NWPP Resource Adequacy Program

Load Service Information forum (LIF) Meeting #1

May 21, 2021

AGENDA

- LIF Overview
- Background and RA Program Framework overview
- LRE as Point of Compliance
  - LRE defined
  - Program eligibility and timelines
- Years/Day in the Life of an RA Program Participant
- Next Steps

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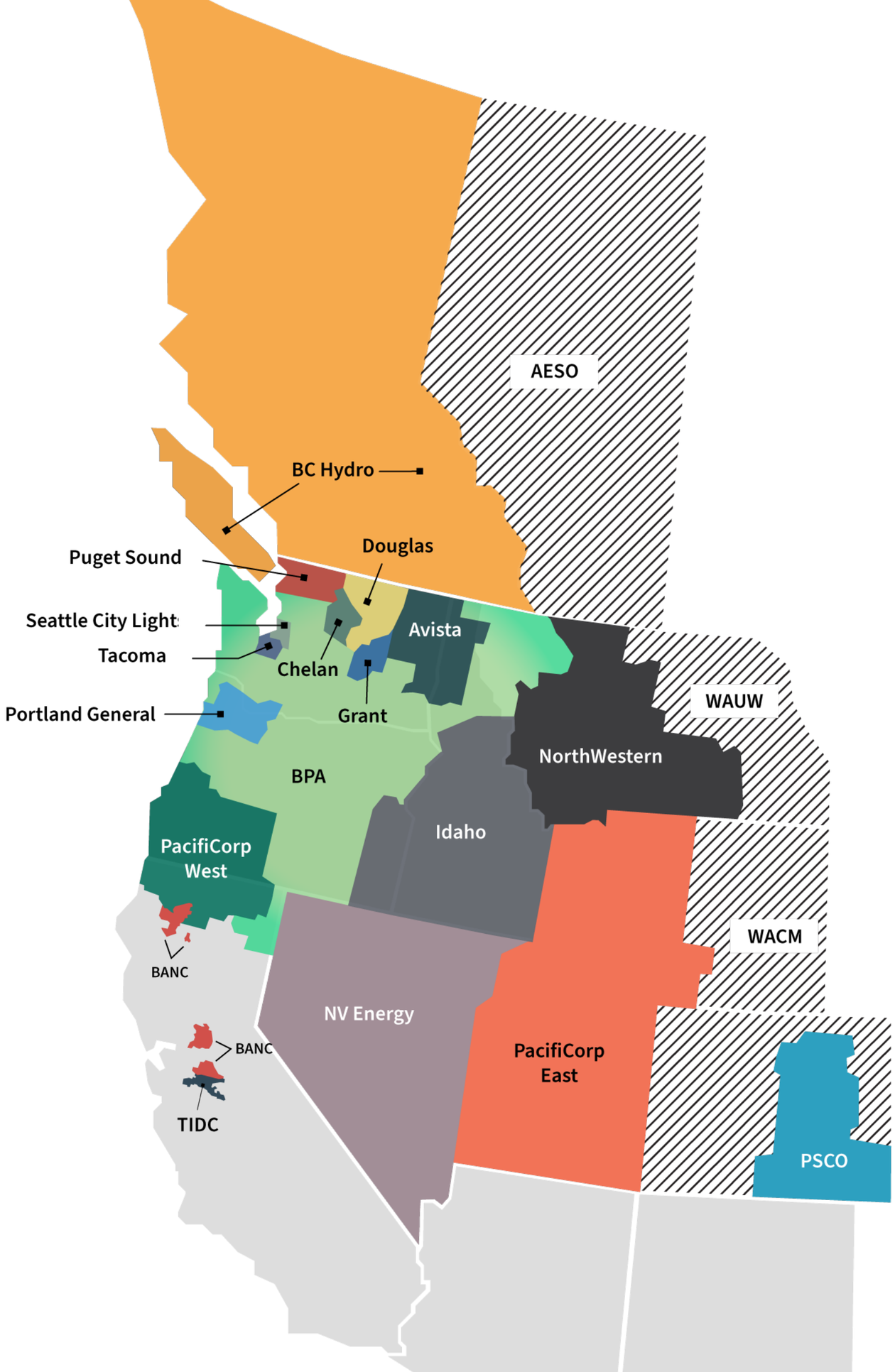
LIF Overview

