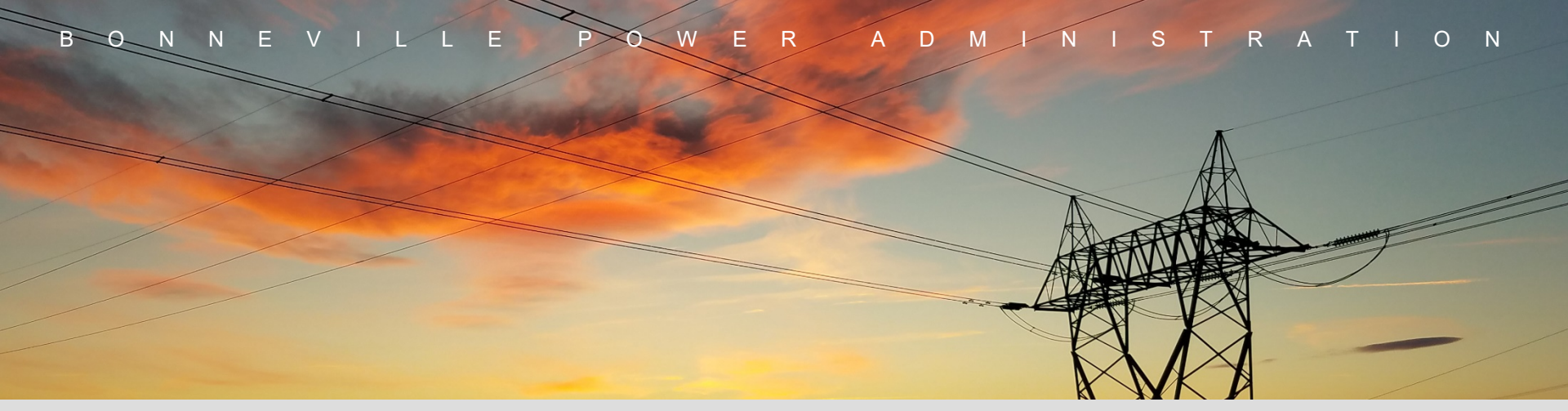


BPA and the NWPP Resource Adequacy Program

July 29, 2021

9 a.m. to 2 p.m.

Agenda

Time	Topic	Presenter
9:00-10:00 a.m.	NWPP Resource Adequacy Program Overview	Guest Speakers: Gregg Carrington and Mark Holman
10:00-10:05 a.m.	Safety Moment and Introduction	Jeff Cook
10:05-10:15 a.m.	BPA's Customer Engagement and Decision Making	Rachel Dibble
10:15-10:35 a.m.	Transmission Assessment	Jeff Cook, Edison Elizeh, John Anasis
10:35-10:45 a.m.	BREAK	
10:45-11:35 a.m.	How BPA Ensures Resource Adequacy Today	Ryan Egerdahl, James Vanden Bos, Steve Bellcoff
11:35-11:55 a.m.	BPA as the Load Responsible Entity	Tim Johnson
11:55-12:25 p.m.	LUNCH	
12:25-12:55 p.m.	Cost Allocation	Daniel Fisher, Steve Bellcoff
12:55-1:40 p.m.	Business Case	Steve Bellcoff, Ryan Egerdahl, Edison Elizeh, John Anasis
1:40-2:00 p.m.	Q & A and Next Steps	Rachel Dibble

NWPP Resource Adequacy Program Overview

Guest Speakers:

Gregg Carrington, Chief Operating Officer, Northwest Power Pool

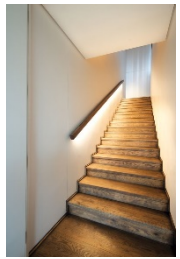
Mark Holman, Managing Director, Powerex

Safety Moment and Introduction

Jeff Cook, Vice President of Transmission Planning & Asset Management

Eye Safety at home tips

- Make sure to be aware of sharp edges on furniture and fixtures in the home.
- Install lights and handrails to improve safety on stairs.
- Point the opening away from you when opening bottles of wine or carbonated drinks.
- Watch when cooking foods with hot grease.
- Wear chemical safety goggles when using hazardous solvents and detergents. Don’t mix cleaning agents.
- Turn nozzles away from your face before spraying.
- Wash your hands after using household chemicals and do not touch your eyes.
- Use guards on all power equipment.
- Wear protective eye gear while using a lawnmower or weed trimmer, because debris may fly through the air.



Eye Safety Outside and Play

- Wear sunglasses that protect your eyes from UVA and UVB rays when you are outside. Wear them even on cloudy days.
- Never look directly at the sun, including during an eclipse.
- Read and follow directions before playing games or using equipment.
- Wear safety goggles or glasses during sports and leisure activities.
- Wear a helmet with a polycarbonate face mask or wire shield during high-impact sports.
- Wear safety goggles while using a device that shoots pellets, arrows, paint balls, or other projectiles.
- Wear safety goggles when handling fireworks.

