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September 4, 2024

MEMORANDUM

TO: Council Members

FROM: Dor Hirsh Bar Gai

SUBJECT: Western Resource Adequacy Program Update

BACKGROUND:

Presenter: Ryan Roy, Director of Operations & Technology, Western Power Pool

Summary: The Western Resource Adequacy Program (WRAP) is a reliability and regional planning program for the Northwest, managed by the Western Power Pool (WPP). Over the last few years, the Council has routinely been updated on the WRAP's progress. At the August 2022 Council meeting, Sarah Edmonds, President and CEO of the WPP, provided an overview of the WRAP, highlighting the program design and the development timeline. Since then, FERC approved the WRAP tariff outlining the program's provisions and requirements, helping to clear the way for full implementation. At the July 2023 Council Meeting, Ryan Roy updated the Council on WRAP activities and timeline toward implementation.

At this meeting, Ryan Roy will provide the Council an update about current WRAP progress, including the program members' decision to revise the implementation period of the binding phase from summer of 2026 to 2027.

Relevance: The Council and WRAP both have in their mandate resource adequacy. For the Council, the focus is on long-term planning to develop 20-year power plans that provide recommendations to Bonneville and the region

on resources needed to ensure an adequate, efficient, economical, and reliable power supply. Through its annual adequacy assessments, the Council is able to build on these long-term plans by providing important feedback to the region on whether near-term resource acquisition is sufficiently on pace to ensure longer-term resource adequacy. The WRAP focuses more on near-term resource adequacy. The program is designed to send clear signals about resource gaps that need to be filled today to ensure resource adequacy in the coming year. In many ways, the WRAP provides an important mechanism for implementing elements of the Council's power plan.

Workplan: A.3.3 Track markets efforts, including day-ahead market offerings and transmission planning, to inform Council analysis.

Background: Unlike other parts of the country, the Northwest does not have a Regional Transmission Organization (RTO) or an Independent System Operator (ISO) that provides resource adequacy planning and compliance frameworks. Instead, planning for and ensuring resource adequacy falls on a mix of entities. The Council develops a regional power plan that provides direction to Bonneville and the region to ensure regional system adequacy, among other things. At the time of the passage of the Northwest Power Pact, the thinking was that Bonneville would be the primary entity acquiring resources to serve regional load. The reality, however, is different as Bonneville serves less than half of the regional power loads in the Northwest. This results in a mix of entities, ultimately responsible for ensuring regional resource adequacy in this region.

In the late 2010s, utilities across the region were facing rising concerns about resource adequacy. This led to industry calling on the WPP to take up an effort to address these resource adequacy concerns. Rather than waiting for a fully integrated market solution through an RTO or an ISO, the region wanted to develop its own solution to ensure resource adequacy. This ultimately led to the development of the WRAP.

The WRAP is a voluntary program with a footprint across the west. At a high level, there are two important parts of the WRAP program. The first is the forward showing phase, which is essentially a planning phase for the participants in the program. This phase takes place seven months ahead of each summer and winter season. At this point in time, participants demonstrate that they meet the program requirements for adequacy, using consistent assumptions and a single planning reserve margin for the region. The use of consistent assumptions across all participants helps to ensure that the right signals are being sent regionally. Additionally, the WRAP program includes penalties for not meeting requirements that it expects are significant enough to ensure that resources needed for adequacy are acquired.

The second part of the program is the operations phase during the summer and winter of each year. During these time periods, the WRAP evaluates a nearer term forecast of load and resources relative to the forward showing commitments to identify any utilities that might be surplus or deficit. For example, one utility that has done everything correctly in planning and acquiring resources consistent with the requirements for the forward showing might still have loads show up in real-time that are higher than expected. Since the entire footprint of the WRAP has planned in the forward showing to account for the total load plus a planning reserve margin to maintain adequacy there will most likely be another utility with available surplus. The utility that finds itself short in the operational time period would then be matched with one or more of the utilities showing surplus, and those utilities can then leverage the existing bilateral trading mechanisms used in the region to support the real-time operations of the system.

As described above, one key feature of the WRAP is using consistent assumptions across the participants during the forward showing phase. To ensure that the Council's longer-term planning efforts and adequacy assessments are supportive of and complementary to the work of the WRAP, it is imperative that both entities develop a common understanding of assumptions and an ability to crosswalk between each other's analysis where these assumptions are not yet consistent. Since the Council and WRAP assess adequacy over different regional footprints (the region as defined by the Power Act versus a larger western footprint) one would expect slightly different adequacy assessment perspectives. Additionally, the two organizations have different mechanisms to adopt and evaluate adequacy metrics. While the Council relies on feedback from advisory committees and Council Members have the final decision, the WRAP is participant-driven, and changing metrics requires intent and agreement from program participants. That being said, Council and WPP staff had had multiple conversations on the topic of metrics and are committed to working to ensure this mutual understanding for regional clarity and consistency in planning.

More Info: Sarah Edmonds, President & CEO of the Western Power Pool, presented to the Council in August 2022 to provide an overview of the WRAP. Those materials are available here:
https://www.nwcouncil.org/fs/17855/2022_08_3.pdf.

