals. A Legacy Agreement for which such resource determination cannot be reasonably made will not be counted as adding to the Portfolio QCC.

16.2.7 Total RA Transfer: A Participant may agree with another Participant on a transfer of a portion of its Portfolio QCC to meet the other's FS Capacity Requirement ("RA Transfer"), provided that the details and duration of such transfer are reported to WPP for validation in accordance with procedures and information requirements specified in the Business Practice Manuals. Where such transfers have been duly reported and validated, an RA Transfer will be added to the purchasing Participant's Portfolio QCC and subtracted from the selling Participant's Portfolio QCC.

16.2.8 Planned Outages: Participants shall include in their Forward Showing Submittal for a Binding Season information on all Qualifying Resources that are currently out of service with a scheduled return date that falls during the Binding Season or after the Binding Season. Capacity associated with such resources must be deducted from Participants' Portfolio QCC as specified in the Business Practice Manuals to ensure no credit is granted for such resources during the planned outage. The aggregate of any additional outages that are planned to occur during the Binding Season but have not yet begun at the time of submission must be within the Participant's remaining surplus (or replaced with other supply). Participants may provide information on all Qualifying Resources that are planned to be out of service but if such data cannot be supplied with reasonable specificity, a Participant may provide a Senior Official Attestation at the time of the submission of its FS Submittal that it expects the sum of planned outages to be equal to or less than the surplus stated in its FS Submittal throughout the Binding Season.

16.2.8.1 If a Qualifying Resource is planned to return to service within the first five days of a Binding Season, WPP may approve a qualified acceptance of the FS Submittal, provided the deficiency is less than 500 MW.

16.2.8.2 A planned outage shall not justify a waiver of or exception to a Participant's holdback or energy delivery obligations under Part III of this Tariff. Participants will be expected to procure the necessary capacity or energy to meet the Operations Program requirements, regardless of planned outage schedules or FS Submittal acceptance.

16.3 FS Transmission Requirement

16.3.1 As part of its Forward Showing Submittal for a Binding Season, each Participant must demonstrate, as specified in the Business Practice Manuals, that it has secured transmission service rights, including under supply arrangements with a third party that holds or has committed transmission service rights, sufficient to deliver a MW quantity equal to at least 75% of the MW quantity of its FS Capacity Requirement. To the extent a Participant holds transmission service rights with a point of receipt at a Qualifying Resource, or in connection with an RA Transfer to such Participant, any such rights from such point in a MW quantity, respectively, in excess of the QCC of such Qualifying Resource, or in excess of the value of such RA Transfer, shall not contribute toward satisfaction of such Participant's FS Transmission Requirement. The FS Transmission Requirement must be met with WRAP Qualifying Transmission, from such Participant's Qualifying Resource(s) or from the delivery points for the resources identified for its Net Contract QCC or for its RA Transfer to such Participant's load. Notwithstanding the foregoing, authorized use of Capacity Benefit Margin, provided it is WRAP Qualifying Transmission, will satisfy the FS Transmission Requirement. Demonstration of the FS Transmission Requirement shall not, in and of itself, relieve any Participant of responsibility for a Delivery Failure Charge as determined under Section 20.7 if such Participant's failure to obtain or maintain WRAP Qualifying Transmission of the type and quantity expected by the Operations Program, as described in Section 20.6 of this Tariff, caused or contributed to an Energy Delivery Failure.

16.3.2 A Participant may include in its Forward Showing Submittal a request for an exception from a limited part of its FS Transmission Requirement, provided the exception request meets the terms, conditions, and limitations of one or more of the following four exception categories below. As more fully set forth in the Business Practice Manuals, such exceptions may be subject to overall WRAP limits, and shall be supported by a Senior Official Attestation. WPP will consider the exception category terms, conditions and limitations set forth below, and may consider the completeness of the exception request, information from transmission service providers, OASIS data, and data readily available to WPP from other reliable and validated sources concerning the duration, timing, firmness and quantity of available transmission service or equivalent options (including transmission construction), in determining whether to grant or deny a transmission

exception request. WPP shall provide such determination no later than sixty days after submission of such Participant's FS Submittal containing such transmission exception request. A Participant denied an exception request hereunder may appeal such denial to the Board of Directors in accordance with the procedures and deadlines set forth in the Business Practice Manuals. In such event, the requested exception shall be denied or permitted as, when and to the extent permitted by the Board, in accordance with the procedures and timing set forth in the Business Practice Manuals. WPP shall give notice of any exception granted hereunder in the time and manner provided by the Business Practice Manuals. A Participant granted a transmission exception under either Section 16.3.2.1 or Section 16.3.2.2 must complete a monthly transmission exception check report demonstrating that either (i) the circumstances necessitating the exception have not changed; (ii) WRAP Qualifying Transmission has become available and the Participant has acquired it; or (iii) the Participant has acquired a different resource, and associated WRAP Qualifying Transmission, and no longer requires the exception. Failure to timely submit a required monthly report will result in assessment of a Deficiency Charge, unless the deficiency is cured within seven days of notice of non-compliance.

16.3.2.1 Enduring Constraints. Participant is unable to demonstrate sufficient WRAP Qualifying Transmission rights on any single segment of a source to sink path for a Qualifying Resource; and Participant demonstrates that no ATC for such transmission service rights is available (either from the transmission service provider or through a secondary market) at the FS Deadline on the applicable segment for the Month(s) needed (for a duration of one year or less) at the applicable Open Access Transmission Tariff rate or less; and Participant submits a Senior Official Attestation that Participant has taken commercially reasonable efforts to procure WRAP Qualifying Transmission, and that Participant has posted Firm Transmission Requirements on a relevant bulletin board prior to the FS Deadline. In the event such WRAP Qualifying Transmission is only available for a duration of more than one year (whether from the transmission service provider or through a secondary market) at the FS Deadline on the applicable segment for the Month(s) needed at the applicable Open Access Transmission Tariff rate or less, a Participant is not required to obtain such service in order to qualify for the Enduring Constraints exception hereunder. Notwithstanding the foregoing, if such Participant declines to obtain such available WRAP Qualifying Transmission and is granted the exception hereunder, such Participant shall not qualify for an exception hereunder for the same path (or across the same constraint) for the same season of the subsequent year if the Participant again declines to obtain such WRAP Qualifying Transmission that is available for a duration of more than one year. In addition to the foregoing, Participant must

further demonstrate that there was remaining available transmission transfer capability (i.e., non-firm ATC after the fact) for all CCHs in the same season of the most recent year for which CCHs have been calculated; or, if the path was constrained in at least one CCH of the CCHs in the same season of the most recent year for which CCHs have been calculated, Participant in that case must demonstrate either that it is constructing or contracting for a new local resource for at least the amount of the exception requested, or that it is pursuing long-term WRAP Qualifying Transmission by entering the long-term queue and taking all appropriate steps to obtain at least the amount of the exception requested.

16.3.2.2 Future Firm ATC Expected. Participant demonstrates that ATC of WRAP Qualifying Transmission rights is not posted or available prior to the FS Deadline (for a duration of one year or less) at the applicable Open Access Transmission Tariff rate or less, and that the transmission service provider has, after the FS Deadline, released additional ATC for such transmission service rights in every one of the CCHs of the most recent year for which CCHs have been calculated on the applicable path. In the event ATC for such WRAP Qualifying Transmission is only posted or available prior to the FS Deadline for a duration of more than one year (whether from the transmission service provider or through a secondary market) on the applicable segment for the Month(s) needed at the applicable Open Access Transmission Tariff rate or less, a Participant is not required to obtain such service in order to qualify for the Future Firm ATC Expected exception hereunder. Notwithstanding the foregoing, if such Participant declines to obtain such available WRAP Qualifying Transmission and is granted the exception hereunder, such Participant shall not qualify for an exception hereunder for the same path (or across the same constraint) for the same season of the subsequent year if the Participant again declines to obtain such WRAP Qualifying Transmission that is available for a duration of more than one year. The Participant must also demonstrate that the exception request meets volume and duration limitations specified in the Business Practice Manuals.

16.3.2.3 Transmission Outages and Derates. Participant demonstrates that an applicable segment of its existing transmission service rights from its source to sink path for its Qualifying Resource is expected to be derated or out-of-service and the ATC of WRAP Qualifying Transmission is not otherwise available, and that the exception request meets volume and duration limitations specified in the Business Practice Manuals.

16.3.2.4 Counterflow of a Qualifying Resource. Participant demonstrates that either: (i) Participant's use of WRAP Qualifying

Transmission in connection with the delivery of capacity from Participant's Qualifying Resource (or from the resource associated with its Net Contract QCC) to Participant's load (or other qualifying delivery point permitted by the WRAP) or (ii) a second Participant's use of WRAP Qualifying Transmission in connection with the delivery of capacity from the second Participant's Qualifying Resource (or from the resource associated with its Net Contract QCC) to the second Participant's load (or other qualifying delivery point permitted by the WRAP) provides a direct and proportional counterflow transmission that supports the first Participant's delivery of capacity from the first Participant's Qualifying Resource (or from the resource associated with its Net Contract QCC) to the first Participant's load (or other qualifying delivery point permitted by the WRAP) Qualifying Resource to their load. If the exception is requested under subpart (ii) of this subsection, the Participant requesting the exception shall include a written acknowledgement from the second Participant that it is aware of such exception request.

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16.3.3 To the extent a Participant does not demonstrate satisfaction of its FS Transmission Requirement by the FS Deadline, the Participant may correct any such deficiency on or before the end of the cure period prescribed by Section 14.5 of this Tariff to avoid a Deficiency Charge.

16.3.4. Any deficiency of transmission service rights ultimately determined by WPP will be treated, for purposes of Deficiency Charge determinations, as in conjunction with, and not additive to, any deficiencies of QCC determined pursuant to Section 16.2.

17. Forward Showing Deficiency Charge

17.1 If a Participant fails during the cure period to demonstrate that it has resolved any identified deficiencies in either or both of its FS Capacity Requirement and its FS Transmission Requirement, the Participant will be assessed a Deficiency Charge for each Month for which a deficiency is identified in accordance with this section. In such case, the deficiency for which the Participant will be assessed a Deficiency Charge will be calculated in accordance with the following:

Participant's Monthly Capacity Deficiency = Maximum of (Monthly FS Capacity Requirement – Monthly Portfolio QCC, 0)

Participant's Monthly Transmission Deficiency (MW) = Maximum of ((75% × Monthly FS Capacity Requirement) – (Monthly Transmission Demonstrated + Approved Monthly Transmission Exemptions), 0)

Where Monthly Transmission Demonstrated is the amount of WRAP Qualifying Transmission submitted by a Participant per the requirements in Section 16.3 and validated by WPP for each month.

Monthly Deficiency (MW) = Maximum of (Monthly Capacity Deficiency, Monthly Transmission Deficiency)

17.2 A Participant's Deficiency Charges shall be calculated as set forth in this Section 17.2, subject to the Transition Period rules in Section 17.3, and shall take account of multiple Monthly Deficiencies within a Forward Showing for a single Binding Season, multiple Deficiencies across a Forward Showing Year, consisting of a Summer Season and the immediately succeeding Winter Season, and any Monthly Deficiencies in a previous Forward Showing Year, in accordance with the following:

17.2.1 The Monthly Deficiency with the highest MW value in a Forward Showing for a Summer Season shall be assessed a Deficiency Charge equal to:

Max Summer Deficiency (MW) × Annual CONE ($/kW-year) × 1000 × Summer Season Annual CONE Factor

17.2.2 Any other Monthly Deficiency in the Participant's Forward Showing for the same Summer Season shall be assessed a Deficiency Charge equal to:

Additional Summer Deficiency (MW) × (Annual CONE ($/kW-year)/12) × 1000 × 200%

17.2.3 Any Monthly Deficiency in the Forward Showing for the immediately succeeding Winter Season with a higher MW value than the highest MW value of the Monthly Deficiency in the Summer Season shall be assessed a Deficiency Charge on the incremental MW value above the Summer Season equal to:

Maximum of (Max Winter Deficiency – Max Summer Deficiency, 0) (MW) × Annual CONE ($/kW-year) × 1000 × Winter Season Annual CONE Factor

and in such case where there is a Monthly Deficiency in the Winter Season with a higher MW value than the highest MW value of any Monthly Deficiency in the Summer Season, the Monthly Deficiency with the highest MW value in the Summer Season shall be assessed an additional Deficiency Charge calculated in accordance with Section 17.2.2.

17.2.4 Any other Monthly Deficiency in the Participant's Forward Showing Submittal for the same Winter Season shall be assessed a Deficiency Charge equal to:

Additional Winter Capacity Deficiency × (Annual CONE/12) × 1000 × 200%

17.2.5 For purposes of the above, CONE is the estimated cost of new entry of a new peaking natural gas-fired generation facility. The CONE estimate shall be based on publicly available information relevant to the estimated annual capital and fixed operating costs of a hypothetical natural gas-fired peaking facility. The CONE estimate shall not consider the anticipated net revenue from the sale of capacity, energy, or ancillary services from the hypothetical facility, nor shall it consider variable operating costs necessary for generating energy.

17.2.6 WPP shall review the CONE estimate annually for a possible update. Any proposed changes in the CONE estimate shall be subject to review through the stakeholder process for program rule changes.

17.2.7 The Summer Season Annual CONE Factor shall vary based on the ratio ("Summer % Deficit") of the Aggregate Capacity Deficiency for the WRAP as a whole for that Summer Season, divided by the P50 Peak Load Forecast for the Summer Season, as follows:

If the Summer % Deficit is less than or equal to 1%, the Summer Season Annual CONE Factor = 125%

If the Summer % Deficit is greater than 1% but less than or equal to 2%, the Summer Season Annual CONE Factor = 150%

If the Summer % Deficit is greater than 2% but less than or equal to 3%, the Summer Season Annual CONE Factor = 175%

If the Summer % Deficit is greater than 3%, the Summer Season Annual CONE Factor = 200%

17.2.8 The Winter Season Annual CONE Factor shall vary based on the ratio ("Winter % Deficit") of the Aggregate Capacity Deficiency for the WRAP as a whole for that Winter Season, divided by the P50 Peak Load Forecast for the Winter Season, as follows:

If the Winter % Deficit is less than or equal to 1%, the Winter Season Annual CONE Factor = 125%

If the Winter % Deficit is greater than 1% but less than or equal to 2%, the Winter Season Annual CONE Factor = 150%

If the Winter % Deficit is greater than 2% but less than or equal to 3%, the Winter Season Annual CONE Factor = 175%

If the Winter % Deficit is greater than 3%, the Winter Season Annual CONE Factor = 200%

17.2.9 Notwithstanding Sections 17.2.7 and 17.2.8, if a *Participant incurred any FS Deficiency Charges* in a Forward Showing Year *after the Transition Period*, then for the immediately following Forward Showing Year, both the Summer Season Annual CONE Factor and the Winter Season Annual CONE Factor shall be 200% *for such Participant*.

17.2.10. Subject to the Transition Period rules in Section *15A.1*, revenues from the payment of Deficiency Charges as to a Binding Season shall be allocated among those Participants with no Deficiency Charges for that Binding Season, pro rata based on each Participant's share of all such Participants' Median Monthly P50 Peak Loads for such Binding Season.

17.3 During the Transition Period, Deficiency Charges otherwise calculated under Section 17.2 shall be reduced as, when, and to the extent, and subject to the conditions, provided in Section 17.3.2; and revenue allocations otherwise calculated under Section 17.2 shall be adjusted as, when, and to the extent, and subject to the conditions, provided in Section 17.3.4.

17.3.1. During the Transition Period, a Participant with a Monthly Capacity Deficiency can pay a *Discounted* Deficiency Charge for so much of such Monthly Capacity Deficiency as was due to an Excused Transition Deficit. To obtain an Excused Transition Deficit for a Binding Season, the Participant must provide a Senior Official Attestation attesting that the Participant *or a relevant third party servicing load for which the Participant is the LRE* has made commercially reasonable efforts to secure Qualifying Resources in the quantity needed to satisfy the Participant's FS Capacity Requirement for the Binding Season, but is unable to obtain Qualifying Resources in the quantity required for the Binding Season because the supply of such resources on a timely basis and on commercially reasonable

terms is at that time inadequate. *If the attestation relates to a third-party servicing load for which the Participant is the LRE, the Senior Official Attestation may be signed by a Senior Official of the third party load service provider, as further detailed in the Business Practices.* Excused Transition Deficits are not resource specific, relate to a MW quantity of the Participant's FS Capacity Requirement, and are limited for each Participant as to a Binding Season during the Transition Period to a maximum permissible MW quantity equal to a percentage value times the FSPRM applicable to such Participant for all Forward Showing Submittals submitted by such Participant for such Binding Season. For purposes of such calculation, the percentage value is*: 200*% for each of the *2027* Summer Season and *2027-2028* Winter Season*; and 100*% for each of the *2028* Summer Season and *2028-2029* Winter Season.

17.3.2 A Participant will pay a *Discounted* Deficiency Charge as to the portion of its Monthly Capacity Deficiency for which it obtained an Excused Transition Deficit. The *FS* Deficiency Charge otherwise applicable to such Participant under Section 17.2 shall be reduced by a percentage value equal to 75% for each of the *2027* Summer Season and *2027-2028* Winter Season*; and* 50% for each of the *2028* Summer Season and *2028-2029* Winter Season. The Participant will be assessed a*n FS* Deficiency Charge calculated under Section 17.2, without reduction or adjustment, for any of its Monthly Capacity Deficiency that is in excess of the amount of such deficiency for which it obtained an Excused Transition Deficit.

17.3.3 Whether or not a Participant obtains an Excused Transition Deficit as to a Binding Season, the Participant may reduce a Monthly Capacity Deficiency otherwise calculated under Section 17.1 for a Binding Season during the Transition Period to the extent such deficiency is due to the Participant's inability to obtain assent from the supplier under a Legacy Agreement to the accreditation required for such Legacy Agreement under Part II of this Tariff and the Business Practice Manuals. To obtain such relief, the Participant must provide a Senior Official Attestation attesting that the Participant made commercially reasonable efforts to execute the required accreditation form with the supplier under the Legacy Agreement, but the supplier was unable or unwilling to counter sign the accreditation form. The reduction in Monthly Capacity Deficiency permitted by this Section 17.3.3 as to any Participant for all Forward Showing Submittals submitted by such Participant for any Binding Season during the Transition Period shall not exceed a MW quantity equal to 25% times the FSPRM applicable for such Participant for such Binding Season. To the extent a Participant reduces a Monthly Capacity Deficiency under this subsection, the percentage of the Participant's FSPRM corresponding to the reduction hereunder shall reduce the maximum permissible percentage of FSPRM reduction allowed under Section 17.3.1 for Excused Transition Deficits for the same Binding Season.

17.3.4 A Participant that, as a result of application of this Section 17.3, pays no Deficiency Charge as to a Binding Season, shall not be deemed a "Participant[ ] with no Deficiency Charges" for purposes of Section 17.2.10, and shall not receive an allocation of revenues from the payment of Deficiency Charges as to such Binding Season.

PART III OPERATIONS PROGRAM

18. Operations Program Overview

18.1 The Operations Program facilitates access to collective capacity made available through regional load and resource diversity of all Participants under the terms of this Part III.

18.2 The Operations Program evaluates forecasted system conditions across the seven-day period ("Multi-Day-Ahead Assessment") preceding the Operating Day, commencing at the outset of the assessment period with an initial Sharing Calculation and initial identification of potential Sharing Events for the Operating Day. The assessment is refined as forecasted conditions for the Operating Day are revised and established on the Preschedule Day, a Holdback Requirement for any Sharing Events is then identified. To the extent a Sharing Event continues to be identified for the Operating Day, Holdback Requirements shall be converted into Energy Deployments on the Operating Day.

18.3 The Operations Program prescribes pricing designed to incent Participants to resolve any forecast Operating Day deficiencies before the Operating Day, including through transactions outside the Operations Program, and to fully compensate Participants that provide support through the Operations Program to Participants with Operating Day deficiencies.

19. Operations Program Timeline and Supporting Information

19.1 The Operations Program includes a Multi-Day Ahead Assessment that looks ahead at the next seven Operating Days by performing an indicative Sharing Calculation from Participant forecast data for each future Operating Day up until the Preschedule Day. The Sharing Calculation for the Preschedule Day is not indicative but is binding, subject to Sections 20.2.4 and 20.3. Participants shall provide WPP with forecasts for the next seven Operating Days of expected (i) load, (ii) output of VERs, (iii) output of RORs, (iv) Contingency Reserves, and (v) forced outages, including outages on transmission facilities the Participant utilized to meet its Forward Showing Capacity Requirement, as further described in the Business Practice Manuals. WPP shall utilize the forecast data obtained in the Multi-Day-Ahead Assessment to calculate or revise the indicative Sharing Calculations for each day thereafter, up until the Preschedule Day, and will use such forecast data to revise the indicative Sharing Calculation hourly during the Operating Day. Such forecast data will also be used to calculate the binding Sharing Calculation for the Preschedule Day.

19.2 The Operations Program, during any Binding Season, shall rely on and employ (among other data) the following information from the Forward Showings for such Binding Season: (i) the P50 Peak Load Forecast for each Participant; (ii) the Monthly FSPRMs for each Participant during such Binding Season; (iii) expected performance by Qualifying Resource type and any RA Transfers; (iv) expected forced outage rates by resource type; (v) expected Contingency Reserves; and (vi) WRAP Qualifying Transmission made available for purposes of regional diversity sharing under the WRAP, permitted under Part II of this Tariff, which shall be assumed to be available for all hours of each Month for which such WRAP Qualifying Transmission rights were made available.

19.3 To facilitate WPP's conduct of the Multi-Day-Ahead Assessment, each Participant shall provide the Program Operator information relevant to the Participant's expected demand and supply conditions on each Operating Day, of the type, in the manner, and with the frequency, specified in the Business Practice Manuals.

19.4 Each Participant in any Subregion identified in the Business Practice Manuals as not containing a central transmission hub permitting energy deliveries to that hub from any point within such Subregion, shall, in addition to providing the information required by Section 19.3, identify, on or before the deadline during the Preschedule Day specified in the Business Practice Manuals, for each Hour of the Operating Day each point to which it can deliver energy, each point at which it can take receipt of energy, the quantity it can deliver or receive at each such point, and a numeric factor intended to prioritize use of transmission made available by Participants with positive Sharing Calculations and needed by Participants with negative Sharing Calculations for each such hour. A Participant with a positive Sharing Calculation for an hour must provide a total quantity for all identified points at which it can deliver that is no less than the amount of its positive Sharing Calculation for such hour (adjusted as necessary for any RA Transfer in accordance

with Section 20.1.2). A Participant with a negative Sharing Calculation for an hour must provide a total quantity for all identified points at which it can take receipt that is no less than the amount of its negative Sharing Calculation for such hour (adjusted as necessary for any RA Transfer in accordance with Section 20.1.2). Participants shall provide this same information for each Operating Day on an expected or preliminary basis on each day of the Multi-Day-Ahead Assessment following, and based on, the expected Holdback Requirement estimates provided on each such day for the Operating Day.

19.5 Any Participant with excess supply that is not obligated to the WRAP through a positive Sharing Calculation result may, at its sole election, offer such supply to the WRAP as Voluntary Holdback. If the offering Participant has a positive Sharing Calculation result, the offered capacity shall be in addition to that Sharing Calculation result; if the offering Participant has a negative Sharing Calculation result, the offered capacity will only be included in the allocation of Holdback Requirement so long as the offering Participant did not confirm a need for Holdback Capacity for such hour. Such offers must be submitted within the time window identified in the Business Practice Manuals, must include the information identified in Sections 19.3 and 19.4, as applicable, and must conform to the format and content identified in the Business Practice Manuals. An offer of Voluntary Holdback may become part of the Participant's Holdback Requirement when it is included in the allocation on the Preschedule Day prescribed by Section 20.2.

20. Components of the Operations Program

20.1 Sharing Calculation

20.1.1 WPP shall implement, as more fully described in the Business Practice Manuals, with respect to each Forward Showing Submittal accepted by WPP for a Participant under Part II of this Tariff, or with respect to each Subregion in which the Participant is responsible for load regardless of whether the Participant submitted a single Forward Showing Submittal encompassing its loads in both Subregions, the following Sharing Calculation to identify any hour in which any Participant is forecast to have a capacity deficit (known as a "Sharing Event"). This calculation takes into account changes in a Participant's resource availability, resource performance, forecast load, and Contingency Reserve relative to the Forward Showing, plus an Uncertainty Factor. The Sharing Calculation is equal to:

[(P50) * (1 + FSPRM) + Contingency Reserve Adjustment] – [Load Forecast – Demand Response Capacity Resources + Contingency Reserve Obligation + Uncertainty Factor] + [ΔForced Outages + ΔRoR Performance + ΔVER Performance]

Where:

P50 refers to the Participant's Monthly P50 Peak Load for that Binding Season's Month;

FSPRM, as described in Section 16.1.2, is an increment of resource adequacy supply needed to meet conditions of high demand in excess of the applicable peak load forecast and other conditions such as higher resource outages and is expressed as a percentage of the applicable Participant P50 Peak Load Forecast for that Binding Season's month;

Contingency Reserve Adjustment accounts for changes in Contingency Reserve expectations (relative to the 6% Contingency Reserve assumed in the FSPRM) resulting from energy contract purchases and contract sales as set forth in the Business Practice Manuals;

Load Forecast refers to the forecast of expected load for the subject hour for the loads for which the Participant is the Load Responsible Entity and that have not been excluded from WRAP participation;

Demand Response Capacity Resource as described in Section 16.2.5.4.

Contingency Reserve Obligation refers to the amount of Contingency Reserve the Participant is carrying during the operating hour equal to (i) 3% of Load Forecast for which the Participant is the WRAP LRE and maintains

its Contingency Reserve, (ii) plus 3% of WRAP load for which the Participant is not the LRE but has assumed the Contingency Reserve through a contractual arrangement, (iii) plus 3% of generation used to meet any load for which the Participant is the LRE and maintains the Contingency Reserve, (iv) plus 3% of generation utilized to meet WRAP Load for which the Participant is not the LRE but has assumed the Contingency Reserve through a contractual arrangement;

Uncertainty Factor refers to a factor determined by WPP, as more fully set forth in the Business Practice Manuals, to account for the potential variance between forecasts of load, solar resources, wind resources, and run-of-river resources, and the Operating Day conditions of such load and resources;

Δ Forced Outages refers, for the subject hour, to the sum of:

(i) any change in forced outages of any of the thermal resources included in the Participant's Portfolio QCC, relative to the forced outages assumed in the Forward Showing Submittal by application of the Forced Outage Factor; plus

(ii) any change in forced outages of any of the Storage Hydro Qualifying Resources relative to the forced outages assumed in the calculation of the Participant's Resource QCC as more fully described in the Business Practice Manuals; plus

(iii) any reduction in output capability of any of the Energy Storage Resources due to equipment failure or protection
   a. In the first four (4) hours the Forced Outages MWs that can be claimed are equal to [(charge MW x duration)/4]
   b. For all hours beyond four (4) hours, the Forced Outages MW amount that can be claimed for an Energy Storage Resource shall not be greater than the monthly QCC; plus

(iv) any impacts of transmission conditions on previously acquired WRAP Qualifying Transmission that result in capacity reductions up to the level of the Resource QCC of the associated Qualifying Resource;

ΔRoR Performance refers to any change, for the subject hour, in expected performance of any of the run-of-river resources in the Participant's Portfolio QCC relative to the QCC of those Qualifying Resources; and

ΔVER Performance refers to any change, for the subject hour, in expected performance of the VER Resources in the Participant's Portfolio QCC relative to the QCC of those Qualifying Resources;

20.1.2 In addition to the foregoing, the Sharing Calculation for a Participant that is a purchaser of an RA Transfer shall be performed in two passes, with and without such purchase. If the result of assuming in the first pass that the Participant had not purchased the RA Transfer is that the Participant has a

negative Sharing Calculation, then the Participant that sold the RA Transfer must agree, for the time period addressed by the Sharing Calculation, to an energy delivery to the Participant that purchased the RA Transfer, in an amount equal to the lesser of: (i) the MW quantity needed to result in a net zero Sharing Calculation for the Participant that purchased the RA Transfer; and (ii) the MW amount of the RA Transfer. If the result of recognizing the Participant's purchase of the RA Transfer in the second pass is that the Participant has a positive Sharing Calculation, then the Participant that sold the RA Transfer must assume a share of the purchasing Participant's resulting obligation to the Operations Program in an amount equal to the MW quantity of the RA Transfer, minus the MW quantity of the delivery made by the seller of the RA Transfer to the purchaser of the RA Transfer as a result of the first pass.

20.1.3 The Sharing Calculation of any Participant that was found to have a Monthly Capacity Deficiency under Sections 16.1 and 16.2, for which such Participant paid a Deficiency Charge, including any Deficiency Charge reduced by application of Section 17.3 during the Transition Period, shall be reduced by the MW quantity of such Monthly Deficiency.

20.2 Holdback Requirement

To the extent that: (i) WPP's application of the Sharing Calculation identifies on the Preschedule Day a Sharing Event for any hour(s) of the Operating Day; and (ii) the Participant(s) found to be deficient for such hour(s) by the Sharing Calculation confirms to WPP on the Preschedule Day, in accordance with notification and confirmation procedures set forth in the Business Practice Manuals, such Participant's need for capacity for such hour(s), then WPP shall determine the Participants having a Holdback Requirement for such hour(s) and the quantity of the Holdback Requirement for each such Participant in accordance with this Section 20.2. The Operations Program will prioritize offers of Voluntary Holdback in the allocation and assignment of Holdback Requirements. Holdback Requirements shall be expressed as whole MWs for each hour for which they are estimated or established and shall not be specific to any Qualifying Resource.

20.2.1 Subregion with Central Hub

For any hour, as to any Subregion identified in the Business Practice Manuals as containing a central transmission hub permitting energy deliveries to that hub from any point within such Subregion ("Central Hub"), the aggregate of the holdback needed to meet the requirements of all Participants with negative Sharing calculation results that have confirmed their need for holdback will be allocated and assigned first among offers of Voluntary Holdback, and second, to the extent such needs remain unmet, among Participants with positive Sharing Calculation results.

20.2.1.1 Allocation of Voluntary Holdback: Voluntary Holdback will be allocated in one of three alternative ways, based on comparing the aggregate confirmed need for holdback among Participants with negative Sharing Calculation results against the aggregate of all offers for Voluntary Holdback.

20.2.1.1.1 If the total MW quantity of all Voluntary Holdback offered is equal to the total MW quantity of all deficient Participants' confirmed requests for holdback, then each Participant that offered Voluntary Holdback is assigned its offered Voluntary Holdback as its Holdback Requirement.

20.2.1.1.2 If the total MW quantity of all Voluntary Holdback offered is more than the total MW quantity of all deficient Participants' confirmed requests for holdback, then each Participant that offered Voluntary Holdback is assigned as its Holdback Requirement a percentage of the total confirmed need for holdback based on the ratio of the Participant's MWs of offered Voluntary Holdback to the sum of all Participants' MWs of offered Voluntary Holdback.

20.2.1.1.3 If the total MW quantity of all Voluntary Holdback offered is less than the total MW quantity of all deficient Participants' confirmed requests for holdback, then each Participant's Holdback Requirement is determined as set forth in section 20.2.1.2.

20.2.1.2 Allocation of Remaining Holdback Requirement: Sharing Calculation Results

If the total MW quantity of all Voluntary Holdback offered is less than the total MW quantity of all deficient Participants' confirmed requests for holdback, then the maximum Voluntary Holdback offered is used as the first term in the Holdback Requirement. The remaining term of the Holdback Requirement is met by application of the Sharing Calculation, and the results of the two terms are summed for each Participant. The remaining need for holdback that is not met by Voluntary Holdback is allocated among all Participants with positive Sharing Calculation results pro rata based on the ratio for each Participant of the Participant's positive Sharing Calculation result to the sum of the positive Sharing Calculation results. The

sum of these two values for each applicable Participant is the Holdback Requirement for that Participant.

20.2.2 Subregion without Central Hub

For any hour, any Subregion not containing a Central Hub, the Program Operator shall conduct an optimization-based allocation to pair surplus and deficient Participants. The allocation methodology will utilize the points at which surplus Participants can deliver their Holdback Requirement, the points at which deficient Participants can take receipt of their allocation of the total Holdback Capacity, and the transfer capability that exists to the points at which surplus Participants can deliver and the points at which deficient Participants can take receipt.

The optimization will generally attempt to prioritize (i) Voluntary Holdback; (ii) Holdback Capacity matched pursuant to the information provided per Section 19.4 on a nearest neighbor and cluster basis, allocated pro rata among Participants within such cluster; (iii) Holdback Capacity matched pursuant to the information provided and allocated among Participants within the same Subregion to the extent not matched and allocated under category (ii); and finally (iv) Holdback Capacity from Participants in another Subregion, paired with any transmission service per Section 14.3.2.

20.2.3 Absent a Holdback Requirement Transfer as described below, a Participant's Holdback Requirement for any hour of an Operating Day shall not exceed the level first set by WPP on the Preschedule Day for that Participant for that hour.

20.2.4 Any Participant may agree with any other Participant for the first Participant to transfer to the second Participant some or all of the Holdback Requirement established for the first Participant for any hour on any Operating Day. Any such Holdback Requirement Transfer shall be a bilateral arrangement settled outside the Operations Program, provided, however, that both Participants must timely notify WPP, by the time and in the manner described in the Business Practice Manuals, of such Holdback Requirement Transfer. Any necessary transmission arrangements and any transaction settlements shall be the sole responsibility of the Participants that are the parties to such bilateral arrangement.

20.2.4.1 No Holdback Requirement transfer for any hour shall be permitted if notice of such bilateral transaction is not fully reported to WPP, in the form required by the Business Practice Manuals, by 120 minutes before the start of such hour.

20.3 Release of Surplus Capacity

20.3.1 As detailed in the Business Practice Manuals, WPP will review the indicative Sharing Calculation results from the Multi-Day Ahead Assessment and to the extent the WPP determines any indicative Sharing Calculations can be reduced, it may release all or a portion of Participants' future Holdback Requirements. WPP may permit a release of future Holdback Requirements to the extent WPP has not applied a Safety Margin for such hour and (i) WPP's continued Sharing Calculations determine that no Participant has a negative indicative Sharing Calculation result for such hour; and (ii) WPP determines there is a low probability of a Sharing Event for the hour; or (iii) WPP grants a Participant's request for extenuating circumstances of all or any portion of that Participant's future Holdback Requirement for the hour.

20.3.2 Upon release of all or any portion of a future Holdback Requirement, the quantity of future Holdback Requirement so released shall no longer be subject to an Energy Deployment requirement under the Operations Program for the subject hour.

