

NWPP RESOURCE ADEQUACY PROGRAM OVERVIEW

BPA PUBLIC MEETING

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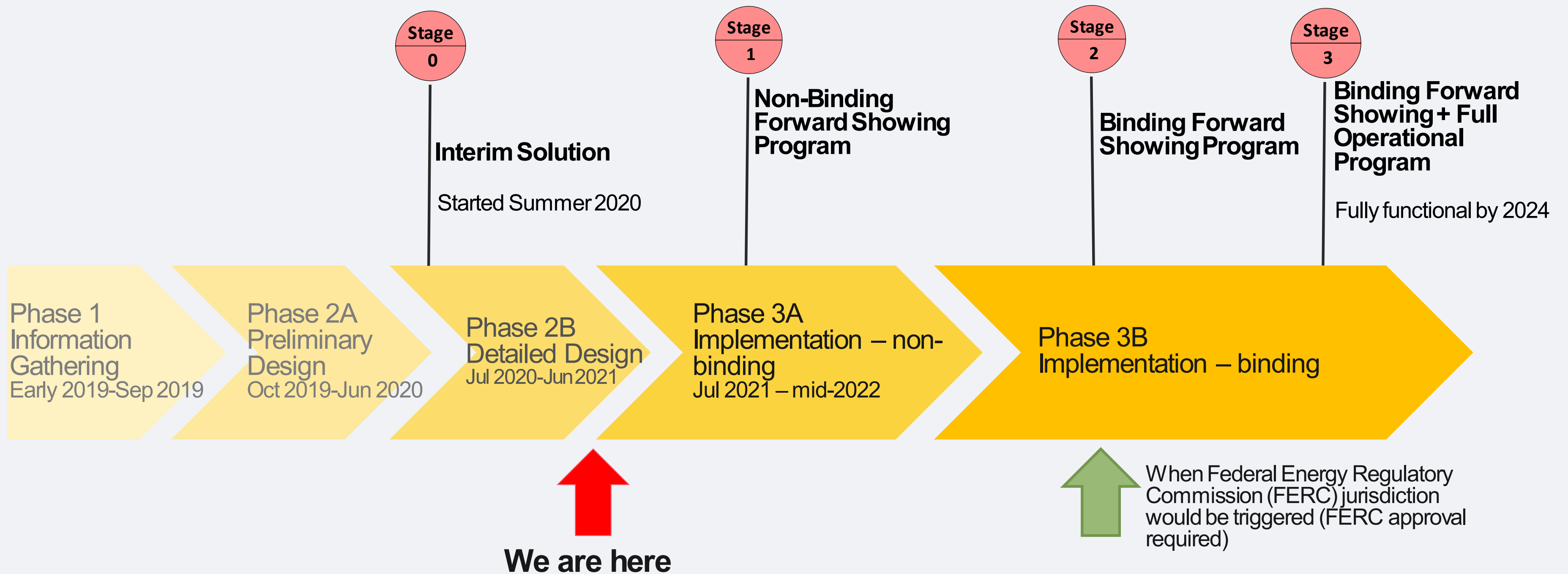
JULY 29, 2021



STATUS UPDATE

- » Detailed design document published
 - Go to nwpp.org to get copy*
 - This doc will be a starting point of implementation – will not be a “final” design*
- » Inviting LREs from across the NWPP footprint to participate in non-binding stage of program beginning this fall
- » Hiring a program operator
- » Stakeholder engagement changing in next phase

OVERVIEW OF PROJECT TIMELINE



» Developing a capacity program

Similar programs are available across North America

Significant effort to build organizational structure necessary to administer program