Ryan Roy, Director of Operations & Technology and the WPP, updated the Council in July 2023 about WRAP activities and timeline toward implementation.
https://www.nwcouncil.org/fs/18372/2023_07_c2.pdf



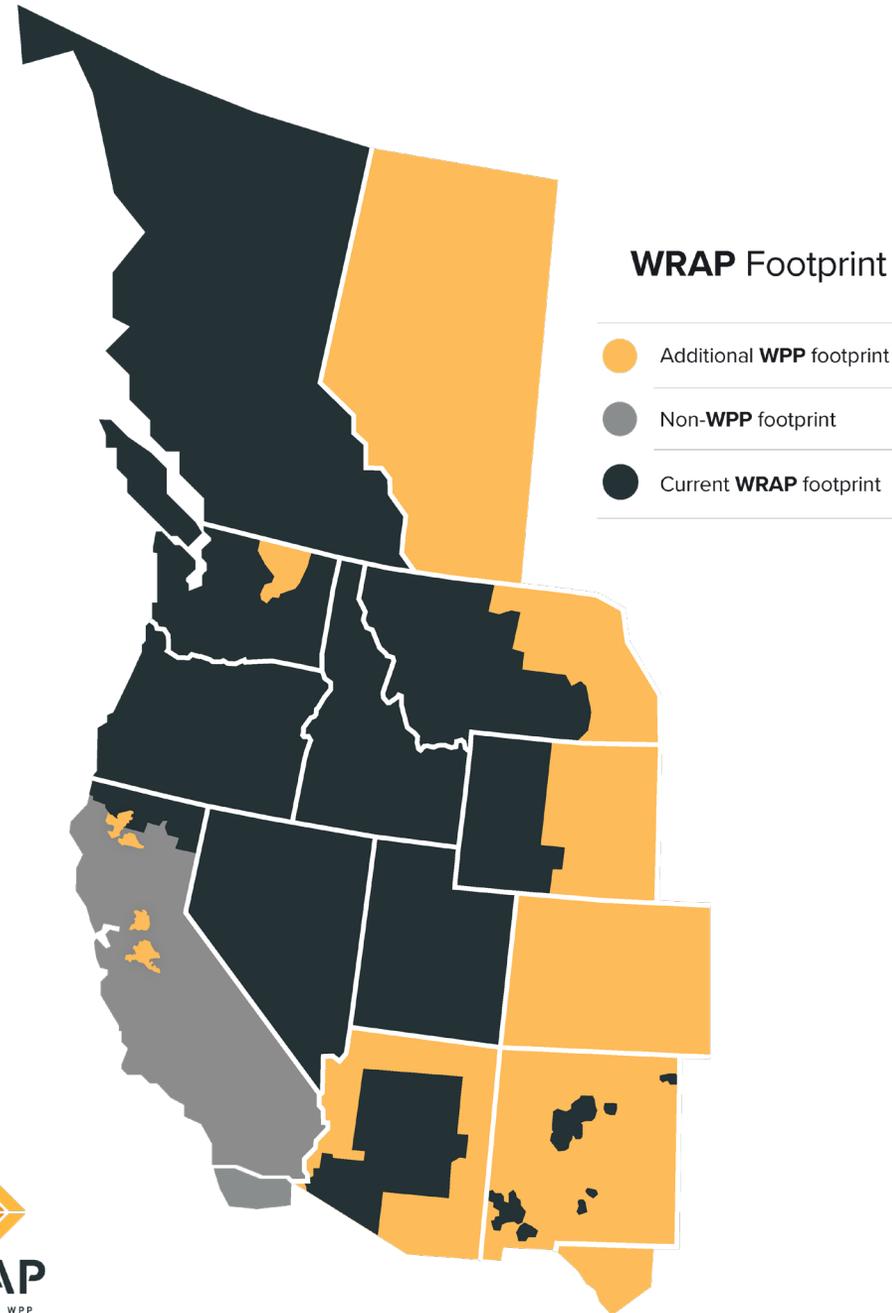
WESTERN RESOURCE ADEQUACY PROGRAM

September 11, 2024

Ryan Roy
Chief Operating Officer

CURRENT WRAP PARTICIPANTS

Arizona Public Service
Avista
Bonneville Power Administration
Calpine
Chelan County PUD
Clatskanie PUD
Eugene Water & Electric Board
Grant PUD
Idaho Power
Northwestern Energy
NV Energy
PacifiCorp
Portland General Electric
Powerex
Public Service Company of New Mexico
Puget Sound Energy
Salt River Project
Seattle City Light
Shell Energy
Snohomish PUD
Tacoma Power
The Energy Authority



WRAP VALUE PROPOSITION

- » **Binding forward showing** requires Participants to show they have secured their share of the regional capacity need for the upcoming season using common planning and capacity accreditation metrics
- » **Binding operational program** obligates Participants with surplus to assist Participants with a deficit in the hours of highest need using bilateral trading mechanisms

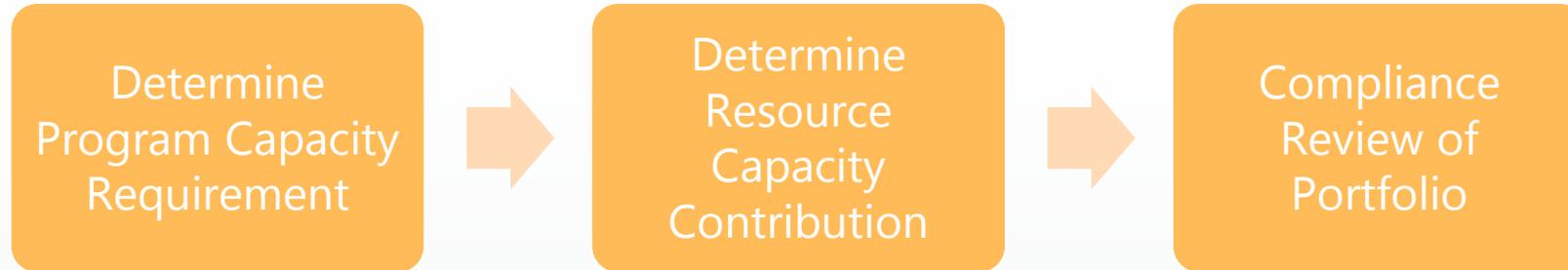
- ⇒ Set of common analytically derived reliability metrics
- ⇒ Leveraging load and resource diversity for reliability