- **Objective:** Build awareness and understanding of the NWPP RA program under development in order to encourage broad LRE participation in the program beginning in Stage 1
- Series of monthly webinars – May-July/August 2021
- Content will focus on addressing questions LREs have with respect to program design, eligibility, and business case considerations for joining the RA program

BACKGROUND

NWPP Resource Adequacy Program Development Project

- The Northwest Power Pool (NWPP) was established in 1941 and since that time has been coordinating resources to maximize efficient electricity production.
- NWPP is acting as the vehicle for coordination across the region, project began in early 2019
- Goals
  - *Reliability*
  - *Improve effectiveness and efficiency*
  - *Improve visibility and coordination*
  - *Fair and Unbiased*
- 20 of the NWPP's members have funded the RA Program Development Project ("RAPDP")
  - *Currently considering how to include others (non-NWPP) in the RA program and protect our non-profit status*



NWPP RA PARTICIPANTS TO DATE

ADDITIONAL NWPP AREA

NON NWPP AREA

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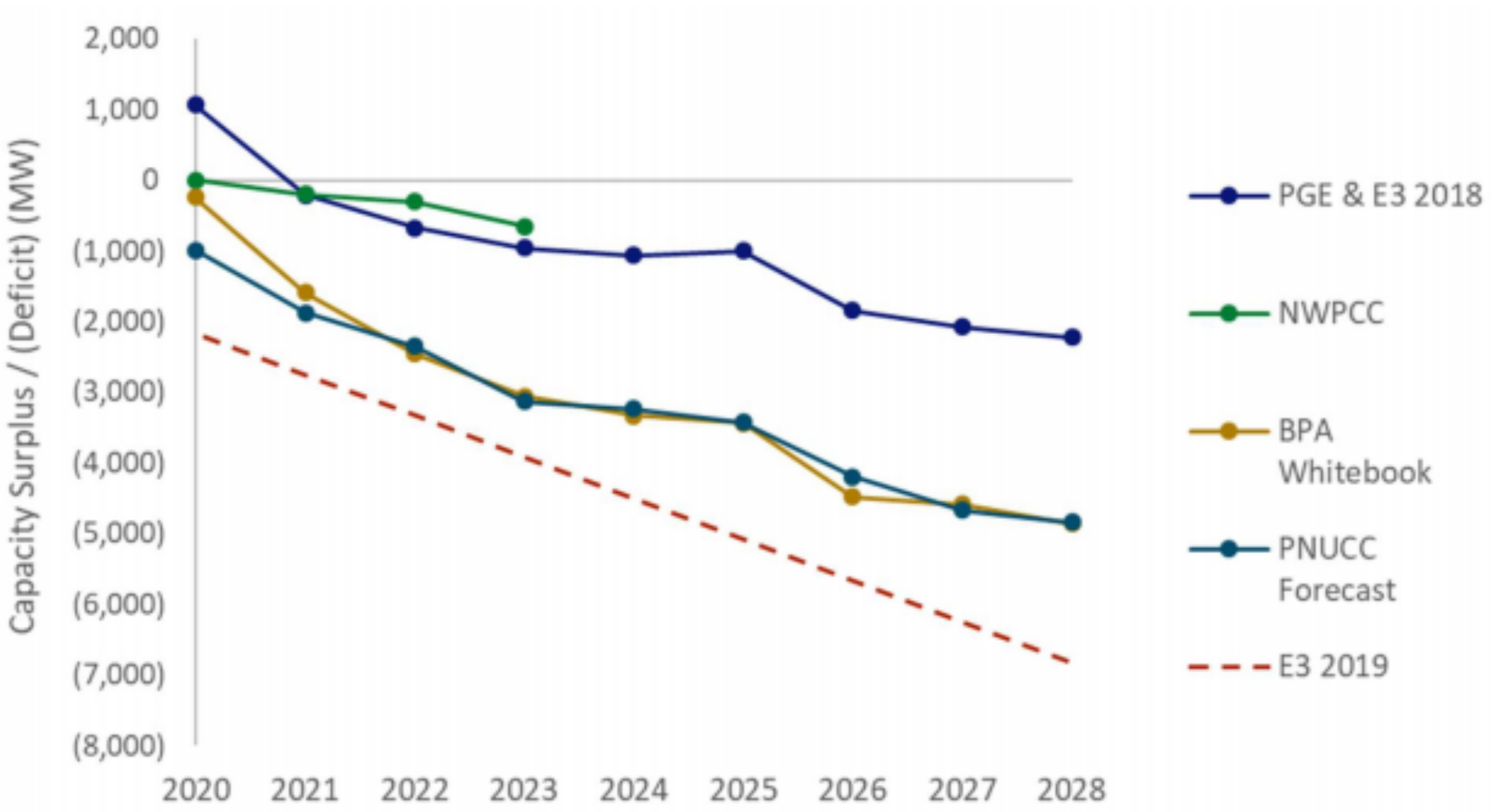
BACKGROUND