20.4 Energy Deployment

20.4.1 Participants shall provide energy during an hour, in support of any Participants with a negative Sharing Calculation result and a confirmed need for energy under the Operations Program for such hour, in accordance with WPP's calculation of the Energy Deployment for such hour. The total Energy Deployment required of all Participants that are subject to Energy Deployment shall equal the sum, in MWh for that hour, of the energy confirmed as being needed in that hour by Participants in such Subregion with negative Sharing Calculation results in such hour, to the extent that can be supported by the Program. The Energy Deployment assigned to each Participant shall not exceed that Participant's Holdback Requirement calculated on the Preschedule Day, adjusted for any applicable transfer of Holdback Requirement as allocated and assigned for the Preschedule Day, and, as further adjusted to reflect the election, made after the Preschedule Day, of any Participant with a negative Sharing Calculation result on the Preschedule Day to decline all or any part of the Holdback Capacity to which it would have been entitled based on the Holdback Requirements determined on the Preschedule Day.

20.4.1.1 In Subregions with a Central Hub, Energy Deployments required hereunder shall be delivered to the Central Hub in such Subregion, or to an alternate delivery point mutually agreed by the parties to a specific Energy Deployment, provided both parties to the transaction report such alternative delivery arrangements to WPP in the form and manner described in the Business Practice Manuals.

20.4.1.2 In Subregions without a Central Hub, Energy Deployments required hereunder shall be delivered to the receipt point and delivery point as indicated by the optimization allocation, or to an alternate delivery point mutually agreed by the parties to a specific Energy Deployment, provided both parties to the transaction report such alternative delivery arrangements to WPP in the form and manner described in the Business Practice Manuals.

20.4.2 The Energy Deployment a Participant may receive for any hour shall be no greater than the negative Sharing Calculation result calculated for such Participant for such hour. Such Participant shall confirm, by no later than 85 minutes before the start of such hour, the quantity of Energy Deployment for which it requires delivery for such hour, through the procedures outlined in the Business Practice Manuals. Any Participant that does not confirm required Energy Deployment deliveries for such hour by such deadline will be deemed to waive all deliveries of Energy Deployment under the Operations Program for such hour.

20.4.3 The Energy Deployment a Participant can be required to supply for an hour shall not exceed the final Holdback Requirement calculated for such Participant on Preschedule Day, including any duly reported exchange of Holdback Requirement, as of 85 minutes before the start of such hour.

20.4.4 WPP shall advise each Participant with a required Energy Deployment for an hour of the required MWh quantity and delivery point of such Energy Deployment by no later than 80 minutes before the start of such hour.

20.5 Safety Margin

20.5.1 WPP may establish on the Preschedule Day a Safety Margin for the WRAP Region or any identified Subregion thereof for any hour of an Operating Day when warranted by such circumstances as potential large resource trips, heavy transmission outage conditions, significant environmental conditions, or other similar regional or subregional conditions, as more fully set forth in the Business Practice Manuals.

20.5.2 Any Safety Margin so determined for an hour shall be allocated pro rata among Participants with a positive Sharing Calculation result, based on their relative shares of the sum of all positive Sharing Calculation results for such hour, provided, however, that the Safety Margin allocated to a Participant may not result in a Holdback Requirement for such Participant greater than such Participant's Sharing Calculation result. A Participant allocated holdback for a Safety Margin hereunder does not receive compensation under this Tariff for such allocation of holdback.

20.5.3 WPP shall notify all Participants of application of a Safety Margin for any hour, including in such notice the total timeframe, the MW amount, and the rationale for such Safety Margin.

20.6 Operations Program Transmission Service Requirements

Participant shall have in place, prior to the Operating Day, WRAP Qualifying Transmission for each hour of such Operating Day for which a Sharing Event has been established, in a quantity sufficient for deliveries from the Qualifying Resources relied upon in such Participant's Forward Showing Submittal to demonstrate satisfaction of such Participant's FS Capacity Requirement (or from replacement Qualifying Resources) to serve such Participant's loads during such hours. In the event a Participant has an Energy Delivery Failure, the review associated with the possible assessment of a Delivery Failure Charge on such Participant shall, as further described in the Business Practice Manuals, include whether a failure to secure sufficient WRAP Qualifying Transmission caused or contributed to such Energy Delivery Failure. For such purpose, the Participant will have been expected to have complied with the transmission service requirement stated in this subsection.

20.7 Failure to Deliver Energy Deployments

20.7.1 A Participant assigned a required Energy Deployment pursuant to Section 20.4.4 of this Tariff for any hour that fails to deliver the specified energy during such hour, and that does not obtain a waiver of its Energy Deployment obligation, shall be assessed a Delivery Failure Charge.

20.7.2 A Participant shall be deemed to have an Energy Delivery Failure if Participant fails to deliver the Energy Deployment quantity established under Section 20.4.1, absent grant of a waiver pursuant to Section 20.7.3 of this Tariff.

20.7.3 A Participant anticipating an Energy Delivery Failure should provide WPP notice of such expected Energy Delivery Failure as soon as practicable after becoming aware of the anticipated failure. Whether anticipated or not, a Participant may request a waiver of an Energy Deployment obligation after an Energy Delivery Failure has occurred. The WPP shall review all such waiver requests and shall determine whether the Participant's justification for the Energy Delivery Failure is valid and warrants waiver of its Energy Deployment obligation. The WPP also shall consider whether the Participant knew in advance, or reasonably should have known in advance, of an Energy Delivery Failure, and what efforts the Participant took to notify the WPP in advance of such Energy Delivery Failure. The procedures for addressing such waiver requests, including a non-exclusive list of valid justifications for an Energy Delivery Failure shall be set forth in the Business Practice Manuals. A Participant denied a waiver request hereunder may appeal such denial to the Board of Directors in accordance

with the procedures and deadlines set forth in the Business Practice Manuals. In such event, the requested waiver shall be denied or permitted as, when and to the extent permitted by the Board, in accordance with the procedures and timing set forth in the Business Practice Manuals. WPP shall report on the disposition of each waiver request received.

20.7.4 The Delivery Failure Charge for each hour shall be the Charge Rate applicable for such hour times the MWhs of energy that were required to be, but were not, delivered pursuant to an Energy Deployment during such hour. The Charge Rate shall be the higher of the Day-Ahead price or Real-Time price provided by the Day-Ahead Applicable Price Index and Real-Time Applicable Price Index as specified in the Business Practice Manuals for the Subregion applicable to the location of the delivering entity, applicable to the day and hour of the energy delivery, respectively, for the hour, times a Delivery Failure Factor, as follows:

20.7.4.1 If the deficit is fully covered by other Participants through the Operations Program, in each instance of failure, the Delivery Failure Factor shall be five for the first non-waived Energy Delivery Failure in a Cumulative Delivery Failure Period; ten for the second non-waived Energy Delivery Failure in a Cumulative Delivery Failure Period; and twenty for the third and subsequent non-waived Energy Delivery Failures in a Cumulative Delivery Failure Period. For purposes of applying the Delivery Failure Factors under this Section 20.7.4 or the review referenced in Section 20.7.5, multiple Energy Delivery Failures occurring in one day shall be treated as a single instance of failure.

20.7.4.2 If the deficit is not fully covered by other Participants through the Operations Program, the Delivery Failure Factor is twenty-five for the first non-waived Energy Delivery Failure in a Cumulative Delivery Failure Period; and fifty for the second and subsequent non-waived Energy Delivery Failures (regardless of whether the prior instance(s) of delivery failure were fully covered by other Participants) in a Cumulative Delivery Failure Period.

20.7.4.3 Revenues from Delivery Failure Charges assessed in cases where the deficit was fully satisfied by other Participants will be used to reduce WPP costs that are recovered under Schedule 1, WRAP Administration Charge. Revenues from Delivery Failure Charges assessed in cases where the deficit was not fully met by other Participants will be collected by the WPP and provided to the Participant that had an unserved deficit.

20.7.4.4 Notwithstanding anything to the contrary in this Section 20.7.4, the Delivery Failure Charges assessed on a Participant, regardless of application of the Delivery Failure Factor, shall not

exceed, over the course of a Summer Season and the immediately succeeding Winter Season, the dollar amount that, as more fully detailed in the Business Practice Manuals, would have been assessed cumulatively under Section 17 as Deficiency Charges if the Participant had one or more Forward Showing Capacity Deficiencies over the course of such Summer Season and Winter Season in the same MW amounts as the highest MW amount of Delivery Failure experienced by such Participant in each Month of such Summer Season and Winter Season. The maximum dollar amount described herein shall be calculated on an ongoing basis during such Summer Season and Winter Season, and increased or reduced accordingly, without awaiting the end of the combined period of such Summer Season and Winter Season.

20.7.5 In addition to assessment of the Delivery Failure Charge, a third or subsequent instance of non-waived delivery failure, when all such delivery failures are fully covered by other Participants, or a second or subsequent instance of non-waived delivery failure when such instance is not fully covered by other Participants, will subject the Participant to review for expulsion from the WRAP.

20.8 Voluntary Response to Increased Deficiencies Identified After Preschedule Day

20.8.1 A Participant that identifies an unmet need for energy for any hour of an Operating Day that is outside of assistance provided or to be provided by Holdback Requirements or Energy Deployments established hereunder may, in accordance with procedures specified in the Business Practice Manuals, notify WPP of the need for such assistance. WPP will establish a portal or other procedure, as specified in the Business Practice Manuals, to facilitate provision of assistance, on a voluntary, bilateral basis, by other Participants to the Participant that identified the unmet need. Compensation, terms, and conditions of any resulting bilateral transactions will be determined by the affected parties outside of this Tariff. While Participant response to any such notification is voluntary, Participants are encouraged to provide assistance to other Participants in the circumstances described in this subsection, in consideration of the mutual support each Participant has agreed to provide to each other Participant by its agreement to participate in the WRAP, including this Operations Program.

21. Operations Program Settlements

21.1 Nature of Operation Program Settlements

21.1.1 Operations Program settlements are bilateral transactions; they are not purchases from or sales to a central market.

21.1.2 Operations Program transactions use existing transaction systems and processes.

21.1.3 The WPP will calculate and post settlement quantities and prices based on the Energy Deployment and Holdback Requirement, in accordance with procedures specified in the Business Practice Manuals for provision of transaction information by and among Participants and WPP, but WPP has no role in the transaction itself. WPP is not a settlement entity.

21.1.4 Settlement Prices calculated under Section 21.2 shall recognize pricing differences among Subregions. Where the seller and buyer are located in the same Subregion, the Applicable Price Index shall be the price index specified for that Subregion in the Business Practice Manuals. Where the seller and buyer are located in different Subregions, the following components of the settlement price calculation in Section 21.2 will be calculated using the Applicable Price Index for the Subregion that provides the higher index price: (i) Possible Block Sale Revenue; (ii) Total Settlement Price; (iii) Energy Declined Settlement Price; and (iv) Realtime Value of Unheld Energy. If a third participant is involved by providing transmission service rights between Subregions, the Participant that provided holdback or Energy Deployment shall receive the settlement price of the Subregion from which the holdback or Energy Deployment was sourced, and the Participant that provided Subregion to Subregion transmission service rights pursuant to Section 19.4 shall receive the difference between each Subregion's Total Settlement Price, or zero, whichever is greater.

21.2 Settlement Price Calculation. Settlement prices shall be calculated in accordance with the following, as more fully set forth in the Business Practice Manuals.

21.2.1 A Participant assigned a Holdback Requirement on a Preschedule Day for any hour of an Operating Day shall be paid the Holdback Settlement Price times the MW quantity of the Holdback Requirement. A Participant that provides energy to another Participant pursuant to an Energy Deployment shall be paid the Energy Declined Settlement Price, defined in Section 21.2.4, times the MWhs of energy provided to such other Participant, and its total payments shall be reduced by the Energy Declined Settlement Price times the MWhs of energy that would have been provided under a Holdback Requirement but were declined by the other Participant. A Participant

assigned a Holdback Requirement also shall be paid, when applicable, a Make Whole Adjustment, as provided below in Section 21.2.5.

21.2.2 A Participant that had a negative Sharing Calculation result for any hour of an Operating Day, which was incorporated in the calculation of Holdback Requirements of any Participants for such hour, determined as of the Preschedule Day, shall pay the Holdback Settlement Price times the MW quantity of such negative Sharing Calculation result. In addition, any Participant that had a negative Sharing Calculation result that was incorporated in the calculation of a Holdback Requirement shall contribute to the payment of the Make Whole Adjustment based on its negative Sharing Calculation. A Participant that declines energy that would have been provided under a Holdback Requirement shall be credited the Energy Declined Settlement Price times the MWhs of energy declined by such Participant.

21.2.3 The Holdback Settlement Price shall equal the Total Settlement Price minus the Energy Declined Settlement Price.

21.2.4 The Energy Declined Settlement Price shall equal the Applicable Real-Time Index Price for the hour.

21.2.5 The Make Whole Adjustment is applied in the event that the settlement revenue and the estimated value of the non-dispatched energy is less than the estimated revenues the selling entity would have received had such entity not been subject to a Holdback Requirement and had sold a day-ahead block of energy with a MW value equal to the maximum amount of Holdback Requirement for the hours in the block. The Make Whole Adjustment has a minimum value of zero and is determined as follows:

Make Whole Adjustment (when applicable) =
Maximum of (Possible Block Sale Revenue
– Final Settlement Revenue
– Realtime Value of Declined Energy
– Realtime Value of Unheld Energy, 0)

Where:

Realtime Value of Declined Energy = Energy Declined × Energy Declined Settlement price

provided that Declined Energy is only applicable to those hours where there was a positive Holdback Requirement.

Realtime Value of Unheld Energy = (Maximum Holdback MW in Block – Holdback MW Requested) × Applicable Index Price

21.2.6 The Total Settlement Price used in the above calculations shall be determined in accordance with the following formula:

Total Settlement Price = Maximum of (Minimum of (Hourly Shaping Factor × Day Ahead Applicable Index Price × 110%, 2000 $/MWh), 0)

where:

Hourly Shaping Factor is based on the most recent High-Priced Day for the relevant season, defined as a day in which at least one hour has a system marginal energy cost ("SMEC") greater than $200/MWh, and shall be calculated as follows:

1 + {[CAISO Hourly Day Ahead SMEC - CAISO Average Day Ahead SMEC (on- or off-peak hours)] / [CAISO Average Day Ahead SMEC (on- or off-peak hours)]}

Day-Ahead Applicable Index Price is the day-ahead heavy load/light load ICE Index price that is specified in the Business Practice Manuals for the Subregion applicable to the location of the delivering entity, applicable to the day and hour of the energy delivery. If transmission via Section 14.3.2 was used to facilitate holdback, the Applicable Index Price shall be the higher of the two subregional day-ahead index prices for that portion of the holdback.

Real-Time Applicable Index Price is the real-time index price that is specified in the Business Practice Manuals for the Subregion applicable to the location of the delivering entity, applicable to the day and hour of the energy delivery.

SCHEDULE 1

WESTERN RESOURCE ADEQUACY PROGRAM ADMINISTATIVE COST RECOVERY CHARGE

The Western Power Pool's Costs of administering and operating the Western Resource Adequacy Program including, without limitation, all costs incurred or obligated by WPP as Program Administrator, all costs paid or payable by WPP to the Program Operator or other service providers, all costs of the Board of Directors in directing, supervising, or overseeing the WRAP, and the costs of maintaining a reasonable reserve as provided in Section 1 of this Schedule 1, shall be recovered from Participants pursuant to the charges set forth in this Schedule 1.

Section 1. WRAP Costs

1. As used herein, Costs shall mean WPP's costs, expenses, disbursements and other amounts incurred (whether paid or accrued) or obligated of administering and operating the WRAP as described above, including, without limitation, operating expenses, general and administrative expenses, costs of outside services, taxes, fees, capital costs, depreciation expense, interest expense, working capital expense, any costs of funds or other financing costs, and the costs of a reasonable reserve as provided herein.
2. The Costs included in a WRAP Administration Charge assessed for a Month shall be the Costs determined as being incurred for that Month, including, without limitation, for each Month, one-twelfth of any annual charge(s).

3. The Costs included in the WRAP Administration Charge for a reasonable reserve shall be those designed to establish over the first twelve months that this WRAP Administration charge is in effect an amount equal to 6% of the expected Costs, exclusive of such reserve, for one year; and to maintain such reserve thereafter at an amount equal to 6% of the expected Costs, exclusive of such reserve for the then-current year. WPP shall record on its income statement deferred regulatory expense, and WPP's balance sheet will reflect as a cumulative deferred regulatory liability, revenues collected under this Schedule 1 that are in excess of the Costs exclusive of such reserve and taking account of and including any accrued tax expense effects of this regulatory liability. The deferred regulatory liability will be reduced when after-tax WPP revenues collected under this Schedule 1 during any Month are less than the Costs exclusive of such reserve. Within thirty days after the end of each Year, to the extent WPP determines that the deferred regulatory liability exceeds 6% of WPP's revenues that were collected under this Schedule 1 during such Year, such excess amounts in the deferred regulatory liability shall be refunded evenly over the applicable billing determinant volumes in the remainder of the subsequent Year through credits to charges to then-current customers under this Schedule 1.

Section 2. WRAP Administration Charge

Each Participant shall be assessed each Month a WRAP Administration Charge equal to the sum of the Base Charge and the Load Charge,

where:

The Base Charge for each Participant equals the Base Costs divided by the number of Participants being assessed the Base Charge for the Month for which the WRAP Administration Charge is being calculated;

The Load Charge for each Participant equals the Load Charge Rate of the Load Services Costs divided by the sum of the Median Monthly P50 Peak Loads of the Participants being assessed the Load Charge for the Month for which the WRAP Administration Charge is being calculated, times that Participant's Median Monthly P50 Peak Load;

And where:

Base Costs means the Costs for the Month of the Base Services Cost Centers shown in the WRAP Cost Assignment Matrix, plus the Base Services Percentage times the Costs for that Month of the Dual Benefit Cost Centers shown below in Section 4: WRAP Cost Assignment Matrix;

Load Services Costs means the Costs for the Month of the Load Services Cost Centers shown in the WRAP Cost Assignment Matrix, plus the Load Services Percentage times the Costs for that Month of the Dual Benefit Cost Centers shown in the WRAP Cost Assignment Matrix; and

Median Monthly P50 Peak Loads means, for each Participant, the median of the Monthly P50 Peak Loads used in the FS Capacity Requirement of such Participant for two Binding Seasons corresponding to the two FS Submittal most recently validated by WPP.

If before or during a Binding Season, a Participant has need to update their Monthly P50 Peak Load for allowable reasons, those updated Monthly P50 Peak Loads will be replaced and the Median Monthly P50 Peak Load value recalculated upon validation of the change in participating load.

A Participant joining the Program will supply data such that WPP can validate Monthly P50 Peak Loads for the first two Binding Seasons for which the Participant will submit an FS Submittal for use in calculating Load Services Costs until these FS Submittals are submitted and reviewed in the normal timeframe.

Section 3. Maximum Charge Rates

3.1 Notwithstanding anything to the contrary in this Schedule 1, the sum of the Base Charges for all Months in a Year shall not exceed the Annual Maximum Base Charge of $59,000/Year, and the sum of the Load Charge Rates for all Months in a Year shall not exceed the Annual Maximum Load Charge Rate of $199/MW. WPP shall, to the extent reasonably practicable, provide two-months' notice prior to WPP's filing at FERC of an application to change the Maximum Base Charge or the Maximum Load Charge Rate, provided that nothing herein shall limit the Board of Director's authority and discretion to seek at FERC a change in the maximum rates in the time and manner the Board determines in the best interests of the Western Resource Adequacy Program. For purposes of clarity, these specified maximum rates on the Base Charge and the Load Charge do not limit the level of the Cash Working Capital Support Charge established under Section 5 of this Schedule 1, nor do they limit the amount of the default Allocation assessment provided under Part I of this Tariff.

3.2 To facilitate Participant planning, the WPP shall prepare, and provide to the RAPC, good faith, non-binding estimates of: (i) reasonably anticipated WRAP budgets for three Years beyond the most recently approved WRAP budget, including sensitivity analyses for reasonably identified major contingencies; (ii) reasonably anticipated numbers of Participants and MWs of Winter and Summer P50 Loads for each such Year; and (iii) reasonably anticipated highest monthly Base Charges and Load Charge Rates for each such Year. All assumptions and estimates in such forecasts and analyses shall be in WPP's sole discretion, which may be informed by RAPC discussion of such topics.

Section 4. WRAP Cost Assignment Matrix

	BASE COSTS	LOAD COSTS	DUAL BENEFIT
PROGRAM ADMINISTRATION (NON-PARTICIPANT)		100%	
PROGRAM ADMINISTRATION (PARTICIPANT ENGAGEMENT, RAPC FACILITATION)	100%		
WRAP PORTION OF WPP BOD COSTS			50%/50%
PROGRAM OPERATIONS STAFFING AND OVERHEAD		100%	
PROGRAM OPERATIONS TECHNOLOGY		100%	

LEGAL SERVICES	100%
INDEPENDENT EVALUATOR	100%

Section 5. Cash Working Capital Support Charge

5.1 In addition to the WRAP Administration Charge, each Participant shall be assessed a Cash Working Capital Support Charge, to support WPP's maintenance of sufficient funds on hand to make payments required for the operation and administration of the WRAP on a timely basis. Cash Working Capital Support Charges shall be designed to maintain a Cash Working Capital Fund that, at its maximum level over a twelve-month cycle, equals approximately nine-twelfths of the expected annual payment due from the WPP to the Program Operator for its Program Operator services.

5.2 A Participant shall pay a Cash Working Capital Support Charge no later than thirty days after that Participant executes a WRAPA. The Cash Working Capital Support Charge due following WRAPA execution equals the Cash Working Capital Support Charge Rate, calculated as the Cash Working Capital Fund at its required maximum twelve-month cycle level divided by the sum of the Median Monthly P50 Peak Loads of all Participants, times that Participant's Median Monthly P50 Peak Load.

5.3 To the extent the Cash Working Capital Fund is adequately funded at the time a new Participant executes a WRAPA, the revenue from such Participant's payment of the Cash Working Capital Support Charge shall be distributed to all Participants that previously have paid a Cash Working Capital Support Charge, pro rata based on the Median Monthly P50 Peak Loads of all Participants that have previously paid such charge.

5.4 To the extent, and at such time, WPP determines that an incremental addition to the Cash Working Capital Fund is needed due to such causes as, for example, an expected increase in the annual payment to the Program Operator, each Participant shall be assessed an Incremental Cash Working Capital Support Charge equal to the desired incremental addition, divided by the sum of the Median Monthly P50

Peak Loads of all Participants being assessed the Incremental Cash Working Capital Support Charge for the Month for which the Incremental Cash Working Capital Support Charge is being calculated, times that Participant's Median Monthly P50 Peak Load.

ATTACHMENT A

Western Resource Adequacy Program Agreement

This Western Resource Adequacy Program Agreement ("Agreement") dated as of _____ ("Effective Date") is entered into by and between Western Power Pool Corporation ("WPP") and _____ ("Participant"). WPP and Participant are each sometimes referred to in the Agreement as a "Party" and collectively as the "Parties."

In consideration of the mutual promises contained herein, and other good and valuable consideration, the receipt of which is hereby acknowledged, the Parties agree as follows:

1. The Parties agree that this agreement shall be governed by the rates, terms, and conditions of the Western Resource Adequacy Program Tariff ("Tariff") and all such rates, terms, and conditions contained therein are expressly incorporated by reference herein. All capitalized terms that are not otherwise defined herein shall have the meanings ascribed by the Tariff.

2. Participant wishes to participate in the Western Resource Adequacy Program ("WRAP") administered by WPP under the Tariff.

3. Participant certifies that it satisfies all of the following qualifications:

    3.1 Participant is a Load Responsible Entity as that term is defined in the Tariff.

    3.2 Participant commits to complying with all applicable terms and conditions of WRAP participation as set forth in the Tariff and Business Practice Manuals adopted thereunder, including all Forward Showing Program and Operations Program requirements.

4. Participant will register all resources and supply contracts and shall disclose any other obligations associated with those resources and supply contracts.

5. Participant represents and warrants that it is authorized by all relevant laws and regulations governing its business to enter into this Agreement and assume all rights and obligations thereunder.

6. It is understood that, in accordance with the Tariff, WPP, as authorized by its independent Board of Directors, may amend the terms and conditions of this Agreement or the Tariff by notifying the Participant in writing and making the appropriate filing with FERC, subject to any limitations on WPP's authority to amend the Tariff as set forth therein.

7. Participant agrees to pay its share of all costs associated with the WRAP, as calculated pursuant to Schedule 1 of the Tariff. The manner and timing of such payment shall be as specified in Schedule 1 of the Tariff.

8. WPP agrees to provide all services as set forth in the Tariff.

9. Term and termination. This Agreement shall commence upon the Effective Date and shall continue in effect until terminated either by WPP by vote of its Board of Directors or by Participant's withdrawal as set forth herein. WPP and Participant agree that participation in the WRAP is voluntary, subject to the terms and conditions of this Agreement and the Tariff. The date upon which a Participant's withdrawal is effective and its participation in the program terminates is referred to as the "Withdrawal Date."

9.1 Normal Withdrawal: In general, Participant may withdraw from this Agreement by providing written notice to WPP no less than twenty-four months prior to commencement of the next binding Forward Showing Program period. Once notice has been properly given, Participant remains in a "Withdrawal Period" until the Withdrawal Date.

9.1.1 During Participant's Withdrawal Period, Participant remains subject to all requirements and obligations imposed by the Tariff and this Agreement, including but not limited to all obligations imposed in the Forward Showing Program and Operations Program and obligation to pay Participant's share of all costs associated with the WRAP.

9.1.2 All financial obligations incurred prior to and during the Withdrawal Period are preserved until satisfied.

9.1.3 During the Withdrawal Period, Participant is not eligible to vote on any actions affecting the WRAP that extend beyond the Withdrawal Period.

9.2 Expedited Withdrawal: Participant may withdraw from this agreement with less than the required twenty-four month notice as set forth below. Participant shall negotiate with WPP regarding the timing of the Expedited Withdrawal.

9.2.1 Extenuating Circumstances: The following such events and circumstances shall constitute "extenuating circumstances" justifying a withdrawal on less than twenty-four months. Participant invoking an extenuating circumstance shall negotiate with WPP regarding potential ways to minimize the impact of the expedited withdrawal on all other Participants and WPP. Such extenuating circumstances and any mitigation plan to minimize the impact of the expedited withdrawal must be reviewed and approved by the Board of Directors prior to termination of Participant's WRAP obligations. Regardless of the extenuating circumstance, all financial obligations incurred prior to the Withdrawal Date remain in effect until satisfied.

9.2.1.1 A governmental authority takes an action that substantially impairs Participant's ability to continue to

participate in the WRAP to the same extent as previously; provided, however, that Participant shall be obligated to negotiate with WPP regarding potential ways to address the impact of the regulatory action without requiring a full withdrawal of Participant from the WRAP if possible.

9.2.1.2 Continued participation in the WRAP conflicts with applicable governing statutes or other applicable legal authorities or orders.

9.2.1.3 Participant voted against a RAPC determination and disagreed with a Board of Directors decision to release composite or aggregated data under Section 10.2.1 of the Tariff, provided that such right to expedited withdrawal is exercised promptly after the first time that the Board of Directors determines that the form and format of composite or aggregated data sufficiently protects against the release of confidential or commercially sensitive Participant data. Failure to exercise this right promptly upon the first occurrence of the Board of Directors voting on a specific form and format of composite or aggregated data shall constitute a waiver of the right to expedited withdrawal for any future disclosures of composite or aggregated data in the same or substantially similar form and format.

9.2.1.4 FERC or a court of competent jurisdiction requires the public disclosure of a Participant's confidential or commercially sensitive information, as further described in Section 10.5 of the Tariff; provided however that such right to expedited withdrawal shall be exercised promptly upon the exhaustion of all legal or administrative remedies aimed at preventing the release.

9.2.2 Exit Fee: If the impact of Participant's withdrawal on WRAP operations can calculated with a high degree of confidence and mitigated by the payment of an "exit fee" to be calculated by WPP, an expedited withdrawal will be permitted. Such exit fee shall include (but not be limited to): (i) any unpaid WRAP fees or charges; (ii) Participant's share of all WRAP administrative costs incurred up to the next Forward Showing Program period; (iii) any costs, expenses, or liabilities incurred by WPP and/or the Program Operator directly resulting from Participant's withdrawal; and (iv) any costs necessary to hold other participants harmless from the voluntary expedited withdrawal. The exit fee may be waived to the extent that it would violate any federal, state, or local statute, regulation, or ordnance or exceed the statutory authority of a federal

agency. The exit fee shall be paid in full prior to the Withdrawal Date.

9.2.3 Amendments to Section 3.4 of the Tariff: In the event that amendments to Section 3.4 of the Tariff are approved by the RAPC and Board of Directors, a Participant that voted against such a change may withdraw with less than the required twenty-four month notice, provided that the Participant satisfy all obligations in the Forward Showing Program and Operations Program and satisfy all other financial obligations incurred prior to the date that the amendments to Section 3.4 of the Tariff are made effective by FERC.

9.2.4 Expulsion: The Board of Directors, in its sole discretion, may terminate Participant's participation in the WRAP and may terminate this Agreement with Participant for cause, including but not limited to material violation of any WPP rules or governing documents or nonpayment of obligations. Prior to exercising such right to terminate, the Board of Directors shall provide notice to Participant of the reasons for such contemplated termination and a reasonable opportunity to cure any deficiencies. Such Board of Directors termination shall be after an affirmative vote consistent with the Board of Directors standard voting procedures. Such termination shall not relieve the Participant of any financial obligations incurred prior to the termination date, and WPP may take all legal actions available to recover any financial obligations from Participant.

10. No Waiver of Non-FERC-Jurisdictional Status. If Participant is not subject to the jurisdiction of FERC as a public utility under the Federal Power Act, Participant shall not be required to take any action or participate in any filing or appeal that would confer FERC jurisdiction over Participant that does not otherwise exist. Participant acknowledges that FERC has jurisdiction over the WRAP, including Participant's activities in the WRAP.

[SIGNATURE BLOCKS]

WESTERN POWERPOOL

Western Resource Adequacy Program

101 Advance Assessment

100 – Forward Showing

Revision History

Manual Number	Version	Description	Revised By	Date
101	0.1	RAPC Glance Version	Rebecca Sexton	9/12/2023
101	0.2	Public Comment	Rebecca Sexton	9/15/2023
101	0.3	RAPC & PRC Discussion	Rebecca Sexton	10/23/2023
101	0.4	RAPC Endorsement	Rebecca Sexton	11/9/2023
101	0.5	Board Consideration	Rebecca Sexton	11/10/2023
101	1.0	Board Approved	Rebecca Sexton	12/6/2023
101	2.0	Annual BPM Review	Maya McNichol	3/19/2026
101	2.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
101	2.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Table of Contents

101 Advance Assessment

1. Introduction

The Advance Assessment Business Practice Manual (BPM 101) consists of two sections. The Advance Assessment Timeline section outlines the Program Operator's schedule for Forward Showing Planning Reserve Margin (FSPRM) and Qualifying Capacity Contribution (QCC) studies that will be completed ~~twelve (12) months~~ in advance of the Forward Showing (FS) Deadline for the relevant Binding Season.

The section describes the Program Operator processes to calculate the FSPRMs and QCCs for the Western Resource Adequacy Program (WRAP) Region. FSPRMs and aggregated QCC values will be available publicly to all Participants. QCCs for individual resources will be provided only to the Participant that submitted the data.

1.1. Intended Audience

BPM 101 is intended for WRAP Participants and other interested individuals or entities and is particularly useful for those responsible for their organization's FS Submittal that need to ensure their organizations submit the necessary data by the correct time for the Advance Assessment.

1.2. What You Will Find in This Manual

BPM 101 includes two main sections: 1) Advance Assessment Timeline and 2) .

1.3. Purpose

To provide an overview of the Advance Assessment Timeline and Data Submittal processes for determining the QCC of Qualifying Resources and the FSPRM.

1.4. Definitions

All capitalized terms that are not otherwise defined in BPM 101 or another BPM have their meaning set forth in the Tariff.

Advance Assessment Data Request: Data request from Program Operator to Participants for input into resource adequacy model to conduct Advance Assessment.

Customer Resource: A resource providing power generation and/or storage at a customer's property, such as but not limited to a solar photovoltaic system, a rechargeable battery system, or a battery-electric vehicle and charging system with vehicle to grid capabilities.

Data Request Instruction Manual: As defined in *BPM 105 Qualifying Resources.*

Fuel Type: A resource's primary fuel source, such as coal, natural gas, wind, or hydroelectric.

Historical Load Data: Load data from one or more Years prior to the current Year, such as the previous ten Years. Historical Load Data is expected to consist of 8,760 hours (or 8784 hours for a leap year) of data for a Year.

Peak Demand: The highest electrical power demand that has occurred over a specified time period.

Request Management System (RMS): Software the Program Operator uses to receive and answer questions and requests from Participants.

Study Period: The timeframe being studied in the Advance Assessment, i.e., a Summer Season or a Winter Season ~~occurring two Years and five Years after the Advance Assessment.~~for which the applicable metrics are being determined.

Thermal Resource: A resource using conventional thermal fuels such as, but not limited to, coal, natural gas, nuclear, and biofuel.

2. Advance Assessment Timeline

The Advance Assessment process is split into two assessments: (i) the FSPRM assessment in which the LOLE study is performed and the FSPRM for applicable Binding Season are set and (ii) the QCC assessment in which the ELCC and other QCC calculations are performed. Each component of the Advance Assessment has its own Study Period:

(i) FSPRM
   a. Advisory FSPRM Study Period: Winter (T[1]+5 – T+6), Summer (T+6)
   b. Binding FSPRM Study Period: Winter (T+3 – T+4), Summer (T+4)

(ii) QCC Study Period: Winter (T+1 – T+2), Summer (T+2)

To facilitate the two components of the Advance Assessment, the timeline has been split into four parts: Data Collection, QCC Advance Assessment, Binding FSPRM Advance Assessment, and Advisory FSPRM Advance Assessment.

