

# WESTERN RESOURCE ADEQUACY PROGRAM

ESIG FALL TECH WORKSHOP

*OCTOBER 7, 2021  
GREGG CARRINGTON, NWPP*



# AGENDA

## Detailed Design Document Content

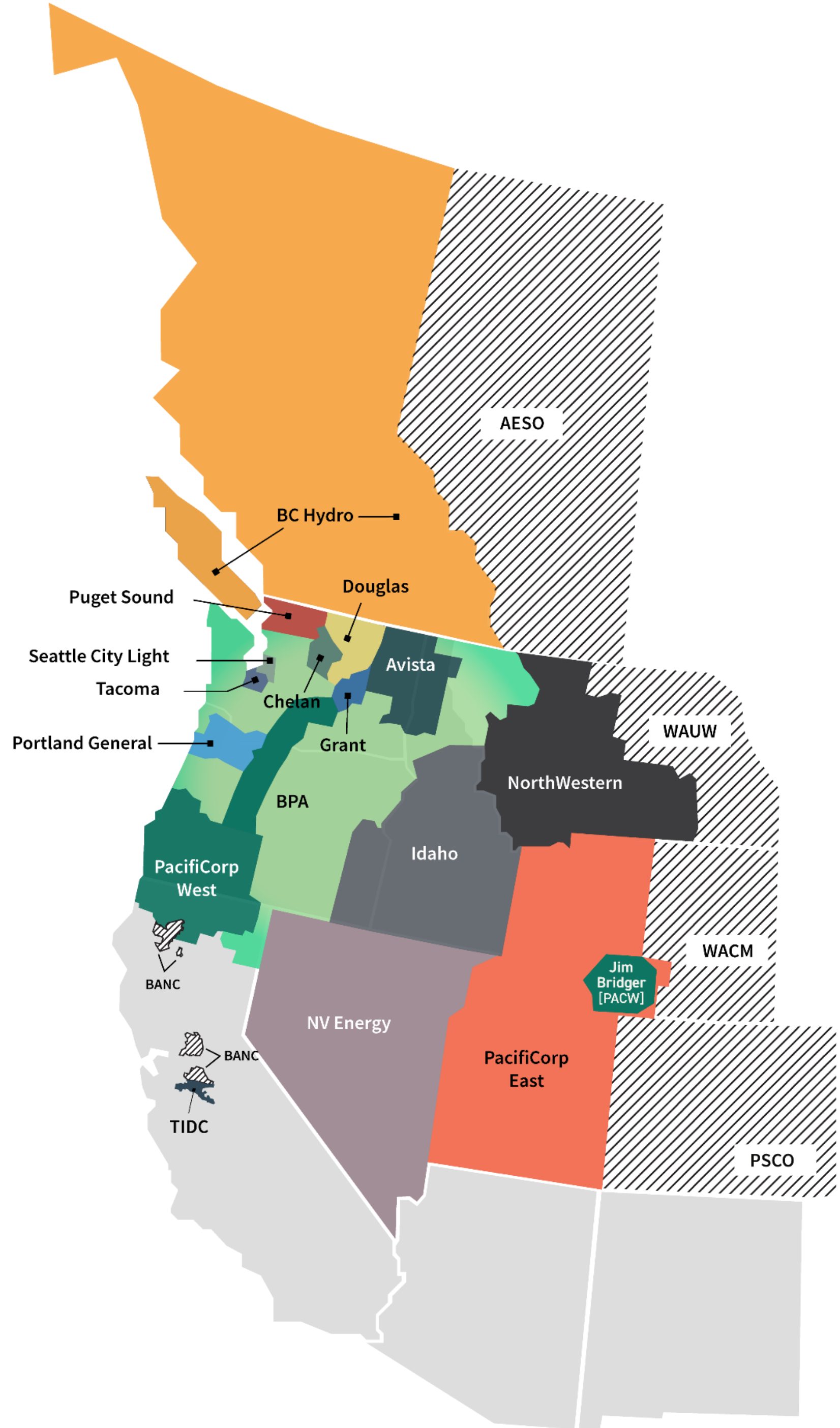
- › Executive Summary
- › Governance
- › Forward Showing Design
- › Operational Design
- › Next Steps