Capacity will improve reliability in most expedient manner

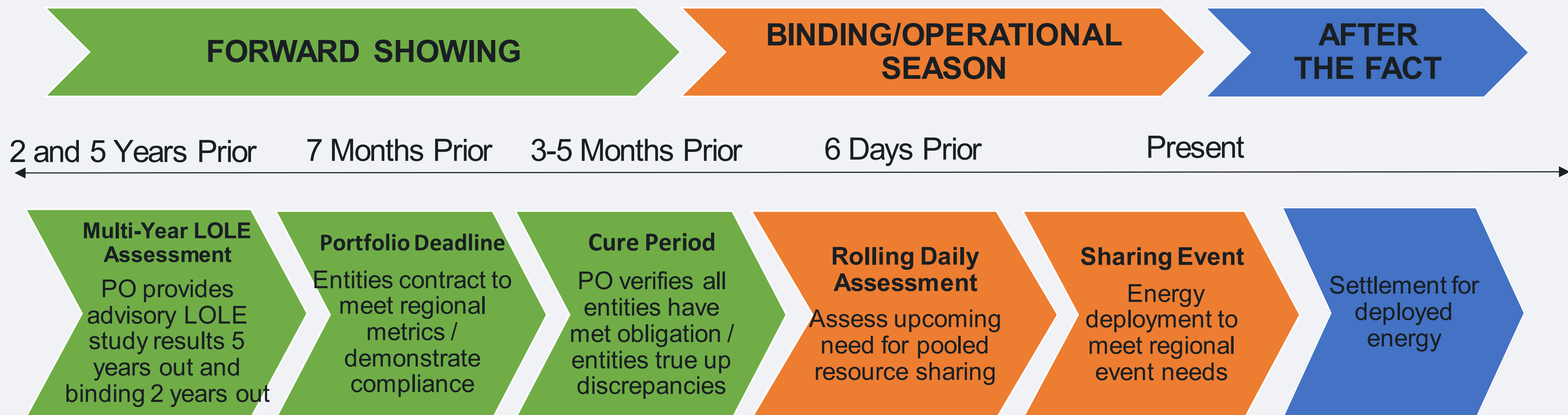
» Not building a market – relying on current bilateral structure

Will not set prices for energy

LRE remains responsible for determining which resources are deployed – can meet Operational obligations with whatever economic options they choose

