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

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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 Data Submittal 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 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) Data Submittal.

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 have their meaning set forth in the Tariff. Any capitalized terms not found in the Tariff that are specific to BPM 101 are defined here.

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 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.

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

2. Advance Assessment Timeline

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 1. Advance Assessment and Data Submittal Timeline[1]

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)

[1] 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.

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

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

3. Process

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 3 below, which are necessary to complete the upcoming Advance Assessment for the applicable Summer and Winter Season. WPP will post to its website a Data Request Instruction Manual for Participants' use in completing the Advance Assessment Data Request.

Table 3. Participant Provided Modeling Data

Advance Assessment Data Items
Participant Thermal Resource 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 six Years for existing Thermal Resources.
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) and Run of River (ROR) 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 units) for 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

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 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 Binding Season. 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, 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 Study Period.

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 4 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 4. 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
Capacity value of import/export transactions
Demand Response program data

3.4. Participant Review and Verification Process of Input Data

Once the PO has input all necessary data into the resource adequacy model, Participants will be allowed a review of the input data (in the format used by the resource adequacy model or a format developed by the PO) for their respective loads and resources. Model simulations will not be scheduled to occur prior to Participant review of input data. Participants will proactively submit an RMS ticket to 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 submitted an RMS ticket prior to the deadline will be considered to have reviewed and approved their data.

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 5.

Table 5. Draft Output from Advance Assessment for Participant Review

Outputs
Resource index (a listing of registered resources, including unit name, nameplate, and type)
ELCC values by Variable Energy Resources Zone
Proposed FSPRM for each month of the Binding Season under study

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

3.6. Advance Assessment Result Distribution

The final Advance Assessment results will consist of a LOLE study report that gives details of the study analysis, makes recommendations for a proposed FSPRM for each month of the applicable Binding Season, and provides an advisory FSPRM for each month of the Binding Season five years ahead. 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 storage hydro resources, ROR, thermal resources, and Demand Response for the applicable Binding Season. 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 6. QCC values for individual resources will be provided directly to the Participant that submitted the data for the Advance Assessment.

Table 6. Advance Assessment Results

Study	Resource Type	Methodology	Output Results
LOLE			FSPRM for each month of the applicable Summer Seasons and Winter Seasons in the Study Period.
QCC Studies	Wind, Solar, and Energy Storage	ELCC	QCC values by Month for all wind, solar, and Energy Storage Qualifying Resources. Aggregated QCC values for wind, solar and Energy Storage Qualifying Resources will be available to all Participants.
	Thermal	UCAP	QCC values for thermal resources. Calculations for determining the QCC of thermal resources will be available to the resource owner. Aggregated QCC values for thermal resources will be available to all Participants.
	Storage Hydro	Storage Hydro QCC Methodology	QCC values by Month for all Storage Hydro Resources.
	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.

3.7. 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 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.