[1] In BPM 101, T refers to the Year in which the FSPRM for a Binding Season is approved; T-x refers to the Year that is x Years before T; and T+x refers to the Year that is x Years after T

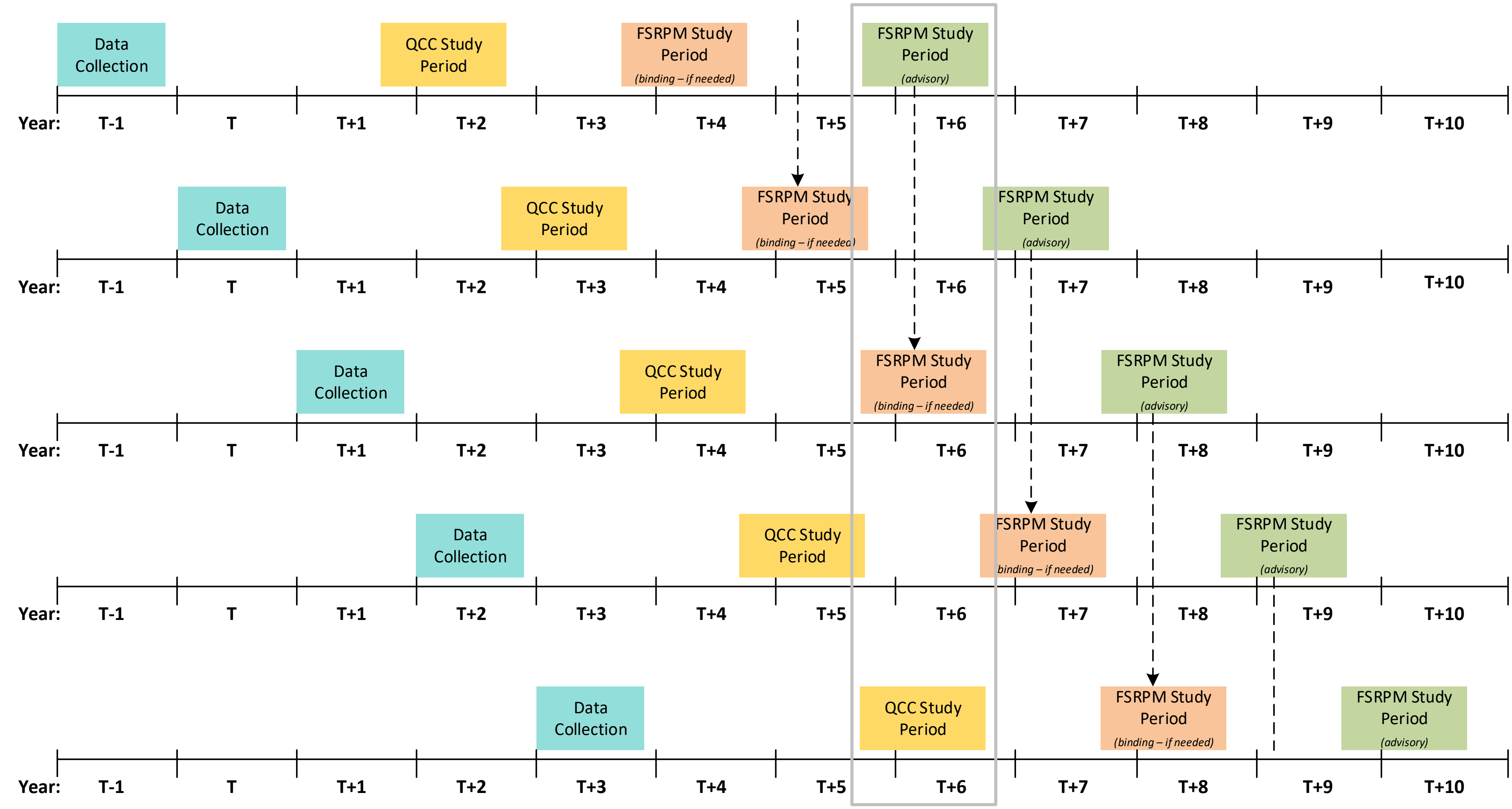

Figure 1. Example Advance Assessment Data Collection and Study Period for five years

2.1. Data Collection

In the Data Collection part, the Program Operator sends out the Advance Assessment Data Request which requires Participants to provide data for both the LOLE Study to determine the FSPRM values (advisory and binding) and the ELCC and other QCC studies to determine the QCCs for their applicable study periods.

Table 1. Data Collection Timeline

Activity/Milestone	Winter	Summer
Program Operator sends out updated Advance Assessment Data Request	January 15 (T-1)	
Participant provides data to Program Operator for Advance Assessment	March 1 (T-1)	
Participant Review of input data	April 1 – April 15 (T-1)	October 1 – October 15 (T-1)

2.2. FSPRM Advance Assessment

Each year, a new LOLE Study will be completed to set advisory FSPRMs in year T for the Advisory FSPRM Study Period. The Summer and Winter Season FSPRMs will be studied independently, meaning a separate LOLE study will be performed for each Season.

In year T+1, new data will be collected from all then-current Participants for the Binding FSPRM Study Period.

> If a change in participation has increased or decreased the total load in a Subregion by 10% or more (called "load trigger"), a new FSPRM study will be performed using the updated data. Those updated FSPRMs will be the binding FSPRMs for the Binding Season and be approved by the Board of Directors at least three (3) years ahead of the FS Deadline for the Binding Season.
>
> If there has not been a change in participation, or a change in participation has not increased or decreased the total load in a Subregion by 10% or more, the advisory FSPRMs that were set in Year T will be approved by the Board of Directors at least three (3) years ahead of the FS Deadline for the Binding Season.

Table 2 shows the process for reviewing inputs and the study timeline for the LOLE Study to determine the FSPRM, focusing on the Binding Seasons: Winter (T+5 – T+6) and Summer (T+6).

Table 2. FSPRM Advance Assessment Timeline

Activity/Milestone		Winter	Summer
Data Collection timeline starting in Year T-1			
Program Operator provides Participants with draft Advisory FSPRM modeling outputs		November 18 (T-1)	May 31 (T)
Participant reviews modeling output data and addresses any discrepancies with Program Operator		November 19 – December 19 (T-1)	June 1 – 30 (T)
Program Operator publishes final advisory FSPRM		January 19 (T)	July 31 (T)
Repeat Data Collection timeline starting in Year T+1			
Determine if load trigger is met[2]		April 30 (T+1)	October 31 (T+1)
If load trigger is met:	Program Operator provides Participants with draft FSPRM modeling outputs	November 18 (T+1)	May 31 (T+2)
	Participant reviews modeling output data and addresses any discrepancies with Program Operator	November 19 – December 19 (T+1)	June 1 – 30 (T+2)
	Program Operator publishes final binding FSPRM	January 19 (T+2)	July 31 (T+2)
Deadline for Board of Directors review and approval of Binding FSPRM		April 19 (T+2)	October 31 (T+2)

[2] If load trigger is not met, the advisory studies completed in year T are presented to the Board of Directors by the deadline for approval year T+2 as binding FSPRMs.

FS Deadline for Binding Season	April 19 (T+5)	October 31 (T+5)
Binding Season	November 20 (T+5) – February 28/29 (T+6)	June 1 – September 15 (T+6)

2.3. QCC Advance Assessment

Table 3Table 2 shows the process for reviewing inputs and the study timeline for the ELCC study and data needed to determine the QCC values of resources as calculated by the Program Operator, focusing on the Binding Seasons: Winter (T+5 – T+6) and Summer (T+6).

~~***Table 1 shows the Advance Assesment timeline from the time the Program Operator sends its data request through the provision and utilization of the resulting metrics (both the two-year-ahead binding metrics and the five-year-ahead advisory metrics).***~~ ***Table 3. QCC Advance Assessment timeline***

Activity/Milestone	Winter	Summer
Repeat Data Collection timeline starting in Year T+3		
Program Operator provides Participants with draft QCC modeling outputs	October 31 (T+3)	May 31 (T+4)
Participant reviews QCC output data and addresses any discrepancies with Program Operator	November 1 – 30 (T+3)	June 1 – 30 (T+4)
Program Operator publishes final QCC	January 19 (T+4)	July 31 (T+4)
FS Deadline for Binding Season	April 19 (T+5)	October 31 (T+5)
Binding Season	November 20 (T+5) – February 28/29 (T+6)	June 1 – September 15 (T+6)

~~*Table 1. Advance Assessment and Data Submittal Timeline*[3]~~

~~Activity/Milestone~~	~~Summer~~	~~Winter~~
~~Program Operator sends out updated Advance Assessment Data Request~~	~~January 15 (T-2)~~	
~~Participant provides data to Program Operator for Advance Assessment~~	~~March 1 (T-2)~~	
~~Participant Review of input data~~	~~April 1 – April 15 (T-2)~~	~~October 1 – October 15 (T-2)~~
~~Program Operator provides Participants with draft modeling outputs~~	~~September 15 (T-2)~~	~~February 15 (T-1)~~
~~Any discrepancies reviewed and resolved~~	~~September 15 - October 1 (T-2)~~	~~February 15 - March 1 (T-1)~~
~~Studies complete~~	~~October 31 (T-2)~~	~~March 31 (T-1)~~
~~Deadline for Board of Directors review and approval of Binding FSPRM~~	~~January 31 (T-1)~~	~~June 30 (T-1)~~
~~FS Deadline for Binding Season~~	~~October 31 (T-1)~~	~~March 31 (T-0)~~
~~Binding Season~~	~~June 1 – September 15 (T-0)~~	~~November 1 – March 15 (T-0 – T+1)~~
~~Season for which an Advisory FSPRM is Supplied~~	~~June 1 – September 15 (T+3)~~	~~November 1 – March 15 (T+3 – T+4)~~

Table 4 shows the Advance Assessment timeline from the time the Program Operator sends its first data request through the Binding Seasons, as depicted in the gray box in Figure 1.

~~Table 2 is an example timeline beginning with the Program Operator sending the Advance Assessment data request for the Binding Seasons in 2030-2031; note that the~~

[3] ~~In this Table 1, T (or T-0) refers to the Year in which a Binding Season begins; T-x refers to the Year that is x Years before T; and T+x refers to the Year that is x Years after T.~~

~~Program Operator will also supply an Advisory FSPRM for Binding Seasons in 2033 and 2034.~~

Table 4. Full Advance Assessment timeline for both FSPRM and QCC

Activity/Milestone	Winter	Summer
Program Operator sends out updated Advance Assessment Data Request	January 15 (T-1)	
Participant provides data to Program Operator for Advance Assessment	March 1 (T-1)	
Participant Review of input data	April 1 – April 15 (T-1)	October 1 – October 15 (T-1)
Program Operator provides Participants with draft Advisory FSPRM modeling outputs	November 18 (T-1)	May 31 (T)
Participant reviews modeling output data and addresses any discrepancies with Program Operator	November 19 – December 19 (T-1)	June 1 – 30 (T)
Program Operator publishes final advisory FSPRM	January 19 (T)	July 31 (T)
Program Operator sends out updated Advance Assessment Data Request	January 15 (T+1)	
Participant provides data to Program Operator for Advance Assessment	March 1 (T+1)	
Participant Review of input data	April 1 – April 15 (T+1)	October 1 – October 15 (T+1)
Determine if load trigger is met[4]	April 30 (T+1)	October 31 (T+1)

[4] If load trigger is not met, the advisory studies completed in year T are presented to the Board of Directors by the deadline for approval year T+2 as binding FSPRMs.

If load trigger is met:	Program Operator provides Participants with draft FSPRM modeling outputs	November 18 (T+1)	May 31 (T+2)
	Participant reviews modeling output data and addresses any discrepancies with Program Operator	November 19 – December 19 (T+1)	June 1 – 30 (T+2)
	Program Operator publishes final binding FSPRM	January 19 (T+2)	July 31 (T+2)
Deadline for Board of Directors review and approval of Binding FSPRM		April 19 (T+2)	October 31 (T+2)
Program Operator sends out updated Advance Assessment Data Request		January 15 (T+3)	
Participant provides data to Program Operator for Advance Assessment		March 1 (T+3)	
Participant Review of input data		April 1 – April 15 (T+3)	October 1 – October 15 (T+3)
Program Operator provides Participants with draft QCC modeling outputs		October 31 (T+3)	May 31 (T+4)
Participant reviews QCC output data and addresses any discrepancies with Program Operator		November 1 – 30 (T+3)	June 1 – 30 (T+4)
Program Operator publishes final QCC		January 19 (T+4)	July 31 (T+4)
FS Deadline for Binding Season		April 19 (T+5)	October 31 (T+5)
Binding Season		November 20 (T+5) – February 28/29 (T+6)	June 1 – September 15 (T+6)

Table 5 is an example timeline for Binding Seasons Winter 2045-2046 and Summer 2046.

Table 5. Example Advance Assessment and Data Submittal Timeline

Activity/Milestone	Winter	Summer
Program Operator sends out updated Advance Assessment Data Request	January 15 (2039)	
Participant provides data to Program Operator for Advance Assessment	March 1 (2039)	
Participant Review of input data	April 1 – April 15 (2039)	October 1 – October 15 (2039)
Program Operator provides Participants with draft Advisory FSPRM modeling outputs	November 18 (2039)	May 31 (2040)
Participant reviews modeling output data and addresses any discrepancies with Program Operator	November 19 – December 19 (2039)	June 1 – 30 (2040)
Program Operator publishes final advisory FSPRM	January 19 (2040)	July 31 (2040)
Program Operator sends out updated Advance Assessment Data Request	January 15 (2041)	
Participant provides data to Program Operator for Advance Assessment	March 1 (2041)	
Participant Review of input data	April 1 – April 15 (2041)	October 1 – October 15 (2041)
Determine if load trigger is met[5]	April 30 (2041)	October 31 (2041)

[5] If load trigger is not met, the advisory studies completed in year 2040 are presented to the Board of Directors by the deadline for approval year 2042 as binding FSPRMs.

If load trigger is met:	Program Operator provides Participants with draft FSPRM modeling outputs	November 18 (2041)	May 31 (2042)
	Participant reviews modeling output data and addresses any discrepancies with Program Operator	November 19 – December 19 (2041)	June 1 – 30 (2042)
	Program Operator publishes final binding FSPRM	January 19 (2042)	July 31 (2042)
Deadline for Board of Directors review and approval of Binding FSPRM		April 19 (2042)	October 31 (2042)
Program Operator sends out updated Advance Assessment Data Request		January 15 (2043)	
Participant provides data to Program Operator for Advance Assessment		March 1 (2043)	
Participant Review of input data		April 1 – April 15 (2043)	October 1 – October 15 (2043)
Program Operator provides Participants with draft QCC modeling outputs		October 31 (2043)	May 31 (2044)
Participant reviews QCC output data and addresses any discrepancies with Program Operator		November 1 – 30 (2043)	June 1 – 30 (2044)
Program Operator publishes final QCC		January 19 (2044)	July 31 (2044)
FS Deadline for Binding Season		April 19 (2045)	October 31 (2045)
Binding Season		November 20 (2045) – February 28/29 (2046)	June 1 – September 15 (2046)

~~*Table 2. Example Advance Assessment and Data Submittal Timeline*~~

~~Activity/Milestone~~	~~Summer~~	~~Winter~~
~~Program Operator sends out updated Advance Assessment Data Request~~	~~January 15, 2028~~	
~~Participant provides data to Program Operator for Advance Assessment~~	~~March 1, 2028~~	
~~Participant Review of input data~~	~~April 1 – April 15, 2028~~	~~October 1 – October 15, 2028~~
~~Program Operator provides Participants with draft modeling outputs~~	~~September 15, 2028~~	~~February 15, 2029~~
~~Any discrepancies reviewed and resolved~~	~~September 15 – October 1, 2028~~	~~February 15 – March 1, 2029~~
~~Studies complete~~	~~October 31, 2028~~	~~March 31, 2029~~
~~Deadline for Board of Directors review and approval of Binding FSPRM~~	~~January 31,2029~~	~~June 30, 2029~~
~~FS deadline for Binding Season~~	~~October 31, 2029~~	~~March 31, 2030~~
~~Binding Season~~	~~June 1 – September 15, 2030~~	~~November 1 – March 15, 2030-2031~~
~~Advisory Binding Season~~	~~June 1 – September 15, 2033~~	~~November 1 – March 15, 2033-2034~~

~~48.~~3. Process

~~48.1.~~3.1. Advance Assessment Data Submittal Process

To support the Advance Assessment, the Program Operator will develop a resource adequacy model that represents the WRAP Region. Inputs to this model will be submitted from the Participants and will represent each of the Participant's loads and

resources. The Program Operator will send data requests to the Participants for the items described in Table 6 below, which are Table 6necessary to complete the upcoming Advance Assessment for the applicable Summer and Winter Seasons. ~~WPP will post to its website a~~ The Data Request Instruction Manual is posted on the WPP website for Participants' use in completing the Advance Assessment Data Request.

Table 6. Participant Provided Modeling Data

Advance Assessment Data Items
Participant Thermal Resource and Long Duration Storage data for all owned or operated units planned to be in service for all or a portion of the Study Period as specified in the Data Request Instruction Manual.
North American Electric Reliability Corporation (NERC) Generating Availability Data System (i.e., GADS) or equivalent outage data (information on providing equivalent outage data will be posted on the WPP website) that can be used to calculate Equivalent Forced Outage Rates/Factors (i.e., EFOR/EFOF) for the last 6 Years for existing Thermal Resources and Long Duration Storage.
Hourly Load Profiles – Participant must provide Historical Load Data for the previous 10 Years. If a Participant participated in the WRAP in prior Years, such load data may already be available to the Program Operator and may not need to be resupplied.
Wind, solar, Storage Hydro, Energy Storage Resources (ESR), Run of River (ROR) resources, and Demand Response Capacity Resources (by resource) that are planned to be in service for all or a portion of the Study Period, as further detailed in the Data Request Instruction Manual.
Hourly generation profiles for the last 10 Years for existing wind, solar, and ROR resources.
Nameplate (for wind, solar, Storage Hydro, ESR, and ROR resources).
Storage Hydro monthly QCC values (as calculated by the Storage Hydro Workbook – see *BPM 105 Qualifying Resources*) from two most recently submitted FS Submittals (Winter and Summer Seasons), adjusted for any material changes anticipated for the applicable Binding Season being assessed

Excepting resources planned for retirement, Participants must submit all owned or operated resources planned to be in service for all or a portion of the FSPRM Study Period to be included in the LOLE Study.

~~48.2.~~3.2. Resource Registration Implications

Resources that are submitted with the complete set of required information by the Participant in the Advance Assessment Data Request to receive QCC values will be considered registered by the Participant for the applicable Binding Season(s). Those registered resources, known as Qualifying Resources, ~~will be included in the applicable Loss of Load Expectation ("LOLE")/FSPRM assessment (in which they will be assumed to be available to mitigate loss of load for the WRAP Region) and~~ will receive QCC values for ~~that~~ the Binding Seasons in the QCC Study Period. See *BPM 105 Qualifying Resources* for additional information on resource registration.

Resources for which Participants have planned retirement dates within the Study Period may need additional consideration. A resource for which a retirement is planned but for which the retirement date may not be considered firm may, at the Participant's option, continue to be submitted into the applicable LOLE/FSPRM assessment (in which the resource will be assumed to be available to mitigate loss of load for the WRAP Region) and submitted for QCC assessments, whether for determination of Effective Load Carrying Capability (ELCC) or of Unforced Capacity (UCAP). Alternatively, at the Participant's option, the resource may be omitted from the LOLE/FSPRM assessment (i.e., the resource will be assumed to not be available to mitigate loss of load for the WRAP region) but may still be requested to have a QCC determined for the QCC Study Period, and the resource registered for potential use by the Participant in the FS Submittal. ~~Finally, the Participant may choose not to submit the resource into the Advance Assessment at all, in which case the resource would not be registered, and would not be a Qualifying Resource (see *BPM 105 Qualifying Resources* for late registration options).~~ Resources planned for retirement that are not submitted for the Advance Assessment but are later identified for use in the FS Submittal will be considered late registered resources.

Excepting resources planned for retirement, Participants must register all owned or operated resources planned to be in service for all or a portion of the QCC Study Period.

~~48.3.~~3.3. Modeling Data from Forward Showing Submittal

Certain data from previous FS Submittals will be able to be used for the Advance Assessment. The data in Table 7 will be taken from the Participant's previous FS Submittal, unless the Participant identifies changes to such data applicable to upcoming Binding Seasons and provides updated information. New Participants to the WRAP will be requested to provide this data separately (see *BPM 401 New Participant Process*).

Table 7. Modeling Data taken from Previous FS Submittals

Data Items

Contracts included in past FS Submittals (imports or exports) with counterparties external to the WRAP Region with contract end dates after the start of the ~~season being modeled~~Study Period.
Capacity value of import/export transactions.

~~4.8.4.~~3.4. Participant Review and Verification Process of Input Data

Once the ~~PO~~ Program Operator has input all necessary data into ~~the resource adequacy model,~~LOLE and ELCC models, the Participants will be allowed a review of the input data (in the format used by the ~~resource adequacy~~ models or a format developed by the Program Operator) for their respective loads and resources. Model simulations will not be scheduled to occur prior to Participant review of input data. Participants will inform the Program Operator if there is a discrepancy or error in the data and will work with the Program Operator to remedy the error; any Participant who has not informed the Program Operator about any discrepancies or errors prior to the deadline will be considered to have reviewed and approved their data.

~~4.8.5.~~3.5. Draft Modeling Output Results Review

The Program Operator will provide draft Advance Assessment modeling results to the Participants for their review. The modeling outputs that will be available for Participant review are listed in Table 8.

Table 8. Draft Output from Advance Assessment for Participant Review

Outputs
ELCC values by Variable Energy Resources Zone for the QCC Study Period.
Proposed FSPRM for each month of the Binding Season ~~under study~~for the FSPRM Study Period.

Participants will have an opportunity, as set forth in Section 2 of BPM 101, to review the draft results and work with the PO to analyze any potential discrepancies from expected results.

~~4.8.6.~~3.6. Advance Assessment Result Distribution

The final Advance Assessment results will consist of a LOLE ~~s~~Study report that gives details of the study analysis, makes recommendations for a proposed FSPRM for each month of the applicable Binding Season in the FSPRM Study Period, and provides an advisory FSPRM for each month of the Binding Season ~~five years ahead~~in the FSPRM Study Period for advisory metrics. QCC studies or reports provided by the Program Operator will include the monthly ELCC study results for wind, solar, and short-term storage, as well as monthly QCC results for ROR, thermal resources, Lonnd Duration

Storage, and Demand Response for the applicable Binding Season in the QCC Study Period. Advisory information will include ELCC curves for wind, solar, and short-term storage that can be used to determine future capacity values for new resources dependent upon the penetration of resources. A summary of studies and the output results is provided in

Table 9. QCC values for individual resources will be provided directly to the Participant that submitted the data for the Advance Assessment.

Table 9. Advance Assessment Results

Study	Resource Type	Methodology	Output Results
LOLE (for the FSPRM Study Period)			FSPRM for each month of the applicable Summer Seasons and Winter Seasons. ~~in the Study Period.~~
QCC Studies (for the QCC Study Period)	Wind, Solar, and Energy Storage	ELCC	QCC values by Month for all wind, solar, and ESR Qualifying Resources. Aggregated QCC values for wind, solar and Energy Storage Qualifying Resources will be available to all Participants.
	Thermal and Long Duration Storage	UCAP	QCC values for Thermal Resources and Long Duration Storage. Resource-level $EFOF_{CCH}$ for determining the QCC of Thermal Resources will be available to the resource owner. Aggregated QCC values for Thermal Resources and Long Duration Storage will be available to all Participants.
	ROR	Historical Performance	QCC values by Month. Aggregated QCC values will be available to all Participants.
	Hybrid Resources	"Sum of Parts"	QCC values by Month. Aggregated QCC values will be available to all Participants.
	Customer Resources	Determined by Resource type	QCC values by Binding Season for customer-side resources. QCC values for all customer-side resources will be available to all Participants.

			Calculations for determining the QCC of customer-side resources will be available to the resource owner.

~~49.~~4. Board Approval of FSPRM

The adopted FSPRM values for each Month of a Binding Season are those approved by the Board of Directors. No later than ~~nine months~~three years before the FS Deadline for such Binding Season, the Board of Directors shall take ~~its final~~ action regarding approval of the FSPRM values for each Month of such Binding Season. The Program Operator and Program Administrator will provide to the Board of Directors the study scope documentation prior to conducting the LOLE and ELCC studies.

5. Transition to Updated Advance Assessment Timeline

This section of BPM 101 will be removed after March 1, 2029 as it will no longer be relevant.

To make this transition, LOLE modeling will be conducted for a specific Binding Season and those resulting FSPRM values will be used for the same Binding Season in the preceding Forward Showing Year (or two). For example, the Program Operator will conduct an LOLE Study for Summer 2033 and the program will use the resulting FSPRMs as the binding FSPRMs for Summer 2032 in addition to Summer 2033. The timeline for transition to the new methodology and timeline are shown below in Table 10.

Table 10. Transition to 5 Year ahead of the FS Deadline Timeline

Binding Season	Data Collection	FSPRMs Approved	Alternate Season Used (if applicable)
Summer 2027	March 1 2025	January 31 2026	
Winter 2027-2028		June 30 2026	
Summer 2028	March 1 2026	January 31 2027	
Winter 2028-2029		June 30 2027	
Summer 2029	March 1 2027[6]		Summer 2031

[6] A single Data Collection must serve an odd number of Seasons to switch from studying Summer first to studying Winter first. This is due to changing the deadline date for

Winter 2029-2030			Winter 2030-2031
Summer 2030			Summer 2031
Winter 2030-2031		January 31 2028	
Summer 2031		June 30 2028	
Winter 2031-2032	March 1 2028		Winter 2032-2033
Summer 2032			Summer 2033
Winter 2032-2033		April 19 2029	
Summer 2033		October 31 2029	
Winter 2033-2034	March 1 2029	April 19 2030	
Summer 2034		October 31 2030	

Starting with Winter 2033-2034 and Summer 2034, advisory FSPRM values will exist based on the described timelines and the load trigger criteria will be evaluated per Section 2.2.

approving FSPRMs from the start of the Season to the FS deadline, which is a seven-month adjustment.

WESTERN POWERPOOL

Western Resource Adequacy Program

102 Forward Showing Reliability Metrics

100 – Forward Showing

Revision History

Manual Number	Version	Description	Revised By	Date
102	0.1	RAPC Glance Version	Michael O'Brien	1/18/2024
102	0.2	Public Comment Version	Michael O'Brien	1/19/2024
102	0.3	RAPC & PRC Discussion	Michael O'Brien	2/14/2024
102	0.4	RAPC Endorsement	Michael O'Brien	7/11/2024
102	0.5	Board Consideration	Michael O'Brien	9/13/2024
102	1.0	Board Approved	Rebecca Sexton	9/19/2024
102	2.0	Expedited Proposal	Rebecca Sexton	12/10/2025
102	3.0	Annual BPM Review	Maya McNichol	3/29/2026
102	3.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
102	3.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Table of Contents

102 Forward Showing Reliability Metrics

1. Introduction

The Forward Showing Reliability Metrics Business Practice Manual (BPM 102) provides an overview of how the Program Operator will conduct the Loss of Load Expectation (LOLE) Study and set the Monthly FS Planning Reserve Margins (FSPRM) to be approved by the Board. In addition to the guidance provided in this BPM, the Program Operator will provide scoping documents with additional technical details on the modeling approach prior to conducting the LOLE Study each year.

1.1 Intended Audience

BPM 102 is intended for WRAP Participants and other interested individuals or entities and will be particularly useful for individuals that are responsible for their Participant organization's Forward Showing Submittal or that need to ensure their organizations are submitting the required MW quantity of Qualifying Resources to meet the Forward Showing Capacity Requirement. BPM 102 will be most informative to individuals in Participant organizations that have an interest in the LOLE Study and the setting of FSPRMs. Qualifying Capacity Contribution (QCC) methodologies - such as Effective Load Carrying Capability (ELCC) for Variable Energy Resources (VER) and Unforced Capacity (UCAP) for thermal resources - can be found in *BPM 105 Qualifying Resources*.

1.2 What You Will Find in This Manual

BPM 102 provides details, assumptions, methodologies, and procedures for conducting the LOLE Study and determining Monthly FSPRMs. This BPM explains how the Program Operator models variations in load and variations in generation, how numerous scenarios of variations in weather and variations in resource performance and outages are simulated from historical data, the Load and Resource Zones used in the LOLE Study simulations, the Subregions for which potentially differing FSPRM values are studied, how Contingency Reserves (CR) are accounted for, how the LOLE threshold is identified, how the simulations are conducted, and how FSPRMs are calculated.

1.3 Purpose

BPM 102 details the components of the LOLE Study and how the Program Operator will determine the FSPRMs in the LOLE Study for the Binding Seasons.

1.4 Definitions

All capitalized terms that are not defined in BPM 102 have their meaning set forth in the Tariff or in another BPM.

Capability Test: As defined in *BPM 105 Qualifying Resources.*

Change Request Form: As defined in *BPM 301 Program Review Committee Workplan Development and Approval*.

Fuel Type: As defined in *BPM 105 Qualifying Resources.*

Historical Load Data: As defined in *BPM 101 Advance Assessment.*

LOLE Study: A probabilistic simulation of variations in load and variations in generation to determine the amount of capacity needed for each Month of a Binding Season to meet the no more than a single event-day of loss of load in ten years reliability metric across a Binding Season.

Net Generating Capability: As defined in *BPM 105 Qualifying Resources.*

Regional P50 Peak Load Forecast: Forecast based on total Participant load in the WRAP Region or total Participant Load in a Subregion depending on results being sought.

Study Period: As defined in *BPM 101 Advance Assessment Timeline.*

Study Scope Document: a document that defines the scope of an LOLE Study.

2. Background

The FSPRMs are the capacity margins above a Participant's monthly P50 Peak Load Forecast required to meet the reliability metric of no more than a single event-day of loss of load in ten years across a Binding Season (as calculated per Section 8). The total amount of monthly qualifying capacity needed to meet the reliability metric will be simulated in the LOLE Study using probabilistic analysis (see Section 7), taking into account variability in load (see Section 5) and variation in generation (see Section 6) while maintaining Contingency Reserves (see Section 6.10).

The Tariff provides that the FSPRM determination employs:

i. a simulated resource stack using capacity accreditation principles consistent with those used for WRAP QCC determinations (see Section 6);

ii. an adjustment in the total WRAP-required QCC value as needed to meet a one event-day in ten years LOLE across a Binding Season (see Section 8), and

iii. a standard that each Month will have at least 0.01 annual LOLE (i.e., one event-day in 100 years), while maintaining the overall one event-day in ten years LOLE across a Binding Season (see Section 8).

FSPRMs are determined for each Month of the Binding Season and for each Subregion (see Section 4.1) as well as the WRAP Region as a whole (see Section 4.1.1) in connection with the Advance Assessment. The timing and deadlines for data collection and study completion for the Advance Assessment can be found in *BPM 101 – Advance Assessment Timeline.* The LOLE Study will be defined by a Study Scope Document (see Section 3).

3. Study Scoping Process

The LOLE Study for each Binding Season will be preceded by a Study Scope Document that will define the scope of work. The Study Scope Document will adhere to applicable Tariff requirements and the further guidance and implementing details described in BPM 102. The Study Scope Document may also specify additional technical details as necessary to complete the applicable LOLE Study for the subject Binding Season. The Program Operator will provide the Board and RAPC a timely opportunity to review and comment upon the Study Scope Document prior to the Program Operator's commencement of the applicable LOLE Study and will highlight any notable changes in scope or methodology compared to prior LOLE Studies. In addition to other key study methodologies and assumptions, the Study Scope Document will identify the planning software or system modeling software to be utilized for the subject LOLE Study.

4. Load and Resource Zones

The WRAP Region will be modeled in each LOLE Study as divided among the separate load and resource zones (LRZs) shown below in Figure 1~~Figure 1~~, in order to consider weather variability across the WRAP Region and within Subregions. LRZs will be used primarily to distinguish weather modeling for loads and associated resources. To that end, the LOLE Study will not limit the import and export capabilities between LRZs when determining the FSPRMs for the WRAP Region or within Subregions. Changes to the LRZs shown in Figure 1 will be as noted in the Study Scope Document for the Binding Season to which such changes will apply.

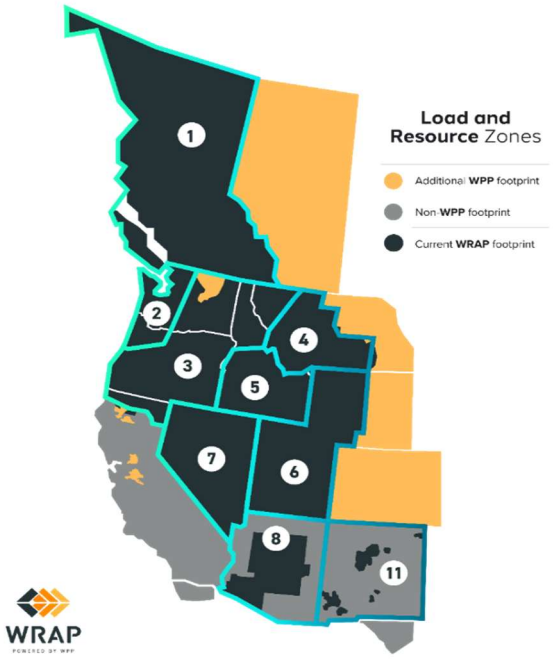

Figure 1 - WRAP Load and Resources Zones (LRZs)[1] as listed in Section 4.1

4.1 Subregions Used for Determination of Monthly FSPRMs

Two Subregions have been identified in the WRAP Region: the Northwest Subregion and the Southwest and East Subregion. LOLE Study simulations are conducted separately for each of the Subregions. Each Subregion is comprised of load and generation from within certain Balancing Authority Areas, and the boundaries of each Subregion are defined by the boundaries of the combined area of the component Balancing Authority Areas. The component Balancing Authority Areas for each Subregion are as follows:

- Northwest Subregion (Zones 1, 2, 3, 4)
    - Avista Corporation
    - BC Hydro and Power Authority[1]
    - Bonneville Power Authority
    - Chelan County PUD #1
    - Douglas County PUD #1
    - Grant County PUD #2

[1] The WRAP Region is solely located within the United States of America, and any transactions required by the WRAP Operations Program associated with loads or resources located in Canada are effected inside the borders of the United States.

  - NorthWestern Energy
  - PacifiCorp West
  - Portland General Electric
  - Puget Sound Energy
  - Seattle City and Light
  - Tacoma Power

- Southwest and East Subregion (Zones 5, 6, 7, 8, 11)

  - Arizona Public Service
  - Basin Electric
  - Black Hills
  - Idaho Power Company
  - NV Energy
  - PacifiCorp East
  - Public Service Company of New Mexico
  - Salt River Project

Beginning with the Winter 2027–2028 Binding Season, the LOLE Study to determine the FSPRM values will reflect the following, updated Balancing Authority Areas for the Northwest Subregion and Southwest and East Subregion, respectively:

- Northwest Subregion (Zones 1, 2, 3, 4, 5)

  - Avista Corporation
  - BC Hydro and Power Authority[1]
  - Bonneville Power Authority
  - Chelan County PUD #1
  - Douglas County PUD #1
  - Grant County PUD #2
  - Idaho Power Company
  - NorthWestern Energy
  - PacifiCorp West
  - Portland General Electric
  - Puget Sound Energy
  - Seattle City and Light
  - Tacoma Power

- Southwest and East Subregion (Zones ~~5~~, 6, 7, 8, 11)

  - Arizona Public Service
  - Basin Electric
  - Black Hills
  - NV Energy
  - PacifiCorp East

- Public Service Company of New Mexico
- Salt River Project
- Tucson Electric Power

Any load for which a Participant is responsible (that has not been excluded – see *BPM 103 Forward Showing Capacity Requirement*) that does not reside within one of the Balancing Authority Areas listed above will be added to one of the Subregions.