# DETAILED DESIGN DOCUMENT

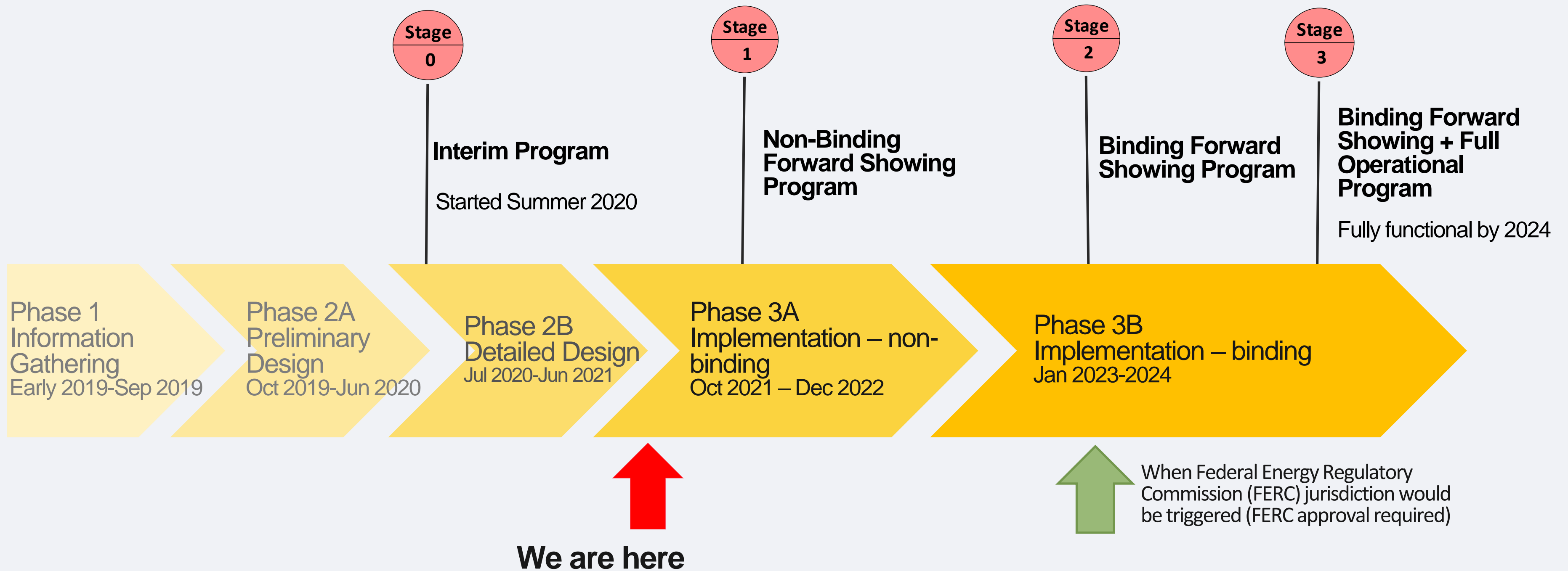
- » The Detailed Design Document will be a starting point of implementation – *will not be a “final” design*
- » Provides a framework for the RA Program
- » Detailed governance proposal
- » Forward showing design including modeling design details
- » Operational program design
- » Published on NWPP website as:  
<https://www.nwpp.org/news/nwpp-releases-detailed-design-of-resource-adequacy>



# INITIAL PHASE 3A PARTICIPANTS



# OVERVIEW OF PROJECT TIMELINE



# REGIONAL RA PROGRAM BENEFITS

## – RELIABILITY

- › *Ensure sufficient generation and transmission resources are installed and committed to reliably serve demand, during stressed grid and market conditions, with a high degree of confidence*