ROLES OF THE PA AND PO

- » **Western Power Pool (WPP)** serves as the **Program Administrator (PA)** of the WRAP
 - Undertakes all actions necessary to implement and administer program
- » **Southwest Power Pool (SPP)** serves as the **Program Operator (PO)** of the WRAP
 - Provides technical, analytical, and implementation support to the Program Administrator

PROGRAM DESIGN OVERVIEW

FORWARD SHOWING



- » Establishes a **regional reliability metric** (seasonal 1 event-day in 10 years LOLE)
 - Transition away from utility-by-utility RA programs and assumptions
- » Registered resources receive a **Qualifying Capacity Contribution** (QCC) in advance of forward showing deadlines (seven months ahead of winter and summer seasons)
 - Resource-agnostic, consistent methodology for assessing capacity contribution
- » Non-compliance with forward showing requirements (capacity or transmission) results in a **Forward Showing Deficiency Charge**

PROGRAM DESIGN OVERVIEW

OPERATIONS PROGRAM

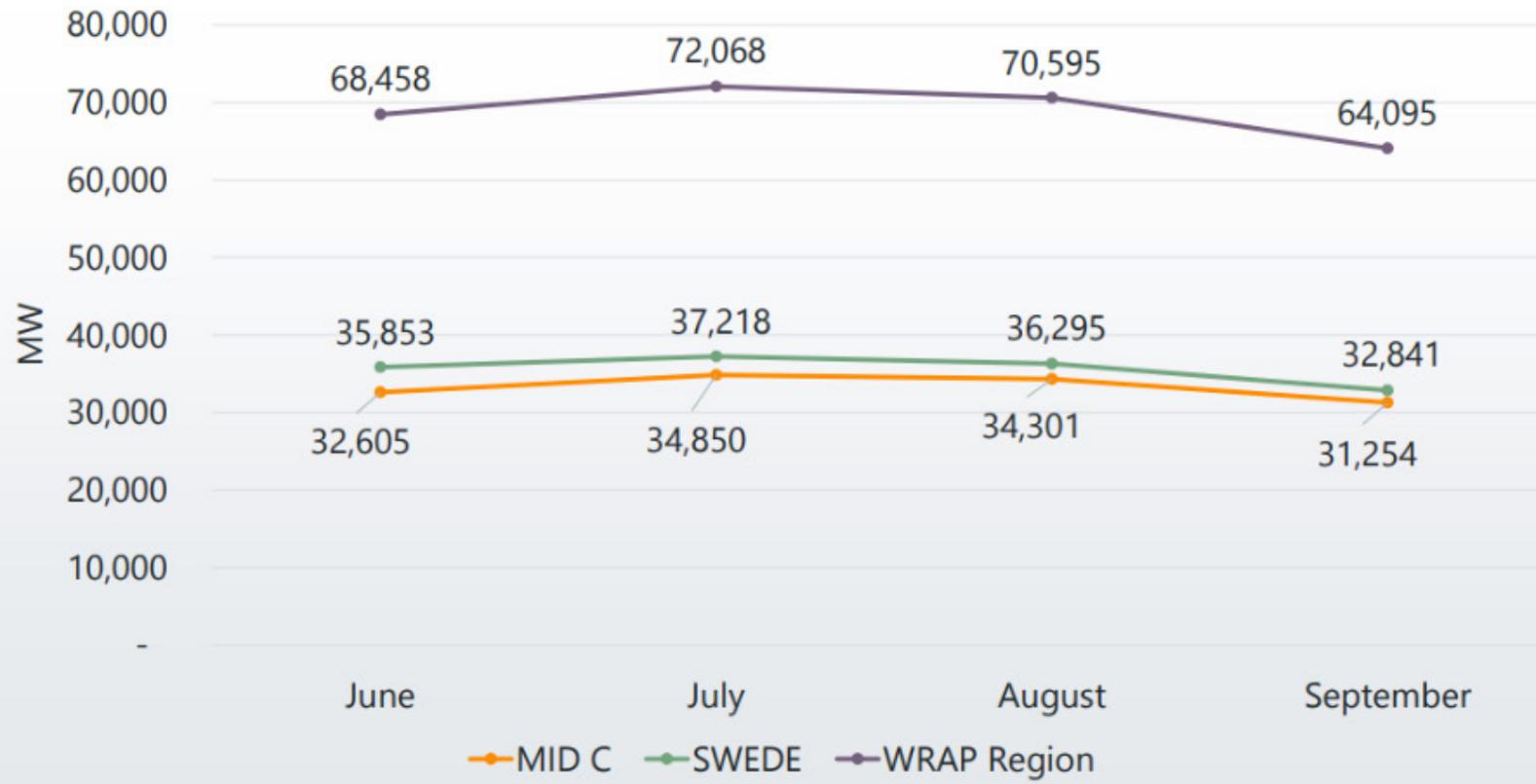


- » Evaluates participants operational situation relative to Forward Showing assumptions
- » Obligates participants with calculated surplus to assist participants with a calculated deficit on the hours of highest need
- » Surplus Participant that fails to provide assigned Energy Deployment must pay **Energy Delivery Failure Charge**