In the event a significant change to the transmission system is identified (e.g. new transmission capacity, changes in transmission rights ownership), the boundaries of the Subregions above may be reconsidered. A Participant may:

1. Request the Program Administrator conduct analysis of the potential impact of the change to the Subregion. The Program Administrator will take input from the requesting Participant and will determine the appropriate form and focus of such analysis. As possible, this analysis will be made public, in accordance with confidentiality guidelines set out in the Tariff.

2. File a Change Request Form (see *BPM 301 Program Review Committee Workplan Development and Approval*) requesting the Balancing Authority Area within which some portion of its load (for which it is the LRE) be reassigned to another Subregion.

    a. Following submission of the Change Request Form, other Participants with loads within the identified Balancing Authority Area will be given 30 days to provide comment. Any comments received will be added to the Change Request Form as appendices.

    b. Following the comment period in step 2a, the Change Request Form will be treated as a Non-Task Force Proposal (see *BPM 301*).

    c. Such Change Request Forms must be submitted at least 9 months prior to the deadline for the Advance Assessment Data Request for the Binding Season such change is requested (see *BPM 101 Advance Assessment*). For example, if a change to Subregion boundaries is requested for Summer 2032, the Advance Assessment Data Request for Summer 2032 is due March 1, 2030, so such a request would need to be submitted by June 1, 2029.

A new Participant will be assigned by WPP to an appropriate Subregion (and thus modify the boundary thereof) subject to objection of the RAPC to such assignment,

expressed by action of the RAPC. During the Transition Period, the Program Administrator may include in the Advance Assessment new participants committed to binding participation in the season being studied

4.1.1 WRAP Region Analysis

In addition to the Subregion analyses, WRAP Region FSPRMs will be determined by running LOLE Study simulations on the entire WRAP Region with unconstrained transmission (i.e., assuming no transmission constraints) between the Subregions.

5. Load Modeling in the LOLE Study

The FSPRMs are the capacity margins above a Participant's monthly P50 Peak Load Forecast required to meet the reliability metric of no more than a single event-day of loss of load in ten years across a Binding Season. The total amount of monthly qualifying capacity needed to meet the reliability metric will be simulated in the LOLE Study using probabilistic analysis (see the Study Scope Document for further details), taking into account variability in load (as well as variations in generation – see Section 6). For each Winter Season and each Summer Season, the Program Operator will model the effects of weather variability by developing ~~a minimum of~~ forty historical weather years that reflect the impact of weather on load. To model the effects of weather variability on load, a load shape provided by Participants for recent years (e.g., five most recent years of Historical Load Data) will be combined with historical weather data to synthesize ~~at least~~ forty years of synthetic historical weather data. Relationships between weather observations and load will be developed based on the historical weather and Historical Load Data (see *BPM 101 Advance Assessment* and *BPM 103 FS Capacity Requirement*) from recent data sets. The historical weather data will consist of hourly temperature data from a representative selection of weather stations in each Subregion. Weather data will be used from a back-up weather station if there are data quality issues for some periods in an initially selected station. The Study Scope document will identify when synthesized load shapes will be redetermined by the Program Operator; frequency of such updates will consider factors such as changes in load patterns, sharp increases in load due to large new customers, or changes in climate.

Other inputs into historical weather data will include an hour-of-week factor (in determining temperature-to-load comparisons for daylight hours versus darkness hours, as well as weekends versus Business Days) as well as temperature and average temperatures from the preceding eight, 24, and 48 hours. Different weather and load relationships will be built for the Winter Season and Summer Season. These weather and load relationships will be applied to the multiple years of weather data to develop

synthetic load shapes for the study years. Equal probabilities will be given to each of the forty annual load shapes in the simulations.

6. Generator Modeling in the LOLE Study

~~The FSPRMs are the capacity margins above a Participant's monthly P50 Peak Load Forecast required to meet the reliability metric of no more than a single event-day of loss of load in ten years across a Binding Season.~~ The LOLE Study will simulate the aggregated stack of ~~Qualifying R~~resources provided to the Program Operator by Participants in the Advance Assessment data collection, using the methodologies described below. In summary, the LOLE Study will model:

- The qualifying capacity of thermal resources based on Net Generating Capability (interchangeable with ICAP for thermal resources) taking into account equivalent forced outage rate-demand (EFORd) (see Section 6.1); note that EFORd is different than the equivalent forced outage factor during Capacity Critical Hours (EFOFcch) used to determine thermal resource QCC (see Table 1~~Table 1~~).
- Indicative QCC values for Storage Hydro (see Section 6.2)
- Participants' wind ~~Qualified R~~resources as a single wind resource per LRZ using historical and synthesized resource performance profiles (see Section 6.3)
- Participants' solar ~~Qualified R~~resources as a single solar resource per LRZ based on solar profiles developed from weather data (see Section 6.4)
- Energy Storage Resources (ESRs) as dischargeable only when there is a lack of other ~~Qualified R~~resources available to serve load (see Section 6.5)
- Participants' Run-of-River (ROR) ~~Qualified R~~resources as a single ROR resource per LRZ, using historical and synthesized resource performance profiles (see Section 6.6)
- Demand Response (DR) with properties provided by Participants (see Section 6.7)
- Dispatchable and controllable behind-the-meter ~~Qualified R~~resources as equivalent sized resources (see Section 6.8)
- Capacity transactions resulting in either a net import or net export from the WRAP Region as hourly generators in the applicable LRZ (see Section 6.9)

- Contingency Reserves so as to maintain the required amounts (see Section 6.10).

The total amount of monthly qualifying capacity needed to meet the reliability metric will be simulated as a resource stack in the LOLE Study using probabilistic analysis, taking into account variations in generation (as well as load – see Section 5). The monthly ~~Qualifying R~~resource simulated capacities (in MWs) needed to meet the reliability metric each month will then be converted to unforced capacity (UCAP) values (see Section 8) to calculate the FSPRMs (as a percentage).

6.1 Thermal Generator Modeling

Thermal Resources and Long Duration Storage Resources will be modeled in the LOLE Study at their Net Generating Capability value (as indicated by the Capability Test – see *BPM 105 Qualifying Resources*) while forced outages for each resource will be modeled in accordance with their EFORd when determining the amount of monthly qualifying capacity to meet the reliability metric.[2] The Capability Test data will be provided by each Participant in its FS Submittal as discussed in *BPM 105 Qualifying Resources and BPM 108 FS Submittal Process*. All Thermal Resources and Long Duration Storage Resources will be modeled in the LOLE Study, unless information provided by the relevant Participant in the Advance Assessment Data Request indicates the resource will not be available in the ~~study~~ Study ~~period~~Period, such as a retirement date, future in-service date, or similar reason.

Forced outage modeling for Thermal Resources and Long Duration Storage Resources will use annual EFORd values (based on the EFORd equation as defined by NERC GADS[3]), forced outage durations, and outage events sourced from NERC GADS (or equivalent) data provided by Participants. For Thermal Resources and Long Duration Storage Resources that do not submit such data, an average forced outage rate will be applied based on size, technology type, Fuel Type and resource age. At a minimum, the most recent five years of historical NERC GADS (or equivalent) data will be considered in the LOLE Study. The models will be updated every Year to reflect the latest outage rates.

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[2] Note: Resource EFORd is used in LOLE Study for determination of FSPRMs, and differs from the EFOF (Equivalent Forced Outage Factor) used for the determination of QCC for thermal resources during Capacity Critical Hours (CCHs) – see *BPM 105 Qualifying Resources*.

[3] NERC, 2023 GADS Data Reporting Instructions, January 2023, Appendix F, p9, Section 25, available at; GADS_DRI_2023.pdf (nerc.com)

Planned outages for thermal resources will not be modeled in the LOLE study. All Thermal Resources and Long Duration Storage Resources will be modeled as available at any given hour if the ~~Qualifying R~~resource is not on a forced outage.

6.2 Storage Hydro Qualifying Resources

The LOLE Study will model Storage Hydro ~~Qualifying R~~resources utilizing the Monthly indicative QCC values determined with the methodology described in *BPM 105 Qualifying Resources* for such resources. The methodology utilized to assess QCC values for Storage Hydro Qualifying Resources accounts for the availability of storage such that it is appropriate in the LOLE modeling to assume the facility can output the Monthly QCC value for each hour in the LOLE Study. No additional outage modeling will be applied to the Storage Hydro ~~Qualifying R~~resources in the LOLE Study, since the QCC values consider historical outages.

6.3 Wind Resources

Wind resources provided by Participants will be modeled together as a single wind resource per LRZ in the LOLE Study. Operational wind data (preferred and used when available) and synthesized wind data will be utilized for the analysis: recent historic wind resource performance is correlated to the corresponding peak load profiles so that synthesized wind performance data can be developed from similar load profiles in earlier years for use in the resource variability simulations. For example, actual historical resource performance profiles from a recent period (e.g., 2014-2020) are taken, and the load profiles for those days are matched with daily load profiles (+/-25 days) from older years (e.g., 1980-2014) that best align with the peak load profile of the day in question. Actual resource output will be used when available. The Program Operator will identify in the Study Scope Document whether synthesized wind shapes for years where historical data is insufficient or not available will be redetermined for the upcoming LOLE Study. Wind resources provided that have not gone through the above synthetization process will use wind operational and synthesized data that is similar (i.e., the same LRZ) as the resource being added.

6.4 Solar Resources

Solar resources provided by Participants will be modeled together as a single solar resource per LRZ in the LOLE Study. When operational solar data is unavailable, solar profiles for resources will be developed using irradiance and weather data that will be obtained for weather station sites for the years after 1998 from the National Renewable Energy Laboratory's (NREL) National Solar Radiation Database (NSRDB) Data Viewer. Data will be obtained from the NREL System Advisor Model (SAM) for each Year and site to generate 8,760 hourly profiles. Profiles from 1980-1998 will be selected by using

daily profiles from the day that best matches the peak load out of all the days +/- 3 days of the source day of the 7-year period from 1998 to the most current year. The Program Operator will identify in the Study Scope whether synthesized solar shapes for years where historical data is insufficient or not available will be redetermined for the upcoming LOLE Study. Solar resources provided that have not gone through the above synthetization process will use previous solar operational and synthesized irradiance data that is similar (e.g., the same LRZ) as the resource being added.

6.5 Energy Storage Resources

ESRs will be modeled in the LOLE Study as energy limited devices that will charge and discharge in accordance with their equipment specifications. ESRs will be modeled to charge and discharge in a 'preserve reliability' mode, meaning that they will only be discharged when there is a lack of other resources available to serve load. ESRs will be discharged prior to Demand Response (DR) programs. ESRs will not be restricted to charging from co-located resources or in a hybrid configuration unless specified by the Participant.

6.6 Run of River Qualifying Resources

ROR ~~Qualifying R~~resources provided by Participants will be modeled together as a single ROR per LRZ in the LOLE Study. Operational and synthesized ROR data will be utilized for the analysis. Recent historic ROR resource performance is correlated to the corresponding peak load profiles so that synthesized ROR resource performance data can be developed from similar load profiles in earlier years for use in the resource variability simulations. For example, actual historical ROR resource performance profiles from a recent period (e.g., 2014-2020) are taken, and the load profiles for those days are matched with daily load profiles (+/-25 days) from older years (e.g., 1980-2014) that best align with the peak load profile of the day in question. The Program Operator will identify in the Study Scope whether synthesized ROR shapes for years where historical data is insufficient or not available will be redetermined for the upcoming LOLE Study. ROR resources provided that have not gone through the above synthetization process will use previous ROR operational and synthesized river flow data that is similar (e.g. on the same river system) as the resource being added.

6.7 Demand Response Programs

The LOLE Study will include properties and values of DR programs provided by Participants. DR programs will be modeled, such that these representative resources would be dispatched last in the LOLE Study to reflect DR operating scenarios. Forced outage rates will not be assigned to DR programs.

6.8 Behind-the-Meter Generation

Behind-the-meter generation reported by Participants as capacity resources that are controllable and dispatchable by the Participant will be modeled in the LOLE Study as generation (per the aggregation requirements in *BPM 105 Qualifying Resources*). These resources will be assigned parameters and forced outage information from equivalent-sized resources.

6.9 External Capacity Modeling

Any external capacity transactions that are supported by firm commitments in the Advance Assessment Data Request (see *BPM 101 Advance Assessment*) will be modeled as hourly generators in the applicable LRZ in the LOLE Study. External transactions include any firm capacity transactions from or obligations to non-participating entities external to the WRAP Region. If the transaction is a sale to a non-participating entity, it will be an export of capacity. If the transaction is a purchase from a non-participating entity, it will be modeled as an import of capacity; forced outage rates will not be assigned to these transactions.

6.10 Contingency Reserves Modeling

In accordance with standard BAL-002-WECC-3, Balancing Authorities (and Reserve Sharing Groups) and required to maintain a minimum CR amount that is equal to the greater of either:

i. the loss of the most severe single contingency or

ii. the sum of three percent (3%) of hourly integrated load and three percent (3%) of hourly integrated generation.

The LOLE Study will ensure all CR amounts are maintained during tallied loss of load events. To ensure this, the LOLE Study will assume an average six percent (6%) of the Regional P50 Peak Load Forecast CR requirement when determining the capacity requirements to maintain the one event-day in 10-year LOLE requirement.

7. LOLE Study

Once the capacity contributions of the components of the resource stack have been determined (see Section 6) the LOLE Study simulation will be performed for the Subregions and WRAP Region to determine the capacity needed each Month to meet the reliability metric.

The probabilistic LOLE Study will model load variability (i.e., one of the forty ~~(or more)~~ synthetic load shapes) for all hours of the Year and random forced outages for

~~Qualifying R~~resources in the WRAP Region and Subregions during each hour of the study. The LOLE Study will count loss of load events (insufficient ~~Qualified R~~resource capacity to meet load) during all hours of the Binding Season against the reliability metric of the no more than one event-day in ten-year LOLE across a Binding Season. Loss of load events that occur during hours outside of the Binding Season will not be considered.

If an LOLE Study simulation has excess capacity in a Binding Season, pure negative capacity (with no outage rate) will be added in all hours of the applicable Binding Season until the WRAP Region or any Subregion arrive at the no more than one event-day in ten years across a Binding Season reliability threshold. If an LOLE Study simulation has insufficient capacity in a Binding Season, pure positive capacity (with no outage rate) will be added in all hours of the applicable Binding Season until the WRAP Region or any Subregion reaches the no more than one event-day in ten years across a Binding Season reliability threshold. In addition, to ensure the amount of qualifying capacity is not leading to excessively low LOLEs, pure capacity will be adjusted to ensure that all Months of the applicable Binding Season have at least 0.01 day per Year LOLE in that given Month, while at the same time ensuring the LOLE for the entire Binding Season does not exceed 0.1 day per Year LOLE.

Once the reliability metric is achieved, the capacity requirement (as represented by the resource stack and pure capacity) for each Month of the Binding Season (by Subregions and WRAP Region) is converted to UCAP for calculation of the FSPRMs (see Section 8).

8. FSPRMs Calculations

The monthly capacity values of the resource stack that result from the LOLE Study simulation (see Section 7) will be replaced with UCAP values as indicated in Table 1~~Table 1~~. The intent of the UCAP approach is to represent ~~Qualified R~~resources with respect to their availability.

Table 1 - Resource capacity value to calculate UCAP FSPRMs

Resource type	Conversion to UCAP Values
Thermal	The Net Generating Capability will be replaced by indicative QCC values calculated by the Program Operator using the QCC methodology (see *BPM 105*)
Wind, Solar and ESR	Values for wind, solar, and ESR resources will be determined by using an ELCC indicative analysis (see *BPM 105*). ~~The~~

	~~capacity values attributed to wind and solar resources and ESRs will be consistent with the QCC values assigned to such resources in the QCC analysis (see *BPM 105*).~~
Storage Hydro	Indicative QCC values submitted by the Participants calculated using the Storage Hydro QCC methodology (see *BPM 105*).
Run-of-River Hydro	Indicative QCC values calculated by the Program Operator using the ROR QCC methodology (see *BPM 105*).
Demand Response	No conversion needed. Modeled maximum monthly capacity of all programs submitted by the Participants.
Pure Capacity adjustment to meet reliability metric	No conversion needed.

After the monthly capacity values of a resource stack are converted into UCAP values, the FSPRMs will be calculated separately for each Month of the Binding Seasons based on the Regional P50 Peak Load Forecast for each Month (Month also refers to a partial calendar month that is part of a Binding Season) as follows:

$$FSPRM\ (\%) = \frac{UCAP_{1-in-10} - Regional\ P50\ Load\ Forecast}{Regional\ P50\ Load\ Forecast} * 100$$

Where:

FSPRM(%) is the FSRPM for a specified Month in a Binding Season

$UCAP_{1\text{-}in\text{-}10}$ is the UCAP required to meet the reliability metric for a specified Month in a Binding Season

Regional P50 Peak Load Forecast is the P50 Peak Load Forecast for the specified Month

Regional P50 Peak Load Forecasts used in the above FSPRMs equation are distinct from Participant P50 Peak Load Forecasts used in the calculation of Participant FS Capacity Requirements as described in *BPM 103 FS Capacity Requirement*. However, it should be noted that while Regional P50 Peak Load Forecasts are calculated using the same

methodologies as Participant P50 Peak Load Forecasts the former use a Load Growth Factor specific to the LOLE Study (see *BPM 103 FS Capacity Requirement*).

WESTERN POWERPOOL

Western Resource Adequacy Program

103 Participant Forward Showing Capacity Requirements

100 – Forward Showing

Revision History

Manual Number	Version	Description	Revised by	Date
103	0.1	RAPC Glance Version	Michael O'Brien	5/28/2024
103	0.2	Public Comment Version	Michael O'Brien	5/30/2024
103	0.3	RAPC & PRC Discussion	Michael O'Brien	8/28/2024
103	0.4	RAPC Endorsement	Michael O'Brien	9/4/2024
103	0.5	Board Consideration	Michael O'Brien	9/12/2024
103	1.0	Board Approved	Rebecca Sexton	9/19/2024
103	2.0	2024-NTFP-4 Redlines	Michael O'Brien	3/13/2025
103	3.0	Firm Tx TF Updates	Maya McNichol	3/17/2026
103	4.0	Annual BPM Review	Maya McNichol	3/19/2025
103	4.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
103	4.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Table of Contents

103 Participant Forward Showing Capacity Requirements

1. Introduction

The Forward Showing (FS) Capacity Requirement is the minimum quantity of capacity a Participant is required to demonstrate for a Month of a Binding Season. Business Practice Manual (BPM) 103 describes the process for determining the components of the FS Capacity Requirement (the FS Planning Reserve Margin [FSPRM] calculations can be found in *BPM 102 Reliability Metrics*). BPM 103 also includes directions for a Participant seeking to exclude load from its FS Capacity Requirement, along with a discussion of the effect of using another Subregion's lower FSPRM on a Participant's FS Capacity Requirement, and considerations for load aggregation and disaggregation.

1.1. Intended Audience

BPM 103 is intended for WRAP Participants and other interested individuals or entities. BPM 103 will be particularly useful for those responsible for their Participant organization's FS Submittal as it pertains to meeting the FS Capacity Requirement, as this BPM provides an overview of the Monthly P50 Peak Load Forecast, load growth and load change considerations, and the Contingency Reserve Adjustment.

1.2. What You Will Find in This Manual

BPM 103 has the following sections: FS Capacity Requirement; P50 Peak Load Forecast; Load Growth Factor; Contingency Reserve Adjustment; Excluding Load; Submitting Loads from Multiple ; Load Aggregation/Disaggregation; and LOLE Study Load Forecast and Load Growth Rate. BPM 103 also includes Appendix A - P50 Peak Load Forecast Modifications and Appendix B - Load Exclusion.

1.3. Purpose

BPM 103 provides an overview of the components of the monthly FS Capacity Requirements calculations, including the Monthly P50 Peak Load Forecast methodology.

1.4. Definitions

All capitalized terms that are not defined in BPM 103 or another BPM have their meaning set forth in the Tariff.

Contingency Reserve Adjustment: An adjustment to the FS Capacity Requirement to account for changes in Contingency Reserve requirements resulting from a Participant's contractual purchases and sales that include the Contingency Reserve as a specific part of the contract. The Contingency Reserve Adjustment has two components: Contingency Reserve Adjustment - Generation and Contingency Reserve Adjustment - Load.

Contingency Reserve Adjustment - Generation: The component of the Contingency Reserve Adjustment that accounts for differences between the system average Contingency Reserve requirement assumed in the LOLE Study and a Participant's actual purchases and sales.

Contingency Reserve Adjustment - Load: The component of the Contingency Reserve Adjustment that accounts for a Participant's specific Contingency Reserve purchases and sales.

Forward Showing (FS) Capacity Requirement Unadjusted: The FS Capacity Requirement Unadjusted takes into account the monthly P50 Peak Load Forecast and the monthly FSPRM. The FS Capacity Requirement Unadjusted does not take into account the Contingency Reserve Adjustment.

Historical Load Data: As defined in *BPM 101 Advance Assessment*.

Load Forecast Ratio: The Load Forecast ratio for each Month of a Binding Season is the ratio of the monthly average of the peak loads of a Month for the last five years to the maximum of the monthly average of the peak loads of the months of a Binding Season for the last five years.

Load Growth Factor: A program-wide load growth factor applied to P50 Peak Load Forecasts that may take into account location, weather, Participant type, and Participant customer composition (balance between retail, commercial, and industrial) among other factors.

LOLE Study: As defined in *BPM 102 FS Reliability Metrics*.

Regional P50 Peak Load Forecast: As defined in *BPM 102 FS Reliability Metrics*.

Seasonal Peak Months: The Winter Season months of December, January, and February and the Summer Season months of June, July and August.

2. Demand Response Utilization

A Participant has two options when choosing how to use Demand Response to affect its Monthly FS Capacity Requirements in its FS Submittal (see *BPM 108 FS Submittal Procedure*).

- Option 1: A Participant may leave the effects of its historically deployed Demand Response included in its Historical Load Data (see *BPM 101 Advance Assessment*). This will have the effect of reducing the amount of load in the

LOLE Study (see *BPM 102 FS Reliability Metrics*), reducing maximum loads in the P50 Peak Load Forecast (see Section 4) ultimately leading to lower Monthly FS Capacity Requirements.

- Option 2: If a Participant removes the effects of historically deployed Demand Response from its Historical Load Data, the Participant may choose to utilize Demand Response as a Qualifying Resource (see attestation in *BPM 108 FS Submittal Procedure*). As described in *BPM 105 Qualifying Resources*, a Demand Response program registered as a Qualifying Resource will require a Capability Test to confirm the claimed capability and duration of load reduction, along with a more frequent Operational Test at a portion of the program's claimed capability and duration.

3. FS Capacity Requirement

The FS Capacity Requirement is the minimum quantity of capacity a Participant is required to demonstrate for each Month of a Binding Season in its FS Submittal (see *BPM 108 FS Submittal Process*). As shown in Equation 1, a Participant's FS Capacity Requirement begins with the Participant's monthly P50 Peak Load Forecast (see Section 4), which is multiplied by one plus the applicable Monthly FS Planning Reserve Margin (FSPRM - see *BPM 102 FS Reliability Metrics*) for a Month (the net result is known as the FS Capacity Requirement Unadjusted). The Contingency Reserve Adjustment (see Section 6) is then added to the FS Capacity Requirement Unadjusted to arrive at a Participant's monthly FS Capacity Requirement.

Equation 1 – FS Capacity Requirement

$$\boldsymbol{FS\ Capacity\ Requirement} = \boldsymbol{FS\ Capacity\ Requirement\ Unadjusted} + \boldsymbol{Contingency\ Reserve\ Adjustment}$$

where

$$\boldsymbol{FS\ Capacity\ Requirement\ Unadjusted} = (P50\ Peak\ Load\ Forecast) * (1 + FSPRM)$$

and

$$\boldsymbol{Contingency\ Reserve}\ Adjustment = Contingency\ Reserve\ Adjustment\_Generation + Contigency\ Reserve\ Adjustment\_Load$$

4. P50 Peak Load Forecast

A Participant's monthly P50 Peak Load Forecast for the Binding Season is calculated to determine a Participant's FS Capacity Requirement Unadjusted. The monthly P50 Peak Load Forecast will be calculated using the following methodologies for the Winter Seasons (Section 4.1) and Summer Seasons (Section 4.2).y

4.1. ~~Winter~~ P50 Peak Load Forecast

Example monthly P50 Peak Load Forecasts for a Winter Season is shown in Table 1 and Table 2 and referred to in the methodological steps below.

	Month	Season	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2023/2024 Monthly P50 Peak Load Forecast - unadjusted	2023/2024 Monthly P50 Peak Load Forecast - adjusted for load growth
	November	Winter	2098	1998	1899	1958	2468	1998	2042
Seasonal	December	Winter	2060	2206	2241	2202	2273	2448	2502
Peak	January	Winter	2363	2381	2239	2521	2302	2448	2502
Months	February	Winter	2448	2072	2213	2476	2477	2448	2502
	March	Winter	2070	2253	2047	1959	1806	2047	2093
		Maximum	2448	2381	2241	2521	2477		

Table 1 - Example Winter Season P50 Peak Load Forecast

	Month	Season	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2025/2026 Monthly P50 Peak Load Forecast - Unadjusted for Load Growth	2025/2026 Monthly P50 Peak Load Forecast - Adjusted for Load Growth
	November	Winter	3786	4155	3628	4114	4155	4114	4205
Seasonal Peak Months	December	Winter	3902	3924	4748	4807	4297	4326	4422
	January	Winter	3866	3833	4187	3973	4326	4326	4422
	February	Winter	3680	4182	4323	4206	3997	4326	4422
		Maximum	3902	4182	4748	4807	4326		

Table 2 - Example Summer Season P50 Peak Load Forecast

	Month	Season	2019	2020	2021	2022	2023	2026 Monthly P50 Peak Load Forecast - Unadjusted for Load Growth	2026 Monthly P50 Peak Load Forecast - Adjusted for Load Growth
Seasonal Peak Months	June	Summer	3138	3225	4036	3478	3225	3624	3704
	July	Summer	3163	3286	3470	3819	2795	3624	3704
	August	Summer	3624	3179	3729	3597	3288	3624	3704
	September	Summer	2827	2756	2935	3044	2959	2935	3000
		Maximum	3624	3286	4036	3819	3288		

1. Determine the peak load for each Month of the ~~Winter~~ Binding Season for the last available five Winter Seasons using the Historical Load Data submitted as part of the Advance Assessment (see *BPM 101 Advance Assessment*). These are the load values populating the light blue section of Table 1 (e.g., November peak load from 2019/2020 is ~~1899~~ 3786 MW).

2. Calculate the maximum peak load for each of the last available five ~~Winter~~ Binding Seasons. For example, the maximum peak Winter load for 2020/2021 is ~~2521~~ 4182 MW.
3. The Monthly P50 Peak Load Forecast for the Seasonal Peak Months is the median of step 2 which in Table 1 is ~~2448~~ 4326 MW.
4. The Monthly P50 Peak Load Forecasts for Months not in the Seasonal Peak Months~~November and March~~ are the median of the respective load values from step 1, which in Table 1 ~~are~~ is ~~respectively 1998~~ 4114 MW ~~and 2047 MW~~.

An example spreadsheet showing steps 1 through 4 is posted on the WPP website.

5. Per the Tariff, a Participant can modify the results of Step 1 to capture load changes during the forecast window and ensure the results of Step 3 and Step 4 are correct. If historical load data is available the affected Participants are responsible for adjusting any monthly peak loads in Step 1 that do not capture the load change. If historical load data is unavailable (e.g., a new data center) the affected Participant is responsible for generating synthetic load data and adjusting any monthly peak loads in Step 1 that do not capture the load change. Amending the results of Step 1 will be necessary until the peak load for each Month of the Winter Season for the last available five Winter Seasons automatically fully capture the impacts of the load change through the Historical Load Data submitted as part of the Advance Assessment. A Participant will need to attest to the accuracy of any modification (see Appendix A - P50 Peak Load Forecast Modifications Senior Official Attestation). Additions and removals of load are separate and distinct from Load Growth Factors discussed in Section 5 and are intended to capture significant one-time changes such as the addition or loss of a large industrial customer.
6. Per the Tariff, a specified Load Growth Factor will then be applied to the results of step 5 (see Section 5) for each year following the last year in the Historical Load data. For example, the Monthly P50 Peak Load Forecast – unadjusted is multiplied by the Load Growth Factor once for 202~~4~~2/202~~3~~5 and again to arrive at the 202~~3~~5/202~~6~~4 Monthly P50 Peak Load Forecast – adjusted for load growth value in the last column in Table 1 and Table 2 ~~Table 2~~.

~~4.2. Summer P50 Peak Load Forecast~~

~~The monthly P50 Peak Load Forecast for the Summer Seasons utilizes a Load Forecast Ratio to reflect the potential for a Participant to experience peaks in different months of the Summer Season from year to year. An example monthly P50 Peak Load Forecast for a Summer Season is shown in Table 2 and referred to in the methodological steps below.~~

Month	Season	2018	2019	2020	2021	2022	Monthly Average of Peak Loads	Maximum Monthly Average of Peak Loads	Median of Maximum of Peak Loads for the last five Seasons	Load Forecast Ratio	2024 Monthly P50 Peak Load Forecast - unadjusted	2024 Monthly P50 Peak Load Forecast - adjusted for load growth
June	Summer	3071	3571	1903	2496	1957	2600	2960	3571	0.88	3136	3206
July	Summer	3672	1761	2434	3219	3715	2960			1.00	3571	3650
August	Summer	2049	2929	2661	2939	2347	2585			0.87	3119	3188
September	Summer	2308	1698	1880	1664	2443	1999			0.68	2411	2465
	Maximum	3672	3571	2661	3219	3715						

Table 2 - Example Summer Season P50 Peak Load Forecast

1. Determine the peak load for each Month of the Summer Season for the last available five seasons using the Historical Load Data submitted as part of the Advance Assessment (see BPM 101 Advance Assessment). These are the load values populating the light blue section of Table 2 (e.g. June peak load from 2020 is 1903 MW).
2. Calculate the maximum peak load for each of the last available five seasons. For example, the maximum peak load for 2021 in the yellow section of Table 2 is 3219 MW.
3. Calculate the median of step 2, which in Table 2 is 3571 MW.
4. Calculate the Load Forecast Ratio.
   - 4.1. For each of the last available five Summer Seasons calculate the average of the five peak loads for each Month. For example, in August in Table 2 the average of the peak loads is 2585 MW.
   - 4.2. Identify the maximum load value from step 4.1. In the example shown in Table 2 this is the July average of 2960 MW.
   - 4.3. The Load Forecast Ratio for each Month of the Summer Season is the result of step 4.1 divided by the MW value identified in step 4.2. In the example shown in Table 2, this is 1.00 for July (and will always by 1.00 for the maximum Summer month) and 0.68 for September.
5. Multiply the Load Forecast Ratios for each Month of the Summer Season from step 4.3 by the result of step 3. These are the Monthly P50 Peak Load Forecast values unadjusted for load growth or load additions/removals (seen in red in Table 2). In the example shown in Table 2 the Monthly P50 Peak Load Forecast - unadjusted value for September is 2411 MW (0.68 multiplied by 3571 MW).

An example spreadsheet showing steps 1 through 5 is posted on the WPP website.

6. Per the Tariff, a Participant can modify the results of Step 1 to capture load changes during the forecast window and ensure the results of Step 5 are correct. If historical load data is available the affected Participants are responsible for adjusting any monthly peak loads for in Step 1 that do not capture the load change. If historical

~~load data is unavailable (e.g. a new data center) the affected Participant is responsible for generating synthetic load data and adjusting any monthly peak loads in Step 1 that do not capture the load change. Amending the results of Step 1 will be necessary until the peak load for each Month of the Summer Season for the last available five season automatically fully capture the impacts of the load change through the Historical Load Data submitted as part of the Advance Assessment. A Participant will need to attest to the accuracy of any modification (see Appendix A – P50 Peak Load Forecast Modifications Senior Official Attestation). Additions and removals of load are separate and distinct from Load Growth Factors discussed in Section 5 and are intended to capture significant one-time changes such as the addition or loss of a large industrial customer.~~

~~7. Per the Tariff, a specified Load Growth Factor will then be applied to the results of step 6 (see Section 5) for each year following the last year in the Historical Load Data. For example, the Monthly P50 Peak Load Forecast – unadjusted is multiplied by the Load Growth Factor once for 2023 and again to arrive at the 2024 Monthly P50 Peak Load Forecast – adjusted for load growth value in the last column in Table 2).~~

5. Load Growth Factor

A Participant will have the option of using either a WPP-established WRAP-wide growth rate(s) (Section 5.1) or developing its own alternative growth rate (Section 5.2). Load growth is separate and distinct from the additions and removals of load discussed in Section 4.1 step 5 and Section 1.1 step 1.

5.1. Established Growth Rate

A WRAP-wide established growth rate (or set of established growth rates) may account for location, weather, Participant type, Participant customer composition (balance between retail, commercial, and industrial). The established growth rate is currently set at 1.1%. Changes to the established growth rate for the P50 Peak Load Forecast in BPM 103 will be reviewed, endorsed, and approved as described in the *BPM 300's Stakeholder Engagement* series.

5.2. Participant Alternative Growth Rate

If a Participant believes the established growth rate discussed in Section 5.1 does not accurately represent its anticipated loads in the Binding Season, the Participant may request an alternative growth rate that will be validated by the Program Administrator and Program Operator (using the form found on WPP website). The Program Administrator will consider the data presented in support of the Participant's request for an alternative growth rate, which could potentially relate to weather, economic growth, or climate. As part of the request, the Participant will demonstrate that the alternative

growth rate (applied to each year following the last year in the Historical Load Data) results in a P50 Peak Load Forecast that is (in total) 5% higher or lower than the P50 Peak Load Forecast calculated using the growth rate in Section 5.1 in the Month of the Binding Season with the highest P50 Peak Load Forecast. For example, the Participant with data from Table 1 would provide an alternative load growth factor that, when applied for two years of growth, results in a P50 Peak Load value of greater than 2,627MW or less than 2,377MW for December, January, or February, and would provide supporting information for said load growth factor.