## – COST SAVINGS

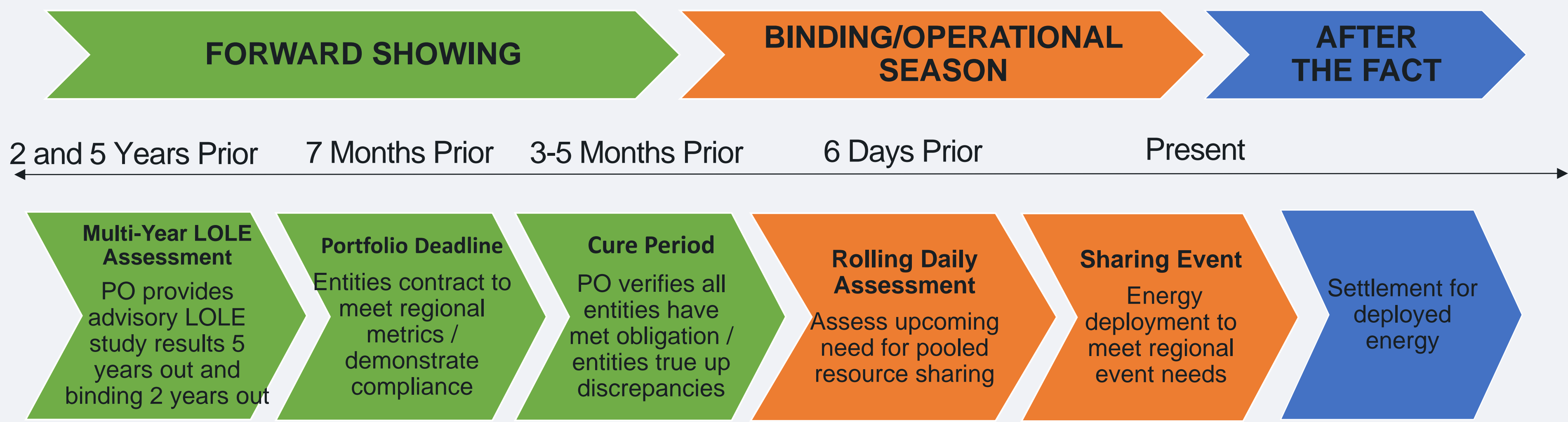
- › *Unlock the benefits of diversity in supply and demand in a safe and equitable way*

## – IMPROVED VISIBILITY & COORDINATION

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

# PROGRAM FRAMEWORK

## *Two Time Horizons*



*Note: PO refers to Program Operator*

## 0. EXECUTIVE SUMMARY

### 1. GOVERNANCE

#### INTRODUCTION

##### 1.1 BOARD OF DIRECTORS

##### 1.2 NOMINATING COMMITTEE

##### 1.3 RA PARTICIPANT COMMITTEE

##### 1.4 PROGRAM OPERATOR

##### 1.5 INDEPENDENT EVALUATOR

##### 1.6 OTHER COMMITTEES AND STRUCTURAL FUNCTIONS

##### 1.7 COST ALLOCATION PRINCIPLES

### 2. FORWARD SHOWING DESIGN

### 3. OPERATIONAL DESIGN

### 4. NEXT STEPS

# PROPOSED GOVERNANCE APPROACH - OVERVIEW

## Independent Board of Directors (BOD)

- › Once the initial structure of the board and program is established, the board has authority to approve budgets; provide direction and set priorities
  - › *Some limitations on board authority are permissible*
- › Proposed governance preserves structures and functions of exiting NWPP program

## Participant Committee (RAPC) with influence

- › Substantive authority to modify amendments to the RA Program
- › Substantive authority to modify RA Program rules
- › **Subject to stakeholder right of appeal to independent board**

Point of compliance (entity that will have a compliance obligation to the RA Program) at the Load Responsible Entity (LRE)





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# PROPOSED GOVERNANCE APPROACH – OVERVIEW

- › **Committee of State Regulators (COSR)** – meeting through the Summer to refine the role of this committee
- › **Nominating Committee (NC)** – the members of the BOD will be selected by a NC comprised of multi-sector representatives.
- › **Program Review Committee (PRC)** – future changes to the program rules will be recommended through a multi-sector committee
- › **Independent Evaluator (IE)** – Reports to BOD for annual review of program