PROGRAM FRAMEWORK

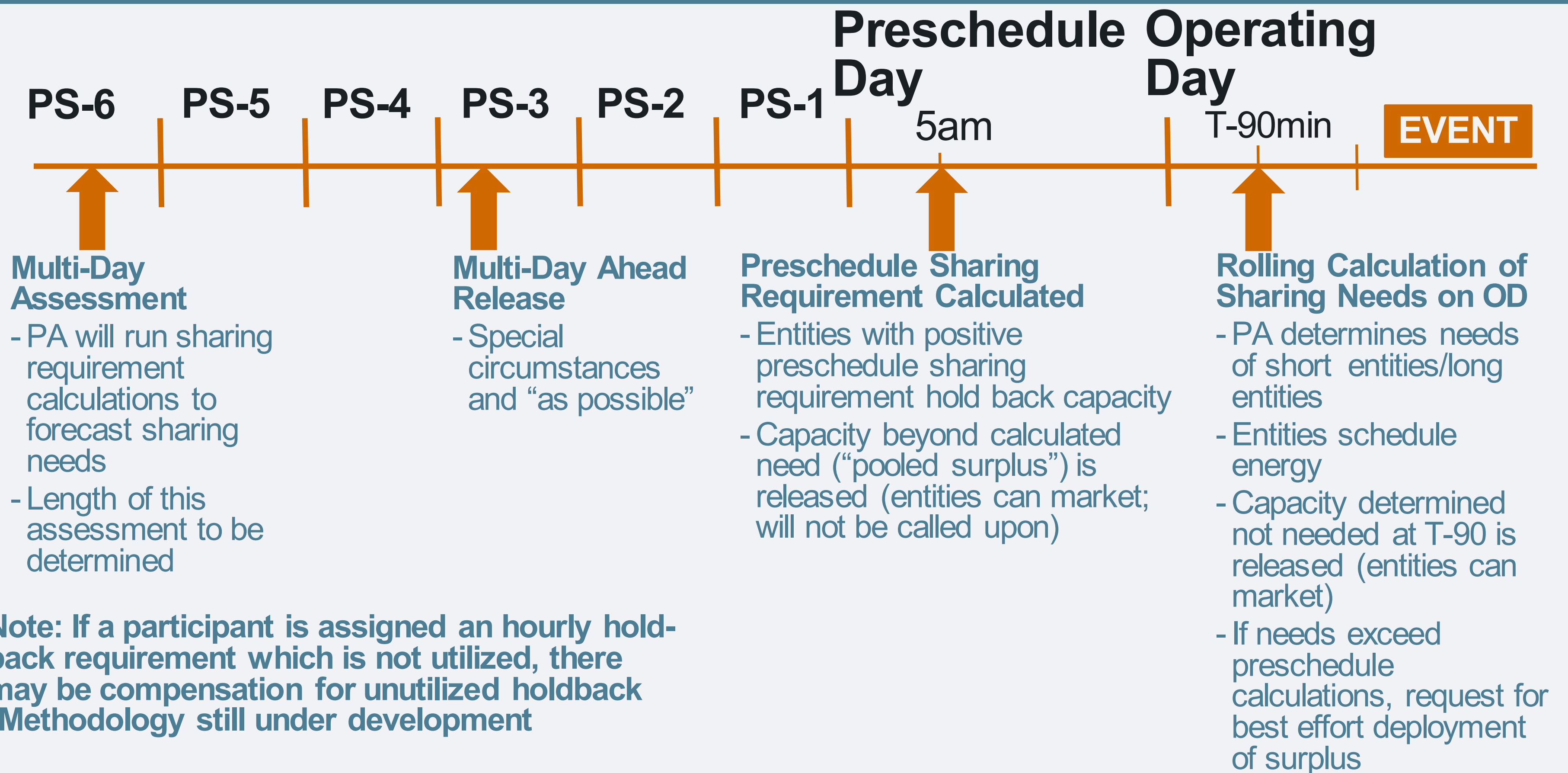
Two TIME HORIZONS



Note: PO refers to Program Operator

OPERATIONAL PROGRAM

TIMELINE



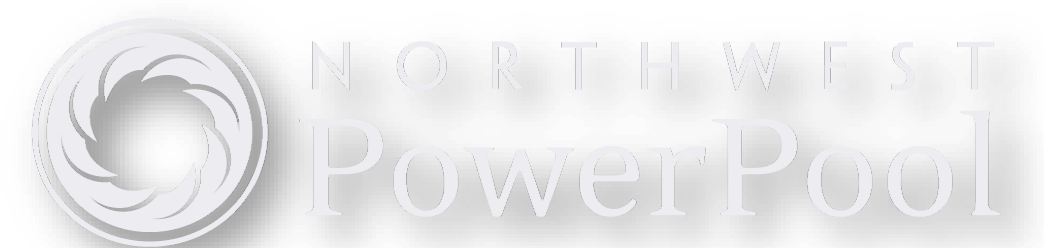
PROPOSED GOVERNANCE APPROACH - OVERVIEW

- › **RA Participant Committee** with certain substantive control
 - › Point of compliance (entity that will have a compliance obligation to the RA Program) at the Load Responsible Entity
 - › Approve or reject amendments to the RA Program
 - › Approve or reject RA Program rules
 - › ***Subject to stakeholder right of appeal to independent board***
- › Independent **Board of Directors**
 - › The board has authority to approve budgets; provide direction and set priorities, recommend amendments to the RA Program member services agreement
 - › Some limitations on board authority
 - › Proposed governance preserves structures and functions of exiting NWPP programs