6. Contingency Reserve Adjustment

As discussed in *BPM 102 FS Reliability Metrics*, the LOLE Study and resulting monthly FSPRMs ensure Contingency Reserve is maintained by assuming a proxy Contingency Reserve requirement of six percent (6%) of the Regional P50 Peak Load Forecast across the WRAP Region. However, as the BAL-002-WECC-3 standard requires a reserve equal to three percent (3%) of hourly integrated load and three percent (3%) of hourly integrated generation, the individual Participants' Contingency Reserve requirements (and therefore FS Capacity Requirements) will be different depending on the load and generation profiles specific to them. For instance, some Participants may utilize contracted capacity to meet their FS Capacity Requirement where the seller, through a contractual arrangement, is responsible for carrying the Contingency Reserve obligation of contracted capacity, or some Participants may purchase Contingency Reserve to cover some or all of their Contingency Reserve requirements. These are categorized as Contingency Reserve adjustments and the intent is to ensure that the portion of the FSPRM attributable to Contingency Reserve is included in the FS Capacity Requirement of the LRE with the actual responsibility, whether that responsibility is driven by a BAL-002 WECC-3 compliance obligation or through a contractual arrangement. The FS Capacity Requirements Unadjusted are therefore adjusted for a Participant's Contingency Reserve requirements (plus or minus). A Participant's Contingency Reserve Adjustment has two components: Contingency Reserve Adjustment-Generation and Contingency Reserve Adjustment-Load.

6.1. Contingency Reserve Adjustment-Generation

A Participant's sale or purchase of capacity where there is an accompanying contractual transfer of obligation for Contingency Reserve may impact the amount of Contingency Reserve needed in the Participant's FS Submittal.

Participants selling capacity that is utilized to meet another Participant's FS Capacity Requirement will get a positive value for the Contingency Reserve Adjustment-Generation, meaning the Participant will demonstrate additional capacity to cover

Contingency Reserve for the generating resources serving the export contracts. Participants meeting some or all of the FS Capacity Requirement with contracts where the seller carries the Contingency Reserve obligation will have a negative Contingency Reserve Adjustment-Generation, meaning the Participant demonstrated less capacity, as the seller is carrying the Contingency Reserve for the resources serving the contract(s).

Exceptions to the aforementioned are possible when contractual arrangements dictate alternative treatment as indicated in the workbook.

6.2. Contingency Reserve Adjustment-Load

For a Participant with Contingency Reserve contracts, the Participant's Contingency Reserve Adjustment-Load is the net of the Participant's sales of such contracts less purchases for each Month of a Binding Season.

If a Participant is a net seller of Contingency Reserve contracts to a Participant assumed to have a Contingency Reserve obligation on its WRAP load, it will carry additional Contingency Reserve to cover such contracts (with a positive Contingency Reserve Adjustment-Load). If a Participant is a net purchaser of Contingency Reserve contracts, it will carry fewer Contingency Reserve (having contracted away the obligation), resulting in a negative Contingency Reserve Adjustment-Load.

7. Excluding Load

As described in *BPM 108 FS Submittal Process*, a Participant will include all loads in its FS Demonstration for which it is responsible: i.e. all loads within the Western Interconnect (that are not participating in another resource adequacy program or represented by another WRAP LRE) for which the Participant has an obligation to forward procure capacity to meet any portion of the load or for which the Participant is the exclusive wholesale electricity provider to a load serving entity.

A Participant may seek to exclude loads from WRAP participation. This is distinct from a Participant modifying its P50 Peak Load Forecast to account for additions and removal of load. This is distinct from a Participant modifying its P50 Peak Load Forecast to account for additions and removal of load. As part of its FS Demonstration, the Participant will attest that the Participant is not the exclusive wholesale provider for the load (see Appendix B - Load Exclusion). As part of its FS Demonstration, the Participant will also provide documentation of notice to the end-use customer of the Participant's intent to exclude the load from WRAP in the form provided on the WPP website and acknowledged via signature by a senior official of the end-use customer. Excluded load may not be included in the Operations Program. Excluded load must be separately metered, such that the excluded load may be removed from load forecasting

information to be provided in the Operations Program, as further discussed in *BPM 202 Participant Sharing Calculation Inputs*, and from the Historical Load Data utilized in Section 4. Loads may not be partially excluded.

8. Submitting Loads from Multiple Subregions

As described in *BPM 108 FS Submittal Process*, a Participant responsible for loads in two Subregions seeking to submit a single workbook using one monthly FSPRM may do so if the Participant can demonstrate WRAP Qualifying Transmission from the load in the Subregion with the utilized monthly FSPRM to the load in the Subregion with the higher monthly FSPRM (see *BPM 108* for additional information). When submitting a single FS Submittal for loads in multiple Subregions, the Participant will use historical load data including all loads when calculating the FS Capacity Requirement for that Month according to Sections 2 through 7 of this BPM. Subregion loads will be combined on a coincident peak basis to determine monthly P50 Peak Loads when submitting a single FS Submittal.

9. Load Aggregation/Disaggregation

As described in BPM 108 FS Submittal Process, all loads submitted by a Participant within a single FS Submittal must be able to be served interchangeably by all Qualifying Resources and Qualifying Contracts in that same FS Demonstration, without the expectation that additional transmission rights will be required to deliver resources to load. In accordance with this, a Participant may be required to submit separate FS Demonstrations, even as to loads residing in the same Subregion, if the Program Administrator determines it is not practicable to treat such loads as if they can share in load and resource diversity for reasons that may diminish the integrity of WRAP reliability metrics, including but not limited to, if loads and resources are not operated collectively.

10. LOLE Study Load Forecast and Load Growth Rate

A LOLE Study (see BPM 102 FS Reliability Metrics) is undertaken as part of the Advance Assessment (see BPM 101 Advance Assessment) to determine a Binding Season's monthly FSPRMs. The Regional P50 Peak Load Forecasts for the Binding Seasons in the LOLE Study are calculated using the same Participant P50 Peak Load Forecast methodologies outlined in Section 4. An LOLE Study-specific program-wide load growth rate is then applied to the results. The current Load Growth Factor for the LOLE Study is set to 1.1%. Changes to the established growth rate for the LOLE Study in BPM 103 will be reviewed, endorsed, and approved as described in the BPM 300's Stakeholder Engagement series.

Appendix A - P50 Peak Load Forecast Modifications Senior Official Attestation

I, the undersigned, who as [title], serves as a senior official of [Participant], hereby attest that the peak loads for each month of the Season for the last available five seasons have been modified accurately to the best of my knowledge and belief following due inquiry to account for discrete additions and removals of load planned to take place by the corresponding Months of the Binding Season, not to include speculative or estimated load growth, to ensure accurate Monthly P50 Load Forecast values included with this attestation. Also included with this attestation is a narrative description of the loads added and/or removed from the Monthly P50 Load Forecast, including their magnitude and applicable Months.

Appendix B - Load Exclusion Senior Official Attestation

I, the undersigned, who as [title], serves as a senior official of [Participant], hereby request that the [load identifier from FS Submittal] be excluded from [Participant's] P50 Load Forecast calculation. I attest that [Participant] is not the exclusive wholesale electricity provider for this load.

WESTERN POWERPOOL

Western Resource Adequacy Program

105 Qualifying Resources

100 – Forward Showing

Revision History

Manual Number	Version	Description	Revised By	Date
105	0.1	RAPC Glance Version	Rebecca Sexton	5/9/2023
105	0.2	Public Comment	Rebecca Sexton	6/23/2023
105	0.3	RAPC & PRC Discussion	Rebecca Sexton	8/10/2023
105	0.4	RAPC Endorsement	Rebecca Sexton	8/11/2023
105	0.5	Board Consideration	Rebecca Sexton	8/17/2023
105	1.0	Board Approved	Rebecca Sexton	8/23/2023
105	2.0	2026-Expedited-Proposal-1	Maya McNichol	2/3/2026
105	3.0	Annual BPM Review	Maya McNichol	3/19/2026
105	3.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
105	3.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Table of Contents

105 Qualifying Resources

1. Introduction

The Qualifying Resources Business Practice Manual (BPM) consists of two sections. The Resource Registration section outlines the processes for Participants to register their Qualifying Resources with the Program Operator to be included in the Advance Assessment to receive a Qualifying Capacity Contribution (QCC). The Qualifying Capacity Contribution of Resources section outlines the processes that the Program Operator will undertake to calculate QCC values for all registered Qualifying Resources.

1.1 Intended Audience

BPM 105 is intended for Western Power Pool (WPP) Western Resource Adequacy Program (WRAP) Participants and other interested individuals or entities. BPM 105 is particularly useful for those individuals that are responsible for their Participant organization's Forward Showing (FS) Submittal and need to ensure that their organization's Qualifying Resources are properly registered, will be included in the Advance Assessment, and will receive QCC values.

1.2 What You Will Find in This Manual

BPM 105 includes two separate Business Practices: 1) Resource Registration and 2) Qualifying Capacity Contribution of Resources.

1.3 Purpose

To provide an overview of resource registration and qualification processes and the process for determining the QCC for Qualified Resources.

1.4 Definitions

All capitalized terms that are not otherwise defined in BPM 105 have their meaning set forth in the Tariff. Any capitalized terms not found in the Tariff that are specific to BPM 105 are defined here.

Advance Assessment Data Request: As defined in *BPM 101 Advance Assessment.*

ASHRAE Rated Ambient Temperature: The ambient temperature employed for Capability Testing of a resource for the Summer Season, as determined for the resource location on a dry-bulb basis in accordance with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Fundamentals Handbook,[1] Climatic Design Information, Cooling and Dehumidification Design Conditions Appendix using the – "Cooling DB/MCWB 0.4%" values. If the resource is located within 30 miles of the nearest weather station reported in the Handbook, then the temperatures

[1] ASHRAE Fundamentals Handbook

employed for the Rated Ambient Temperature will be those reported for the nearest station. For all other resource locations, the Rated Ambient Temperatures shall be determined by interpolating between those reported for appropriate weather stations using the resource location's latitude and longitude.

Capability Test: The demonstration of capability of certain Qualifying Resources by generating at their rated capability under specified test conditions and test duration.

Cascaded Dual Plant: Two Storage Hydro Qualifying Resources that are on the same river systems and operated in a coordinated manner.

Cure Period: As defined in *BPM 108 Forward Showing Submittal Process*

Data Request Instruction Manual: As defined in *BPM 101 Advance Assessment*.

Fuel Type: A resource's primary fuel source, such as coal, natural gas, wind, or hydroelectric.

Hybrid Facility: A resource that is composed of two or more resources of different fuel or technology types where one of those resources is an Energy Storage Resource with the same interconnection point.

Hydro QCC Workbook: The workbook that determines the QCC of a Storage Hydro resource(s).

Long Duration Storage: A resource designed to capture energy produced at one time for use at a later time, and capable of sustained delivery for over eight hours (such as pumped Storage Hydro facilities or thermal energy storage devices).

Net Generating Capability: The gross maximum output of a Qualifying Resource reduced by any power used for auxiliary power requirements demonstrated through a Capability Test. May be used interchangeably with Installed Capacity when referencing Thermal Resources.

Operational Test: The annual demonstration of the functional ability of a Qualifying Resource.

2. Background

Participant owned and contracted Qualifying Resources capable of providing capacity may be used to meet a Participant's FS Capacity Requirement. In order to receive a QCC for these Qualifying Resources, a Participant must provide the necessary information and data to the Program Operator. The Program Operator will develop and

maintain a registration and certification process for all Qualifying Resources identified for the FS Program as outlined in BPM 105. BPM 105 does not cover timelines associated with Participants and the Program Operator completing the registration and QCC assessment process. Timelines for registration can be found in *BPM 101 Advance Assessment*.

3. Resource Registration

3.1 Resource Eligibility

A Participant will register all owned resources in its portfolio and all resources acquired in resource specific contracts in order for those resources to receive QCC values, subject to the exceptions described in BPM 105.

Resource registrations, including the appropriate modeling data required by the Program Operator, shall be submitted in accordance with deadlines stated in *BPM 101 Advance Assessment*, relating to the timeline for the Advance Assessment.

Participants shall employ the Advance Assessment Data Request, and the guidance and instructions in the Data Request Instruction Manual for providing resource registration information. The then-effective versions of the Advance Assessment Data Request and the Data Request Instruction Manual are available on the WPP website. The QCC calculations for all Qualified Resources will be updated during each Advance Assessment to be used for the applicable Binding Season.

Resources owned and operated by entities that are not Participants and contracted to Participants with resource specific contracts (i.e., not System Sales or block contracts) must be registered with the Program Operator and provide the necessary data in order for Participants to claim the full QCC from these resources toward their FS Capacity Requirements.

Qualified Resources must be 1 MW minimum to qualify for registration (see Section 3.3). The registration process for all Qualifying Resources, other than Storage Hydro Qualifying Resources, will require, but will not be limited to, provision of the information set forth in Table 1 and Table 2 to the Program Operator, by means of the Advance Assessment Data Request. Registration of Storage Hydro Qualifying Resources will require, but will not be limited to, the provisions of items set forth in Table 3 to the Program Operator, by means of the Advance Assessment Data Request.

3.2 Late Registration of Resources

Resources that are unable to register by the deadline of the Advance Assessment Data Request may still be able to register through the following processes. Such resources

may include those owned by Participants or those contracted to Participants with resource specific contracts.

A Participant may register a resource after the Advance Assessment deadline and prior to the FS Submittal Deadline (the process and timeline for submitting the FS Submittal can be found in *BPM 108 Forward Showing Submittal*) provided the Participant provides the necessary information in Table 1 and Table 2 (or Table 3 for Storage Hydro resources). The QCC that will be allowed for late registered resources will be either the class average of similar resources or will be a discounted QCC based on the circumstances of the data provided as further described in Generator Testing (Section 3.4) and Qualifying Capacity Contribution of Resources (Section 4).

Given that the program has very little information about late registered Qualified Resources, such resources may constitute no more than 10% of the total FS Capacity Requirement for an individual Participant, unless that Participant can demonstrate an increase in the load participating in the WRAP after the Advance Assessment data collection deadline for registering resources for that Binding Season. During the Transition Period, late registered resources may constitute as much as 20% of an individual Participant's total FS Capacity Requirement, unless that Participant can demonstrate an increase in the load participating in the WRAP after the Advance Assessment data collection deadline for registering resources for that Binding Season. In the case of increased load, the Participant may provide late registered resources to meet the FS Capacity Requirement for the additional load, as well as for the load anticipated to participate at the time of the Advance Assessment data collection deadline.

Table 1. Information Required for Resource Registration

	Description / Instructions
Facility Name	Plant name of the resources. If possible, utilize the Energy Information Administration (EIA)-860[2] plant name given for U.S. resources.
Unit ID	The unique generator identification commonly used by plant management. If possible, utilize the EIA-860 Generator ID given for U.S. resources.
Prime Mover	Utilize the predetermined dropdown list of EIA-860 Prime Mover identifiers. For combined

[2] https://www.eia.gov/electricity/data/eia860/

Description / Instructions	
	cycle resources, a prime mover code must be entered for each generator.
Fuel Type	Utilize the predetermined dropdown list in the workbook of Fuel Types used as the primary energy source to power the generator.
Host Balancing Authority	Provide the Balancing Authority Area (BAA) in which the resource is located.
Ownership or Contracted Percentage for Participant	Enter the percentage of resource capability owned or contracted by the Participant. This should also include the percentage of any power purchase agreement (PPA) where the Participant has fully contracted for the capacity from a facility but would not include a PPA with another Participant. For example, if the Participant has a PPA with a wind developer, solar developer, or city that has local generation for an extended period of time (i.e., 15 Years or life of the facility) then the percentage of the offtake of that facility should be listed here.
Summer Max Capacity or Nameplate (MW)	Provide the generator's Net Generating Capability for the primary energy source. This can be i) the net expected capacity, as determined from a summer Capability Test performed in accordance with the procedures on generator testing, Section 3.4 ii) the EIA-860 nameplate capacity for Wind, Solar, Run-of-River (ROR), and Energy Storage Resources (ESR) located in the U.S. and iii) the nameplate capacity for Wind, Solar, ROR and ESR located outside of the U.S.
Winter Max Capacity or Nameplate (MW)	Provide the generator's Net Generating Capability for the primary energy source. This can be i) the net expected capacity, as determined from a winter Capability Test performed in accordance with the procedures on generator testing, Section 3.4 ii) the EIA-860 nameplate capacity for Wind, Solar, ROR, and ESR located in the U.S. and iii) the

Description / Instructions	
	nameplate capacity for Wind, Solar, ROR and ESR located outside of the U.S.
In-Service Date Month-Year	Provide the Month and Year of the original in-service date (or commercial operation date) that the resource became operational (if possible, the operating Year used in EIA-860 should be submitted for all resources within the U.S.). For details on the format of the submittal, refer to the Data Request Instruction Manual on the WPP website.
Retirement Date Month-Year	Provide the Month and Year for resources that have been either formally announced or marked for retirement.
State or Province	Enter the state acronym where the resource is physically located. For resources in Canada, enter the province.
County	For resources in the U.S., enter the county (or county equivalent) where the resource is located.
Inverter Loading Ratio (Only for Solar and Wind)	For solar and wind resources only, enter the loading ratio of the inverter compared to the nameplate of the resource. As an example, if the nameplate of a solar resource is 150 MW and the inverter is limited to 125 MW (oversizing of solar panels), then the ratio would be 1.2 (150 / 125). If the nameplate of the resource is the same as the inverter, or the loading ratio is not known, the provided loading ratio would be 1.0.
ESR Duration (Only for ESRs)	For ESRs, enter the maximum continuous number of hours for which the ESR can be utilized at its maximum capacity.
Facility Limitation MW (Only for Hybrid Facilities)	For Hybrid Facilities, provide the maximum capability which the combined amount of the component resources can output to the system. This is typically based on the inverter limit before generation is output to the system.

Description / Instructions	
Comments	Enter, if applicable, any additional comments about the submitted information.

Table 2. Additional Information Required for Resource Registration

Description / Instructions
Thermal Resources - North American Electric Reliability Corporation (NERC) Generating Availability Data System (GADS) or equivalent data is required for all Thermal Resources. For further details on the format of the submittal, refer to the Data Request Instruction Manual on the WPP website.
Wind, ROR, Solar Resources – hourly output profiles for the last 10 Years or as much as is available. For further details on the format of the submittal, refer to the Data Request Instruction Manual on the WPP website.

The registration process for all Storage Hydro Qualifying Resources will require, but will not be limited to, the items in Table 3, as follows:

Table 3. Storage Hydro Qualifying Resource Registration

	Description / Instructions
Facility Name	Plant name of the Storage Hydro Qualifying Resource. If possible, utilize the EIA-860 plant name given for U.S. Storage Hydro Qualifying Resources.
Unit ID	The unique generator identification commonly used by plant management. If possible, utilize the EIA-860 Generator ID given for U.S. Storage Hydro Qualifying Resources.
Prime Mover	Utilize the predetermined dropdown list of EIA-860 prime mover identifiers.
Host Balancing Authority	Provide the BAA location of the Storage Hydro Qualifying Resources.
Ownership or Contracted Percentage for Participant	Enter the percentage owned or contracted by the Participant. This should also include the percentage of any PPA where the Participant has fully contracted for the capacity from a facility but would not include a PPA with another Participant.
Individual Monthly QCC (MW)	QCC values by Month (all Months of the Year) for all Storage Hydro Qualifying Resources. The QCC of the Storage Hydro Qualifying Resources is determined by Section 4.
In-Service Date Month-Year	Provide the Month and Year of the original in-service or commercial operation date that the Storage Hydro Qualifying Resource became operational (if possible, the operating Year used in EIA-860 should be submitted for all Storage Hydro Qualifying Resources within the U.S.). For planned Storage Hydro resources, enter the Month and Year the Storage Hydro Qualifying Resource is projected to become operational.

Description / Instructions	
Retirement Date **Month-Year**	Provide the Month and Year for resources that have been either formally announced or marked for retirement.
State or Province	Enter the state abbreviation where the Storage Hydro Qualifying Resource is physically located. For Storage Hydro Qualifying Resources in Canada, enter the province.
County	For Storage Hydro Qualifying Resources in the U.S., enter the county (or county equivalent) where the Storage Hydro Qualifying Resource is located.
Comments	Enter, if applicable, any additional comments about the submitted information.

Qualifying Resource Aggregation (Resources <1 MW)

Qualifying Resources that are less than 1 MW in size may be aggregated to obtain the minimum 1 MW registration requirement.

Qualifying Resources that are aggregated will need to have a common injection point of capacity to the transmission system. Aggregations of generators at different distribution substations may be allowed provided the generators are in the same BAA, same zone (as applicable by resource type), and are the same resource type.

For Qualifying Resources that are requested to be aggregated, the following information should be provided to the Program Operator.

- For the aggregated facility:
  - Quantity of generators being aggregated.
  - Combined nameplate of generators being aggregated.
  - One-line diagram of the transmission/distribution system at which the generators are located.
- For each generator being aggregated:
  - Nameplate.
  - Location of power injection to the transmission system (substation).
  - Supporting information for QCC evaluation.

This information will be provided to the Program Operator during the Advance Assessment Data Request submission.

3.4 Generator Testing

3.4.1 Background

Qualifying Resources must have Capability Tests and Operational Tests performed and provided by the Participant, as applicable and in accordance with the guidelines contained in BPM 105. Capability Tests will be required for resources as detailed below. All Qualifying Resources must perform annual Operational Tests completed in the 12-Month period prior to the FS Submittal due date that may be conducted within or outside of a Bidning Season (at Participant's discretion).

3.4.2 Capability Testing

Capability Tests will be required for Thermal Resources, Long Duration Storage resources, and Demand Response resources (as defined in BPM 105) with exceptions as noted in this section.

For units that are required to perform Capability Tests, the Participant may choose whether to use Capability Tests on a unit-by-unit basis or on a plant-level basis; regardless of the approach, all units requiring a QCC must be tested (see bullet 3 below). Capability Test duration shall be a minimum of one hour. Once a qualifying Capability Test is submitted to the Program Operator by the FS Submittal Deadline, the five-Year submittal window will be reset. The Capability Test may be performed at the convenience of the Participant and can be completed more often than every five Years. The most recent testing data will be used to determine a generator's QCC if a Capabilty Test is performed between the Advance Assessment and the FS Submittal.

For Storage Hydro, ROR Hydro, Wind, Solar, and ESR, the annual Operational Test will suffice as the Capability Test.

3.4.2.1 Capability Test Requirements for Thermal Resources

Capability Tests conducted for Thermal Resources are used as the base accredited value to which Unforced Capacity (UCAP) calculations are applied (see Section 4.2) to determine final QCC values. A Thermal Resource that is not subject to generator testing requirements (i.e., are not subject to NERC MOD-025 requirements) may have its QCC values determined in accordance with Section 4.2, Option 1, in lieu of performing the Capability Test.

Capability Tests for Thermal Resources will be performed during the Summer Season and must meet the testing requirements specified in BPM 105. A resource may use its Summer Season Capability Test value for both the Summer Season and the Winter Season. If a unit has a greater Net Generating Capability for the Winter Season than for the Summer Season, a separate Capability Test will need to be performed during the Winter Season to claim the higher Net Generating Capability value.

The following requirements must be met for a Thermal Resource Capability Test, documentation of which will be provided to the Program Operator at the time of the FS Submittal Deadline:

1) Summer Capability Tests are to be conducted during a time when the ambient dry-bulb temperature is no more than 10 degrees Fahrenheit below the station ASHRAE Rated Ambient Temperature. At the time of testing, the most recent version of the ASHRAE Fundamentals Handbook shall be utilized. If the dry-bulb temperature exceeds 10 degrees below the ASHRAE Rated Ambient Temperature, a penalty of 5% plus an additional 0.5% per degree for each additional degree below 10 degrees, up to 20 degrees, will be applied to the Capability Test result. A summer Capability Test shall not be performed below 20 degrees of the ASHRAE Rated Ambient Temperature. There is no ambient temperature requirement for Winter Capability Tests.
2) The unit shall be brought to the desired test load and allowed to stabilize. Once the test period has begun, only minor changes in unit controls shall be made as required to maintain the unit in normal, steady-state operation.
3) The unit capability shall be determined separately for each generating unit in a power plant where the input to the prime mover of the unit is independent of the others. Units that are aggregated into a single Resource Registration and prefer testing aligned with their registered resource and/or are dependent upon common systems (i.e., fuel, steam supply, auxiliary equipment, transmission, etc.) which restrict total output shall be tested simultaneously. Each unit shall be assigned an individual capability by apportioning the combined capability among the units.
4) The fuel used during testing shall be the type expected to be used during peak load conditions.
5) The capability of a unit or plant obtained through non-typical operation (i.e., bypassing feedwater heaters, varying steam conditions, alternate control mode, etc.) is acceptable.

3.4.2.2 Capability Testing of Long Duration Storage Resources

Capability Tests for Long Duration Storage resources are used as the base accredited value to which UCAP calculations are applied (See Section 4.2) to determine final QCC values. A Long Duration Storage resource that is not subject to generator testing requirements (i.e., are not subject to NERC MOD-025 requirements) may have its QCC values determined in accordance with Section 4.2, Option 1, in lieu of performing the Capability Test. There are no temperature or timing requirements on the Long Duration Storage Capability Test, other than the five-Year frequency.

1) The unit shall be brought to the desired test load and allowed to stabilize. Once the test period has begun, only minor changes in unit controls shall be made as required to maintain the unit in normal, steady-state operation.
2) The unit capability shall be determined separately for each generating unit in a plant where the input to the prime mover of the unit is independent of the others. Units that are aggregated into a single Resource Registration and prefer testing aligned with their registered resource and/or are dependent upon common systems (i.e., fuel, steam supply, auxiliary equipment, transmission, etc.) which restrict total output shall be tested simultaneously. Each unit shall be assigned an individual capability by apportioning the combined capability among the units.
3) The fuel used during testing shall be the type expected to be used during peak load conditions.
4) The capability of a unit or plant obtained through non-typical operation (i.e., bypassing feedwater heaters, varying steam conditions, alternate control mode, etc.) is acceptable.

3.4.2.3 Capability Testing of Demand Response Programs

A Capability Test for a Demand Response (DR) program registered as a Qualifying Resource will be used to confirm the claimed capability of the DR program, as well as the claimed duration of the load reduction (up to five hours). Capacity testing of the DR program will consist of a sustained reduction in load attributable to the deployment of the controllable and dispatchable program by the Participant for up to five hours. If a DR program fails to achieve the claimed load reduction capability and duration during the Capability Test, the DR program's QCC will be determined using the tested values instead. If the DR resource has a higher capacity value in one of the two Binding Seasons, the Capability Test must be conducted during the Binding Season with the higher capacity value; the DR resource does not need to be re-tested during the season with a lower capacity value. There are no temperature requirements for the DR Capacity Test.

As noted in Section 4.6, new DR programs, or the newly expanded portion of a DR program, will be assigned a QCC of 50% of the expected capability. If the Participant desires a higher QCC than 50% of the expected capability, Participant may conduct a Capability Test outside of the expected peak season of the DR program. Testing outside of the peak season will only be considered a Capability Test during the first Year of operation or during the expansion of an existing DR program. An Operational Test shall then be performed during the upcoming Binding Season and reported to the Program Operator (see Section 3.4.3.6).

3.4.2.4 Forced Outages Affecting Capability Testing

If a unit is due for a Capability Test, but unable to perform the Capability Test due to a forced outage, a maintenance outage, or a forced de-rate, the most current Capability Test results may be used, provided it is used only for the immediately succeeding Summer Season and Winter Season. The unit will be required to perform an Operational Test per the Operational Testing procedures (Section 3.4.3) before the next Summer Season. For example, if a unit enters a forced outage while performing a Capability Test and the repair for the unit cannot be completed until after the Summer Season, then when the unit is repaired, an Operational Test must be completed. In that case, the previous Capability Test will be used to satisfy the generator testing requirements for the upcoming Summer Season FS submittal. A Capability Test must be performed in the next Summer Season for the next FS submittal. If the unit fails to complete the make-up Capability Test, the unit cannot be claimed on the FS Submittal.

3.4.3 Operational Testing

3.4.3.1 Thermal Resources and Long Duration Storage

An Operational Test serves as an annual demonstration of the functional capability of a Qualifying Resource to generate at a high-level of its Net Generating Capability in the upcoming Binding Season. This test must be completed in the 12-Month period prior to the FS Submittal due date and can be conducted within or outside of a Binding Season (at Participant's discretion). Test data shall be compiled and submitted via the FS Submittal process, as outlined in *BPM 108 Forward Showing Submittal*. The Operational Test must be conducted at a minimum of 90% of the Summer Net Generating Capability. The Operational Test shall be conducted for a minimum of one hour, and for Thermal Resources there are no Rated Ambient Temperature requirements for Operational Tests. Any hour with the unit operating at or above 90% of the Net Generating Capability may be deemed a successful Operational Test. In case of failure to meet 90% of the Net Generating Capability, the resource can only claim what it can achieve on the Operational Test (to which the UCAP calculations are applied – see Section 4.2) for purposes of determining its QCC for the upcoming FS Submittal.

3.4.3.2 Storage Hydro Resources

An Operational Test serves as a verification that the resource can meet its QCC values on a plant-level basis as determined by the Storage Hydro QCC methodology. This test must be completed in the 12-Month period directly prior to the FS Submittal due date and can be conducted within or outside a Binding Season (at Participant's discretion). Test data shall be compiled and submitted via the FS Submittal process, as outlined in *BPM 108 Forward Showing Submittal*. The Operational Test must achieve a minimum of 90% of the plant's highest monthly QCC value from the FS Submittal being submitted. The Operational Test shall be conducted for a minimum of one hour and there are no

Rated Ambient Temperature requirements for Operational Tests. Any hour with the plant operating at or above 90% of the highest monthly QCC submitted for the current and previous Binding Season may be deemed a successful Operational Test. In case of failure to meet 90% of the highest monthly QCC, the resource can claim no more than what it achieved on the Operational Test for purposes of determining its QCC for the upcoming FS Submittal.

Given that the Operational Test can be performed on any hour in a 12-Month period, the Operational Test should be scheduled (or re-scheduled) for a time when outages/de-rates are not occurring. If one or more units were on outage or de-rated at the time of the Operational Test, in order to claim the full QCC value provided by the Storage Hydro QCC methodology, the Participant shall:

1) Demonstrate that the unit(s) out/de-rated at the time of the Operational Test were offline/de-rated for more than 90 consecutive days of the 12 Months preceding the FS Submittal due date.
2) Demonstrate that the unit was out/de-rated for the entirety of one of the Months with the three highest monthly QCC values for the plant.
3) Provide operational data demonstrating the unit(s) performance on any hour within the 12 Months preceding the FS Submittal due date, or within the Cure Period.
4) Add the sustained hour-long operational value from the hour identified in (3) to the Operational Test values.

If 90% of the highest monthly QCC value cannot be achieved after this addition, the Participant can claim no more than the Operational Test (after the addition in (4) above) for any Month's QCC value.

3.4.3.3 ESRs

Operational Tests for ESRs should at least be conducted for the claimed duration of the device – i.e., two-hour, four-hour, etc. An ESR must be able to achieve its full QCC as determined in the QCC process for ESRs.

3.4.3.4 ROR Hydro

Operational Tests shall be conducted at a minimum of 90% of the QCC for either Binding Season. Any hour with the resource operating at or above 90% of the QCC may be deemed a successful Operational Test. In case of failure to meet 90% of the QCC, the resource can only claim what it can achieve on the Operational Test for purposes of determining its QCC for the upcoming FS Submittal.

3.4.3.5 Wind and Solar Qualifying Resources

Operational Tests shall be conducted at a minimum of 100% of the seasonal QCC for either Binding Season. Any hour with the resource operating at or above 100% of the QCC may be deemed a successful Operational Test. In case of failure to meet 100% of the QCC, the resource can only claim what it can achieve on the Operational Test for purposes of determining its QCC for the upcoming FS Submittal.

3.4.3.6 Demand Response Resources

An Operational Test will be conducted yearly during the Participant's peak Binding Season and at a minimum of 50% of the DR program's claimed load reduction capability (to avoid unnecessary disruption to the Participant's customers). The duration of an Operational Test shall be for a minimum of one hour.

3.4.4 New or Upgraded Resource Operational Testing

For newly installed resources and resources undergoing a physical or operational modification which could impact the Net Generating Capability, design output may be used for the first FS Submittal of the appropriate Binding Season to allow sufficient time for Operational and Capability Tests to be conducted. For resources required to do so, a Capability/Operational Test shall be performed in the Binding Season addressed by such first FS Submittal, in order to establish the new Net Generating Capability for all succeeding Binding Seasons.

3.4.5 Operational Testing for Late Registered Resources

Late Registered resources will be required to submit applicable generator Operational Test reports as required by the resource Fuel Type. If a Participant demonstrates that it has contracted for a resource not previously registered with the WRAP after the Advance Assessment Data Request deadline for the Binding Season in which capacity is being claimed to meet FS Capacity Requirements, the resource will be treated as if it had tested at 95% of its Installed Capacity. A resource previously registered with the WRAP that does not have any form of generator test results provided will be assumed to have tested at 70% of its Installed Capacity. Resources not owned or operated by a Participant that have test reports provided in a form other than the WRAP format, will be evaluated by the Program Operator and assigned an appropriate testing value based on comparability to testing requirements established in BPM 105; testing reports determined not comparable will be assumed to have tested at 70% of Installed Capacity. If the resource is newly installed or upgraded, the applicable section on new and upgraded resources will be followed.

3.4.6 Provision of Test Reports in the FS Submittal

Test reports will be provided to the Program Operator in the FS Submittal (see *BPM 108 Forward Showing Submittal* for more details). The QCC values for resources will be based on the Capability Tests and/or Operational Tests provided in the FS Submittal.

4. Qualifying Capacity Contribution of Resources

4.1 Background

A resource will not be assigned a Resource QCC or counted toward Portfolio QCC unless it is a Qualifying Resource. Qualifying Resources are those that, before they are included in an FS Submittal, are first registered in the WRAP. A Participant seeking registration of a resource must submit a request for registration providing the resource information described in Section 3.

This section describes the methodology used to assign Resource QCCs to Qualifying Resources when resources are registered through the Advance Assessment based on resource type, as well as when Qualifying Resources of each resource type are registered after the Advance Assessment Data Request deadline for registering resources for that Binding Season (as a late registered resource).

4.2 Thermal or Long Duration Storage Resources

For dispatchable resources that use conventional thermal fuels such as coal, gas, Equivalent Forced Outage Factors (EFOF) biofuel, and nuclear, or Long Duration Storage, the FS Program will use an EFOF methodology to determine the QCC. Accreditation of non-dispatchable Thermal Resources is covered in Section 4.8.2.

The seasonal QCC will be determined for each resource by applying the $EFOF_{CCH}$ to the Net Generating Capability (or Installed Capacity) as determined in Section 3. The Capacity Critical Hours (CCH)[3] will be used to determine the hours to be used in calculating the EFOF for each resource. The $EFOF_{CCH}$ calculation, as set forth in the formula in Section 4.2.1 below, will be performed for each Year of the most recent six-Year historical look-back period. The equivalent outage factor is calculated by removing the worst performing Year (for each Summer and Winter Season) and then taking an average of the remaining five Years of data. The final calculated $EFOF_{CCH}$ will be applied to the Net Generating Capability to calculate the QCC amount for the thermal generator for the entire Binding Season.

Planned outages and any outage properly reported as "outside management control" are not included in $EFOF_{CCH}$ calculations[4].