# SECTION 2

# FORWARD

# SHOWING DESIGN

2.1 SHOWING AND COMPLIANCE TIMING

2.2 RA PROGRAM METRICS

2.3 LOAD FORECASTING FOR FORWARD SHOWING

2.4 RESOURCE ELIGIBILITY AND QUALIFICATION

2.5 QUALIFIED CAPACITY CONTRIBUTION OF RESOURCES

2.6 CONSTRUCTION OF A PARTICIPANT'S FORWARD SHOWING PORTFOLIO

2.7 DEFICIENCY PAYMENT FOR NONCOMPLIANCE

2.8 TRANSMISSION AND DELIVERABILITY

2.9 MODELING DATA FROM THE FS PROGRAM PROVIDED TO THE OPS PROGRAM

2.10 MODELING PROCESS TIMELINES



# Snapshot of NWPP RA Program

## Detailed Design: Forward Showing Program

### Program Structure

Bilateral - Participants will continue to be responsible for determining what resources and products to procure from other Participants or suppliers

### 2.1 Compliance Periods

Two binding seasons: Summer (June 1 – Sept 15) and Winter (Nov 1 – Mar 15)  
Fall and Spring seasons would be advisory (no penalties for non-compliance)

### 2.1 Forward Showing Deadline

Participants will demonstrate compliance with FS reliability metrics seven months in advance of the start of the binding seasons - if notified of deficiency by the PO, entities will cure issues by three months prior to the start of the binding season

### 2.2 Reliability Metric

FS Program is designed to identify the capacity needed to meet a 1 day in 10 years loss of load expectation (LOLE) target for each season

### 2.3 Load Forecasting

Entities will forecast their own loads, working with the PO to use acceptable forecasting methodologies  
PO will use load forecasts and historical data to identify a P50 (1-in-2) peak load for each month in the binding season - the highest monthly P50 will be used for all months of that season

### 2.2 Planning Reserve Margin

Seasonal PRM will be determined for Summer and Winter seasons and expressed as a percentage of each Participant's identified seasonal P50 load forecast

# Snapshot of NWPP RA Program

## Detailed Design: Forward Showing Program

### 2.5 Qualified Capacity Contribution of Resources

**Wind and Solar Resources:** Effective Load-Carrying Capability (ELCC) analysis.

**Run-of-River Hydro:** ELCC analysis.

**Storage Hydro:** NWPP-developed hydro model that considers the past 10 years generation, potential energy storage, and current operational constraints.

**Thermal:** Unforced capacity (UCAP) method.

**Short Term Storage:** ICAP Testing – ability of the resource to maintain the value over the specified duration represents its capacity value.

**Hybrid Resource:** “Sum of parts” method where energy storage resource will use ICAP Testing and generator will use appropriate method as outlined above.

**Customer Side Resources:** Can either register as a load modifier or as a capacity resource.

### 2.8 Transmission

- › Rely on existing OATT frameworks to facilitate transmission-related requirements in FS and Ops - will not infringe on TSPs’ and BAs’ responsibilities, nor diminish Participants’ OATT responsibilities.
- › Demonstrate deliverability of resources claimed in the FS on NERC priority 6 or 7 transmission (firm, conditional firm, network service – in some conditions) - demonstrate at FS deadline having procured or contracted for transmission rights to deliver at least 75% of the resources (or contracts) claimed in the FS portfolio from source to load.
- › When sharing is forecasted in the Ops program, prepare to demonstrate firm transmission for resources not previously shown to have NERC priority 6/7 transmission.

### 2.7 Penalty for FS Non-Compliance

Deficiency payment based on cost of new entry (CONE) for a new peaking gas plant.