Growing Needs of the Northwest



Source: NWPP Exploring a Resource Adequacy Program for the Pacific Northwest

BACKGROUND

No common Reliability Standard in NWPP Footprint

- Today, each utility calculates its own needs using different methods
  - *Different methods to quantify capacity contributions*
  - *Different load forecasting methods*
- Each utility builds, or enters into firm contracts with, physical resources to meet its own needs
- Each utility makes its own assumptions about how much it can rely on from market purchases
- ***No common planning standard in the region, voluntary or otherwise***

BACKGROUND

BENEFITS OF A REGIONAL RA PROGRAM

- **RELIABILITY**

  Ensure sufficient resources are installed and committed to reliably serve demand, during stressed grid and market conditions (capacity critical hours), with a high degree of confidence

- **COST SAVINGS**

  Unlock the benefits of diversity in supply and demand in a safe and equitable way

- **IMPROVED VISIBILITY & COORDINATION**

  Enable members to make fully informed RA planning decisions, using best practice approaches

BACKGROUND

RA PROGRAM FRAMEWORK OVERVIEW

Program Participation	Program Design	Program Operation	Program Governance	Regulatory Framework
- NWPP footprint (currently considering how to open for non-NWPP members) - Load Responsible Entities - Voluntary entry, followed by obligation to comply	- Standardized regional RA metrics - Forward showing period - Operating program to unlock diversity benefits/ investment savings	- Entity executing the technical RA program - Validates annual showings and identifies deficiencies - Enforces the program - Includes an independent monitor process	- Independent board, members committee with certain substantive control and regulators committee. - Still considering role for other stakeholders, role of the NWPP, exit provisions	- Ensuring regulation meets state and federal jurisdiction - Regulators and stakeholders gain insight into the region's RA position

POINT OF COMPLIANCE - LRE

- Point of compliance is which entity will have an obligation to the RA Program – Consistent with other RA Programs, **recommend this is the Load Responsible Entity (LRE)**
- An LRE is an entity that is registered as a Load Serving Entity (“LSE”) or is either an agent or otherwise designated as responsible for an LSE or load under the Resource Adequacy Program

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POINT OF COMPLIANCE - LRE

- Ideally, all LREs in the footprint would participate, but **program will be voluntary, absent any contractual or other regulatory requirements**
- The NWPP RA program design defines the point of compliance, but discussions involving contractual or regulatory requirements between an LRE and its customers is not within the program design scope

Participation available to LREs
Forward Showing Program

WHAT:

– Participation in Non-Binding and Binding Forward Showing Program

– Participation is the ability of LREs to sign up for the current stage of the program as that stage is implemented

– Funding obligations necessary to support implementing the current stage of the program (e.g., LOLE study, administration of study inputs and outputs, etc.)