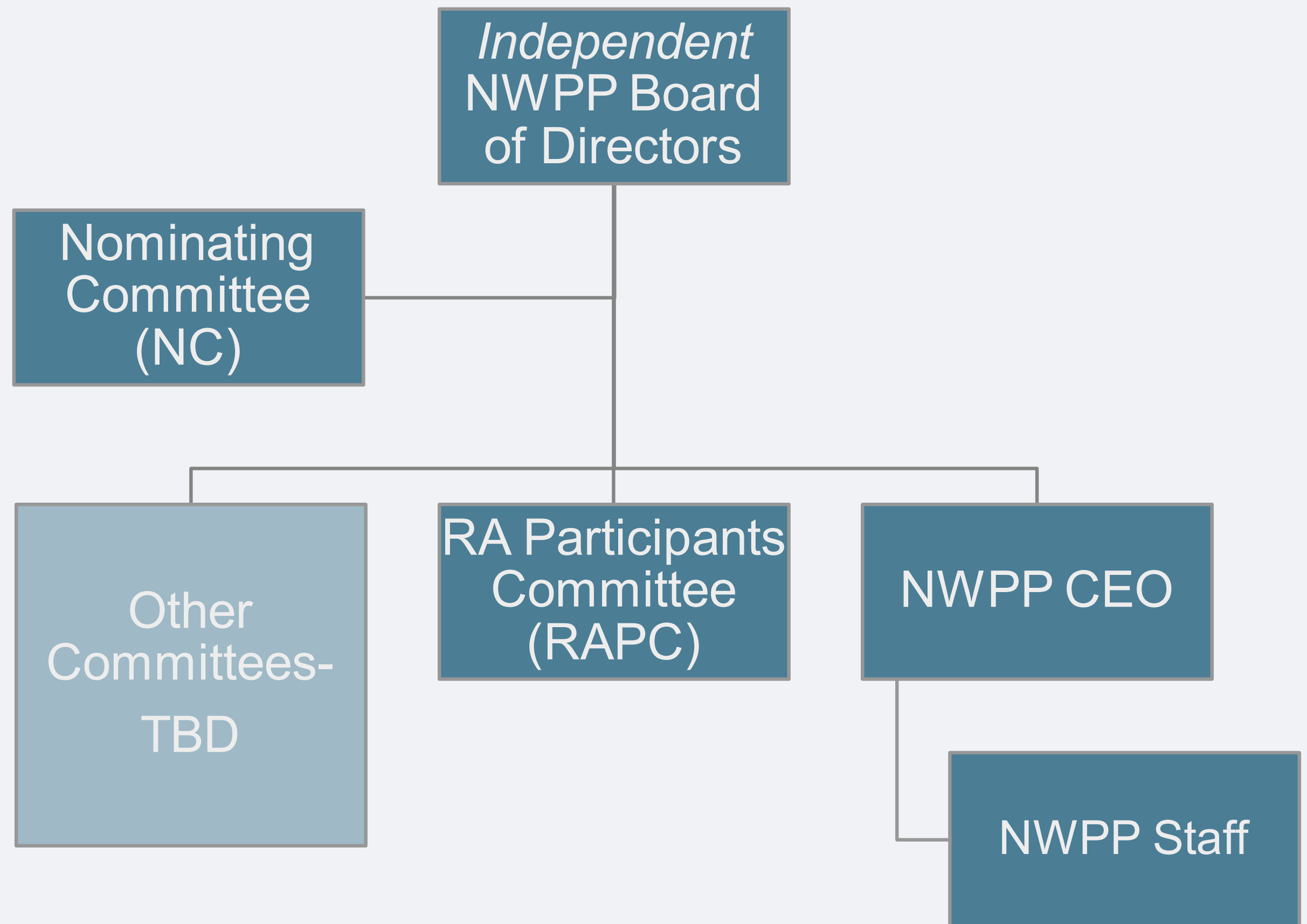


PROPOSED GOVERNANCE APPROACH – OVERVIEW

- › **Committee of States** – meeting through the Summer to refine the role of this committee
- › **Nominating committee** – the members of the BOD will be selected by a NC comprised of stakeholder representatives
- › **Program Review Committee** – representatives from various sectors
- › **Independent evaluator** – Annual review of program – reports to BOD



PROPOSED FUTURE GOVERNANCE STRUCTURE



* Exact committee structure, roles/responsibilities, decision authorities and relationships are still under consideration – this visual is intended to be representative, not definitive.



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.



TRANSMISSION OVERVIEW

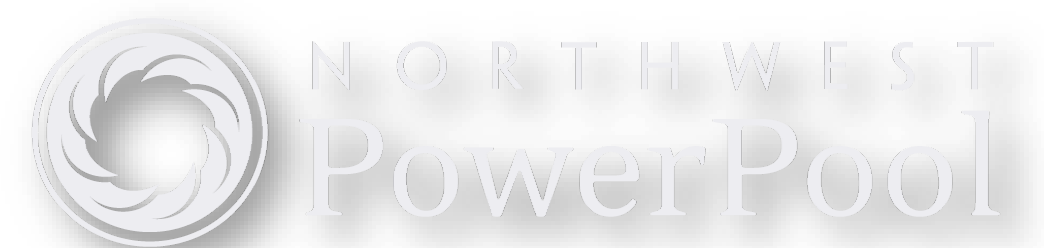
- **In Forward Showing:** demonstrate firm/conditional firm transmission for 75% of FS capacity requirements
- **In Operations:** if a sharing event is forecasted, demonstrate on request firm/conditional firm for any additional resources needed to serve load and holdback (e.g., in excess of 75%)
- More details on upcoming slide