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### 1. GOVERNANCE

## 2. FORWARD SHOWING DESIGN

### 2.1 COMPLIANCE TIMING

### 2.2 METRICS

## 2.3 LOAD FORECASTING

### 2.4 RESOURCE QUALIFICATION

### 2.5 QUALIFIED CAPACITY CONTRIBUTIONS

### 2.6 CONSTRUCTION OF A PORTFOLIO

### 2.7 DEFICIENCY PAYMENT

### 2.8 TRANSMISSION

### 2.9 MODELING DATA

### 2.10 MODELING TIMELINES

## 3. OPERATIONAL DESIGN

### 4. NEXT STEPS

# CAPACITY CRITICAL HOURS (CCH)

» *Net Regional Capacity Need (MW) = Load(MW) – Wind(MW) – Solar(MW) – ROR(MW) + Interchange*

**Load** = participant gross load in MW from 2010-2020

**Wind** = 2020 installed wind resource output in MW synthesized back to 2010

**Solar** = 2020 installed solar resource output in MW synthesized back to 2010

**Run-of-River** = 2020 installed run-of-river resource output in MW synthesized back to 2010

**Interchange** = modified interchange in MW for 2010-2020



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## 4. NEXT STEPS

# INTERCHANGE

- » Extensive consideration of imports and exports for inclusion in 1-in-10 loss of load event (LOLE)/PRM and some QCCs
- » Conducted analysis on regional interchange
- » A review of the regional interchange data from 2010-2020 showed regional interchange has changed drastically in the past three years

*From near constant flat NWPP export to a shape that shows exports in late evening and early morning with declining exports in the daytime hours*

*Appears to closely follow the timeframes of solar output in California*



# INTERCHANGE CONSIDERATIONS

- Values reviewed are based on actual historical flows (including firm and non-firm transactions)
- Special care must be taken by the Program Operator to ensure that certain transactions are not “double-counted”
- Analysis should be repeated annually to determine the latest trends
- Changes to the methodology will be discussed and adopted, as necessary

# SECTION 3

# OPERATIONAL

# DESIGN

- 3.1 OVERVIEW
- 3.2 TIMELINE
- 3.3 SHARING REQUIREMENT CALCULATION
- 3.4 HOLDBACK REQUIREMENT CALCULATION
- 3.5 RELEASE OF CAPACITY
- 3.6 ENERGY DEPLOYMENT
- 3.7 TRANSMISSION SERVICE
- 3.8 DELIVERABILITY ASSESSMENT & PATH DE-RATES
- 3.9 SETTLEMENTS
- 3.10 INTERACTION WITH EIM / EDAM
- 3.11 FAILURE TO DELIVER ENERGY DEPLOYMENT
- 3.12 DATA SUBMISSION REQUIREMENTS
- 3.13 NOTIFICATION PROCESS
- 3.14 EMERGENCY PROCEDURE





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### 4. NEXT STEPS

# OPERATIONAL PROGRAM — OVERVIEW

- » Provides the mechanism by which the pooled resources are accessed
- » Unlocks investment cost savings through diversity benefits
- » Enables lowering of forward showing capacity requirement (planning reserve margin) to account for regional diversity
- » Function usually provided by an Independent System Operator/Regional Transmission Organization



# Snapshot of NWPP RA Program

## Detailed Design: Operational Program

Sequentially comparing forecasts to the FS metrics beginning six days before the preschedule day, identification of sharing events and required capacity holdback on the preschedule day, and energy deployments on the operating day

### 3.3 Framework for Accessing Pooled Capacity

#### **Accessing Entity:**

- › Can only call on pool capacity when  $\text{Load} + \text{Contingency Reserves} > \text{Forecasted peak load} + \text{Planning reserve margin (PRM)} - \text{forced outages} - \text{VER underperformance} + \text{VER over-performance}$
- › Participants can only access pooled capacity equal to the amount of load over their reliability metric