ELIGIBILITY:

– RAP Members – LREs that sign the Western Resource Adequacy Agreement (“WRAA”) and meet the following qualifications:

  › *RAP Members must be an LRE.*

  › *RAP Members must have either a physical transmission connection or rights to use transmission to at least one other RAP Member.*

  › *RAP Members may be required to be a signatory to the WSPP or an enabling agreement given that the RAP is built around leveraging existing bilateral structures.*

  › *RAP Members are expected to register their entire fleet so that the RAP will have visibility to all resources the member is relying on within the program.*

  › *RAP Members will sign a data sharing and confidentiality agreement essential for the operation of the RAP.*

Participation available to LREs

Forward Showing Program

<u>PRELIMINARY</u> TIMELINE:

- Starting Fall 2021, the ability to participate in Stage 1 (non-binding forward showing) begins
  - *Aiming for membership sign up in mid-August for Non-Binding Forward Showing Participation*
  - *Will need to collect data from LREs beginning in September*
  - *Non-binding showing March/April 2022 for Winter 2022-23*
- Starting June 2022, the ability to participate in Stage 2 (binding forward showing) begins

Red: Functionality Stages

Yellow: Design Phases

Blue: Participation

File with FERC

FERC Approval Required

Stage 1

Non-Binding Forward Showing Program

Winter FS Showing 3/31/22
Season 11/1/22 – 3/15/23

Summer FS Showing 10/31/22
Season 6/1/23 – 9/15/23

Stage 2

Binding Forward Showing Program

Winter FS Showing 3/31/23
Season 11/1/23 – 3/15/24

Summer FS Showing 10/31/23
Season 6/1/24 – 9/15/24

Stage 3

Binding Forward Showing + Full Operational Program

Winter FS Showing 3/31/24
Season 11/1/24 – 3/15/25

Summer FS Showing 10/31/24
Season 6/1/25 – 9/15/25

1: Info Gathering

2A: Conceptual Design

2B: Detailed Design
July 2020 – June 2021

3A
July 2021 – June 2022

3B
July 2022 – December 2024

LIF Outreach
May – July 2021

#1: End of May

#2: Mid-June

#3 End of June/ early July

#4 End of July/early Aug

Non-Binding Program Participation
August 2021 – Feb 2023 (end of Summer 2023 cure period)

Binding Program Participant
June 2022 → Full Program and beyond

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Benefits of Participating in Stage 1 of the RA program

- Opportunity to participate in most influential stage of program development
  - *Beta testing and program refinement are where the rules, policies and procedures are tested and revised based on participant beta-testing and feedback.*
  - *Participants will play a crucial role by helping form the final set of rules prior to the program becoming fully functional*.
- Understanding individual RA position in advance of the future binding program

Further Timeline Considerations

- **TIMELINES ARE PRELIMINARY!**
- A few things affecting timeline are in flux: closing out 2B (plan for early Jun), membership agreement, contract with PO
- Timelines for participation are aspirational-will not be earlier and may be later

YEARS/DAY IN THE LIFE OF AN RA PROGRAM PARTICIPANT

Program Framework

Two Time Horizons

Two Binding Seasons-Winter/Summer

FORWARD SHOWING | **BINDING/OPERATIONAL SEASON** | **AFTER THE FACT**

2 and 5 Years Prior — 7 Months Prior — 3-5 Months Prior — 6 Days Prior — Present

Multi-Year LOLE Assessment
PO provides advisory LOLE study results 5 years out and binding 2 years out

Portfolio Deadline
Entities contract to meet regional metrics / demonstrate compliance

Cure Period
PO verifies all entities have met obligation / entities true up discrepancies

Rolling Daily Assessment
Assess upcoming need for pooled resource sharing

Sharing Event
Energy deployment to meet regional event needs

Settlement for deployed energy

Note: PO refers to Program Operator

Forward Showing Process

- PA will set a reliability metric (~2 years in advance of the season)
  - *Based on a 1-in-10 LOLE probabilistic analysis*
  - *Will calculate PRM to ensure a regional LOLE metric*
- At the Forward Showing deadline (7 months in advance of the season), participants turn in a portfolio showing the balance of their available resources vs. their Forward Showing capacity requirement (P50+PRM) including transmission showing requirements
  - *Portfolio can include owned assets, contracted assets, RA transfers, and shows sales*
  - *Failure to show adequate resources or transmission arrangements to meet the metric will incur a penalty if not cured*

Owned Resources

» Resource Registration - asset owners (or operators or off-takers) register their resources

» PO determines Qualifying Capacity Contribution (QCC) for each resource by month

– Methodologies for assigning QCC values have been discussed previously – additional information available