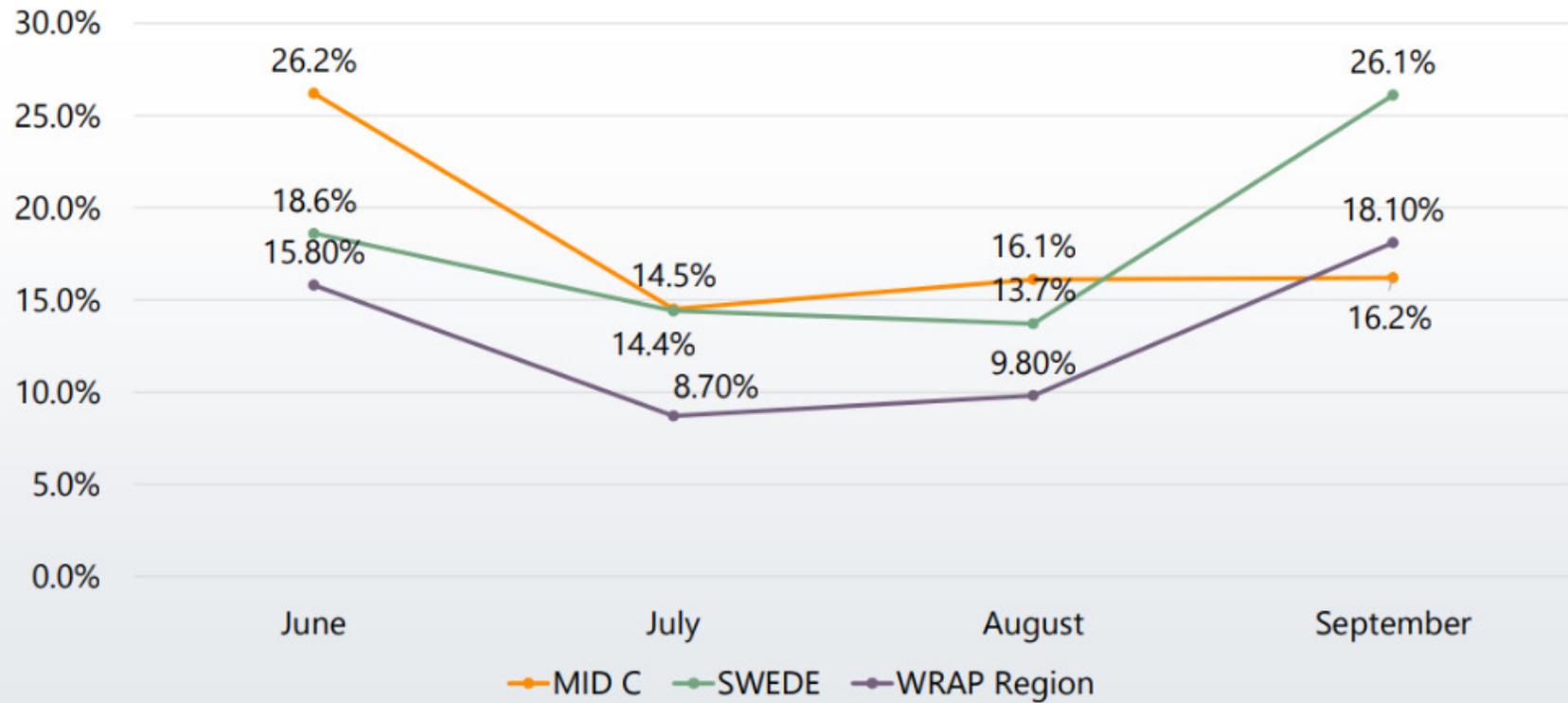
GOVERNANCE

- » The **Resource Adequacy Participant Committee (RAPC)** is the main venue for Participants to engage in program governance, decision-making, implementation, and compliance
- » The sector-based **Program Review Committee (PRC)** is responsible for receiving, considering, and proposing changes to WRAP program design
- » The **Committee of State Representatives (COSR)** facilitates participation in the WRAP decision-making process by state regulators and energy offices
- » The **Board** (selected by a sector-based **Nominating Committee**) has ultimate authority over all aspects of the WRAP