[3] CCH are calculated in accordance with *BPM 104 Capacity Critical Hours.*

[4] https://www.nerc.com/pa/RAPA/gads/Pages/Data%20Reporting%20Instructions.aspx

For resources new to the FS Program that do not have sufficient data over the historical period used for determining a QCC, class average data for resources of similar size will be used.

4.2.1 $EFOF_{CCH}$ Equation

$$EFOF(CCH) = 1 - \frac{\sum FOH_{CCH} + EFDH_{CCH}}{total_{CCH}} * 100\%$$

Where:

FOH_{CCH} is Forced Outage Hours occurring on CCH,

$EFDH_{CCH}$ is Equivalent Forced Derating Hours occurring on CCH, and

$Total_{CCH}$ is total number of CCH for the timeframe of interest.

Definitions of FOH_{CCH} and $EFDH_{CCH}$ can be found in Table 4.

Table 4. Definitions of FOH and EFDH

Definitions	
FOH_{CCH}	Sum of all CCH experienced during Forced Outages (U1, U2, and U3) + Startup Failures[5].
$EFDH_{CCH}$	Each forced derating (D1, D2, and D3)[6] transformed into equivalent full outage hour(s). This is calculated by multiplying the actual duration of the derating (hours) by the size of the reduction (MW) and dividing by the net maximum capacity. These equivalent hour(s) are then summed by CCH. $\frac{Derating\ Hours * Size\ of\ Reduction}{Net\ Maximum\ Capacity}$

Additional Thermal QCC calculation considerations:

[5] See NERC GADS reporting instructions at https://www.nerc.com/pa/RAPA/gads/DataReportingInstructions/GADS_DRI_2023.pdf

[6] Ibid.

- Calculation is performed for each resource seasonally and for each historical Year. QCC will be assigned to each resource for the entire Binding Season.
- Six Years of data will be used for the calculation. The worst performing Winter Season and the worst performing Summer Season will be removed from the calculations, allowing for a five-Year average.
- Only forced outages or de-rates occurring during CCHs will be used to calculate QCC. Outages during hours that are not deemed to be capacity critical will not negatively impact QCC.
- All Years (of the five Years) will have equal weighting.
- Outside of Management Control outages as reported under NERC GADS Appendix K[7] (or equivalent) will be excluded from the calculation.
- For Participants relying on resource specific transactions external to the FS Program, those Qualified Resources will follow the same QCC calculation for Thermal Resources and the Participant will be responsible to make sure the information is provided to the Program Operator.
- The Program Operator will break out each event by hour. If the NERC GADS (or equivalent) data is reported in minutes, then the hour that contains the outage will be equalized to account for the minutes. For example: if an outage starts on June 1, 2020 at 4:25 PPT, then the hour duration for that hour will be less than one since the outage does not start at the top of the hour. The total hours for June 1, 2020 on hour beginning 4:00 PPT would be 0.583 *([60 Minutes – 25 minutes] / 60 minutes in an hour).*
- Diversity of time zones will be considered. Participants are required to list the time zone that is appropriate for their respective data.
- When comparing the event hours to the CCH hour identification should be consistent.

4.2.2 Late Registered Thermal Resources

If a Participant seeks to claim capacity from a Thermal Resource not registered at the time of the Advance Assessment Data Request, the Participant may use the late

[7] Appendix K of NERC GADS: https://www.nerc.com/globalassets/programs/rapa/gads/conventional/appendix_k_outside_management_control_2024_dri.pdf

registered resource options (described generally in Section 3.2), choosing one of the following approaches:

1) Demonstrate that the resource was acquired following the Advance Assessment Data Request due date for the Binding Season in question, in which case the resource will be permitted to use the class average QCC for Thermal Resources in the program; or
2) Claim a decremented QCC of 70% of the class average for Thermal Resources in the program.

4.2.3 Thermal Resources That Are Not Required to Report GADS Data

Certain Thermal Resources are not required to report GADS data. GADS data applies to generator owners who are NERC registered with Qualified Resources that are 1) connected to the Bulk Electric System and 2) are synchronous machines of 20MVA or larger, or distributed generation facilities of 75MVA or larger. Smaller Qualified Resources interconnected to the power system as well as behind the meter resources may not be required to report GADS data. For these Qualified Resources, the Participant will have two options to pursue in order to have QCC determined.

Option 1 – Historical Output. The first option will determine QCC based on the monthly average performance of such resource during CCH. The Participant will provide 10 Years of historical hourly dispatch data. This data will be provided with the data submittal (see *BPM 101 Advance Assessment*). A workbook posted on the WPP website that contains the latest set of CCH will allow the Participant to calculate their QCC for the FS Submittal. The workbook will allow the Participant to calculate the QCC values taking the average of the facility output during the CCH. If less than 10 Years of historical data is available for use in determining the QCC, the Program Operator will utilize the methodology described in Section 4.8.2.

Option 2 – Historical Outage Evaluation – The second option will determine QCC based on the monthly outage records provided by the Participant for the resource in question. A workbook detailing what outage information is required for a QCC calculation can be found on the WPP website. The Participant will provide five Years of outage information as provided in the workbook. The Program Operator will determine the QCC of the resource in question using a methodology similar to the $EFOF_{CCH}$ methodology applied to all Thermal Resources.

For all Qualified Resources not providing GADS reporting data, the Participant will be required to provide an attestation (provided in *BPM 108 Forward Showing Submittal*) attesting that the resource is not subject to GADS reporting and the workbooks submitted by the Participant are an accurate depiction of either the historical performance or historical outage data of the resource.

4.3 Variable Energy Resources

The QCC for Variable Energy Resources (VERs), including but not limited to wind and solar resources, will be determined for each Month of the Binding Season through the use of an Effective Load Carrying Capability (ELCC) analysis and a subsequent allocation process. Each Binding Season will have its own ELCC analysis performed during the Advance Assessment and each resource will be assigned a new QCC in advance of each Binding Season. Each Binding Season's ELCC analysis will have a scope document that will detail the study.

4.3.1 Source Data for Resources Under Study

In accordance with Section 3 and the Advance Assessment data submittal described in *BPM 101 Advance Assessement*, the Participant will submit historical output data for wind and solar resources that are requested to have QCC determined. A Participant must submit three and may submit up to 10 Years of historical output data for wind and solar resources.

For newer resources that do not have 10 Years of operational data and historical output, the Participant may provide engineering data from the wind or solar plant operator. The Program Operator will evaluate the data provided and determine its usefulness in the ELCC process. The engineering data will need to provide synthesized outputs for the facility for at least the most recent three Years of historical conditions. Otherwise, the Program Operator will use either synthesized data or average output data of other VER resources in the appropriate VER Zone.

4.3.2 Late Registered VERs

If a Participant seeks to claim capacity from a VER not registered at the time of the Advance Assessment Data Request, the Participant may use options for late registering a resource, choosing one of the following approaches:

1) Demonstrate that the resource was acquired following the Advance Assessment Data Request due date for the Binding Season in question and claim the average ELCC of the VER Zone in which the resource is located, or
2) Claim a decremented QCC of 70% the average ELCC in the VER Zone in which the resource is located.

4.3.3 ELCC Study Process

The ELCC will be determined for the VERs in the WRAP Region. The ELCC study will consist of analyses utilizing Loss of Load Expectation (LOLE) metrics to determine the capacity provided by the VERs being analyzed. The LOLE benchmark metric to be used in the ELCC accreditation study will be a one event in 10-Year threshold.The ELCC of VERs will be calculated first on a seasonal basis then later prorated to a monthly QCC value. For the ELCC study, loss of load events will be tabulated during the Binding Season months for determination of the 1-in-10 LOLE. Loss of load events that occur outside of the Binding Season months will not go into the calculation of the capacity value of VERs. Pure Capacity will be applied to the simulation process to derive the 0.1 Day per Year reliability threshold. If the resulting LOLE is greater than the 0.1 Day per Year threshold, Pure Capacity will be added until the 0.1 threshold is achieved. If LOLE is less than the 0.1 Day per Year threshold, negative Pure Capacity will be added until the 0.1 threshold is achieved. The VER of interest will be excluded from the benchmark system. All other VER types will be included. For example, if the wind resource type is being analyzed, only wind will be excluded from the benchmark system.

The capacity calculated is designated in Figure 1 as Pure Capacity 1.

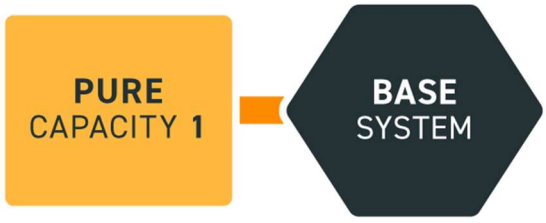

Figure 1. Diagram of system without renewable resources.

Next, a LOLE value for all wind generating resources will be determined, repeating the steps described previously. The Pure Capacity value calculated is designated in Figure 2 as Pure Capacity 2.

Figure 2. Diagram of system with renewable resources.

The difference between the results of these two steps is considered the ELCC QCC value of the resources being studied.

$$ELCC\ of\ VER\ (under\ study) = Pure\ Capacity\ 1 - Pure\ Capacity\ 2$$

These processes are repeated to determine QCC for all weather Years that are studied. This process is repeated for summer and winter separately.

Zonal shapes have been developed for the LOLE study based on facility locations in each VER Zone and correlated wind and solar activity with temperatures in those VER Zones dating back to 1980. The ELCC study will be performed using the synthetic shapes dating back to 1980, which are also used in the LOLE studies. The data provided by the Participants will be used in the establishment of the synthetic shapes and used in the allocation process for establishing the QCC of each VER resource as later outlined in Section 4.3.5.

The Program Operator will conduct the ELCC study by performing probabilistic simulations in a manner that resources in the WRAP Region will be randomly forced out of service during each hour of the study. Each simulation accounts for a different variation of forced outages and load uncertainty for all hours of the Year, similar to the LOLE study utilized to establish the FS Planning Reserve Margin.

4.3.4 Determination of ELCC Within VER Zones

The ELCC study will determine the amount of capacity provided by all VERs (of the specified type, e.g., wind) analyzed in the WRAP Region. The FS Program will employ the VER Zones for each VER type set forth inSection 4.3.6, as they may be revised from time to time. Each VER of a given type will be assigned to one of the VER Zones for that type. ELCC studies will be performed for each VER Zone (and VER type), calculating a total capacity value for the resource of interest in that zone. The capacity calculated for each VER Zone will be allocated to VERs of that type in that zone on a pro-rata basis.

4.3.5 Determination of System Wide ELCC and Allocation to Individual VER Zones

To avoid over-accreditation of VERs the Program Operator will conduct an ELCC study of the entire WRAP Region and calculate a total capacity value for all VERs in the WRAP Region. Additionally, all ESRs in a Subregion will be studied together. After all VER Zone capacity totals (for each VER type) and the capacity totals of ESRs in each Subregion have been determined, the sum of the VER Zone and ESR Subregion totals will be compared to the regional VER plus ESR total. If the sum of the VER Zones and ESR Subregion is greater than the regional total, all VER Zone and ESR Subregion totals will

be scaled down until the totals match the regional total. Table 5 provides an example of the calculations to determine total VER capacity.

Table 5. Example[8] ELCC Study of WRAP Region to Calculate Total Capacity.

A study of two wind zones and two solar zones reveals the following capacity values for each zone:				
Wind Zone 1	Wind Zone 2	Solar Zone 1	Solar Zone 2	**Total**
1,000 MW	800 MW	700 MW	1,000 MW	**3,500 MW**
A study of the region reveals the following capacity value for the region's wind and solar:				
Regional VERs				
The zones will be recalculated as follows:				
Wind Zone 1	Wind Zone 2	Solar Zone 1	Solar Zone 2	**Total**
1,000 * (3,200/3,500)	800 * (3,200/3,500)	700 * (3,200/3,500)	1,000 * (3,200/3,500)	
914 MW	732 MW	640 MW	914 MW	**3,200 MW**

ESRs, which are discussed in more detail below (Section 4.4), are also included in the system ELCC allocation and study.

4.3.6 VER Zones for Wind and Solar

WPP has established separate VER Zones for wind resources and solar resources, as shown, respectively, in Figure 3 and Figure 4.*Error! Reference source not found.*

[8] These examples are strictly illustrative, and do not set or limit any actual ELCC study results.

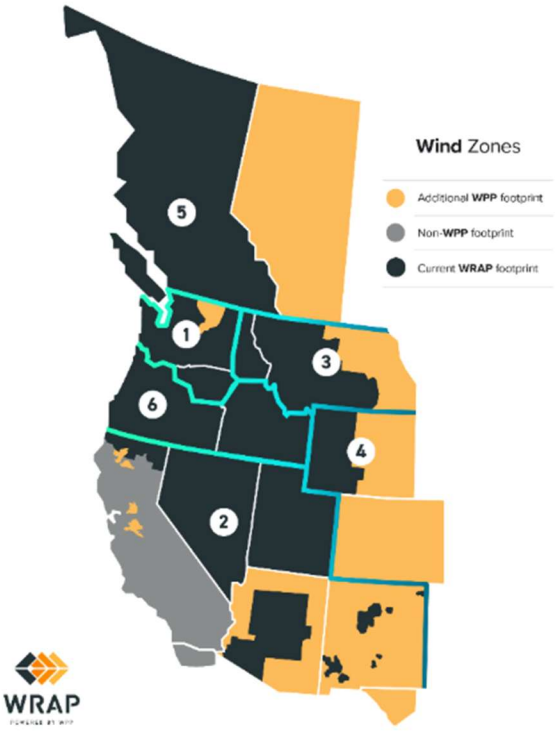

Figure 3. Wind VER Zones

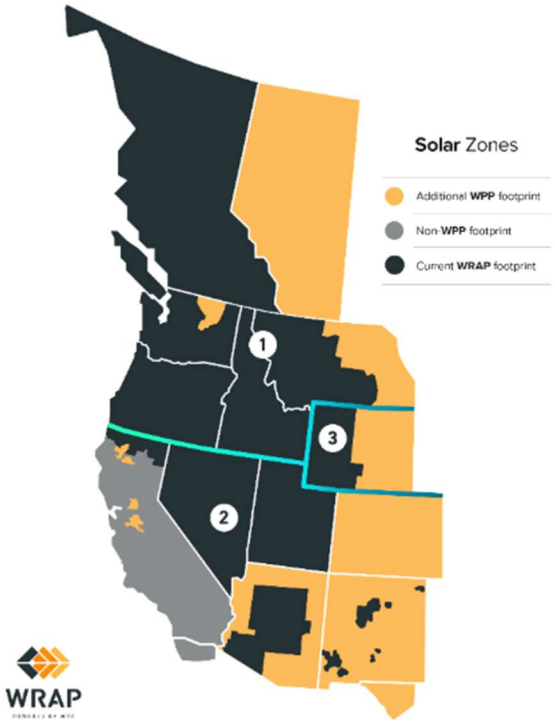

Figure 4. Solar VER Zones

4.3.7 Allocation of VER ELCC

4.3.7.1 Allocation of System Wide ELCC On a Resource Basis

Once the ELCC has been determined for each VER Zone for each Binding Season, two additional calculations must occur. The first step, which will occur before the system ELCC adjustment, takes the ELCC seasonal values for each VER Zone and converts them to a monthly basis for monthly QCC. Monthly QCC values for each VER Zone will be calculated by shaping the seasonal ELCC value in accordance with aggregate performance of all resources in the VER Zone during the CCH. Months that have higher resource performance during the CCH will be allocated a higher portion of the ELCC across the Binding Season. The QCC of each Month will average to the seasonal ELCC value. An example is given below in Table 6.

Table 6. Example[9] Monthly QCC Calculation for Wind VER Zone

		Summer Season			
		June	**July**	**Aug**	**Sept**
Average Production on CCH per Month	Calculated from historical performance data from wind in this VER Zone on a monthly basis	120MW	95MW	90MW	130MW
Average Production on CCH Across Season	Calculated from historical performance data from wind in this VER Zone on a seasonal basis	108.75MW			
Monthly Multiplier	Divides each Month's production on CCH by the seasonal average	110%	87%	83%	120%
Seasonal ELCC	Value resulting from ELCC study	100MW			
Monthly QCC	Multiplies the monthly multiplier by the seasonal ELCC value	110MW	87MW	83MW	120MW

The monthly QCC values for each VER Zone are then used to determine the system ELCC value discussed in the section above.

The second step, which occurs after the system ELCC adjustment, will allocate the monthly QCC values to each resource based on the individual resource's performance during the CCH.

$$\textit{Resource ELCC} = \textit{Monthly ELCC MW} * \left(\frac{\textit{Resource average hourly net power output on top 5\% of net load hours (CCH)}}{\textit{Zone total average hourly net power output on top 5\% of net load hours (CCH)}}\right)$$

4.3.7.2 QCC Allocations for VERs with Three Years or More of Operational Data

To allocate the ELCC MW to each resource, the Program Operator will utilize the historical hourly data for each resource provided by the Participant. For resources that have at least three Years of actual historical data, or at least three Years of engineered data for newer resources, the Program Operator will utilize the most recent three Years

[9] These examples are strictly illustrative, and do not set or limit any actual ELCC study results.

(up to 10 Years) of data when determining the resource's average hourly net power output.

4.3.7.3 QCC Allocations for New VERs or VERs with less than Three Years of Operational Data

The Program Operator will utilize the following method for newer VERs when determining the historical average hourly net power output:

1) No less than three Years will be utilized; and
2) A Participant (or resource owner) can supply synthesized data if at least three Years of actual data is not available, using:
    a) Manufacturer's engineering or performance data and actual weather (preferably from on-site, but not from outside of 50-mile radius); or
    b) Historical performance of similar resources within a 50-mile radius.
3) If three Years of data is not provided by the Participant, either through synthetic data or actual output, the resource will receive an ELCC value equal to the product of a calculated class average ELCC percentage times the nameplate capacity of the resource at issue. The Program Operator will use the synthesized wind output shape for the appropriate VER Zone to determine the class average ELCC percentage.

As actual data is accrued, it will replace synthesized data as it becomes available (e.g., one Year of actuals plus two Years of synthesized; two Years actuals plus one Year synthesized, then eventually three Years of actuals). Once a new or repowered facility has a full Year of operational data the synthesized data for Years two and three will be evaluated for reasonableness. If the synthesized data significantly understated or overstated the forecasted generation of the resource, the Year two and three synthesized data will be adjusted by the Program Operator accordingly.

4.3.7.4 Determination of ELCC for Future VERs

It is understood that as VERs are added to a system, the capacity value provided by all similar VERs as a function of the nameplate value of those resources will decrease. It therefore becomes important for Participants to have an understanding of how VER QCC values may change over time as the penetration of similar VERs increases.

After the QCC values of all existing and near-term planned VERs have been calculated and allocated, additional ELCC studies will be performed to account for future VERs of each type. These additional wind and solar resource amounts will be created by scaling up the number of wind turbines (nameplate capacity) or solar photovoltaic panels in each VER Zone. The Program Operator will provide an ELCC curve, useful for guidance purposes on a strictly non-binding basis, that can be used to estimate future capacity

values for new resources dependent upon the penetration of resources in that VER Zone.

4.4 Energy Storage

The QCC for ESRs will be determined using the same general ELCC methodology used for wind and solar resources (see Section 4.3) with any specific differences being highlighted in this section and will be limited to ESRs that have the capability to store energy equal to or greater than the energy output by the ESR over four continuous hours (or longer) of operation. The ELCC study for each Binding Season will have a scope document that details the analysis. ESRs with eight-hour or longer durations are considered Long Duration Storage (Section 4.2).

ESRs will be modeled as energy limited devices that will charge and discharge in accordance with their equipment specifications. ESRs will be modeled to charge and discharge in a preserve reliability mode, which means they will only be discharged to mitigate potential loss of load when there is a lack of other resources available to serve load.

4.4.1 ESR with Four- to Eight-Hour Rating

Based on the four-hour minimum continuous time duration requirement, four-hour ESR or ESRs with longer duration ratings will receive QCC values based on the four-hour curve for the ESR penetration level of all ESRs on the system at the time of the ELCC assessment.

4.4.2 ESR with Rating Less than Four Hours

Based on the four-hour minimum continuous time duration requirement, ESRs with ratings less than four hours will receive QCC values based on the four-hour curve for the ESR penetration level of all ESRs on the system at the time of the ELCC assessment. For example, two-hour rated ESRs would receive no more than 50% QCC value of a four-hour ESR with the same maximum output.

4.4.3 Allocation of ELCC for ESRs

All ESRs in a WRAP defined Subregion will be studied together. All ESRs within a Subregion will receive the average ELCC value of ESRs with a four-hour rating in that Subregion, subject to the limitations outlined in Section 4.4.2. To ensure that over-accreditation of ESRs does not occur, ESRs will be included in the ELCC study of all VERs of the WRAP Region and a total combined capacity value for all VERs and ESRs in the WRAP Region will be calculated. After all ESR Subregions and VER Zone capacity totals have been determined, the sum of the VER Zone and ESR Subregion totals will be compared to the WRAP Region VER total. If the sum of the VER Zones and ESR

Subregion is greater than the regional total, all VER Zone and ESR Subregion totals will be scaled down until the totals match the regional total.

4.4.4 Late Registered ESRs

If a Participant seeks to claim capacity from an ESR not registered at the time of the Advance Assessment Data Request, the Participant may use the late registered resource options (described generally in Section 3.2), choosing one of the following approaches:

1) Demonstrate that the resource was acquired following the Advance Assessment Data Request due date for the Binding Season in question, in which case the resource will be permitted to use the class average QCC for the ESRs within the Subregion; or
2) Claim a decremented QCC of 70% of the class average for ESRs in the Subregion.

4.5 Hybrid Facilities

Hybrid Facilities are resources that have at least two different fuels or technologies at a common location where one of those resources is an ESR. The QCC for hybrid resources will be determined by applying the appropriate methodology to each component of the facility and summing them and capping the total at the interconnection limit. While hybrid resources are modeled as they would operate in the LOLE study, determining QCC for combined hybrid resource is not performed due to the inability to perform ELCC analysis for similar type resources.

4.6 Demand Response

DR can be utilized as a Qualifying Resource if it is greater than 1 MW in aggregate (see Section 3.3) and can be demonstrated to be controllable and dispatchable by the Participant or host utility. DR programs that register as Qualifying Resources will be assigned a seasonal QCC value (one value for each Binding Season) and will need to meet testing criteria and demonstrate load reduction (see Section 3.4.2.3) for a period of up to five continuous hours. A DR program may be able to demonstrate load reduction for a period beyond five continuous hours, but cannot receive QCC above 100% of what is demonstrated for the five hour duration. Programs that are not able to provide five hours of load reduction will have their load reduction prorated over the course of five hours for the determination of QCC value. Participants registering a DR Qualifying Resource must either i) demonstrate that the DR program was not operated historically and has therefore not impacted the Historical Load Data provided by the Participant for determination of their P50 load value, or ii) provide historical information about the operations of the DR program such that the load reduction impacts of the DR

program can be removed from the historical data prior to determination of the P50 load value.

The QCC value of the DR Qualified Resource is determined by multiplying the maximum load reduction (in MW) the resource is capable of sustaining by the number of hours the resource can demonstrate such sustained load reduction capability (up to five hours, maximum) divided by five.

A DR Qualifying Resource will be reflected in the FS Submittal as a capacity resource by submitting it as a 'Resource' in the FS Submittal. As with all resources, the QCC value of the DR Qualifying Resource will count toward a Participant meeting its FS Capacity Requirement.

If DR does not meet the criteria of a Qualifying Resource, its contribution to the load reduction may be captured in the historical data used to calculate the P50 load in the FS.

4.6.1 New, Expanded, or Late Registered DR Resources

DR programs intended to be used as Qualifying Resources in the first Year of operation or expansion of an existing program or DR programs not registered at the time of the Advance Assessment will be reported at 50% of the expected capability, unless validated by testing the program to 100% of the claimed capability prior to the Binding Season. See the section related to DR testing requirements (within Section 3.4.2) for more information.

4.7 Hydro Resources

4.7.1 Storage Hydro (Also see Appendix A – Qualified Capacity Contribution for Storage Hydro Resources)

QCCs for Storage Hydro resources are calculated by the Participant owners and the results are provided to the Program Operator for review, through the provision of the 'results tab' of the workbook. The Program Operator may ask the Participant for information from the Storage Hydro QCC methodology, subject to limitations described in the Tariff, as part of the verification and validation process. The Storage Hydro QCC methodology is based on the ability of Storage Hydro to maximize output during the CCHs each Day of the historical record, subject to operational limitations and non-power constraints of each plant. Limitations include available water in storage and all constraints that restrict the use of the Net Generating Capability. These constraints include, but are not limited to, discharge limits, tailrace and forebay elevation limits, and rate of change limits.

The methodology considers each resource's actual generation output, residual generating capability, water in storage, reservoir levels (if applicable), upstream discharge from Cascaded Dual Plants and plant constraints over the most recent 10-Year historical period. The QCC of the Storage Hydro resource is determined using a calculation of how much historical actual generation could have been increased during CCHs by utilizing water in storage each Day to increase generation, while respecting all operating constraints. The QCC is the monthly average of this hypothetical increased generation during the CCHs, for the same Month of the historical record. The resulting QCC is determined as the average contribution to the CCHs for each Winter Season and Summer Season over the previous 10 Years. The Storage Hydro QCC Workbook captures the aforementioned Storage Hydro QCC methodology and is available for use by WRAP Participants. If historical data is not available for 10 Years, a comparable facility may be utilized or some other reasonable approach that provides similar confidence in the computed QCC may be proposed by the Participant and adopted at the discretion of the WPP. The Participant will provide all required detailed data for the plant.

The detailed Storage Hydro QCC methodology can be found in Appendix A – Qualified Capacity Contribution for Storage Hydro Resources.

4.7.1.1 Late Registered Storage Hydro Resources

If a Participant seeks to claim capacity from a Storage Hydro resource not registered at the time of the Advance Assessment Data Request, the Participant may use the late registered resource options, choosing one of the following approaches:

1) Demonstrate that the resource was acquired following the Advance Assessment Data Request due date for the Binding Season in question and utilize the established Storage Hydro QCC methodology described above, or
2) Claim a decremented QCC of 70% of the average Storage Hydro QCCs in the program.

4.7.2 Run-of-River (ROR) Hydro

ROR Hydro resources will have their QCC determined on the historical performance of the resources during the CCH over the most recent 10-Year period. The data provided by the Participant in the Advance Assessment data submittal (see *BPM 101 Advance Assessment*) will be used for the determination of QCC.

If less than 10 Years of historical data is available for use in determining the QCC of a ROR Hydro plant, the Program Operator will utilize the following method when determining the historical average hourly net power output:

1. No less than three Years will be utilized.
2. A Participant (or resource owner) can supply synthesized data if at least three Years of actual data is not available, using:
    a. Manufacturer's engineering or performance data;
    b. Actual water conditions (preferably from on-site, but not from a different river); or
    c. Historical performance of similar resources on the same river system.
3. If three Years of data is not provided by the Participant, either through synthetic data or actual output, the resource cannot receive a QCC value.

As actual data is accrued, it will replace synthesized data as it becomes available (e.g., one Year of actuals plus two Years of synthesized; two Years actuals plus one Year synthesized, then eventually three Years of actuals). Once a new or repowered facility has a full Year of operational data, the synthesized data for Years two and three will be evaluated for reasonableness. If the synthesized data significantly understated or overstated the forecasted generation of the resource, the Year two and three synthesized data will be adjusted by the Program Operator accordingly.

4.7.2.1 Late Registered ROR Hydro Resources

If a Participant seeks to claim capacity from a ROR Hydro resource not registered at the time of the Advance Assessment Data Request, the Participant may use the late registered resource options, choosing one of the following approaches:

1) Demonstrate that the resource was acquired following the Advance Assessment Data Request due date for the Binding Season in question and execute the methodology described above for ROR Hydro Resources (for validation by the Program Operator), or
2) Claim a decremented QCC of 70% of the average ROR Hydro QCCs in the program.

4.8 Other Resources

4.8.1 Customer Resources

Resources that are generally located on the customer-side of the meter can be included in the FS Program. To be eligible as a Qualifying Resource, the Customer Resource must 1) be controllable and dispatchable by the Participant or host transmission operator and 2) not have already been used to modify the Participant's Load Forecast (i.e., serving a portion or all of the load not included in Load Forecast). The resource shall meet testing criteria applicable for resource type and will be awarded a QCC value based on the appropriate methodolgy for the resource type. Customer Resources (behind the meter resources) can be aggregated to the 1 MW requirement to be

considered a capacity resource, granted that they are in the same BAA, controllable and dispatchable, and visible to the Ops Program.

4.8.2 Non-Dispatchable, Must Take Resources

For resources that are either i) not dispatchable; or ii) require the purchaser of energy from the resource to take energy as available from such resource, including but not limited to a qualifying facility as defined under the Public Utility Regulatory Policies Act (PURPA), the QCC will be determined based on the monthly average performance of such resource during CCH. The Participant will provide 10 Years of historical hourly dispatch data. This data may be provided within the Advance Assessment data submittal (see *BPM 101 Advance Assessement*) or a workbook found on the WPP website. The workbook will allow the Participant to calculate the QCC values taking the average of the facility output during the CCH.

If less than 10 Years of historical data is available for use in determining the QCC of a non-dispatchable, must take resource, the Program Operator will utilize the methodology described in BPM 105 for the specific resource type. If the resource type is not covered in Sections 4.2 through 4.7 the Program Operator will utilize the following method when determining the historical average hourly net power output:

1. No less than three Years will be utilized.
2. A Participant (or resource owner) can supply synthesized data if at least three Years of actual data is not available, using:
    a. Manufacturer's engineering or performance data;
    b. Known or historical information about fuel availability;
    c. Known or historical information about unit performance; or
    d. Historical performance characteristics of similar resources.
3. If three Years of data is not provided by the Participant, either through synthetic data or actual output, the resource cannot receive a QCC value.

4.8.2.1 Late Registered Non-Dispatchable, Must Take Resources

If a Participant seeks to claim capacity from a non-dispatachable, must take resource not registered at the time of the Advance Assessment Data Request, the Participant will be required to execute the methodology described above for such resource (for validation by the Program Operator).

Appendix A – Qualified Capacity Contribution for Storage Hydro Resources

A.1 Time Period Approach for Summer and Winter Season Requirements

Storage Hydro resources will use a "time period" approach to determine the QCC. A time period approach consists of a historical look-back of the generation output during CCH to determine how much capacity should be expected to be available during high load periods in the future. While this approach is limited to a daily window for determining available capacity, it does establish a common and transparent method for determining the QCC for Storage Hydro Resources.

The following methodology would be used to determine the QCC value using the time period approach described above, and Table A-1 summarizes the resource information required to apply the methodology:

- For each Day found to contain one or more CCHs, the Storage Hydro resource will be evaluated to determine the maximum available capacity for each CCH, based on the conditions of the storage associated with the hydro resource on that Day.
- For each Storage Hydro resource, for each CCH, determine:
    - Maximum generation output during the CCH.
    - Usable water in storage at the end of the CCH.
    - QCC for each hour, which would be the historical generation output plus additional generation for capacity, up to the maximum generation capability (adjusted for reservoir elevation head as applicable), taking into account plant or unit-specific limitations (e.g., units on a common penstock, transformer limitations, etc.) and the resource's Equivalent Demand Forced Outage Rate (EFORd).
    - For calendar days with multiple CCHs, the QCC will be limited to the actual historical generation, plus the usable energy in storage over that Day.Non-power operational constraints that limit the use of energy in storage.

Table A-1. Resource information required to apply the time period methodology for QCC.

Information Needed	Notes
Reservoir Elevation Range	Min and Max – this may be seasonally adjusted.
Reservoir Storage Curve	Indicating volume of water in storage based on the reservoir elevation.
Capacity as a Function of Elevation	Plant maximum capacity at a given forebay elevation.
CCH Adjusted $EFOF_{CCH}$ or Historical Outage Evaluation Equivalent	Historical Forced Outage Factor.
Power as a Function of Discharge	For the "discharge method".
H/K as a Function of Elevation	For the "elevation method".
Hourly Historical Data	– Actual generation – Starting reservoir elevation – Ending reservoir elevation

From the information in Table A-1, the hourly values in Table A-2 can be estimated for each CCH:

Table A-2. Hourly values that can be estimated for each CCH.

Estimated Values	Notes
Actual water in storage	Using the elevation and storage (kcfs or cms) tables.
Additional capacity available beyond the actual generation	Subject to forebay elevation restrictions.
Cumulative additional generation	The running total of the additional generation claimed in each CCH for the Day, used to deplete the elevation of the reservoir to validate the feasibility of using additional capacity in each CCH on each calendar Day.
Hourly QCC	The sum of the actual generation plus the additional capacity available.

The Storage Hydro capacity contribution towards the FS Capacity Requirement is calculated by the resource owner as the simple average of the hourly QCC values in each CCH over the 10 Years studied. These QCC values are averaged over each Month in each Binding Season to determine final monthly QCC values.

A.2 Treatment of Planned Outages

In addition to accounting for forced outages, the UCAP values used in the FS workbooks may (at the Participant's option), be reduced for planned outages. Planned outages that are not included in the UCAP values will need to be planned in a manner similar to Thermal Resources, meaning those planned outages will be taken from the Participant's surplus capacity in excess to the Participant's FS Capacity Requirement.

Table A-3 and Table A-4 below illustrate the QCC calculation over a four-hour consecutive period using the UCAP methodology and the UCAP + planned outages methodology.

Table A-3. Calculating QCC using UCAP = 125 MW.

Consecutive CCHs	Historical Generation	Historical Storage	UCAP (125 MW)	Draft to Maximize Capacity	Storage After Draft	QCC
	MW	MWh	MW	MWh	MWh	MW
1	50	250	125	75	175	125
2	50		125	75	100	125
3	50		125	75	25	125
4	50		125	25	0	75
Storage empty after 25 MW draft				4-hour average		113

Table A-4. Calculating QCC using UCAP + Planned Outages = 100 MW.

Consecutive CCHs	Historical Generation	Historical Storage	UCAP + Planned Outages (100 MW)	Draft to Maximize Capacity	Storage After Draft	QCC
	MW	MWh	MW	MWh	MWh	MW
1	50	250	100	50	200	100
2	50		100	50	150	100
3	50		100	50	100	100
4	50		100	50	50	100
A 25 MW planned outage decreased QCC by 13 MW				4-hour average		100

The four consecutive CCHs in Table A-3 illustrate how the QCC is limited due to insufficient storage. In Table A-4, the UCAP is reduced by a 25 MW planned outage. This reduced capacity requires less draft from storage in CCHs 1-3 to maximize the QCC in those hours. This reduction in draft provides sufficient storage in CCH 4 to maximize the QCC.

For FS purposes, planned outages may be included or excluded in the QCC calculation at the choice of the Participant pursuant to the requirements in Section 16.2.8 of the Tariff.

