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August 9, 2022

MEMORANDUM

TO: Council Members

FROM: Jennifer Light, Interim Power Division Director

SUBJECT: Introduction and Status of Western Resource Adequacy Program

BACKGROUND:

Presenter: Sarah Edmonds, President Western Power Pool

Summary: Sarah Edmonds joined the Western Power Pool (WPP) in March of 2022 as the new President and CEO. The upcoming meeting is an opportunity for Sarah to introduce herself to the Council in her new role, outlining the work of the WPP. Sarah will also provide an overview of the Western Resource Adequacy Program (WRAP) and an update on the status of this effort.

The WRAP effort seeks to “ensure reliability by providing a regional framework that enables Participants to leverage load and resource diversity benefits by meeting their collective needs jointly rather than individually. It also establishes a robust, standardized, and transparent view of regional loads and resources.”¹ This program facilitates the sharing of regional resources in the near term (one year) to ensure cost savings for consumers. It does not replace longer-term resource planning processes used by states, utilities, or the Council.

¹ “NWPP Resource Adequacy Program – Detailed Design,” Northwest Power Pool, July 2021, page 9

Relevance: Implicit to the 2021 Power Plan resource strategy is the reliance on regional reserves and increased regional coordination to support adequacy. In addition to the development of resources identified in the resource strategy, the Plan identifies that pooling reserves via organized markets is a low-cost option to mitigate the risk associated with increased renewable generation. The WRAP, which provides an infrastructure to promote such markets, is an important component to maintaining an adequate system.

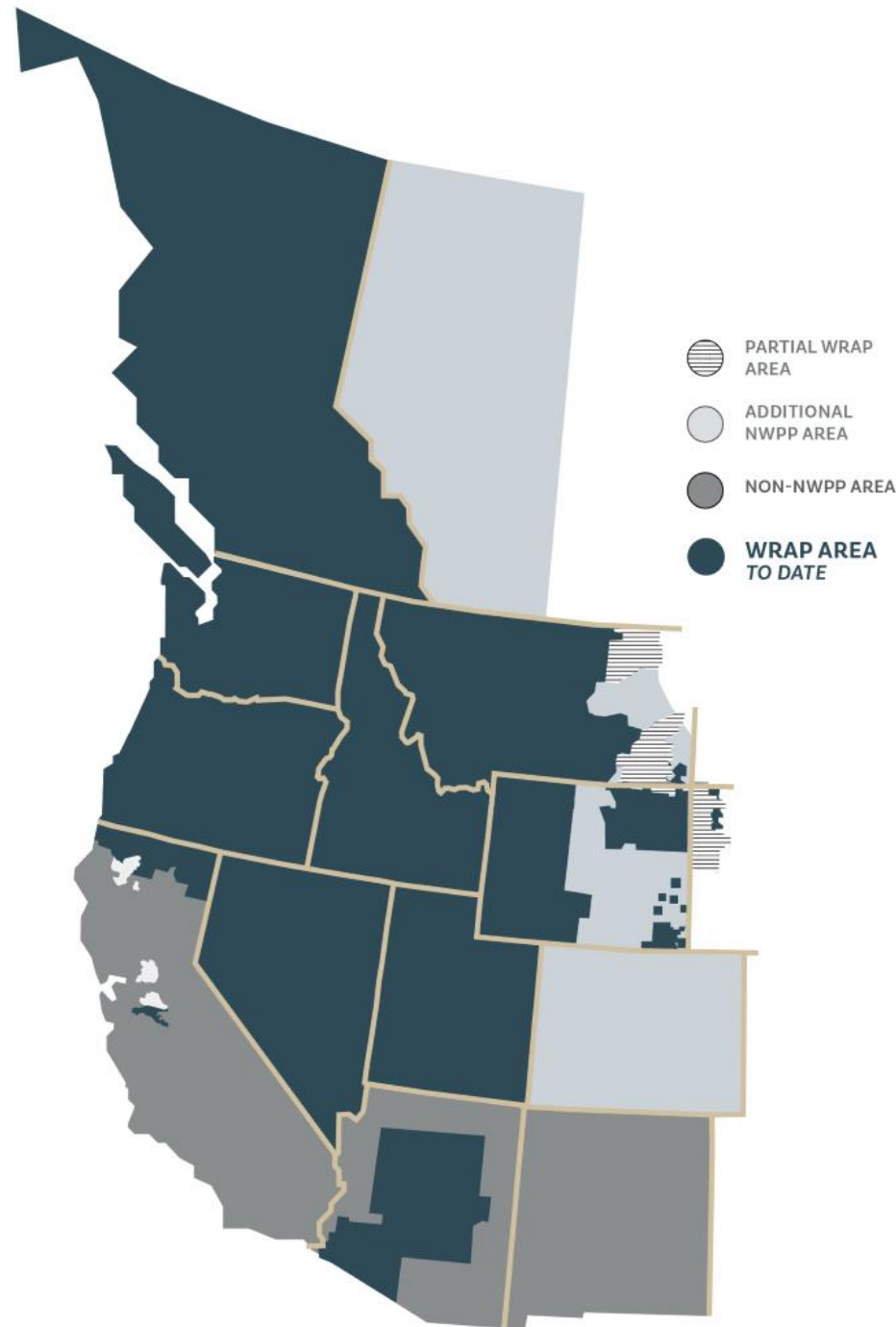
Background: The Northwest Power Pool rebranded to the Western Power Pool (WPP) in early 2022, reflecting their expanding footprint with new participants from the Southwest and new objectives around transmission and adequacy. The WPP is a non-profit corporation that helps coordinate electric grid operations for the western US and Canada. In doing so, it provides a reserve sharing program, trainings, and hydro modeling expertise. This scope has been expanded with a service contract for the NorthernGrid transmission planning organization and the ongoing development and implementation of the Western Resource Adequacy Program.