PEAK LOAD



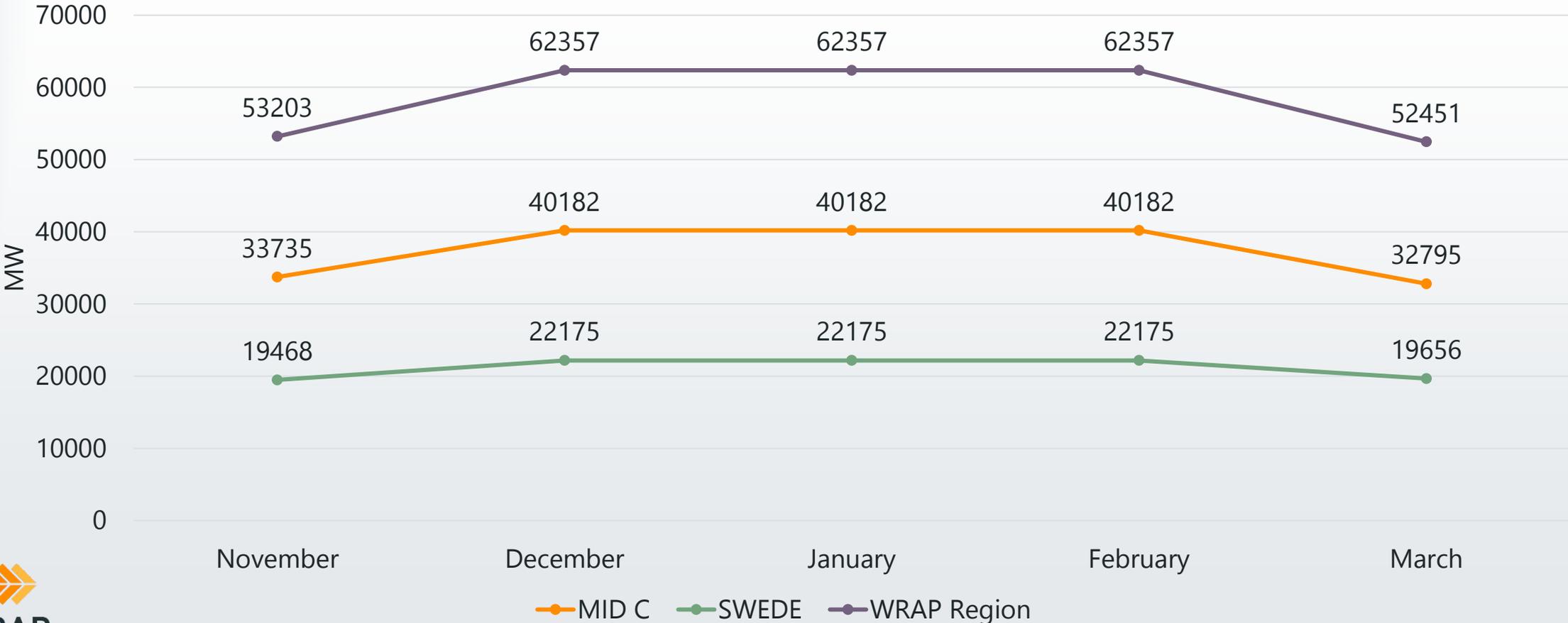
PRM – SUMMER 2025



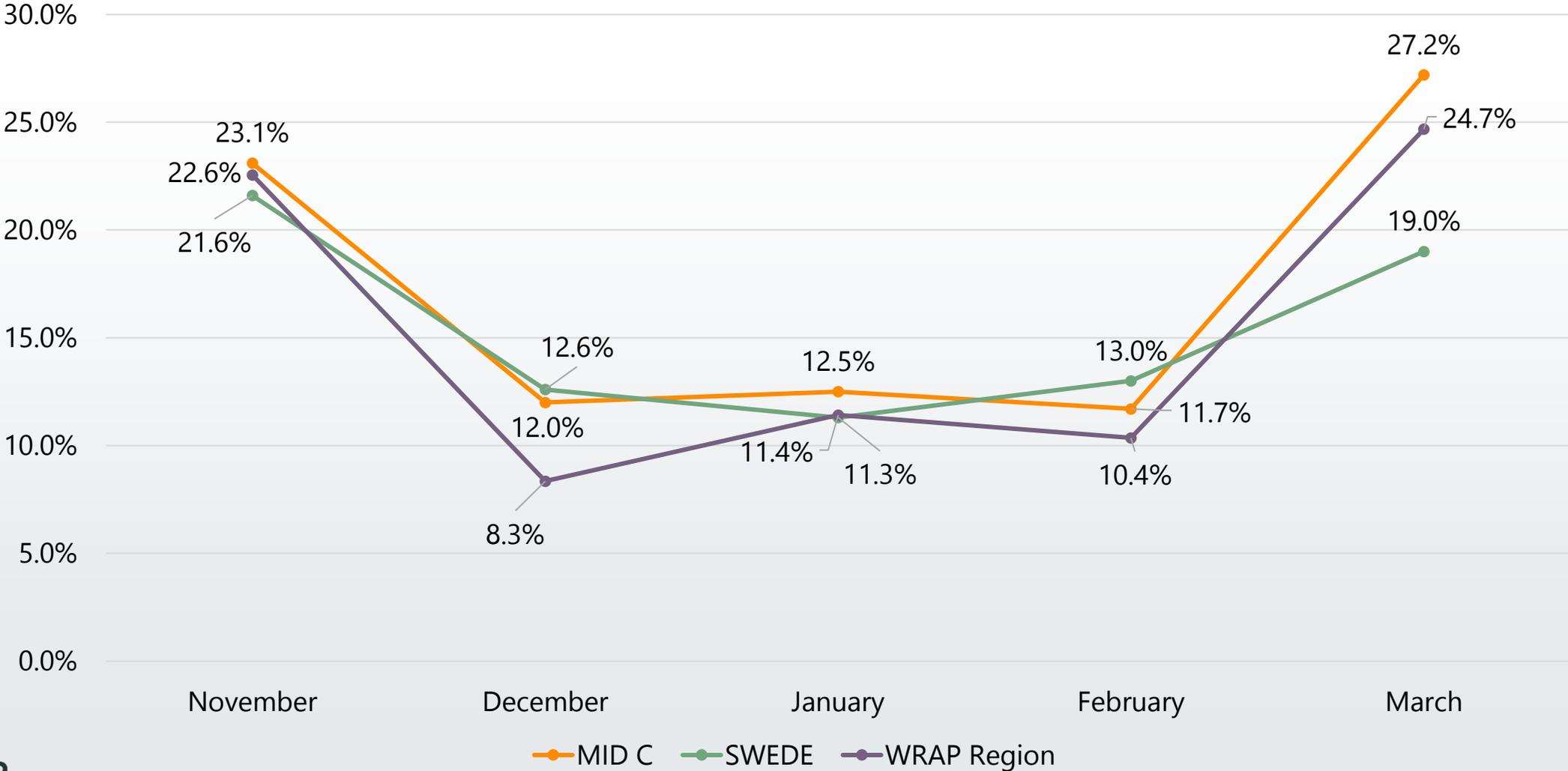
UPDATED WINTER P50 PEAK LOAD FORECAST METHODOLOGY