RA Contracts

- Program design includes contract requirements for having sufficient generation and transmission capacity
- Portfolio will include a sum of all contracts (sales and/or purchases)
- QCC value will be identified for each contract by month; dependent upon contract type
  - Fleet/block contracts: QCC = contract value
  - Fleet/slice contracts: QCC of resources involved (including any specialized outage responsibility)
  - Unit specific contract: QCC of resource identified
  - RA obligation transfer: value of contract

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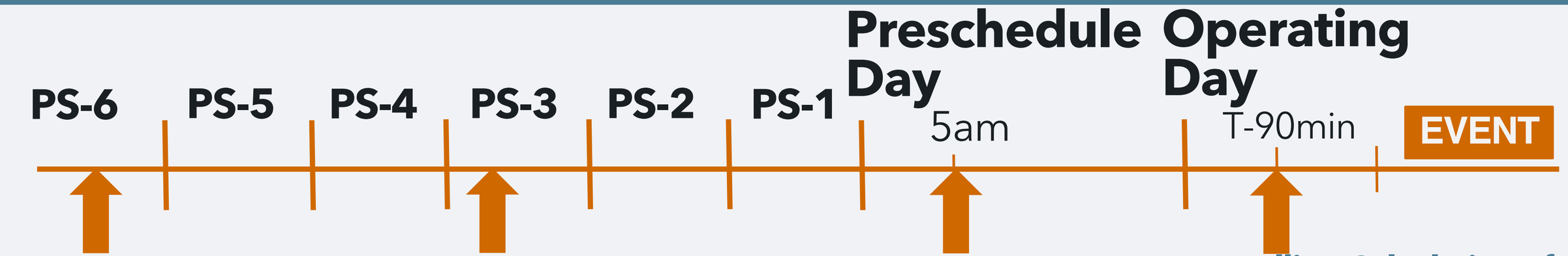
Forward Showing Portfolio

- Portfolio QCC
  - Portfolio QCC = Owned Resource QCC + Net Contracts QCC
  - Calculated for each month of the binding season
- The resulting Portfolio QCC should equal or exceed the Forward Showing capacity requirement (P50+PRM)
- Additional planned maintenance or short-term sales can be taken from the Portfolio QCC that is in excess of the Forward Showing capacity requirement

Operational Program
Sharing Calculation

- Compares near-term operating conditions to forward showing metrics on a rolling basis at various intervals (6 days prior to operating day, through T-90); determines which entities need help, which should share regional diversity
- Sharing = [FS metric – net performance of resources relative to FS assumptions] – [Load Forecast + CR + Uncertainty]
  - *Entities with 'need' (due to high load and/or poor resource performance) have a negative sharing requirement and are eligible for help from other participants ('short') – responsible for procuring transmission from centroid to load*
  - *Entities with excess capacity (due to lower load or overperformance by resources, vs. FS expectations) are 'long' and may be expected to provide capacity to other participants – responsible for procuring transmission to centroid*

Operational Program
Timeline



Multi-Day Assessment

- PA will run sharing requirement calculations to forecast sharing needs
- Length of this assessment to be determined

Multi-Day Ahead Release

- Special circumstances and "as possible"

Preschedule Sharing Requirement Calculated

- Entities with positive preschedule sharing requirement hold back capacity
- Entities do not schedule energy at this time
- Capacity beyond calculated need ("pooled surplus") is released (entities can market; will not be called upon)

