



WESTERN RESOURCE ADEQUACY PROGRAM

February 15, 2023

SOLVING A PROBLEM

- » Resource Adequacy is currently conducted on utility-by-utility basis under individual IRPs or other local planning processes
 - No standardized method for measuring reliability risk or capacity contribution of resources
 - Utilities often must make broad assumptions about regional capacity availability that may not be accurate
- » Implements a **binding forward showing** framework that requires entities to demonstrate they have secured their share of the regional capacity need for the upcoming season
- » Implements a **binding operational program** that obligates members with calculated surplus to assist participants with a calculated deficit on the hours of highest need
- » Leverages the binding nature of the operational program, together with modeled supply and load diversity, to **safely lower the requirements** in the forward showing and help **inform resource selection** for the region, **driving investment savings** for members and their end use customers

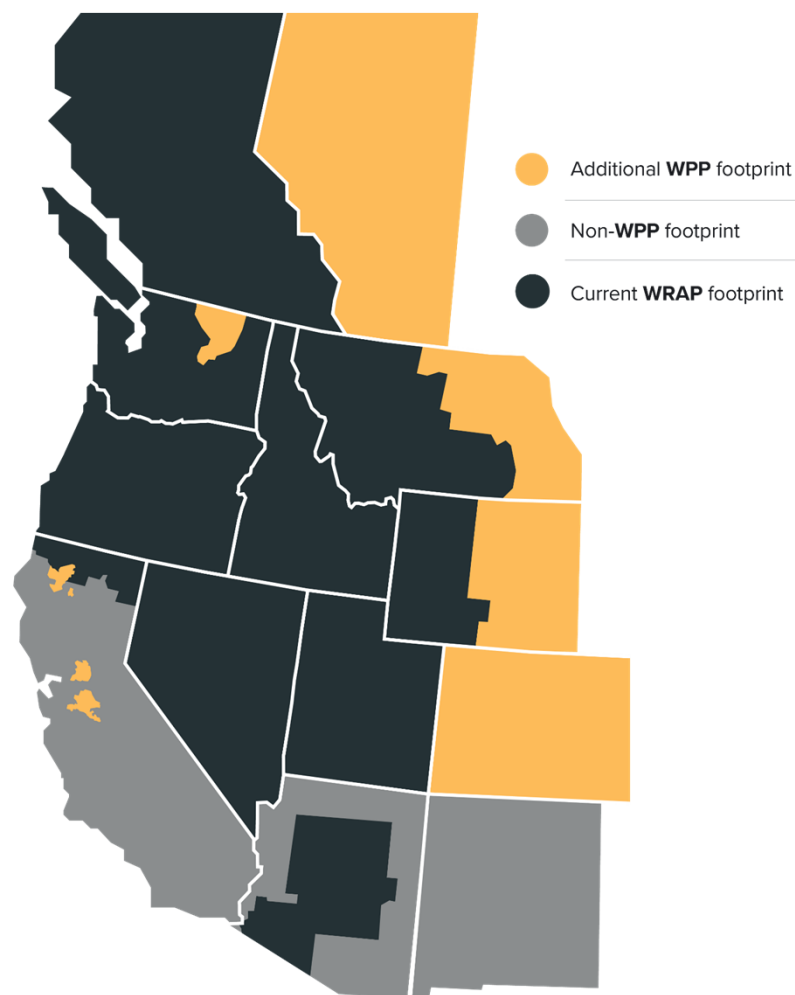
WRAP PARTICIPATION

Voluntary participation in the program by the Load Responsible Entity (LRE)

- » Primary entity responsible for meeting RA requirements —focus of program rights, responsibilities and compliance
- » Sign Western Resource Adequacy Agreement (WRAA) (pro forma agreement under the WRAP Tariff) to commit
- » Fund the costs of administering the program and sits on RA Participant Committee (RAPC)
- » While joining is voluntary, once an LRE has joined, compliance is mandatory

CURRENT PARTICIPANTS

Arizona Public Service
Avista
Bonneville Power Administration
Calpine
Chelan PUD
Clatskanie PUD
Eugene Water & Electric Board
Grant PUD
Idaho Power
NorthWestern Energy
NV Energy
PacifiCorp
Portland General Electric
Powerex
Puget Sound Energy
Salt River Project
Seattle City Light
Shell Energy
Snohomish PUD
Tacoma Power