- » Utilized a “Super Peak” Months methodology for Winter 2025-2026
 - December, January, and February use the same P50 Peak Load Forecast value calculated by taking the median of the maximums of the monthly peak load values – currently called the “Super Peak”
 - November and March use respective median monthly peak load values
 - LOLE study uses 40 years of historical data and currently includes a 1.1% growth factor

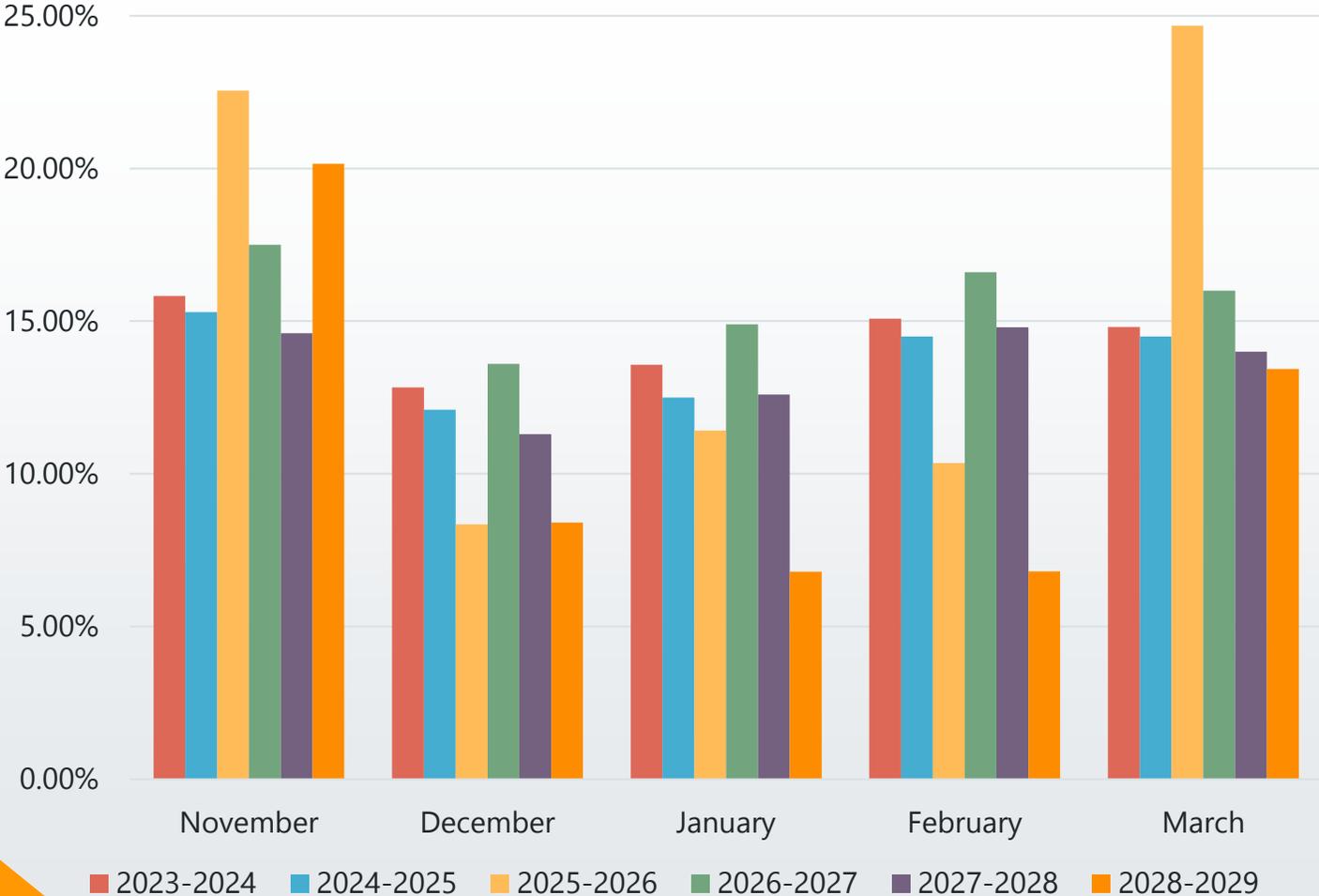
PEAK LOAD



PRM – WINTER 2025-2026



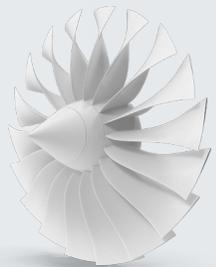
PRMs – WRAP REGION



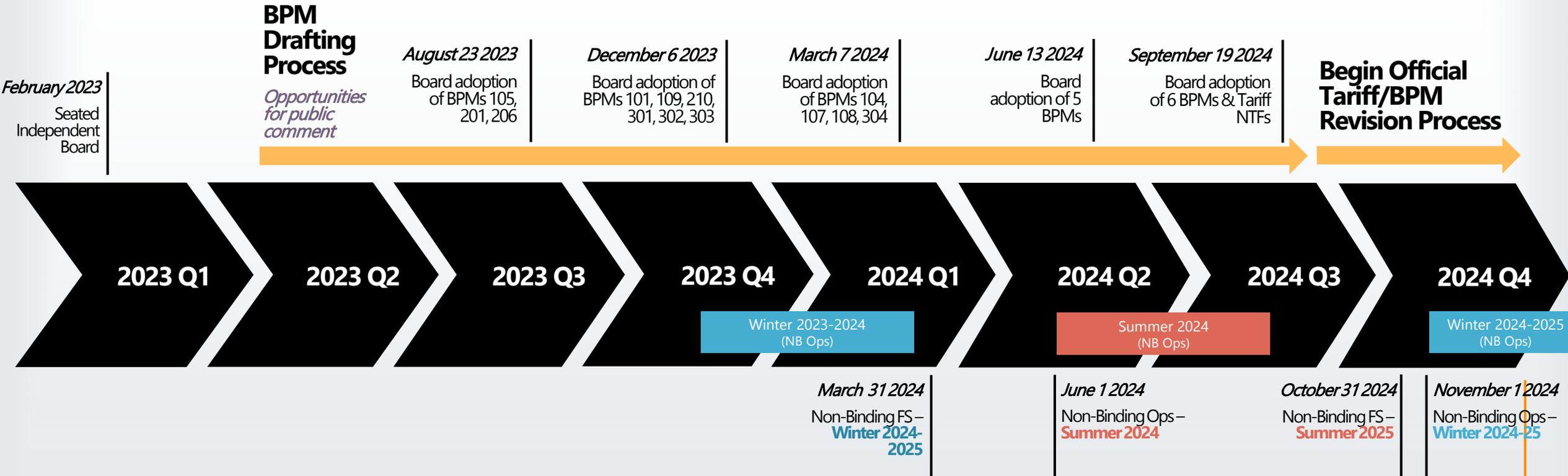
- » 2023-2024 and 2026-2027 studies were done in 2022 with a slightly different footprint different methodology
- » 2026-2027 and 2027-2028 are advisory only

WRAP INTEROPERABILITY

- » WPP fully supports market expansion and has been an active stakeholder in the development of both EDAM and Markets+
- » The designs of both markets are capable of accommodating WRAP - WPP continues to work successfully with CAISO & SPP
- » Maintain WRAP value proposition: Participants access to the capacity demonstrated in the Forward Showing and ability to deliver in the Operations Program