Rolling Calculation of Sharing Needs on OD

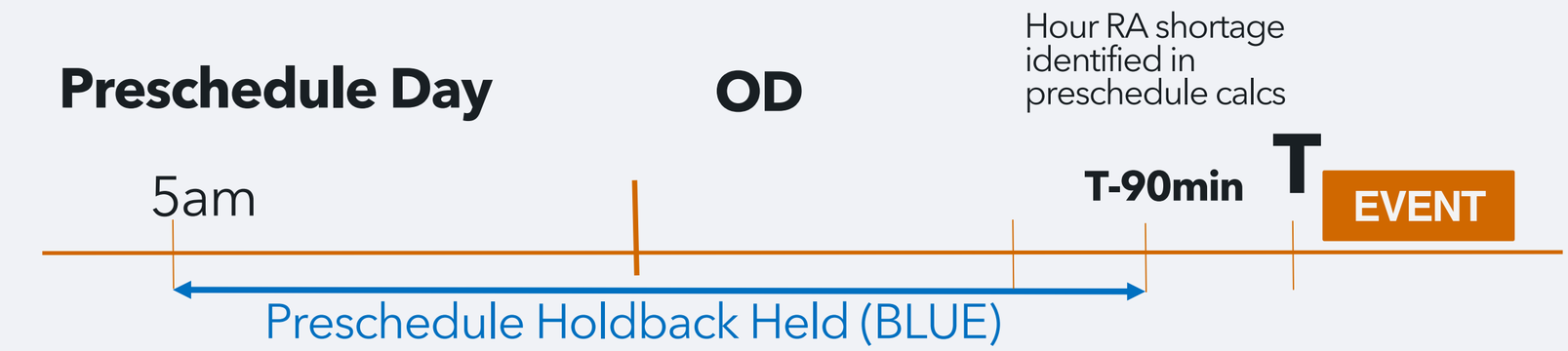
- PA determines needs of short entities/long entities
- Entities schedule energy
- Capacity determined not needed at T-90 is released (entities can market)
- If needs exceed preschedule calculations, request for best effort deployment of surplus

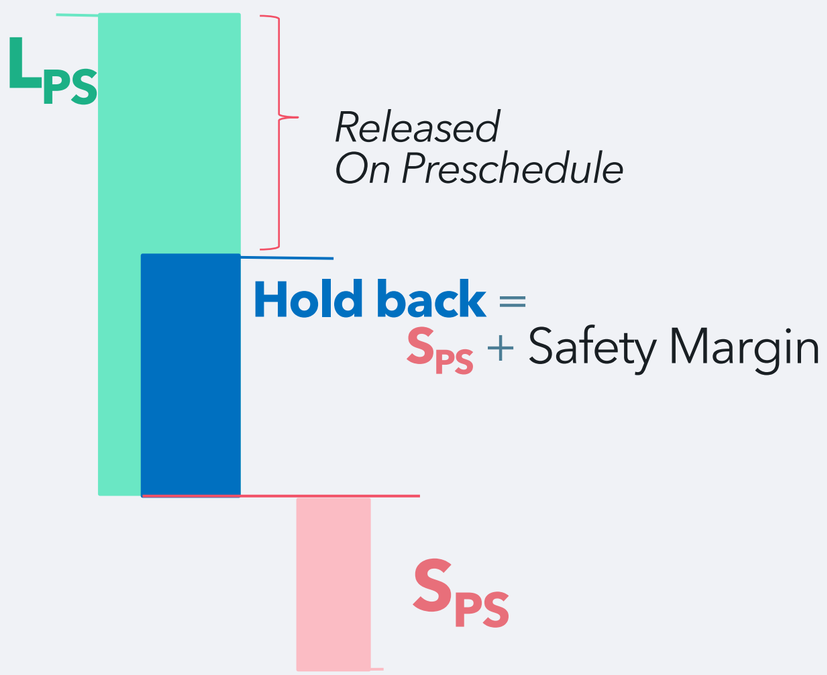
Operational Program
Timeline

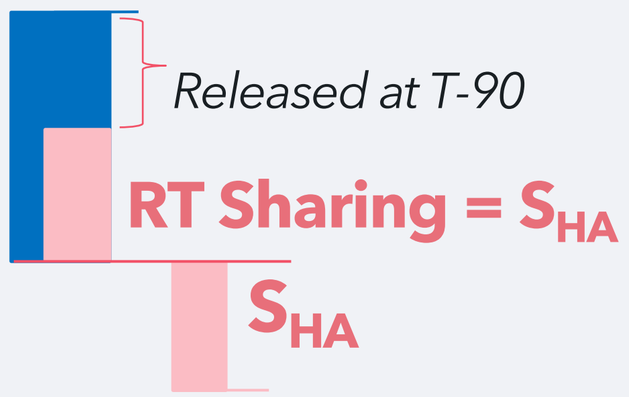
S_{PS}: Sum of all *negative* preschedule sharing requirements (i.e. total amount entities are short on preschedule)