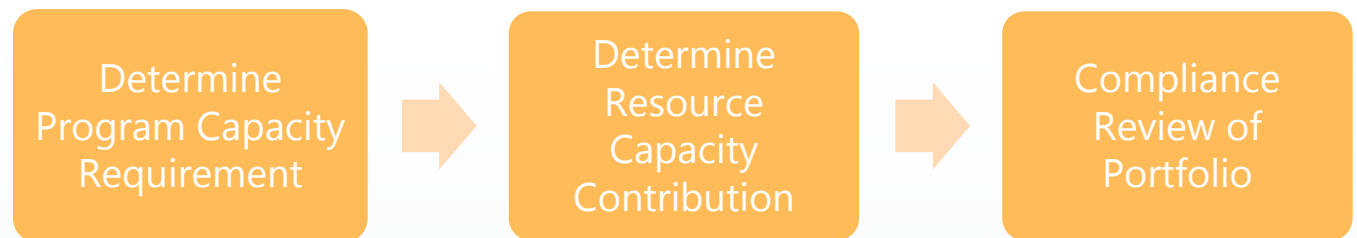


- > **Industry-driven initiative** for regional approach to help ensure resource adequacy in light of changing resource composition and increased resource uncertainty
 - > Estimated peak winter load of 65,122 MW and summer load of 66,768 MW
- > Implemented through **bilateral transactions under existing frameworks**

Also – in response to feedback from participants, NWPP is now doing business as Western Power Pool (WPP)

PROGRAM DESIGN OVERVIEW

FORWARD SHOWING PROGRAM



» Two Seasons

- Winter Season: November – March 15
- Summer Season: June – September 15

» Annual Assessment

- PO performs LOLE studies 2-5 years before Binding Season

» Forward Showing

- Participant submits completed FS workbook 7 months before each (Winter and Summer) Binding Season
- PO notifies Participant of any deficiencies 60 days after FS submission deadline
- Participant must cure deficiencies within 60 days after PO notice (120 days after initial FS deadline, if later) to avoid deficiency charge