- » Both markets are incremental (not a full RTO) so BA OATTs will need to be adapted to accommodate the new market tariffs



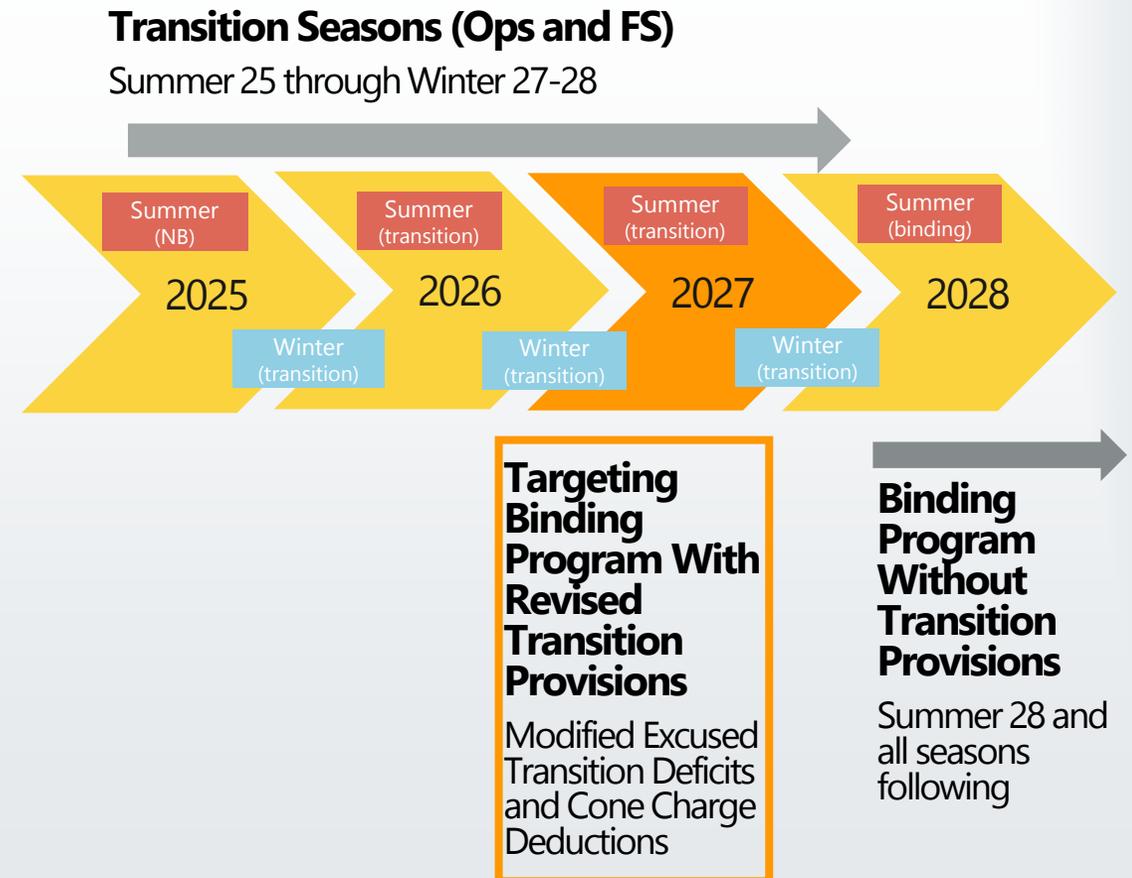
2023-2024 IMPLEMENTATION



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

FUTURE IMPLEMENTATION

- » On **April 22**, the RAPC [published a letter to the region](#) reaffirming commitment to the program and highlighting **significant developments since WRAP development began**:
 - » Participants have been pursuing new resources and increasing efforts on transmission development
 - » Supply chain issues and other challenges have slowed the ability to deliver and interconnect new resources, with peak loads growing faster than ever, exacerbated by extreme weather events
- » Given the potential magnitude of deficiency charges, concern about binding in Summer 2026 – instead, **taking advantage of the flexibility allowed by the Tariff (\$15)**, Participants are going to focus on **pulling together a critical mass for 2027**
- » Participants are developing a proposal for a **revised transition plan** to address concerns