A.3 Treatment of Non-Power Constraints

Each Participant is asked to review the methodology and incorporate the specific non-power constraints that are applicable to the individual plants, thus reducing the QCC value of each plant to a level that is believed to reflect the plants operational capability for the upcoming Binding Season. This is done through creating additional constraint logic in the spreadsheet that adds current and future non-power constraints to all 10 Years' worth of evaluation.

It is expected that Participants will include such non-power constraints that accurately reflect their forecasted QCC capability, to facilitate reliance on Storage Hydro Resource QCC values in the Operations Program and for other purposes.

A.4 Treatment of Cascaded and Coordinated Hydro Systems

A Cascaded Dual Plant methodology was also developed specifically for cascaded and coordinated hydro systems. For cascaded hydro resources on the same river systems that are operated in a coordinated manner, when determining the QCC, the useable water in storage at the downstream resource could be enhanced by the operations at the upstream resource, thereby maximizing the contribution of the combined cascaded systems. The Cascaded Dual Plant methodology does not attempt to optimize use of the upstream storage to maximize the combined QCC, but it does allow the downstream plant to utilize the discharge from the upstream plant.

A.5 Form To Complete Storage Hydro Resource QCC

The Hydro QCC Workbook will be completed by the Participant. The workbook is located on the WPP website.

WESTERN POWERPOOL

Western Resource Adequacy Program

108 Forward Showing Submittal Process

100 – Forward Showing

Revision History

Manual Number	Version	Description	Revised By	Date
108	0.1	RAPC Glance Version	Michael O'Brien	12/5/2024
108	0.2	Public Comment	Michael O'Brien	12/11/2024
108	0.3	RAPC & PRC Review	Michael O'Brien	2/14/2024
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108	1.1	Board Approval	Elise Mousseau	9/25/25
108	2.0	Firm Tx TF Updates	Maya McNichol	3/17/2026
108	3.0	Annual BPM Review	Danie Williams	3/19/2026
108	3.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
108	3.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Table of Contents

108 Forward Showing Submittal Process

1. Introduction

Forward Showing (FS) Submittal Process Business Practice Manual (BPM) 108 describes when and how each Participant provides its projected load and resource portfolio data to meet the Western Resource Adequacy Program (WRAP) FS Capacity Requirements and FS Transmission Requirements in the months of the Binding Seasons. The Western Power Pool's (WPP) FS Program is the forward-looking planning portion of the WRAP that aims to ensure the WRAP footprint has sufficient capacity to adequately serve projected peak load under a variety of possible scenarios. The FS Program includes the Advance Assessment (see *BPM 101 Advance Assessment*) that recommends FS Planning Reserve Margins (FSPRM) for Board approval and provides Qualifying Capacity Contribution (QCC) values for registered resources (see *BPM 105 Qualifying Resources*). The FSPRMs are applied to the P50 load forecasts of each Participant to set the FS Capacity Requirement for each month of a Binding Season. The FS Capacity Requirements shall be met by QCC from Qualified Resources and delivered consistent with the Tariff's FS Transmission Requirements, at a minimum.

1.1. Intended Audience

BPM 108 is intended for WRAP Participants and other interested individuals or entities. BPM 108 is particularly useful for those individuals responsible for the Participant Organization's FS Submittal, which includes the FS Demonstration of the FS Capacity Requirement and FS Transmission Requirement, along with FS supporting materials on Qualifying Resource Capability Testing, treatment of Thermal Resources without North American Electric Reliability Corporation (NERC) Generating Availability Data System (GADS) data, Hydro Resource QCC results, late registered resources, and Transition Period exceptions (Excused Transition Deficits and Joint Contract Accreditation Forms (JCAFs)).

1.2. What You Will Find in This Manual

This document describes: the FS Deadline, Deficiency Notices and FS Cure Deadline Dates; the required FS Submittal materials, including the FS Demonstration and FS supporting materials, along with associated Senior Official Attestations; and Program Operator and Program Administrator review of Participants' FS Submittals.

1.3. Purpose

BPM 108 is intended to assist Participants in completing their FS Submittals, including the FS Demonstration and the required supporting material, on or before the FS Deadline for the applicable Binding Season.

1.4. Definitions

All capitalized terms that are not otherwise defined in BPM 108 have the meaning set forth in the Tariff or in another BPM.

Catastrophic Failure Monthly Report: A demonstration by a Participant with an approved catastrophic resource failure exemption that either the circumstances necessitating the exception have not changed or that Qualifying Resources have become available, and the Participant has acquired them and no longer requires the exception.

Cure Deadline: The date 120 Days after the FS Deadline after which any uncured deficiencies in a Participant's FS Submittal shall be assessed a FS Deficiency Charge.

Cure Period: The time period 120 Days after the FS Deadline during which a Participant shall submit revisions to its FS Submittal to fully cure all identified deficiencies.

FS Demonstration: A demonstration that a Participant has met satisfactorily its FS Capacity Requirement and FS Transmission Requirement.

FS Instruction Manual: A set of instructions available on the WPP website.

Monthly Transmission Exception Check-In: A demonstration by a Participant with an approved Monthly Transmission Exception for Enduring Constraints or Future Firm ATC Expected that its inability to meet the FS Transmission Requirement has not changed.

2. FS Deadline, Deficiency Notices and FS Cure Deadline Dates

The Forward Showing Program has two Binding Seasons: The Summer Season and the Winter Season. The FS Deadline, serving of Deficiency notices, and FS Cure Deadline for the Summer Season and Winter Season are 5:00 pm Pacific Prevailing Time (PPT) on the respective date indicated in Table 1. The Program Administrator shall serve a deficiency notice to each Participant where one or more deficiencies have been identified as part of the FS Submittal by 5:00 pm PPT on the respective date indicated in Table 1. Participants served a deficiency notice may cure their deficiencies by resubmitting their FS Submittal with the missing or correct data by 5:00 pm PPT on the respective date indicated in Table 1. Deficiencies uncured by the FS Cure Deadline will be subject to the FS Deficiency Charge (see *BPM 107 Forward Showing Deficiency Charge*).

Table 1. FS Deadline, Deficiency Notices and FS Cure Deadline Dates

	Winter Season	Summer Season
FS Deadline	~~March 31~~April 19 of each Year	October 31 of each Year
Program Administrator serve Deficiency notices	By ~~May 30~~June 18 of each Year	By December 30 of each Year
FS Cure Deadline	August 17~~July 29~~ of each Year	February 28 of each Year

3. Forward Showing Submittal Materials

A Participant's FS Submittal shall include a FS Demonstration with the necessary information for each Binding Season to demonstrate the Participant has sufficient capacity and transmission service to satisfy the FS Capacity Requirement and FS Transmission Requirement. The FS Demonstration shall include the Participant's: load forecast for the upcoming Binding Season (see *BPM 103 Forward Showing Capacity Requirement*); demonstration of Qualifying Capacity Contribution (QCC) to meet its FS Capacity Requirement which can be from Qualifying Resources or contracts; demonstration of the FS Transmission Requirement needed for the reliable delivery of the QCC of the Participant's Qualifying Resources and Contracts to the Participant's load; applicable Monthly Transmission Exception requests and associated Senior Official Attestations; and a Senior Official Attestation for the FS Demonstration. In addition to the FS Demonstration, the FS Submittal shall include supporting FS materials including information on Qualifying Resource Capability Testing, Thermal Resources without GADS data, Hydro Resource QCCs and forced outages, late registered resources, and Transition Period exceptions.

3.1. FS Demonstration

As described in the FS Instruction Manual, a Participant must provide the Program Operator with the following information on loads, Qualifying Resources, contracts, and WRAP Qualifying Transmission to demonstrate it has satisfactorily met the FS Capacity Requirement and FS Transmission Requirement. A Participant's FS Demonstration shall be accompanied by the Senior Official Attestation found in Appendix A – FS Demonstration Attestation. The Program Operator determines whether a Participant has met its FS Capacity Requirement and FS Transmission Requirement using the method described in Appendix G – FS Summary.

3.1.1. Loads

Each Participant shall provide the following FS Demonstration load information as described in the FS Instruction Manual:

- Load name assigned for identification purposes and used for transmission mapping
- Balancing Authority Area (BAA) in which the load is located
- The load point of delivery (POD) on the transmission system
- Forecasted monthly peak demand (see methodology in *BPM 103 Forward Showing Capacity Requirement*)

A Participant shall include all loads in its FS Demonstration for which it is responsible as well as documenting all loads it seeks to exclude (see *BPM 103 Forward Showing Capacity Requirement*): i.e. all loads within the western interconnection for which it is the LRE (or the exclusive wholesale electricity provider to the LRE) that are not covered by another resource adequacy program.

A Participant responsible for loads in two Subregions seeking to use the lower Monthly FSPRM may submit a single FS Submittal if the Participant can demonstrate sufficient WRAP Qualifying Transmission from the load in the Subregion with the lower Monthly FSPRM to the load in the Subregion with the higher Monthly FSPRM. The Participant will demonstrate WRAP Qualifying Transmission in the quantity equal to the difference between the two FSPRMs multiplied by the amount of load in the Subregion with the higher FSPRM. For example, if Region A has a FSPRM of 20% in July and Region B has a FSPRM of 15% in July, and Participant has 1000 MW of load in Region A, the Participant will demonstrate (20% - 15%) * 1,000 MW or 50 MW of WRAP Qualifying Transmission from its load in Region B to its load in Region A. This WRAP Qualifying Transmission shall be distinct from any transmission demonstrated for delivering Qualifying Resources to participant load. See *BPM 103 Forward Showing Capacity Requirement* for information on calculating the FS Capacity Requirement in circumstances where loads from two Subregions are included in a single FS Submittal. In addition, a Participant responsible for loads in two Subregions seeking to use the higher monthly FSPRM may also submit a single FS Submission if the Participant can sign the FS Demonstration attestation in Appendix A.

All load submitted by a Participant within a single FS Demonstration must be able to be served interchangeably by all Qualifying Resources and Qualifying Contracts in that same FS Demonstration, without the expectation that additional transmission rights will be required to deliver resources to load. In accordance with this, a Participant may be required to submit separate FS demonstrations, even as to loads residing in the same

Subregion, if the Program Administrator determines it is not practicable to treat such loads as if they can share in load and resource diversity for reasons that may diminish the integrity of WRAP reliability metrics, including but not limited to, if the Participant is responsible for (i) loads that are geographically distinct; (ii) loads that are separated by constrained transmission paths; or (iii) loads and resources that are not operated collectively (see *BPM 103 FS Capacity Requirement*).

Participant loads that cannot be served with a common set of Qualifying Resources and Qualifying Contracts shall therefore be submitted in separate FS Demonstrations. Each FS Demonstration will have a unique FS Capacity Requirement and a unique FS Transmission Requirement, and each of those two requirements shall be met individually and separately from any other FS Demonstrations submitted by a Participant.

3.1.2. Qualifying Resources

As part of the FS Demonstration, each Participant shall submit Qualifying Resources to satisfy the FS Capacity Requirement as described in the FS Instruction Manual. Qualifying Resources can be fully or partially owned by the Participant. The Participant shall use QCCs supplied by the Program Operator as part of the Advance Assessment (see *BPM 101 Advance* Assessment) unless the resource is being registered late (see *BPM 105 Qualifying Resources)*. The components of a hybrid resource should be described separately (for example, solar separately from a battery) and the overall limits of the facility considered when submitting the QCC for each component (see *BPM 101 Advance Assessment - Data Request Instruction Manual* for hybrid resource limitations). The Qualifying Resource information provided in the FS Demonstration should be consistent with the information provided by the Program Operator as a result of Resource Registration (see *BPM 105 Qualifying Resources*).

If a Participant experiences a catastrophic Qualifying Resource failure and is unable to replace the QCC on commercially reasonable terms prior to the FS Deadline, the Participant can seek an exception by submitting the attestation in Appendix B – Catastrophic Resource Failure Exception. For each month following the FS Deadline that a Participant sought a catastrophic resource failure exception, the Participant shall complete a Catastrophic Failure Monthly Report (available on the WPP website) demonstrating either:

- the circumstances necessitating the exception have not changed; or

- that Qualifying Resources (either the ones experiencing the catastrophic failure or other resources) have become available, and the Participant has acquired them and no longer requires the exception.

The Catastrophic Failure Monthly Report will be due on the last day of each Month and will cover any catastrophic Qualifying Resource exception requested for the upcoming (or ongoing) Binding Season, except the Month directly preceding the earliest Month that is the subject of catastrophic Qualifying Resource request. For example, if a Participant has requested a catastrophic Qualifying Resource exemption for July and August of 2035 at the FS Deadline (October 31, 2034), such Participant will submit a Catastrophic Failure Monthly Report for the July and August exception requests on or before the last days of November and December, 2034, and on or before the last days of January, February, March, April, and May, 2035, but need not submit such report for the July exception request on the last day of June 2035. The Participant will submit a Catastrophic Failure Monthly Report solely as to the August exception request on or before the last day of June 2035.

If at any time there is a change in the circumstances that necessitated the exception such that the reasons for the exception no longer exist, or the Participant acquires other Qualifying Resources, the Participant will describe and demonstrate such acquisition in the next Catastrophic Failure Monthly Report, and upon acceptance of the demonstration, need not continue to provide a Catastrophic Failure Monthly Report for the exception no longer needed. Failure to submit a required Catastrophic Failure Monthly Report will result in an assessment of a Deficiency Charge, unless the deficiency is cured with seven days of notice of non-compliance.

The Program Operator and Program Administrator will seek to inform the Participant whether its exception request has been accepted within 14 Days of receiving the request. The impact of a successful exception request is explained in *BPM 107 Forward Showing Deficiency Charge*. If a Participant submits a request for exception that WPP denies in whole or in part, the Participant may appeal such denial to the Board of Directors. To make such appeal, the Participant should submit an appeal, in the form outlined on the WPP website, including all information the Participant considers necessary to support its view that WPP erred in denying the requested exception. Any such appeal must be submitted no later than 14 Days after WPP's denial of the exception request. The Board may request that the Participant provide such additional information as the Board considers necessary for its action on the appeal. The timing of the Board's action on an appeal is in the Board's discretion.

3.1.3. Contracts

Each Participant shall also provide notification and representation of contractual purchases and sales as described in *BPM 106 Qualifying Contracts* and in the FS Instruction Manual.

3.1.4. Transmission

Each Participant shall demonstrate the FS Transmission Requirement. As described in the FS Instruction Manual, a Participant shall demonstrate it has secured transmission rights sufficient to deliver a MW quantity equal to at least 75% of the MW quantity of its FS Capacity Requirement. The FS Transmission Requirement must be met with WRAP Qualifying Transmission from the Participant's Qualifying Resource(s) or from the delivery points for the Qualifying Resources identified for its Net Contract QCC (or for its RA Transfer) to the Participant's load. The FS Demonstration shall include information on a Participant's transmission service reservations that it plans to utilize in the upcoming Binding Season to meet its FS Transmission Requirement. The FS Demonstration shall also map Qualifying Resources (see Section 3.1.2) and contracts (see Section 3.1.3) to a Participant's loads (see Section 3.1.1) using the transmission service reservation information provided, as described in the FS Instruction Manual. A Participant that has Qualifying Resource in its balancing area, but is not a transmission service provider – and is therefore unable to provide transmission service reservation information – will attest that it has the transmission rights from the generation to the load on its system (see Appendix J – Transmission Rights Attestation).

3.1.4.1. Transmission Exceptions

If a Participant's FS Demonstration does not include the required transmission service reservations to satisfy the FS Transmission Requirement, the Participant may request Monthly Transmission Exceptions. As described in more detail below, there are four categories of Monthly Transmission Exception available to a Participant [terminology mirrors terms used in standard form Open Access Transmission Tariffs (OATTs) and on Open Access Same-time Information Systems (OASIS)]:

- Enduring Constraints;
- Future Firm Available Transmission Capability (ATC) Expected;
- Transmission Outages and Derates; and
- Counterflow of a Qualifying Resource.

All Participants requesting a Monthly Transmission Exception are responsible for submitting the completed Transmission Exception request form found on the WPP website, along with the Senior Official Attestation found in Appendix C – Monthly Transmission Exception General Attestation – as part of their FS Submittal along with their FS Demonstration.

The Program Operator will review a Participant's Monthly Transmission Exceptions and notify the Participant of the status of its Monthly Transmission Exceptions for each month requested by 5:00 pm PPT on the 60th day after the FS Deadline.

If a Monthly Transmission Exception is denied (either because it is invalid or because circumstances changed and transmission has become available during the Program Operator's review of the Monthly Transmission Exception), the Participant will have the opportunity to cure its Transmission Deficiency on or before the last day of the Cure Period established for the relevant FS Submittal. The Participant may also appeal the rejection to the Board.

The Program Operator and Program Administrator will seek to inform the Participant whether its exception request has been accepted within 14 Days of receiving the request. If a Participant submits a request for exception that WPP denies in whole or in part, the Participant may appeal such denial to the Board of Directors. To make such appeal, the Participant should submit an appeal, in the form outlined on the WPP website, including all information the Participant considers necessary to support its view that WPP erred in denying the requested exception. Any such appeal must be submitted no later than 14 Days after WPP's denial of the exception request. The Board may request that the Participant provide such additional information as the Board considers necessary for its action on the appeal. The timing of the Board's action on an appeal is in the Board's discretion.

For each month following the FS Deadline that a Participant sought a Monthly Transmission Exception for Enduring Constraints or Future Firm ATC Expected, the Participant shall complete a Monthly Transmission Exceptions Check-in (available on the WPP website) demonstrating either:

- the circumstances necessitating the exception have not changed; or
- transmission has become available and the Participant has acquired it; or
- the Participant has acquired a different Qualifying Resource with the necessary firm transmission and no longer requires the Monthly Transmission Exception.

The Monthly Transmission Exception Check-Ins will be due on the last day of each Month and will cover any Monthly Transmission Exceptions requested for the upcoming (or ongoing) Binding Season, except the Month directly preceding the earliest Month that is the subject of the Monthly Transmission Exception request. For example, if a Participant has requested a Monthly Transmission Exception for July and August of 2035 at the FS Deadline (October 31, 2034), such Participant will submit a Monthly Transmission Exception Check-In for the July and August exception requests on or before the last days of November and December, 2034, and on or before the last days

of January, February, March, April, and May, 2035, but need not submit such check-in or the July exception request on the last day of June 2035. The Participant will submit a Monthly Transmission Exception Check-In solely as to the August exception request on or before the last day of June 2035.

If at any time, the Participant either acquires the necessary transmission or acquires a different resource and associated transmission, the Participant will describe and demonstrate such acquisition on the next Monthly Transmission Exception Check-In, and upon acceptance of the demonstration, need not continue to provide Monthly Transmission Exception Check-Ins for the exception no longer needed. Failure to submit a required Monthly Transmission Exception Check-In or rejection of the Monthly Transmission Exception Check-In in part or in whole (e.g. if contrary information is available to the Program Administrator, indicating transmission has become available for the month in question) will result in an assessment of a Deficiency Charge unless the deficiency is cured within seven days of notice of non-compliance.

3.1.4.1.1. Enduring Constraints

The Enduring Constraints Monthly Transmission Exception may be granted if the Participant is unable to demonstrate the necessary and sufficient WRAP Qualifying Transmission on any single segment of a source-to-sink path for a resource (exceptions will not be granted for two segments of a source-to-sink path) and the Participant demonstrates:

- there was no sufficiently firm ATC posted by a transmission service provider at the FS Deadline on the applicable segment for the months required; and
- there was remaining available ATC (non-firm ATC after the fact) for all CCHs in the same season of the most recent year for which CCHs have been calculated; or
- if the path was constrained in at least one CCH in the most recent same season from the most recently available CCH data set, that the Participant is:
    - constructing or contracting for a new local resource for at least the amount of Monthly Transmission Exception requested; or
    - pursuing long-term firm rights by entering the long-term queue and taking all appropriate steps for at least the amount of Monthly Transmission Exception requested.

If the required transmission rights for the applicable segment are only available for a duration of more than one year at the FS Deadline, a Participant is not required to obtain that service to qualify for the Enduring Constraints exception. However, in that circumstance, the Participant shall not qualify for an Enduring Constraint exception for the same path (or across the same constraint) for the same month of the same season

of the subsequent year if the Participant again declines the transmission rights that are available for a duration of more than one year.

In addition to the Monthly Transmission general exception discussed above in Section 3.1.4.1, a Participant requesting an Enduring Constraint Monthly Transmission Exception will need to include the Senior Official Attestation found in Appendix D – Enduring Constraint Additional Attestation as part of its FS Submittal.

3.1.4.1.2. Future Firm ATC Expected

The Future Firm ATC Expected exception may be granted when there is a reasonable expectation that sufficiently firm ATC will be made available following the FS Deadline and all the following criteria are met:

1. WRAP Qualifying Transmission is not posted or available prior to the FS Deadline; and
2. The Participant provides evidence that its transmission service provider has released additional WRAP Qualifying Transmission on the applicable path for all CCHs in the same season of the most recent year for which CCHs have been calculated following the FS Deadline; and
3. The Participant demonstrates that the amount of FS Transmission Requirement being requested for the Future Firm ATC Expected exception is equal to or less than the minimum volume of WRAP Qualifying Transmission rights ATC released in the previous year's CCHs for the appropriate Binding Season.

If the required ATC on the applicable segment for the Month(s) needed is only posted or available prior to the FS Deadline for a duration of more than one year, a Participant is not required to obtain that service to qualify for the Future Firm ATC Expected exception. However, in that circumstance, the Participant shall not qualify for a Future Firm ATC Expected exception for the same path (or across the same constraint) for the same month of the same season of the subsequent year if the Participant again declines the ATC for transmission service rights that are available for a duration of more than one year.

The total amounts of Future Firm ATC Expected exceptions on specific paths is limited to the amount of transmission demonstrated to likely become available. If multiple Participants have requested a Future Firm ATC Expected exception on the same path, the available volume will be granted on a pro-rata basis to requesting Participants based on the size of their requests.

3.1.4.1.3. Transmission Outages and Derates

The Transmission Outages and Derates exception may be granted when a Participant that has not met its FS Transmission Requirement demonstrates that all of the following criteria are met:

1. That an applicable segment of its existing transmission service rights from its source to sink path for its Qualifying Resource is expected to be derated or out-of-service and that additional ATC of WRAP Qualifying Transmission is not otherwise available; and
2. The duration of the Transmission Outages and Derates exception request coincides with the months of the outage or derate; and
3. The volume of the Transmission Outages and Derates exception being requested is either:
    a. equal to or less than the reduction in the Participant's existing transmission service rights on that path for the applicable derate or outage period; or
    b. equal to or less than the WRAP Qualifying Transmission for the applicable derate or outage period that would otherwise be posted and available for reservation were it not for the transmission limitation.

If multiple Participants have requested a Transmission Outages and Derates exception on the same path, the available volume (per Section 3.1.4.1.3 (3) above) will be granted on a pro-rata basis to requesting Participants based on the size of their requests.

3.1.4.1.4. Counterflow of a Qualifying Resource

A Counterflow of a Qualifying Resource exception may be granted if a Participant demonstrates that either:

1. The Participant's use of WRAP Qualifying Transmission service in connection with the delivery of capacity from Participant's Qualifying Resource (or from the resource associated with its Net Contract QCC) to Participant's load (or other qualifying delivery point permitted by the WRAP); or
2. A second Participant's use of WRAP Qualifying Transmission service in connection with the delivery of capacity from the second Participant's Qualifying Resource (or from the Qualifying Resource associated with its Net Contract QCC) to the second Participant's load (or other qualifying delivery point permitted by the WRAP)

   provides a direct and proportional counterflow transmission that supports the first Participant's delivery of capacity from the first Participant's Qualifying Resource (or from the Qualifying Resource associated with its Net Contract QCC)

to the first Participant's load (or other qualifying delivery point permitted by the WRAP) Qualifying Resource to its load.

If the Counterflow of a Qualifying Resource exception is requested under subpart (2) of this Section, the Participant requesting the exception shall include a written acknowledgement from the second Participant that it is aware of such exception request. Counterflow of a Qualifying Resource must be directly between two BAAs. Counterflows that involve three or more BAAs will not qualify for the Counterflow of a Qualifying Resource exception.

3.1.5. Planned Outages

Per the requirements of Tariff Section 16.2.8, any planned outages during a Binding Season must be taken from a Participant's surplus (above its FS Capacity Requirement).

3.1.5.1. Planned Outages underway at the time of FS Submittal

Any Qualifying Resource that is out of service at the time of the FS Deadline and is planned to remain out of service for the first five or more days of a month in the Binding Season cannot have such Qualifying Resource's QCC counted toward meeting the Participant's FS Capacity Requirement for that month.

To ensure QCC from resources is not utilized to meet a monthly FS Capacity Requirement during the planned outage, the Capacity associated with such resources shall be deducted by identifying the planned outages in the FS Demonstration.

3.1.5.2. Planned Outages not underway at the time of the FS Submittal

Participants have the discretion to take planned outages at any time during the Binding Season but are required to take planned outages out of their surplus FS Demonstration capacity or to procure additional supply to replace such capacity on outage. This requirement ensures the participant's FS Capacity Requirement is available during the Operation Program timeframe.

Participants may provide information on Qualifying Resources that are planned to be out of service during the Binding Season as part of their FS Submittal to ensure QCC from those resources is not utilized to meet a monthly FS Capacity Requirement during the planned outage. Capacity associated with such resources shall be deducted from the FS Demonstration for such month(s).

Each Participant shall provide a Senior Official Attestation (found in Appendix E – Planned Outages Attestation) by the FS Deadline that:

- The sum of expected planned outages at any one time during the Binding Season will be equal to or less than the surplus stated in its FS Demonstration at the time of such planned outage, or

- The Participant is expected to procure the necessary capacity or energy to meet the Operations Program requirements regardless of planned outage schedules.

A planned outage shall not justify a waiver of, or exception to, a Participant's Holdback Requirement or Energy Deployment obligations.

3.2. Forward Showing Supporting Materials

In addition to the FS Demonstration (see Section 3.1), accompanying Monthly Transmission Exception Requests (see Appendix C – Monthly Transmission Exception General Attestation) and required Senior Official Attestations, a Participant's FS Submittal shall also include supporting information on Qualifying Resource testing, Thermal Resources without GADS data, Hydro Resource QCCs, late registered resources, and transition exceptions.

3.2.1. Testing

As described in *BPM 105 Qualifying Resources,* Participants shall perform annual Operational Tests on all Qualifying Resources. In addition, Capability Tests shall be required for Thermal Resources, Long Duration Storage resources, and Demand Response Resources. Each Participant's FS Submittal must include a completed resource testing report, employing for such purpose the resource testing form that is made available on the WPP website.

3.2.2. Thermal Resources that are not Required to Report GADS Data

BPM 101 Advance Assessment describes the data request sent out by the Program Operator to gather the information required to calculate QCC values for Qualifying Resources. The Advance Assessment data request includes NERC GADS or equivalent outage data that can be used to calculate the outage rates and factors for existing Thermal Resources. However, as discussed in *BPM 105 Qualifying Resources*, certain Thermal Resources are not required to report GADS data. For all Qualifying Resources not providing GADS reporting data, the Participant will be required to provide a Senior Official Attestation (provided in Appendix F – Non-GADS QCC Calculation Attestation) as part of its FS Submittal that attests the resource is not subject to GADS reporting and the FS Demonstration submitted by the Participant is an accurate depiction of either the historical performance or historical outage data of the resource.

3.2.3. Hydro Resources

As discussed in *BPM 105 Qualifying Resources*, QCCs for Storage Hydro resources are calculated by the Participant owners. The result of those calculations shall be submitted as part of a Participant's FS Submittal in the format described in *BPM 105 Qualifying Resources* and the FS Instruction Manual. The Storage Hydro QCC Methodology utilizes an equivalent demand forced outage rate (EFORd) value as an input. Participants shall supply as part of their FS Submittal a NERC GADS report showing the EFORd value. For all Storage Hydro resources that do not report NERC GADS data, the Participant shall similarly calculate an EFORd value from historical performance data and the non-GADS outage calculation tool as posted on the WPP website. The Participant will provide the output of this tool and a Senior Official Attestation (provided in Appendix F – Non-GADS QCC Calculation Attestation) attesting that the resource is not subject to GADS reporting and that the Participant has utilized the non-GADS outage calculation tool with complete and correct information. Participants will also provide a Senior Official Attestation (in the form provided in *Appendix I*) that their calculation of the Storage Hydro QCC value is correct, accurate, and in compliance with the requirements of the Tariff.

3.2.4. Late Registered Resources

As discussed in *BPM 105 Qualifying Resources*, resources that are unable to register by the deadline of the Advance Assessment data request (see *BPM 101 Advance Assessment*) may still be able to register prior to the FS Deadline so long as the necessary information is provided.

3.2.5. Transition Exceptions

During Transition Binding seasons, ~~*BPM 109 Forward Showing Transition Period* discusses how a new Participant application to the Program Administrator prior to March 31, 2027, shall be required to select an initial Binding Season during the Transition Period (Summer seasons for 2025, 2026, and 2027, and the Winter seasons for 2025-2026, 2026-2027, and 2027-2028). During its Transition Binding Seasons,~~ a Participant may be able to request potential reductions in Deficiency Charges as described below.

3.2.5.1. Excused Transition Deficits

During a Participant's Transition Binding Seasons, Deficiency Charges otherwise applicable to the Participant under Section 17.1 of the Tariff, and calculated under Section 17.2, shall be reduced to the extent the Participant has an Excused Transition Deficit (ETD). To obtain an ETD for a Binding Season, the Participant must provide a Senior Official Attestation, as included in *BPM 109 Forward Showing Transition Period*.

3.2.5.2. Legacy Contract – No Joint Contract Accreditation Form (JCAF) Option

In addition to an ETD, during the Transition Period a Participant may be able to reduce its Monthly Capacity Deficiency to the extent the deficiency is due to the Participant's failure to obtain assent to a JCAF from the supplier under a Legacy Agreement (a power supply agreement entered into prior to October 1, 2021), as explained in *BPM 109 Forward Showing Transition Period* (the No-JCAF Option). To obtain that relief, the Participant must provide a Senior Official Attestation (in the form set forth in *BPM 109 Forward Showing Transition Period*) as part of its FS Submittal attesting that the Participant made commercially reasonable efforts to execute the required JCAF with the supplier under the Legacy Agreement, but the supplier was unable or unwilling to counter sign the JCAF.

4. Cure Period

The Program Operator and Program Administrator shall review Participants' FS Submittals and the Program Administrator shall serve deficiency notices in writing to any Participant that has not, by the FS Deadline shown in Table 1, submitted all required FS Submittal information and materials (see Section 3), or that has submitted information or materials that the Program Operator has found is or may be incorrect or deficient. Participants served a deficiency notice will have until the dates shown in Table 1 to cure their deficiencies. Deficiencies uncured by the time of the FS Cure Deadline shall be subject to the FS Deficiency Charge (*see BPM 107 Forward Showing Deficiency Charge*).

Appendix A – FS Demonstration Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that I have reviewed [Participant]'s FS Submittal provided this day by [Participant] to Western Power Pool, and that to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed herein, and that the statements therein are true, correct and complete per all of the requirements of Business Practice Manual 108.

Appendix B – Catastrophic Resource Failure Exception Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that, as set forth in the accompanying request for an exception from the FS Capacity Requirement for the [specify season] Binding Season, (i) [Participant] has experienced a catastrophic failure of its [identify] Qualifying Resource[s] due to an event of Force Majeure as defined by Section 8.1 of the WRAP Tariff; (ii) [Participant] is unable to replace the QCC quantity of such Qualifying Resource[s] on commercially reasonable terms prior to the FS Deadline of [specify date] as a result of the timing and magnitude of such catastrophic failure and its consequences; and (iii) the statements in the accompanying FS Capacity Requirement exception request, including the information provided therein on the nature, causes and consequences of the catastrophic failure[s], and [Participant]'s specific, concrete efforts prior to the referenced FS Deadline to secure replacement Qualifying Resources for the [specify season] Binding Season, are true, correct and complete to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed therein.

Appendix C – Monthly Transmission Exception General Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that, as set forth in the accompanying request for an exception from the FS Transmission Requirement for the [specify season] Binding Season, (i) [Participant] meets the stated WRAP requirements for the exception; and (ii) the statements in the accompanying FS Transmission Requirement exception request are true, correct and complete to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed therein.

Appendix D – Enduring Constraint Additional Attestation

I further attest, in support of [Participant]'s request for the Enduring Constraints Transmission Exception, that (i) no ATC for transmission service rights for which the exception is requested is available (either from the transmission service provider or through a secondary market) as of the FS Deadline, on the applicable segment for the Month(s) needed (for a duration of one year or less) at the applicable Open Access Transmission Tariff rate or less; (ii) [Participant] has taken commercially reasonable efforts to procure firm transmission service rights, and (iii) [Participant] has posted a request for the necessary firm transmission rights on the relevant bulletin board, (i.e., OASIS) prior to the FS Deadline.

Appendix E – Planned Outages Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that: (i) as set forth in [Participant]'s FS Submittal provided this day by [Participant] to Western Power Pool, Participant has included information on all Qualifying Resources that are currently out of service with a scheduled return date that falls during the [specify season] Binding Season; (ii) Participant [has] [does not have] certain additional outages at Qualifying Resources that are planned to occur during the [specify season] Binding Season but have not yet begun at the time of submission of the FS Submittal; (iii) Participant has made reasonable efforts to obtain and provide information on any such additional outages, but such data cannot be supplied with reasonable specificity; (iv) the aggregate of any such additional outages is either expected to be equal to or less than [Participant]'s remaining surplus as defined by [Participant]'s Portfolio QCC in excess of [Participant]'s FS Capacity requirement or to the extent it is not excess it will be replaced with the necessary capacity or energy to meet the Operations Program requirements, consistent with Section 16.2.8.2 and Part III of the Tariff; and (v) that the foregoing statements are true, correct and complete to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed herein.

Appendix F – Non-GADS QCC Calculation Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that the resource that is the subject of this form is not subject to GADS data reporting; and that the resource's performance data (historical output or historical outage evaluation) for the Capacity Critical Hours of the [specify season] Binding Season is accurately accounted for in the accompanying FS Submittal.