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

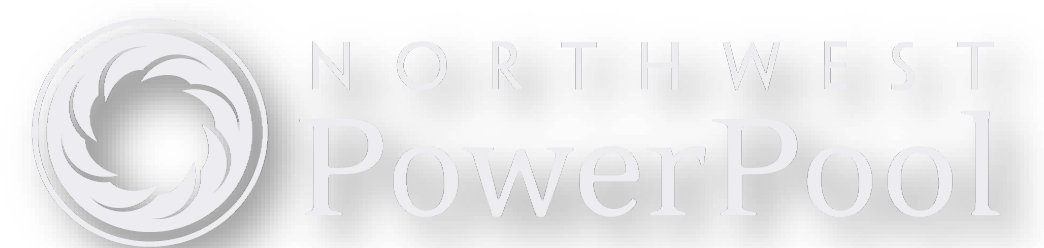
- » Failure to demonstrate required transmission would constitute failure to meet FS requirements (i.e., met with penalty)



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)



TRANSMISSION

OPERATIONS

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

PRM AND QCC-PROOF OF CONCEPT ANALYSIS

Indicative UCAP PRM		Demand	UCAP PRM @1-in-10
Summer	2023 (NCP)	66,286	9-15%
Winter	2023 (NCP)	65,316	13-19%

Proof-of-concept analysis is described in appendix G of the detailed design draft

Outcomes from this exercise are not final – *the numbers will change!!*

Thermal Indicative QCC

Season	System weighted UCAP
Summer	94-99%
Winter	94-99%

Exercise meant to validate current design, not determine values or serve as “results” - did not account for transmission constraints, no data validation, incomplete data sets

**PROOF OF
CONCEPT:
STORAGE
HYDRO
INDICATIVE
QCCs**

Month	Nameplate	QCC %
1	49,226	83-89%
2	49,226	80-86%
3	49,226	87-92%
4	49,226	89-94%
5	49,226	81-87%
6	49,226	76-82%
7	49,226	76-82%
8	49,226	76-82%
9	49,226	74-79%
10	49,226	81-87%
11	49,226	78-84%
12	49,226	80-86%

PROGRAM PARTICIPATION

- Load responsible entities (LREs) hold compliance obligation for RA program
- Voluntary entry (absent any contractual or other regulatory requirements), followed by obligation to comply
- Other option to engage in the RA Program is by contracting with Participants to provide capacity used for Participants' forward showing capacity requirements
- IPPs and LREs (program Participants and those not participating) are all eligible to contract with Participants

PROGRAM BENEFITS

- LREs (*point of compliance for RA Program*)
 - › *Improved reliability/less risk of being short*
 - › *Lower cost relative to achieving RA on a stand-alone basis*
 - › *Increased opportunity for sales/compensation for capacity*
- IPPs/Contracting Entities
 - › *Increased ability to sell surplus capacity by demonstrating product is reliable, if registered*
 - › *Enhanced market visibility = better understanding of capacity picture in the region and awareness of capacity sales opportunities*
 - › *Longer-term contracting opportunities due to RA forward showing program requirements established 7 months in advance*

POTENTIAL BUSINESS CASE CONSIDERATIONS

- › What reliability metric and resource contributions does your utility use now?

How is that metric used? In integrated resource planning, annual planning, shorter term trading?

*How do you assess the capacity contribution of your resources?
How does that methodology account for changing resource mixes?*

How do your operations account for your reliability metric?

POTENTIAL BUSINESS CASE CONSIDERATIONS

- › How will you represent the likely future without the program? What alternatives to participation in the program are being considered?

What are your assumptions about the availability of spot market supply from within or outside the region – are those assumptions reasonable/supportable in changing circumstances?

Likelihood of increased market price volatility might occur when the grid is tight – do you have confidence in your risk policies under these new conditions?

How likely are your neighbors to be able to support your reliability needs if the grid gets tight?