REVISED TRANSITION PLAN

Concept	Change/Addition
Transition Period	Extended from June 1, 2025 through March 15, 2029
Binding Season	<p>Deadline to select Summer 2027 as first binding season moved to January 15, 2026</p> <ul style="list-style-type: none"> • Summer 2027 LOLE modelling will include all Participants regardless of binding season • Exit window date for Winter 27/28 remains the same (October 31, 2025)
Critical Mass	<p>If less than “Critical Mass” in subregion, Participants in that subregion may elect to be non-binding</p> <ul style="list-style-type: none"> • Thresholds to be defined in a future BPM or BPM update • Persists beyond transition period
ETDs	<p>“Discounted Deficiency Charge” + ETDs in Summer 27, Winter 27/28 limited to 200% FSPRM MWs</p> <ul style="list-style-type: none"> • Drops to 100% FSPRM in Summer 28 and Winter 28/29
Diversity Sharing	<p>PRM calculation includes 500 MW of diversity sharing between subregions</p> <ul style="list-style-type: none"> • Benefitting NW in Winter, SW in Summer • Limited to WRAP Regional LOLE Study Result PRM • Applies for transition period, reevaluation no later than 2030
Operations Program Data	<p>Participants to provide disaggregated data to Operations program</p> <ul style="list-style-type: none"> • Aiming for plan and timeline by end of 2024

QUESTIONS?

Ryan Roy – Chief Operating Officer
Ryan.Roy@WesternPowerPool.org

APPENDICES

Revised Transition Plan (2024-EP-1)

BINDING SEASON

Current Tariff	Tariff Redline
<ul style="list-style-type: none">» 2 years prior to start of binding season» Exit window for W27/28 Oct 31 2025	<ul style="list-style-type: none">» Participant deadline to select Summer 2027 as their first binding season will be January 15th, 2026<ul style="list-style-type: none">» Summer 2027 LOLE modeling will include all Participants, regardless of binding season selection» Exit window for W27/28 remains Oct 31 2025

CRITICAL MASS

NEW DEFINITION

- » If there is less than “Critical Mass” in a Subregion, **Participants in that Subregion may remain non-binding**
- » The Critical Mass thresholds will eventually be set in BPM 109 FS Transition Period; at the June 28, 2024, in-person RAPC we discussed exploring the following:
 - » **15 GW in SWEDE and 3 Participants**
 - » **20 GW in Mid-C and 3 Participants**

Redlines

Definition Addition: “The threshold level of participation in a Subregion, as established in the Business Practice Manuals, below which the Participants of such subregion *may* elect to participate as Non-Binding Participants.”

Providing Notice: “Once WPP has given notice to Participants that their subregion does not have Critical Mass for a given Binding Season, such Participants will have 30 days to provide notice to WPP if they intend to participate as Non-Binding Participants for that Binding Season. Such notice and election will be given similarly for each season without critical mass participation”

ETD/DISCOUNTS

- » “Discounted Deficiency Charge” + ETDs in S27, W27/28 limited to 200% FSPRM MWs
- » References to reduced deficiency charge changed to Discounted Deficiency Charge during the Transition Period

Definition Redlines

Discounted Deficiency Charge: “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”

ETD Change: “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. permits a reduction in the otherwise applicable Deficiency Charge~~”

ETD/DISCOUNTS

Current Tariff	Tariff Redlines
<ul style="list-style-type: none"> » ETDs limited to 25% of PRM in S27 and W27/28, no discount in S28 or W28/29 	<ul style="list-style-type: none"> » ETDs limited to 200% of FSPRM in S27 and W27/28, 100% PRM in S28 or W28/29
<ul style="list-style-type: none"> » FS Deficiency Charge reduction of 25% in S27 and W27/28, no discount in S28 and W28/29 	<ul style="list-style-type: none"> » Discounted Deficiency Charge equivalent to 75% reduction of FS Deficiency Charge during S27 and W27/28 and 50% reduction during S28 and W28/29
<ul style="list-style-type: none"> » To obtain ETD, Participant must provide SOA that they have made commercially reasonable efforts to secure Qualifying Resources 	<ul style="list-style-type: none"> » Evolve SOA language to enable attestation by 3rd party under certain circumstances <ul style="list-style-type: none"> » RAPC, Board to endorse examples of commercially reasonable efforts
<ul style="list-style-type: none"> » Tier 2 Priority Access to Holdback during the Transition Period for Participants that have paid a FS Deficiency Charge and/or had Monthly Capacity Deficiency Reduced by No-JCAF option 	<ul style="list-style-type: none"> » Equal access to available capacity in Ops if charge is paid

ETD/DISCOUNTS

- » CONE Factor considerations
 - » Discounted Deficiency Charge calculations will use a CONE factor that **increases when the region is more deficit** (already in tariff); greater than 3% deficit = 200% CONE factor
 - » Discounted Deficiency Charge calculation CONE factor will **not be affected by individual LRE's performance in prior transition seasons**
 - » **CONE Factors for S29, W29/30 will not be impacted by individual Participant deficiencies during the transition period**

OPERATIONS PROGRAM DATA

No TARIFF CHANGE

Current	Change
<p>» Aggregated Operations information provided, as required by Input File Data Specification</p>	<p>» Participants to provide disaggregated data to Ops Program</p> <ul style="list-style-type: none">» Same information with more breakdown» No greater granularity than the FS Submittal» Aiming for plan and timeline by end of year (Non-task force proposal to change BPMs)