L_{PS}: Sum of all *positive* preschedule sharing requirements

S_{HA}: Calculations are rerun throughout the operating day at T-90 ("hour ahead"); as above, these are the sums of those results







Operational Program
Multi-day Assessment and Forecasting

- Objective of multi-day-ahead assessment:
  - › *Identify potential future sharing need for preschedule day (PS) through PS-6, provide notification*
  - › *The calculation **will be a conservative** calculation considering "historical" levels of uncertainty of load forecast, VER forecast, forced outages on multi-day-ahead basis*

Next Steps

Future meeting topics we've identified:

- Busines case considerations
- Program participation costs
- BPA-specific topics related to LSE program participation

What else?

Next meeting will be held on Thursday, June 17 from 1:00-3:00 pm PT.

APPENDIX

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Snapshot of NWPP RA Program
Preliminary Conceptual Design: Forward Showing Program

Market Structure	Bi-lateral - entities will continue to be responsible for determining what resources and products to procure and from where
Participation	Voluntary to join - joining commits participants to meeting established requirements or incurring penalties (i.e., not “voluntary” to comply once committed) and to an operational program where they are obligated to deliver diversity benefit when called upon. Process will be established to join or leave the program.
Point of Compliance	Compliance obligation at the LSE/LRE level.
Administration	Program Administrator will likely have to be a FERC jurisdictional entity to the extent that it administers program elements that are subject to FERC jurisdictions, which means it will also have to meet federal “public utility” standards for neutrality - Phase 2B will also consider multiple layers of program administration that may not require FERC jurisdiction.
Compliance Periods	Two binding seasons: Summer and Winter Fall and Spring seasons would be advisory (no penalties for non-compliance, but metrics would be provided)
Contractual Supply Qualifications	Two general types of contracts: - Energy + RA - include energy and specified QCC resource value (more detail in following slides); includes both unit specific and block-type contracts - RA Transfer - one entity agrees to take on obligation for another

Snapshot of NWPP RA Program
Preliminary Conceptual Design: Forward Showing Program

Forward Showing Period	Forward showing will occur 7 months in advance of binding seasons, with a 2-month cure period
Planning Reserve Margin	Seasonal Planning Reserve Margins will be determined for summer and winter periods and expressed as a percentage of the 1-in-2-year seasonal peak load forecast
Resource Capacity Accreditation	Resource Capacity Accreditation will be based on methodologies appropriate to resource type, including: 1. **Variable Energy Resources:** Effective Load Carrying Capability (ELCC)analysis 2. **Run of River Hydro:** historical data and ELCC analysis 3. **Storage Hydro:** Common hydro model that considers appropriate set of water conditions allowing Program Administrator to verify data. Phase 2A included development of a conceptual storage hydro capacity methodology, which will be further considered as part of Phase 2B: Detailed Design 4. **Thermal:** Unforced Capacity (UCAP) method 5. **Other resource capacity crediting:** a. Customer resources – capacity resource or load modifier b. Short-term storage – ICAP testing c. Hybrid resources – sum of parts
Penalty for FS Non-Compliance	Deficiency payment based on CONE for a new peaking gas plant (e.g., SPP's Cost of new entry (CONE) calculation) - further discussions on deficiency payments are anticipated in Phase 2B

Snapshot of NWPP RA Program
Preliminary Conceptual Design: Operational Program

Framework for Accessing Pooled Capacity	**Accessing Entity:** › Can only call on pool capacity when Load + Contingency Reserves > Forecasted peak load + Planning reserve margin (PRM) – forced outages – VER underperformance +VER over-performance › Participants can only access pooled capacity equal to the amount of load over their reliability metric **Providing Entity:** › Administrator will ask those not experiencing loads over their RA obligations assist › Could request the difference between their RA obligations and forecasted load
Transmission and Deliverability	› Will require modeling to identify any transmission considerations in the operational time frame › Plan to develop a zonal approach of sufficient granularity to capture all major constraints that might impact the delivery of RA capacity › Recommendations associated with transmission availability in the operational time horizon will be made in Phase 2B
RT Delivery Failures	› SC discussing what delivery failure entails, how it is dealt with operationally, and how penalties are structured