#### **Providing Entity:**

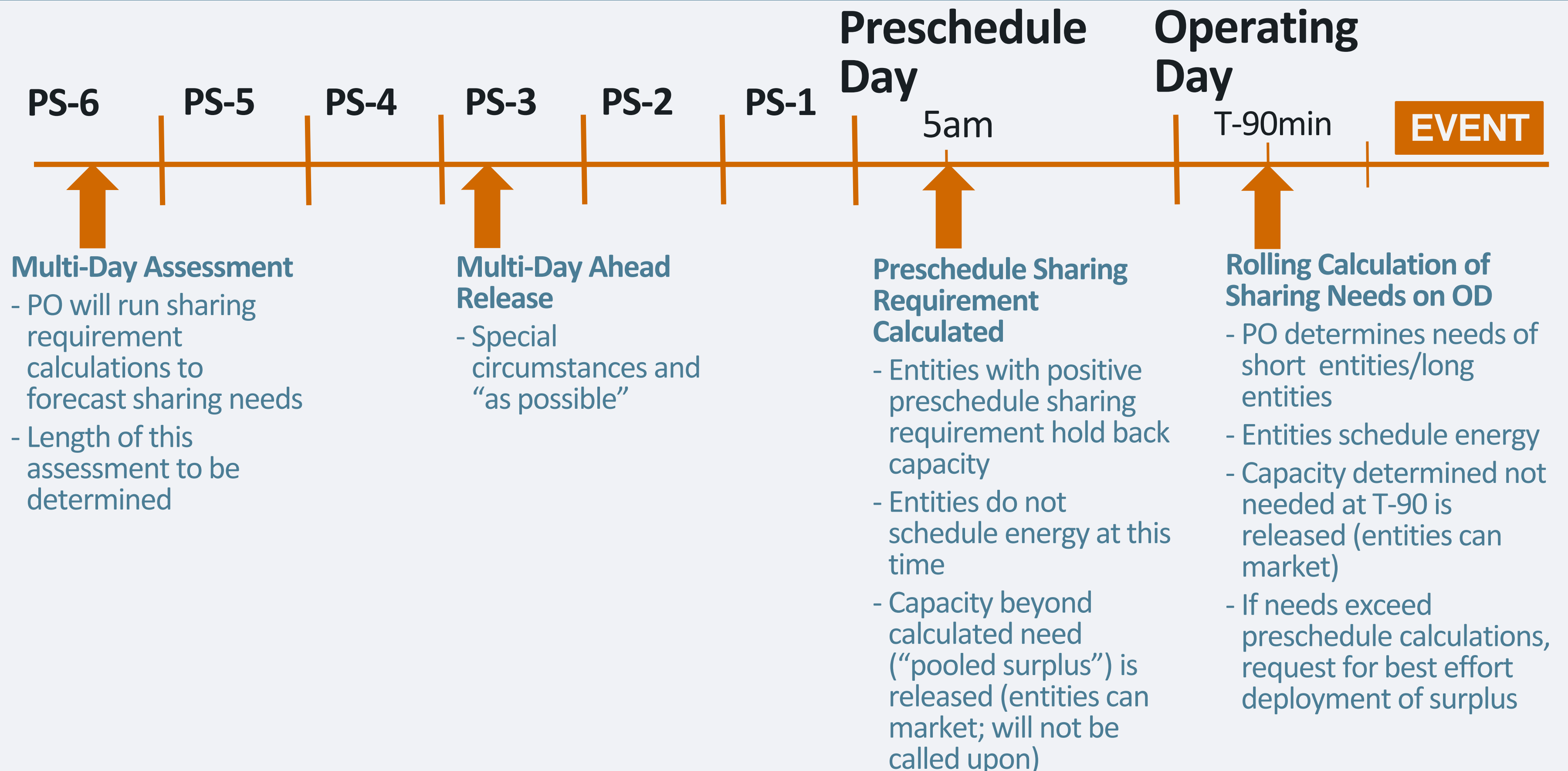
- › Administrator will ask those not experiencing loads over their RA obligations assist
- › Could request the difference between their RA obligations and forecasted load

### 3.7 and 3.8 Transmission and Deliverability

- › If PO forecasts a sharing event (i.e., one or more Participant is forecasted to be deficit), Participants will be expected to have sufficient firm or conditional firm transmission rights (or as applicable, 6NN transmission rights at the TSP's discretion) to meet their expected load plus their expected sharing requirement.