PROGRAM DESIGN OVERVIEW

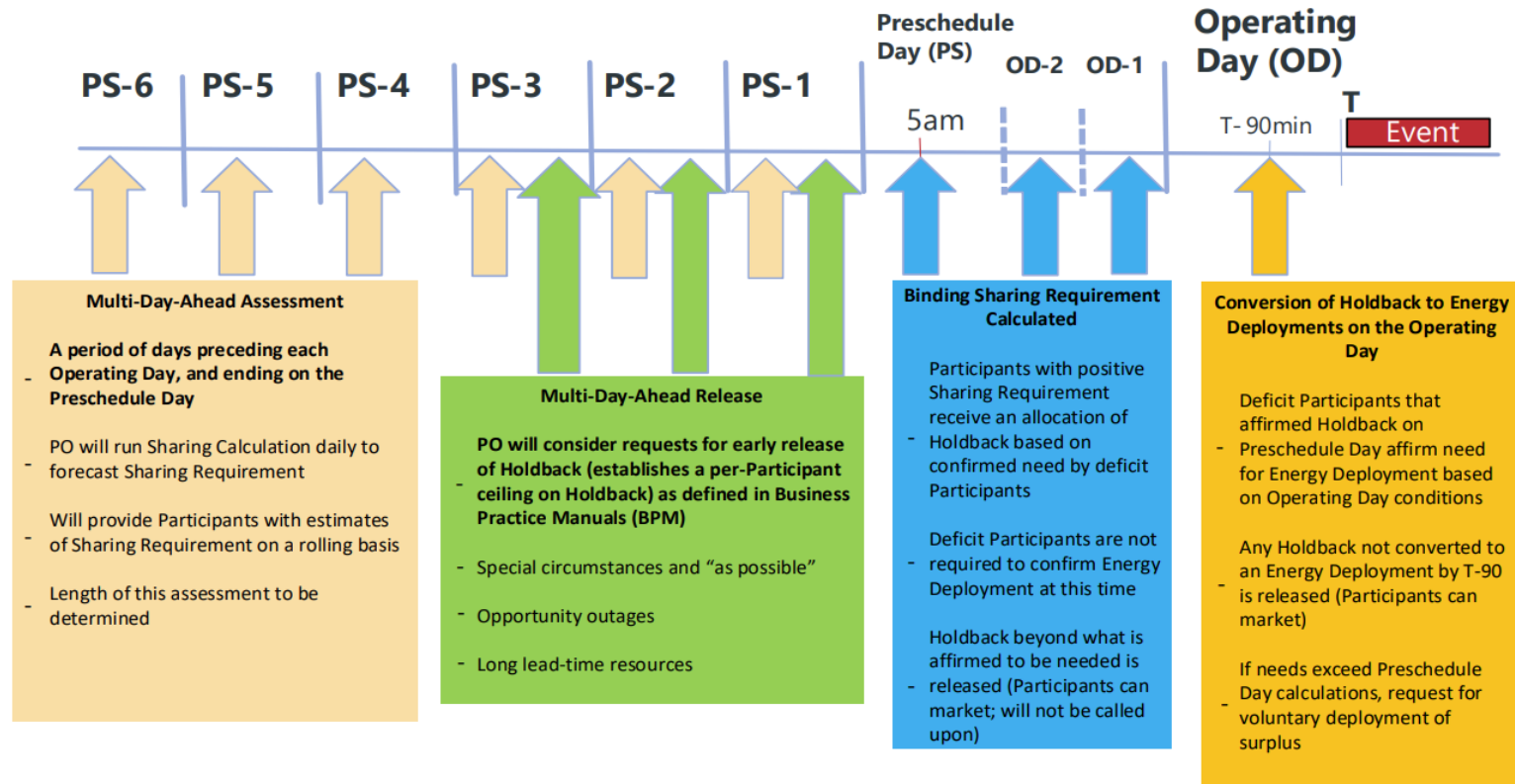
OPERATIONS PROGRAM



- » Evaluates participants operational situation relative to Forward Showing assumptions (for load, outages, VER performance)
 - PO runs advisory sharing calculation beginning 7 days prior to operating day
- » Obligates participants with calculated surplus to assist participants with a calculated deficit on the hours of highest need
- » Deficiency forecast on day before Operating Day (Preschedule Day) establishes Holdback Requirement for surplus participants
 - Obligation is allocated pro-rata to surplus participants
- » Surplus Participant that fails to provide assigned Energy Deployment must pay Energy Delivery Failure Charge
 - Waivers will be available for specific circumstances

$$\text{Sharing Requirement} = [P50 + PRM - \Delta \text{ Forced Outages} + \Delta \text{ RoR Performance} + \Delta \text{ VER Performance}] - [\text{Load Forecast} + \Delta \text{ CR} + \text{Uncertainty}]$$

OPERATIONS PROGRAM TIMELINE



OPERATIONAL PROGRAM

Definition: Sharing Requirement	
Sharing Requirement $= [P50 + PRM - \Delta \text{ Forced Outages} + \Delta \text{ RoR Performance} + \Delta \text{ VER Performance}] - [\text{Load Forecast} + \Delta \text{ CR} + \text{Uncertainty}]$	
P50	The 1-in-2 peak load seasonal values as submitted in the FS Program for the forecasted upcoming two years.
PRM	Percentage of dependable capacity needed above the 1-in-2 peak Load Forecast to meet unforeseen increases in demand and other unexpected conditions. See the FS Design document for more details.
Δ Forced Outages	Includes any outages or de-rates associated with thermal generation units, storage hydro units and transmission outages impacting firm capacity import. Does not include generation on outage for scheduled maintenance.
Δ VER Performance	Comparison of forecasted VER production vs. qualified capacity contribution (QCC) of VER. Includes both over and under performance of wind and solar plants.
Δ Run-of-river Performance	Comparison of forecasted run-of-river production vs. QCC of run-of-river hydro. Includes both over and under performance.
Load Forecast:	Forecasted load for the OD considering the forecasted weather conditions of OD.
Uncertainty:	Forecast of potential error of the Load Forecast, VER forecast, and run-of-river forecast.
Δ CR:	Comparison of contingency reserves (CRs) that were included in the FS Program and CR requirement in Ops Program. Contingency reserves will be carried into the operating hour as required by the NWPP CR Sharing Program.

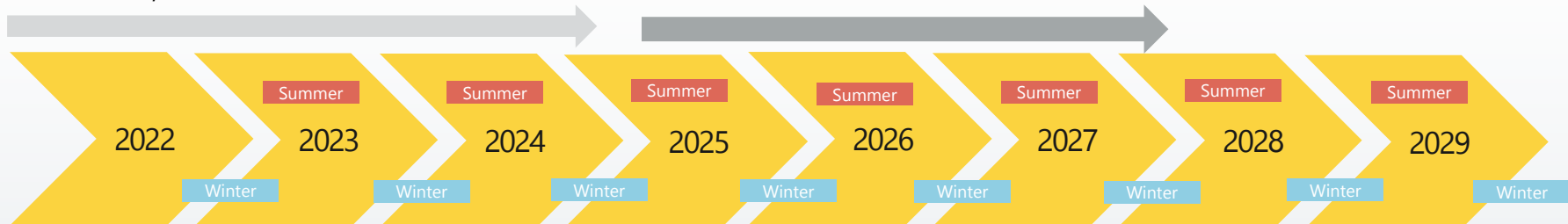
TRANSITION TIMELINE

Non-Binding Forward Showing

Winter 22-23, Summer 23, Winter 23-24, Summer 24, Winter 24-25

Transition Seasons (Ops and FS)

Summer 25, Winter 25-26, Summer 26, Winter 26-27, Summer 27, Winter 27-28



Non-Binding Operations Program

Summer 23 (trial – will include testing scenarios), Winter 23-24, Summer 24, Winter 24-25

Binding Program Without Transition Provisions

Summer 28 and all seasons following

WHAT'S HAPPENING IN 2023

» Continued Program Administration

- Business Practice Development: review and approval of first set of business practices
- Retaining current staff and hiring 2-3 new staff
- Continuing to develop stakeholder engagement structure and technology
- Facilitation of Participant and stakeholder meetings

» Program Operator work

- Non-Binding Forward Showings: for Winter 2023-24, Summer 2024; data requests for updated modeling (Jan 2023)
- Ops Program set up: program trials Summer 2023, first non-binding Winter 2023-24

» Governance standup

- Seating independent Board of Directors – a Nominating Committee worked through 2022 to identify the candidates
- Fully empowered Program Review and Nominating Committees