Appendix G – FS Summary

A Participant's total Portfolio QCC is defined as the Participant's Resource QCC plus its Net Contract QCC plus its total RA transfer minus its planned outages for each month of the Binding Season.

$$Portfolio\ QCC = Resource\ QCC + Net\ Contract\ QCC + Total\ RA\ Transfer - Planned\ Outages$$

Where:

Resource QCC is the summation of all QCC values for the Participant's Qualified Resources calculated for each month of a Binding Season.

$$Resource\ QCC = \sum QCC\ of\ all\ Participant\ Qualifying\ Resources$$

The Net Contracted QCC is a monthly value equal to the sum of the Participant's Contract QCCs. Import contracts (purchases) are additive to the Participant's QCC value and exports (sales) are a negative QCC value. The Net Contract QCC formula is as follows:

$$Net\ Contract\ QCC = \sum QCC\ of\ all\ Participant\ Qualified\ Contracts$$

Resource adequacy transfers are added to the purchasing Participant's Portfolio QCC value and subtracted from the selling Participant's Portfolio QCC value. The contracts for these transfers will be provided to the Program Operator for validation.

$$Total\ RA\ Transfer = \sum Participant\ RA\ Transfer\ Contracts$$

The Participant's Total Portfolio QCC should be at least equal to the Participant's FS Capacity Requirement for each month of the Binding Season. If the Participant's Total Portfolio QCC meets or exceeds that threshold, then the Participant's FS Capacity Requirement has been satisfied.

$$Total\ Portfolio\ QCC \geq FS\ Capacity\ Requirement$$

Where:

The Participant's FS Capacity Requirement is its forecasted monthly demand multiplied by 100% plus the applicable Monthly FSPRM according to the following equation:

$$FS\ Capacity\ Requirement = Monthly\ P50 * (100\% + Monthly\ FSPRM)$$

The over and underperformance of VERs, forced outages, and Run-of-River hydro in the Participant's portfolio will be used to calculate performance changes in the Operations Program. The Participant's additional planned maintenance or short-term sales will be made from its excess Portfolio QCC.

The Participant's total demonstrated FS Transmission shall be at least equal to 75% of the Participant's FS Capacity Requirement at the FS Deadline. If the Participant's Total Portfolio QCC meets or exceeds that threshold, then the Participant's FS Transmission Requirement has been satisfied.

$$Demonstrated\ FS\ Transmission \geq FS\ Capacity\ Requirement * 75\%$$

Where:

Demonstrated FS Transmission is equal to the sum of all transmission demonstrated with completed paths and Approved Transmission Exceptions.

$$Demonstrated\ FS\ Transmission = \sum Trasnmission\ Demonstrated\ (completed\ paths) \mp Approved\ Transmission\ Exceptions$$

Appendix H – Demand Response Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that for each Demand Response Qualifying Resource included in the accompanying FS Submittal, [Participant,] upon due investigation, has determined whether the demand response capability of such resource has been previously deployed to reduce load, and if such capability has been deployed to reduce load, Participant has, for purposes of developing the P50 Peak Load Forecast employed in such FS Submittal, added back to each historic hour when such capability was deployed the MWs of load reduction provided by such capability in such hour.

Appendix I – Storage Hydro Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that I have reviewed [Participant]'s Storage Hydro Qualifying Capacity Contribution (QCC) provided this day by [Participant] to Western Power Pool (i.e., Program Administrator) ; and, to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed therein, that such QCC has been calculated in accordance with the methodology set forth in *BPM 105 Qualifying Resources* and such calculation meets all requirements of Tariff Section 16.2.5.5; that [Participant] has provided the Program Administrator with all information necessary to review such QCC that is stated in Tariff, Section 16.2.5.5, to the extent requested by the Program Administrator, and that all statements and information included in the FS Submittal with respect to the calculation of such QCC are true, correct and complete to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed therein.

Appendix J – Transmission Rights Attestation

I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest that [Participant] has the transmission rights from [insert Qualifying Resources] Qualifying Resources to the load on [Participant's] system, but [Participant] is unable to provide transmission service reservation information.

WESTERN POWERPOOL

Western Resource Adequacy Program

109 Forward Showing Transition Period

100 – Forward Showing

Manual Number	Version	Description	Revised By	Date
109	0.1	RAPC Glance Version	Rebecca Sexton	8/22/2023
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109	3.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
109	3.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Revision History

Table of Contents

109 Transition Period

1. Introduction

The Forward Showing (FS) Program of the Western Resource Adequacy Program (WRAP) provides for a four-year Transition Period, commencing in Summer 2025 Binding Season and ending after Winter 2028-2029 Binding Season. All Participants will participate in the Summer 2025 and Winter 2026-2027 Binding Seasons and all Binding Seasons in between as Non-Binding Participants. From Winter 2027-2028 all Participants will be Binding (excepting any Critical Mass provisions) and subject to certain charges for failure to meet or cure compliance obligations associated with Binding participation in the WRAP; however, during the Transition Period such charges may be reduced in certain limited circumstances. The Transition Period also provides Participants the option of Binding participation one season earlier in Summer 2027, so this season may have a mixture of Binding and Non-Binding Participants. This FS Transition Period Business Practice Manual (BPM) provides implementing details and practices relevant to the FS Program during the Transition Period. Implementing details and practices relevant to the Operations Program during the Transition Period are described separately in *BPM 210 Binding and Non-Binding Participation in Operations Program*.

1.1. Intended Audience

BPM 109 is intended for WRAP Participants and other interested individuals or entities and will be particularly useful for those responsible for their Participant organization's submission of FS Submittal and ensuring that their organization complies with WRAP FS Program requirements, whether Non-Binding or Binding, during the Transition Period.

1.2. What Will You Find in This Manual?

BPM 109 includes sections outlining practices and implementation details relevant to the Transition Period, Binding and Non-Binding participation, Excused Transition Deficits (ETDs), and the reduction in Monthly Capacity Deficiency Charges available under certain conditions for Legacy Agreements.

1.3. Purpose

To provide an overview of the WRAP Transition Period activities for the FS Program that might impact business processes of current or potential Participants.

1.4. Definitions

All capitalized terms that are not otherwise defined in BPM 109 have the meaning set forth in the Tariff or in another BPM.

Joint Contract Accreditation Form, or JCAF: As defined in *BPM 106 Qualifying Contracts.*

No-JCAF Option: Transition provision allowing a Participant to utilize Legacy Agreements without demonstration of a JCAF on a limited basis, as described in Section 6.

Transition Binding Season: For all Participants the Binding Seasons during the Transition Period from Winter 2027-2028 onwards for which the Participant is subject to the mandatory requirements of Parts II and III of the Tariff, and including Summer 2027 for Participants that opted for Binding participation one season earlier.

2. Background

The WRAP is a regional resource adequacy program in which Participants demonstrate, in advance of a defined season when resources may need to be deployed, that they have sufficient resources to meet their expected peak loads and FS Planning Reserve Margins (FSPRMs). The WRAP imposes standards and requirements related to such matters as the resources that qualify to meet resource adequacy objectives, the calculation of peak loads, and the required minimum FSPRMs. The WRAP provides for imposition of significant charges on Participants that do not show in advance sufficient resources to meet their loads. In addition, under the WRAP, Participants with surplus resources are subject to requirements in certain circumstances during the subject season to assist Participants that are resource deficient, and if a surplus Participant fails to make required energy deliveries to a deficient Participant, the surplus Participant is subject to significant charges for such delivery failure. Recognizing that not all Participants may have made all necessary arrangements and implemented all necessary business processes at the program's outset to secure WRAP-Qualifying Resources, meet the various WRAP obligations, and avoid imposition of these significant charges, the WRAP includes a four-year Transition Period. The Transition Period rules provide the possibility of reduced charges in certain specific circumstances designed to recognize that some Participants may still be in the process of securing all resources needed to ensure compliance with WRAP requirements. All Participants will be subject to Binding participation obligations starting November 201~~1~~, 2027 (for the Winter 2027-2028 Binding Season), but the Transition Period rules allow each Participant the option to elect to also participate one season earlier as a Binding Participant in Summer 2027.

3. Transition from Non-Binding to Binding Seasons

The Transition Period consists of the Summer Seasons for 2025, 2026, 2027, and 2028, and the Winter Seasons for 2025-2026, 2026-2027, 2027-2028, and 2028-2029. The Winter 2027-2028 Binding Season beginning November ~~1~~20, 2027, will be the first

Binding Season for all Participants whose Western Resource Adequacy Program Agreement (WRAPA) is effective on September 15, 2026, unless a Participant selects Summer 2027 as its first Binding Season. Transition Period provisions will continue to apply until ~~March 15~~February 28, 2029, as noted in Table 1 below.

Table 1. Transition Period Provisions and Non-Binding/Binding Participation

Period	Participation and Provisions	
Summer 2025 through **Winter 2026-2027**	Non-Binding participation only	Transition Period provisions apply
Summer 2027	Both Binding and Non-Binding participation	
Winter 2027-2028 through **Winter 2028-2029**	Binding participation only	
Summer 2029 onwards	Binding participation only Subject to all standard WRAP requirements and obligations	

3.1. Option of Summer 2027 as First Binding Season

A Participant that executes a WRAPA on or before January 15, 2026, may notify WPP on or before January 15, 2026, of its intent to participate in the Summer 2027 Binding Season as a Binding Participant. A Participant that executes a WRAPA after January 15, 2026 and on or before September 15, 2026 may elect to participate in the Summer 2027 Binding Season as a Binding Participant by notifying WPP of such intent on or before the effective date of its WRAPA. Notification of intent to participate in Summer 2027 as a Binding Participant must be provided in email to WPP. The decision to participate as a Binding Participant in the Summer 2027 Binding Season is optional, thus Summer 2027 participation may be mixed, with some Participants participating in a Non-Binding manner, while others participate in a Binding manner.

4. Transition Period Binding Season Participation

During Transition Period Binding Seasons, a Participant will be subject to the same obligations and requirements, and have the same rights, that the WRAP Tariff establishes for the period beginning after the end of the Transition Period, except for the WRAP Tariff provisions, as also elaborated below concerning ETDs and lack of JCAF assent for Legacy Agreements.

4.1. Non-Binding Season Participation

During Non-Binding Seasons, a Participant will not be subject to Deficiency Charges under the FS Program, or to mandatory Holdback Requirements as a result of a positive Sharing Calculation result, mandatory Energy Deployments, or Delivery Failure Charges under the Operations Program. Participants will be subject to all other FS Program requirements, including the requirement to timely provide data in connection with the Advance Assessment, the requirement to timely provide FS Submittals, and Operations Program requirements as appropriate and detailed in *BPM 210 Binding and Non-Binding Participation in Operations Program*. A Participant in a Non-Binding Season may participate in the Operations Program as outlined in *BPM 210 Binding and Non-Binding Participation in Operations Program*.

4.2. Option to Defer First Binding Season for All Participants

Within two years prior to the start of Participants' first Binding Season (Summer 2027 if any Participants opted for Binding participation one season early or Winter 2027-2028 if no Participants avail themselves of that option), a Binding Participant in that first Binding Season may request a vote of all Binding Participants in that first Binding Season to delay implementation of the first Binding Season for up to two seasons. The deferral vote may only occur for the first Binding Season of the WRAP.

Delayed implementation of the first Binding Season will only be approved if 75% of the Participants who in the first Binding Season vote in favor of the delay. Approval requires a vote of 75% of both the House and Senate vote tallies (as described in Sections 4.1.6.2.1 and 4.1.6.2.2 of the WRAP Tariff) of all Binding Participants in the first Binding Season.

This deferral option encompasses an option for the relevant Participants to vote to delay implementation only of the Operations Program portion of the first Binding Season and retain the binding FS Program portion of the first Binding Season.

If the Participants who in the first Binding Season of the WRAP vote to delay implementation of the first Binding Season, all compliance charges for the FS Program and Operations Program are automatically waived; provided that, if the Participants vote to delay implementation only of the Operations Program portion of the first Binding Season and retain the binding FS Program portion of the first Binding Season, only the effectiveness of Operations Program compliance charges is deferred.

5. Excused Transition Deficits

During a Participant's Transition Binding Seasons, FS Deficiency Charges otherwise applicable to the Participant under Section 17.1 of the WRAP Tariff, and calculated under Section 17.2, shall be reduced to a Discounted Deficiency Charge to the extent

the Participant has an ETD. ETDs are not resource specific and relate to a MW quantity of the Participant's FS Capacity Requirement.

5.1. How to Obtain an ETD

To obtain an ETD during a Binding Season, the Participant must provide a Senior Official Attestation (in the form set forth in Appendix A below) attesting that the Participant or a relevant third party servicing load for which the Participant is the LRE has made commercially reasonable efforts to secure Qualifying Resources in the quantity needed to satisfy the Participant's FS Capacity Requirement for the Binding Season, but is unable to obtain Qualifying Resources in the quantity required for the Binding Season because the supply of such resources on a timely basis and on commercially reasonable terms is at that time inadequate. If the attestation relates to a third-party servicing load for which the Participant is the LRE, the Senior Official Attestation may be signed by a Senior Official of the third-party load service provider. If an ETD is requested the required attestation shall be included as part of the Participant's relevant FS Submittal (*see BPM 108 Forward Showing Submittal).* Participants may apply for ETDs in multiple Months of a Binding Season.

5.2. Limits on Megawatts to Which ETDs can be Applied

For each Month of a Binding Season during the Transition Period, ETDs are limited to a maximum permissible MW quantity per Participant per Month.

The MW limit is equal to the FSPRM applicable to a Participant for its FS Submittals for each Month in the Binding Season, multiplied by a percentage value. This percentage value decreases for each year that Transition Period provisions apply.

The percentage value is 200% for each Month of the 2027 Summer Season and 2027-2028 Winter Season, and 100% for each Month of the 2028 Summer Season and 2028-2029 Winter Season.

Table 2. Percentage Value to be Multiplied by FSPRM

Season	Percentage Value to be Multiplied by Participant FSPRM
Summer 2027	200%
Winter 2027-2028	200%
Summer 2028	100%
Winter 2028-2029	100%

For example, if the applicable FSPRM is 20% and a Participant's P50 Peak Load for June 2028 is 1000 MW, the Participant could seek an ETD for 200 MW (i.e., 20% * 1000 MW * 100% = 200 MW).

As can be seen, the MW limitation of a Participant's aggregate ETDs for each Month of a Binding Season is calculated from only the increment of the Participant's FS Capacity Requirement defined by the FSPRM, i.e., by a percentage of the Participant's P50 Peak Load. It is not defined by the sum of the Participant's P50 Peak Load plus the MW needed for the FSPRM. The reduction in the percentage factor every 12 Months, as shown in Table 2 reflects the program's expectation that Participants will use the four-year Transition Period provisions to address any gaps in their portfolio of Qualifying Resources needed to meet their FS Capacity Requirement.

5.3. Discounted Deficiency Charge once ETD is Applied

A Participant can apply ETDs to its Monthly Capacity Deficiency to reduce its Deficiency Charge. For the MW portion of its Monthly Capacity Deficiency for which it obtained ETDs, a Participant will pay a Discounted Deficiency Charge reduced by a percentage value. That percentage value will be equal to 75% for each of the 2027 Summer Season and 2027-2028 Winter Season, and 50% for each of the 2028 Summer Season and 2028-2029 Winter Season.

Table 3. Reduction of Deficiency Charge Based on ETDs

Season	Percentage Value Reduction for Portion of Monthly Capacity Deficiency to Which ETDs Have Been Applied
Summer 2027	75%
Winter 2027-2028	75%
Summer 2028	50%
Winter 2028-2029	50%

For the MW portion of its Monthly Capacity Deficiency for which it did not obtain ETDs, the Participant will be assessed a FS Deficiency Charge calculated under WRAP Tariff Section 17.2, without reduction or adjustment.

A detailed example is provided in the FS Transition Period Deficiency Charge Examples document posted on the WPP website.

As can be seen in Table 3, the percentage reduction in a Participant's Deficiency Charge becomes smaller every 12 Months, and thus its Discounted Deficiency Charge after providing an accommodation for ETDs becomes larger every 12 Months. This again

reflects an expectation that Participants will use the four-year Transition Period provisions to address any gaps in their portfolio of Qualifying Resources needed to meet their FS Capacity Requirement.

6. Reduction of Monthly Capacity Deficiency Applicable to Legacy Agreements

In addition to the possible reduction in a Participant's Capacity Deficiency Charges for an ETD, a Participant may be able during the Transition Period to reduce its Monthly Capacity Deficiency to the extent the deficiency is due to the Participant's failure to obtain assent from the supplier under a Legacy Agreement to a JCAF. WRAP's general rule is that supply contracts must be resource specific. Legacy Agreements (including, for example agreements without an identified or inferred source entered under Schedule C of the Western Systems Power Pool), entered before prospective Participants in WRAP reached a consensus on the resource specific rule (October 1, 2021), are allowed an exception to that rule, but only if the Participant relying on a Legacy Agreement in its FS Submittal obtains the written assent of the supplier under the Legacy Agreement to a form which enables the Program Operator to presume a source or sources for the agreement. The Transition Period rules permit a limited further exception to that requirement (thus allowing Participants some additional time to convert or replace pre-existing Schedule C-type agreements). To obtain that relief, the Participant must provide, as part of their FS Submittal (see *BPM 108 Forward Showing Submittal*), a Senior Official Attestation (in the form set forth in Appendix B below) attesting that the Participant made commercially reasonable efforts to execute the required JCAF with the supplier under the Legacy Agreement, but the supplier was unable or unwilling to counter sign the JCAF. This transition provision is termed the No-JCAF Option.

Even with that showing, this Transition Period exception is strictly limited. A Participant using this exception, whether for one or multiple Legacy Agreements, may not reduce its Monthly Capacity Deficiency in the subject Month by a MW quantity greater than 25% times the FSPRM applicable for that Participant for the relevant Binding Season.

For example, assuming an FSPRM value of 20% for a given Month during the Transition Period, a Participant with a 1000MW P50 Peak Load in such Month may seek this exception for as much as 50 MW (20% * 1000MW * 25% = 50MW).

In addition, a Participant employing the No-JCAF Option must reduce, MW for MW, its maximum permitted use of ETDs for the same Transition Binding Season. For example, if a Participant exercises the No-JCAF Option exception for a MW quantity equal to 20% of the Participant's FSPRM for the Summer 2028 Binding Season (which has a maximum ETD amount of 50% of the FSPRM), then the Participant may apply ETDs in an

aggregate MW quantity no greater than 30% of their FSPRM for Summer 2028 (50% - 20% = 30%).

7. Adjustment of Revenue Allocations

Any Participant that exercises the No-JCAF Option or successfully applies an ETD shall not receive an allocation of revenues from the payment of Deficiency Charges as to such Binding Season.

Revenues from ETDs will be distributed to Participants, for which the Season is a Binding Transition Season, and that did not use ETDs and did not exercise the No-JCAF Option to meet their FS Capacity Requirement. A Participant that receives revenues from ETDs will not have an increase in its FS Capacity Requirement solely as a result of receipt of such revenue.

Appendix A – Senior Official Attestation – ETD

The following Senior Official Attestation will be required for any Participant seeking an ETD:

> I, the undersigned, who, as [title], serves as a senior official of [Participant/third-party load service provider], hereby attest that (i) [Participant] meets the stated WRAP requirements for an Excused Transition Deficit; (ii) [Participant] has made commercially reasonable efforts to secure Qualifying Resources in the quantity needed to satisfy [Participant]'s FS Capacity Requirement for the [identify season] Binding Season, but is unable to obtain Qualifying Resources in the quantity required for the Binding Season because the supply of such resources on a timely basis and on commercially reasonable terms is at the present time inadequate; and (iii) the foregoing statements are true, correct and complete to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed herein.

Appendix B – Senior Official Attestation – No-JCAF Option

The following Senior Official Attestation will be required for any Participant seeking to utilize the No-JCAF Option with a Legacy Contract:

> I, the undersigned, who, as [title], serves as a senior official of [Participant], hereby attest, in support of [Participant]'s request for a reduction in the Monthly Capacity Deficiency otherwise calculated under the Tariff, because ___ MW of such deficiency is due to [Participant]'s inability to obtain assent from the supplier under a Legacy Agreement to the accreditation required for such Legacy Agreement under the Tariff and Business Practice Manuals; (ii) [Participant] made commercially reasonable efforts to execute the required accreditation form with the supplier under the Legacy Agreement, but the supplier was unable or unwilling to counter sign the accreditation form; and (iii) the foregoing statements are true, correct and complete to the best of my knowledge and belief following due inquiry appropriate to the reliability and resource adequacy matters addressed herein.

WESTERN POWERPOOL

Western Resource Adequacy Program

401 New Participant Onboarding

400 – Auxiliary

Revision History

Manual Number	Version	Description	Revised By	Date
401	0.1	RAPC Glance Version	Rebecca Sexton	3/21/2024
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401	0.3	RAPC & PRC Discussion	Rebecca Sexton	5/2/2024
401	0.4	RAPC Endorsement	Rebecca Sexton	5/9/2024
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401	2.0	2024-NTFP-2 Edits	Katie Gregor	1/27/2025
401	3.0	Annual BPM Review	Elise Mousseau	3/19/2026
401	3.1	PRM TF Updates – Public Review	Maya McNichol	1/18/2026
401	3.2	PRM TF Updates – COSR Comment	Maya McNichol	3/19/2026

Table of Contents

401 New Participant Onboarding

1. Introduction

The New Participant Onboarding Business Practice Manual (BPM) consists of three sections. The Application and Registration section outlines the activities to occur in conjunction with the execution of a Western Resource Adequacy Program (WRAP) Agreement (WRAPA), which initiates Participant involvement in the WRAP. The WRAP Administration section describes the process by which new Participants are incorporated into WRAP committees and receive Participant resources. The WRAP Program Implementation section describes activities necessary to begin involvement in the Forward Showing Program and Operations Program.

1.1. Intended Audience

BPM 401 is intended for entities in the process of or considering joining the WRAP. BPM 401 is particularly useful for individuals who will be responsible for Participant implementation and participation in various aspects of the WRAP, including but not limited to the Resource Adequacy Participant Committee (RAPC), Forward Showing Program, or Operations Program.

1.2. What You Will Find in This Manual

BPM 401 includes three main sections: Application and Registration, WRAP Administration, and WRAP Program Implementation.

1.3. Purpose

BPM 401 provides guidance for new Participants that are being onboarded into the WRAP and for interested entities to gather information and start preparing for potential future onboarding.

1.4. Definitions

All capitalized terms that are not otherwise defined in BPM 401 have the meaning set forth in the Tariff or in another BPM.

Forward Showing Demonstration: As defined in *BPM 108 FS Submittal Process.*

Participant Technology Solutions Overview (PTSO): Document produced by the Program Administrator and Program Operator that provides Participants an overview of the technical details necessary to set up, implement, and test WRAP systems.

Program Signatory: A class of corporate membership in the WPP, as defined in the bylaws of WPP.

Request Management System (RMS): As defined in *BPM 101 Advance Assessment.*

2. Application

Any Load Responsible Entity applying to participate in the WRAP must execute the WRAPA as set forth in Attachment A of the Tariff. WRAPAs are to be executed by incoming Participants no later than September 15. Regardless of a signing date prior to September 15, new Participant WRAPAs become effective on September 15, except when FERC by order has established a different effective date for a non-conforming WRAPA.

Table 1 shows the general timeline of activities to be expected by an incoming Participant from signing a WRAPA, registering loads and resources though a limited data request (see Section 2.2) and completing its first Forward Showing Submittal (in year T-1), through to its first Binding Season participating in the Operations Program (denoted as year T-0), and its first Forward Showing Submittal using Qualifying Capacity Contribution (QCC) derived from data turned in at its first Advance Assessment (in T+1, two years after joining).

Table 1. New Participant Entry Timeline

Activity/Milestone	Description	Date	Year
WRAPA Signing Deadline	Participants execute WRAPA (Attachment A in Tariff) for participation in (T-0) Operations Program. Participants may sign before this date.	September 15	(T-1)
Payment of Cash Working Capital Support Charge	Tariff Schedule 1 details the calculation of the Cash Working Capital Charge	No later than 30 days after WRAPA execution	(T-1)
Effective WRAPA Date	All new participant WRAPAs will be effective on same date	September 15[1]	(T-1)
Registration with Program Operator RMS	Participants provide information to Program Operator to gain access to RMS	September 15 – October 15	(T-1)

[1] For non-conforming WRAPA's the effective date is September 15 or the date established by FERC in an order accepting the non-conforming WRAPA.

Deadline for New Participant Limited Data Request for Registration of Resources and Loads	Participants complete an initial limited Data Request to inform approximated QCC values	October 1	(T-1)
First Summer FS Deadline	Participant will complete a FS Submittal for the following Summer Season; this showing will necessarily include some class average QCC values (from (T-2) Advance Assessment) for resources claimed	October 31	(T-1)
Deadline for First Advanced Assessment data submittal	Participant submits data for modeling future Monthly Forward Showing Planning Reserve Margins (FSPRMs) and QCCs (see BPM 101)	March 1	(T-0)
Operations Program Testing	Participant engages in testing during the shoulder season between Winter and Summer	March 15 – May 31	(T-0)
First Winter FS Deadline	Participant will complete a FS Submittal for the following Winter Season; this showing will necessarily include some class average QCC values for resources claimed	~~March 31~~ April 19	(T-0)
First Binding Operations Season	Participant will begin Operations Program participation (uses, in part, inputs from FS Submittal from First Summer FS Deadline)	June 1 – September 15	(T-0)
Participant completes FS Submittals and participates in Operations Program as specified in the Tariff; participation will necessarily utilize some class average QCC values for resources claimed on FS Submittal for an additional Summer (T-0) and Winter (T+1) FS Submittal			
Summer FS Deadline	Participant will complete a FS Submittal for the following Summer Season; this showing will be the first using QCC values for resources Participant turned in at its first Advance Assessment (T-0)	October 31	(T+1)

Table 2 is an example timeline for a Participant executing a WRAPA in 2024.

Table 2. Example New Participant Entry Timeline

Activity/Milestone	Deadline	Year
WRAPA Signing Deadline	September 15	2024
Effective WRAPA Date	September 15	2024
Payment of Cash Working Capital Support Charge Due Date	No later than 30 days after WRAPA execution/signing	2024
Registration with Program Operator RMS	September 15 – October 15	2024
New Participant Limited Data Request Deadline	October 1	2024
First Summer FS Deadline	October 31	2024
Deadline for First Advanced Assessment data submittal	March 1	2025
Operations Testing	March 15 – May 1	2025
First Winter FS Deadline	~~March 31~~April 19	2025
First Binding Operations Season	June 1 – September 15	2025
Participant completes FS Submittals and participates in Operations Program as specified in the Tariff; participation will necessarily utilize some class average QCC values for resources claimed on FS Submittal for an additional Summer (T-0) and Winter (T+1) FS Submittal		
Summer FS Deadline	October 31	2026

The vast majority of Participants will execute a *pro forma* WRAPA as set forth in Attachment A of the WRAP Tariff. A Participant may also join with a non-conforming version of the WRAPA, provided that the Participant's circumstances conform to FERC's standards for non-conforming agreements and the non-conforming WRAPA is approved by FERC. Any non-conforming WRAPA developed between the new Participant and WPP must be submitted to FERC by July 15 such that FERC approval could be granted and the non-conforming WRAPA could become effective by the September 15 deadline. Participants seeking a non-conforming WRAPA must notify WPP of such a need by providing a proposed draft non-conforming WRAPA for WPP consideration at the earliest opportunity and no later than June 15.

2.1. Election of Transition Binding Seasons

Any Participant whose WRAPA becomes effective before September 15, 2026, shall give notice of its elected first Transition Binding Season according to the processes provided in *BPM 109 Forward Showing Transition Period*.

The Binding Season beginning November 20~~1~~, 2027, will be the first Binding Season for all Participants whose WRAPA is effective by September 15, 2026. Transition Period provisions will continue to apply according to the guidelines provided in *BPM 109 Forward Showing Transition Period*.

2.2. Registration of Resources and Loads

Each Participant must register all resources and loads, regardless of whether such resources will be used to satisfy WRAP requirements and whether certain loads will be subject to the requirements of the WRAP. Participants will submit and may modify their registration of resources and loads in accordance with the procedures and timelines set forth in *BPM 101 Advance Assessment, BPM 103 Forward Showing Capacity Requirements,* and *BPM 105 Qualifying Resources*.

If more than one Participant attempts to register the same resource or load, the following procedure will be used to assign the resource or load to a Participant:

- If a Participant attempts to register a resource or load that has already been registered by another Participant, the resource or load will remain registered by the original Participant until both Participants mutually inform WPP in writing that a change to the registration is required.

- If two or more Participants attempt to register the same resource or load during the same window, the Program Administrator will request the Participants determine among themselves the appropriate registration of the resource or load before that resource or load is included in the WRAP.

The treatment of resource registration for immediate participation in the WRAP is discussed further in Section 4.1.1.

2.3. Cash Working Capital Support Charge

A Participant shall pay a Cash Working Capital Support Charge as described in Schedule 1 of the Tariff by the time required under Schedule 1.

2.4. Membership in WPP

WPP is a 501(c)(6) membership organization with corporate members. Program Signatory membership is granted to any Load Responsible Entity participating in a WPP-facilitated reliability program such as the WRAP. Participants must complete a member intake form – located on the WPP website – within 60 Days of executing a WRAPA (or non-conforming WRAPA).

3. WRAP Administration

Upon execution of a WRAPA, a new Participant shall gain access to WRAP committees and sub-committees as appropriate, as well as Participant resources.

3.1. Committee Involvement

WPP will provide incoming Participants with information about all active committees and workgroups that a new Participant is eligible to join, including discussion about expected time commitment and responsibilities for committee members. The incoming Participant shall provide names and contact information for the committees and workgroups in which it is required to or elects to participate.

3.1.1. RAPC Representation

Upon entry, new Participants must designate and provide to WPP the contact information of a representative to serve on the Resource Adequacy Participant Committee (RAPC).

The RAPC is the main venue for Participants to engage in program implementation and compliance, as well as being the highest form of Participant engagement in the governance and decision making of the WRAP. Additional information on the eligibility of individuals to serve, the role of RAPC representatives, and the designation of informational representatives can be found in the RAPC Charter located on the WPP website.

3.1.1.1. Forward Showing and Operations Program Workgroups

New Participants shall also designate contacts for the Forward Showing and Operations Program workgroups. Participants are required to select a primary contact for each workgroup and may elect to designate additional informational contacts.

3.1.1.2. Other RAPC Workgroups

Additional workgroups may be active under the RAPC at the time of Participant entry. Incoming Participants shall be notified of active supplementary workgroups and may choose to provide WPP with contact information of individuals who wish to participate.

3.1.2. Program Review Committee and Nominating Committee

The Program Review Committee (PRC) is generally responsible for receiving, considering, and proposing changes to the WRAP design. Per the Tariff, the PRC is composed of 20 representatives from 10 sectors – four sectors are composed solely of Participants. Upon execution of a WRAPA, the PRC shall be notified of new Participant(s) entry. Additionally, the contact information of the appropriate PRC sector representative(s) will be shared by WPP with the incoming RAPC representative(s), and vice versa. Additional information on the PRC, its role, and the composition of sectors can be found in the PRC Charter on the WPP website.

The Nominating Committee (NC) is responsible for nominating new directors to the WPP Board. The NC is composed of 12 sectors, four of which are composed of Participants. Upon execution of a WRAPA, the same introductions shall take place as those required of the PRC.

3.2. Participant Resources

Upon execution of a WRAPA, WPP will provide incoming Participants with resources for program onboarding, including but not limited to:

- WRAP educational materials;
- Information regarding WRAP committee involvement and stakeholder engagement;
- Information to understand WRAP compliance obligations; and
- The PTSO and information on IT support.

4. WRAP Program Implementation

Prior to submitting a Forward Showing (FS) Submittal and beginning the Operations Program registration process, an incoming Participant must select modeling assumptions that best describe its business practices. These assumptions determine whether all resource and load information will be in a single or multiple groupings, as further described in the PTSO.

WPP will assign Participants to an appropriate Subregion per *BPM 102 Forward Showing Reliability Metrics*.

4.1. Forward Showing Program

Upon execution of a WRAPA, an incoming Participant will immediately engage in WRAP activities. Timelines for Advance Assessment and Data Submittal, as well as FS Submittal and Cure Period deadlines for Summer and Winter, can be found in *BPM 101 Advance Assessment* and *BPM 108 FS Submittal Process* respectively.

4.1.1. Approximating QCCs

An incoming Participant shall complete a limited Data Request to determine class average QCC values for resources it is unable to self-evaluate (see Section 4.1.2) and register loads and resources (as discussed in Section 2.2). A new Participant's resources will be assigned 100% of the class average of all registered resources of the same resource type, taking into account location where appropriate (see the discussion of late registered resources in *BPM 105 Qualifying Resources*), but unlike late registered Qualified Resources for existing Participants there is no limit on the amount of resources assigned average QCC values for a new Participant's first four FS Submittals (two Summer, two Winter).

To facilitate the process of documenting their Resource QCCs as well as preparing for the next applicable Advance Assessment, new Participants will complete a limited Data Request based on the requirements outlined in *BPM 101 Advance Assessment*, including non-Storage Hydro Qualifying Resources, Demand Response program data, and Historical Load Data. Participants have until October 1 to complete this request.

4.1.2. Calculating QCCs

For select resources, Participants will calculate their own QCCs prior to the FS Deadline. These resources include Storage Hydro, Demand Response, and thermal resources that are not subject to NERC GADS requirements (non-GADS thermal units). The methodologies for calculating these resource QCCs can be found in *BPM 105 Qualifying Resources.*

4.2. Operations Program

An incoming Participant will begin participating in the Operations Program during the Summer Binding Season the year following its execution of the WRAPA. Participants shall complete registration and testing in advance of participation in the Operations Program. For additional details on registration, Operations Program Testing, and connectivity testing, refer to the PTSO.

Appendix IV: LOLE Study Methodology Alternatives Considered

The Task Force considered a variety of methodology options, comparing each and weighing their merits against the guiding principles described in Section II Objectives – Principles of Engagement. The four major methodology proposals discussed (along with variations and combinations of these methodologies) were:

- **Seasonal LOLE**: The LOLE would be run across the full Season resulting in a flat capacity requirement, met by Participants applying a single FSPRM to their single Peak P50 Load Forecast for the whole Season. This methodology has the potential to limit year-to-year variability.
- **Optimized LOLE:** The LOLE would be run for the whole season on a monthly basis, resulting in monthly capacity requirements and FSPRMs. The LOLE would then be adjusted to meet the Tariff requirement of at least 0.01 LOLE in each month. The capacity requirement would be met by Participants applying the monthly FSPRMs to their monthly P50 Peak Load Forecasts.
- **Stabilized LOLE:** The LOLE study would be run for the whole season on a monthly basis, then loss of load risk would be shifted between the months to minimize the month-to-month variability of the capacity requirement, resulting in monthly FSPRM values. The capacity requirement would be met by Participants applying the monthly FSPRMs to their monthly P50 Peak Load Forecasts. This methodology could be used to limit year-to-year variability.
- **Peak Months LOLE + Shoulder:** A seasonal LOLE study would be run for the peak months of each Season, resulting in a flat capacity requirement and FSPRM values for the peaks of each Season. Defined Shoulder (or Non-Peak) Months would have a distinct, analytically driven FSPRM value and P50 Peak Load Forecasts.

In addition to overall methodological discussions, the Task Force considered more discrete levers, including limiting the historical weather years used in the LOLE Study, redefining season durations based on historical risk, and the treatment of contingency reserves in the LOLE modeling.