# OPERATIONAL PROGRAM

## TIMELINE



# UP NEXT

## Moving into Phase 3A (Implementation – non-binding)

*October 2021-December 2022*

- » Completing the PO contracting process with SPP
- » Signing participation agreements and NDA
  - Inviting LREs from across the West to participate in the next phase (“3A”) – this is an expansion of participation as compared to past project phases
  - Signing window: now – September 30
- » Stage 1: Non-Binding Forward Showing Program
  - Perform 2 FS Showings (turn portfolio in to Program Operator): Winter 2022, Summer 2023
  - Metrics provided for Winter 2022, Summer 2023 (plus further-out looks at 2025-6)
- » Preparation for later phases
  - Prepare for FERC filing (filing targeted for March 2022)
  - Prepare for NWPP independent board (transition in 2023)
  - Work through outstanding design considerations for Operations program



# APPENDIX

## 0. EXECUTIVE SUMMARY

### 1. GOVERNANCE

## 2. FORWARD SHOWING DESIGN

### 2.1 COMPLIANCE TIMING

### 2.2 METRICS

### 2.3 LOAD FORECASTING

### 2.4 RESOURCE QUALIFICATION

### 2.5 QUALIFIED CAPACITY CONTRIBUTIONS

### 2.6 CONSTRUCTION OF A PORTFOLIO

### 2.7 DEFICIENCY PAYMENT

## 2.8 TRANSMISSION

### 2.9 MODELING DATA

### 2.10 MODELING TIMELINES

## 3. OPERATIONAL DESIGN

### 4. NEXT STEPS

# TRANSMISSION OBJECTIVES

- › Encourage procurement of firm transmission service sufficient to demonstrate deliverability of resources to load, while recognizing the need for flexibility where necessary or appropriate
- › Enhance overall visibility with respect to deliverability (from generator to load) for resources used for program compliance, supporting situational awareness and regional planning
- › Support and enhance reliability across the region without supplanting existing responsibilities of Balancing Authorities, LREs/Load Serving Entities (LSEs), and Transmission Service Providers (TSPs), and others
- › Rely on existing Open Access Transmission Tariff (OATT) frameworks to facilitate transmission-related requirements for demonstration of resource adequacy and sharing of diversity across the NWPP footprint
- › Respect program participants' OATT rights and responsibilities and Participants' other legal obligations, including contractual commitments and statutory requirements
- › Design the Program in a manner that achieves deliverability objectives in a manner that is consistent with continued market efficiency in the operational time horizon



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### 4. NEXT STEPS

# TRANSMISSION

## FORWARD SHOWING

- » At FS deadline, show rights to deliver 75% of FS capacity requirement to load

*NERC priority 6 or 7 minimum required firmness*

*Transmission rights will be associated with specific resources*

*Use of 6-NN / 7-FN requires demonstration of ability to use network service from applicable TSP*

- » Failure to demonstrate required transmission would constitute failure to meet FS requirements (i.e. met with penalty)



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## 3. OPERATIONAL DESIGN

### 4. NEXT STEPS

# TRANSMISSION

## FORWARD SHOWING

- » Exceptions from meeting the 75% FS requirement will be reviewed by PO
- » Examples of potential exceptions:
  - Demonstration of an enduring constraint – identify a plan to remedy the issue*
  - Short-term firm transmission is available but not posted on a long-term basis*
  - Excessive outages (temporary)*





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#### 3.1 OVERVIEW

#### 3.2 TIMELINE

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#### **3.7 TRANSMISSION SERVICE**

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### 4. NEXT STEPS

# TRANSMISSION

- » If PO forecasts a sharing event (i.e., one or more participant is forecasted to be deficit) on the day before preschedule (PS-1):

*All other participants must secure NERC priority 6/7 transmission for their forecasted load plus forecasted holdback (to share)*

*Participants do not need to re-demonstrate original 75% from FS*

*Participants demonstrate rights from RA resource to their load*



# TRANSMISSION OPERATIONS

If sharing is necessary:

*PO will assign energy deployment to participants with positive sharing calculation*

*Energy will be delivered to a central hub ('centroid') on NERC priority 6/7 service*

*Deficit entity will receive energy at the hub and is responsible for transmission to their load*

*Participants can choose to schedule directly with deficit entities (optimize their own transmission)*

*Note: centroid concept to be discussed further – a second hub may be necessary*