PARTICIPATION SCENARIOS

Four scenarios to look at from a resource capacity lens – *some transmission considerations*

1. A capacity-deficit entity that joins the RA Program
2. A capacity-deficit entity that does *not* join the RA Program
3. A capacity-surplus entity that joins the RA Program
4. A capacity-surplus entity that does *not* join the RA Program

1. CAPACITY-DEFICIT ENTITY JOINS THE RA PROGRAM

- Improved reliability compared to risk of relying on short-term markets
 - › *Avoid potential of being one of the entities unable to find and acquire supply or firm transmission in short-term markets when needed*
- Enjoys investment savings through a lower PRM (diversity) in the showing timeframe
- Receives independently determined capacity requirement (PRM) and capacity contribution metrics (QCC) of different resource technologies and contracts
- Continues to enjoy high level of autonomy in their planning processes to select particular resources and/or contracts along with acquiring transmission rights

2. CAPACITY- DEFICIT ENTITY DOES NOT JOIN THE RA PROGRAM

- » May experience increased reliability risk
 - Challenges in finding/acquiring surplus capacity in short-term markets*
 - Grid continues to tighten due to de-carbonization efforts*
 - RA Program provides situational awareness of state of the transmission and deploys diversity to participants in the program first*
- » Can expect to experience higher investment costs, in the form of a higher PRM to “build out” or “contract out” of their capacity deficit without the benefits of the program’s early warnings and utilizing the benefits of the diversity
- » Must determine and defend to their regulators their own determination of their capacity & transmission requirements (Load + PRM) and the capacity contribution (QCC) of different resource technologies and contracts
- » Continues to enjoy maximum autonomy in their planning processes to select resources versus contract



3. CAPACITY-SURPLUS ENTITY JOINS THE RA PROGRAM

- Registers their resources and can sell defined capacity quantity of resources/fleet to footprint with adequate required transmission rights
- Will not have to hold back from sales for “insurance” to cover forced outages, VER unavailability, load excursions, as surplus entities are similarly covered by operational program
- Will not have their capacity “leaned on” through energy-only payment in operational markets (i.e., without capacity compensation)
- Continues to enjoy high level of autonomy in their planning processes to select resources versus contract along with acquiring transmission rights

4. CAPACITY- SURPLUS ENTITY DOES NOT JOIN THE RA PROGRAM

- » May find it more difficult to sell surplus capacity, due to inability to demonstrate product is
 - Reliable (if not registered)*
 - Surplus (if not a participating LSE/LRE)*
 - Deliverable on firm transmission*
- » May have to continue to hold back from sales, extra “insurance” to cover own forced outages, VER unavailability, load excursions
- » May end up having capacity leaned on for program excursions and/or to support capacity needs in other regions through short-term markets, without capacity compensation (but rather energy-only compensation)
- » Continues to enjoy maximum autonomy in their planning processes to select resources versus contract along with acquiring transmission rights



PARTICIPATION COSTS- STAGE 1 NON-BINDING

- Methodology to determine costs is under consideration
 - › *Many factors (cost of NWPP and Program Operator (PO), small and large entities, etc.)*
- Participation cost factors
 - › *Will depend on how many entities join and on cost allocation methodology*
 - › *PO cost approximations will be known by in upcoming weeks, more refined estimates will be known then*
 - › ***All entities interested in joining will be provided costs before any decision to sign an agreement is required***

NEXT STEPS

- Aiming to sign non-binding agreement in Aug-Sept 2021 – Participants can use non-binding/3A time to gather additional information and evaluate business case
- Collecting and validating data from 3A participants to run modeling to arrive at adequacy metrics (PRM and resources' qualified capacity contributions) for a non-binding FS deadline in Spring 2022 (for Winter 2022)
- Advances at NWPP to support the non-binding and future binding RA program activities and governance, including updates to board structure, bylaws, and staffing
- Continue (and evolve) stakeholder engagement venues and processes through implementation

APPENDIX



Snapshot of NWPP RA Program

Preliminary Conceptual 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
Compliance Periods	Two binding seasons: Summer and Winter Fall and Spring seasons would be advisory (no penalties for non-compliance)
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
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
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
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

Preliminary Conceptual Design: Forward Showing Program

Resource Capacity Accreditation

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.

Energy Storage and Energy Storage Resources (ESR) hybrid resources: Determined by operational testing until higher penetrations show a need for a performance-based methodology

Customer Side Resources: Operational testing and historical performance.

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

Demonstrates 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

Penalty for FS Non-Compliance

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

Snapshot of NWPP RA Program

Preliminary Conceptual 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

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

Transmission and Deliverability

- › Will require modeling to identify any transmission considerations in the operational time frame
- › Recommendations associated with transmission availability in the operational time horizon will be made in Phase 2B