In April 2022, the Council received an update from Dave Angell on NorthernGrid activities to develop a regional transmission plan. Council staff continue to follow those efforts and will look for opportunities to bring future updates to the Council as that plan is finalized.

More Info: [NWPP Resource Adequacy Program – Detailed Design](#)

PHASE 3A PARTICIPANTS

Arizona Public Service
Avangrid
Avista
Black Hills
Basin Electric
Bonneville Power Administration
Calpine
Chelan PUD
Clatskanie PUD
Douglas 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
Snohomish PUD
Tacoma Power
The Energy Authority
Turlock Irrigation District



- > **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
- > **Participation is voluntary**, with mandatory requirements once joined
- > Implemented through **bilateral transactions under existing frameworks**

SOLVING A PROBLEM

» What WRAP does:

- » 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

THE WRAP VALUE PROPOSITION

Status Quo	With WRAP
Resource Adequacy (RA) planning is conducted on utility-by-utility basis inside information silos	RA planning on a footprint-wide basis; shared RA compliance requirements
Utilities must make broad assumptions about regional capacity availability that may not be accurate	Common assumptions, common format and protocol for planning inputs
Assuming more supply is available from neighbors than actually available creates reliability risk; Assuming less supply is available from neighbors than actually available can increase investment costs at the expense of consumers	A single picture of regional need with the potential to send much more accurate signals about actual depth of reliable market supply or need to build new resources
Disparate, uncoordinated approaches to resource adequacy are not able to ensure the right selection and/or right quantity of installed resources for the region as a whole	Resource choice remains a matter of local control; consistent approach for defining regional need counting resources; diversity benefits in planning and operations

PROGRAM DESIGN OVERVIEW

FORWARD SHOWING PROGRAM

- » Establishes a **regional reliability metric** (1 event-day in 10 years LOLE)
- » Utilizes thoughtful modeling and analytics to:
 - » Determine historical summer and winter **capacity critical hours** (CCHs) data sets for the region
 - » Determine each resource type's **qualifying capacity contribution** (QCC) to the regional capacity needs
 - » Determine a planning reserve margin (PRM) which is applied to peak load forecast based on P50 metric
- » Showing requirement includes **deliverability** component
 - » Firm or conditional firm transmission to meet 75% of P50 + PRM (paired with robust exception framework)
- » Participant compliance obligation (7 months in advance of binding season) = **physically firm resources to meet P50 + PRM**

Determine
Program
Capacity
Requirement



Determine
Resource
Capacity
Contribution



Compliance
Review of
Portfolio

PROGRAM DESIGN OVERVIEW

OPERATIONS PROGRAM



- » Evaluates participants operational situation relative to Forward Showing assumptions (for load, outages, VER performance)
- » 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
- » Surplus Participant that fails to provide assigned Energy Deployment must pay Energy Delivery Failure Charge

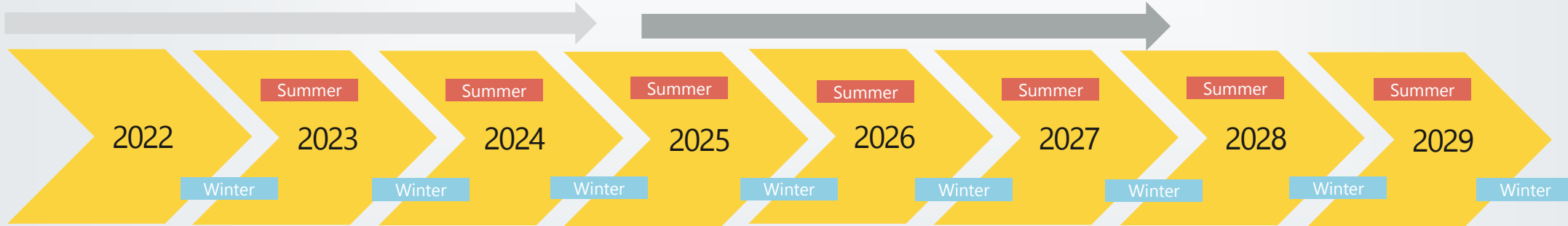
TRANSITION TO BINDING TIMELINE

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

CURRENT PHASE ACTIVITIES



PO = Program Operator
 LOLE = Loss of Load Expectation
 ELCC = Expected Load Carrying Capacity



THANK YOU

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*For general inquiries or to be added to our mailing list:
wrap@westernpowerpool.org*