When to see a Health Provider

- Redness
- Swelling
- Excess tears
- Tired, aching, or heavy eyelids
- Eye pain
- Problems with focusing
- Muscle spasms of the eye or eyelid
- Frequent headaches

Eye Injury Stats

- 2.4 Million eye injuries occur in US each year
- 90% of the injuries could be avoided with protective eye wear
- Roughly half of those happen at home
- 125K injuries related to chemicals
- 78% of injured did not wear protective eye equipment at time of injury
- ¼ of eye injuries occur in children and teens
- ½ of eye injuries occur in people 18 to 45
- ¾ of eye injuries were male
- On average, 2/3 of folks have eye protection but only 30% wear it

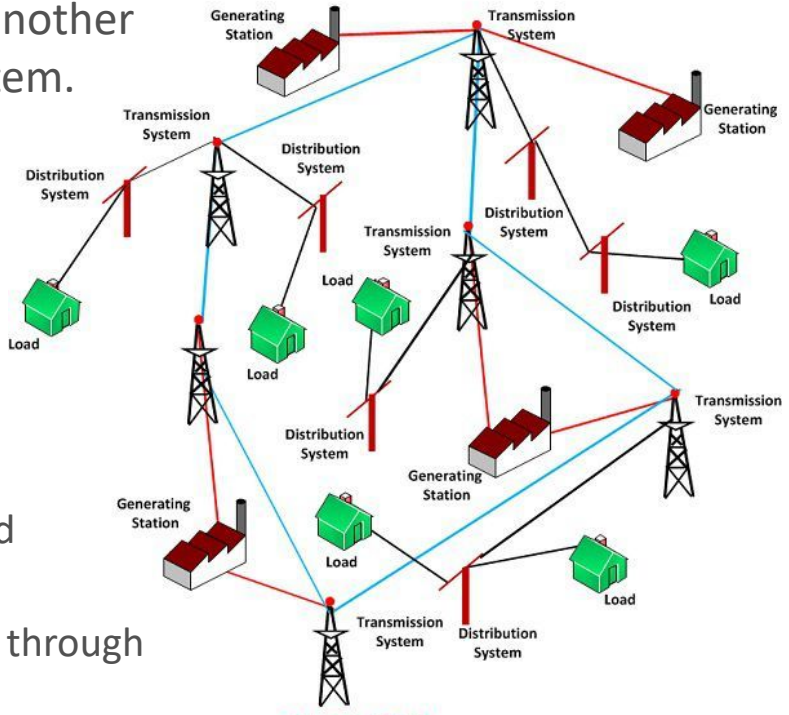
Introduction

- NWPP gave overview of full program elements and considerations for Binding program. More information will be provided as we move through its development.
- BPA is developing a decision on whether to participate in the non-binding phase of the NWPP RA program
  - "Test-run" forward showing period
  - No financial or operational consequences (beyond committed 3A costs) with participation

Why is BPA Engaging in the NWPP RA Program?

- **We don't operate as an island**. An outage in another BA could lead to reliability issues on BPA's system.

- A regional Resource Adequacy program:
  - Provides a clear, uniform standard with accountability and commitment from each participant to meet it
  - Puts bounds around how much capacity BPA is responsible for providing
  - Creates transparency of individual resource and transmission plans
  - Creates potential for cost and resource savings through diversity benefits



BPA's Customer Engagement and Decision Making

Rachel Dibble, Director of Market Initiatives

BPA Milestones

Close Out Phase 2B/ Phase 3A Implementation Planning

- BPA Staff/Executive resources participate in NWPP RA Workgroups
- Finalize Phase 2B deliverables
- Develop implementation plan for Phase 3A

BPA Customer Engagement

- July 29 – Share BPA perspective on program details and implementation issues
- Aug 20 – Publish draft letter to the region (Aug 20-Sep 3)
- Aug 25 – Public meeting to provide clarification on issues in draft letter

Decision on Non-Binding Forward Showing

- By September 30 - Final letter to the region with decision on participation in NBFS phase of NWPP RA program

Non-Binding Forward Showing Winter (2022/23) and Summer (2023)

- NWPP hires Program Operator
- Complete program and governance design
- Submit data for detailed modeling to establish Resource Adequacy value and PRM
- FS submittal to Program Operator
  - March 31, 2022 for Winter
  - October 31, 2022 for Summer
- Refine design/modeling requirements based on continued learnings
- ***Continue engagement with BPA customers/ stakeholders***

Decision on Binding Phase of NWPP RA Program (Fall/Winter 2022) and BPA Customer Engagement

- Public Process - BPA customer review and input prior to decision
- Consider lessons from NBFS and program/ governance design
- Evaluate ability to meet BPA's NWPP RA Participation Principles

NBFS = Non-Binding Forward Showing

NWPP RA Participation Principles for Binding Program

1. BPA's participation is consistent with its statutory, regulatory and contractual obligations.
2. BPA will maintain reliable delivery of power and transmission to its customers.
3. BPA's participation is consistent with a sound business rationale.
4. BPA's participation is consistent with the objectives of Bonneville's Strategic Plan.
5. BPA's evaluation of NWPP RA participation includes transparent consideration of the commercial and operational impacts on its products and services.

Transmission Assessment

Jeff Cook
Edison Elizeh
John Anasis

Transmission Assessment

- Transmission Business Line is supporting BPA's Power Business Line and transmission customers in participating in the NWPP RA Program
- Key principles of program design for deliverability include:

1. Encourage procurement of firm transmission service sufficient to demonstrate deliverability of resources to load, while recognizing the need for flexibility where necessary or appropriate.
2. Enhance overall visibility with respect to deliverability (from generator to load) for resources used for program compliance, supporting situational awareness and regional planning.
3. Support and enhance reliability across the region without supplanting existing responsibilities of Balancing Authorities, LREs/LSEs, TSPs, and others.

Transmission Assessment

- Key principles of program design (continued):
  4. Rely on existing OATT frameworks to facilitate transmission-related requirements for demonstration of resource adequacy and sharing of diversity across the NWPP footprint.
  5. Respect program participants' OATT rights and responsibilities and Participants' other legal obligations, including contractual commitments and statutory requirements.
  6. 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 Assessment

- The current NWPP RA design would not change existing transmission contracts and obligations between BPA and its customers.
- The current design is expected to provide enhanced information that would support the current regional planning under the NorthernGrid and other regional planning organizations.

Transmission Assessment

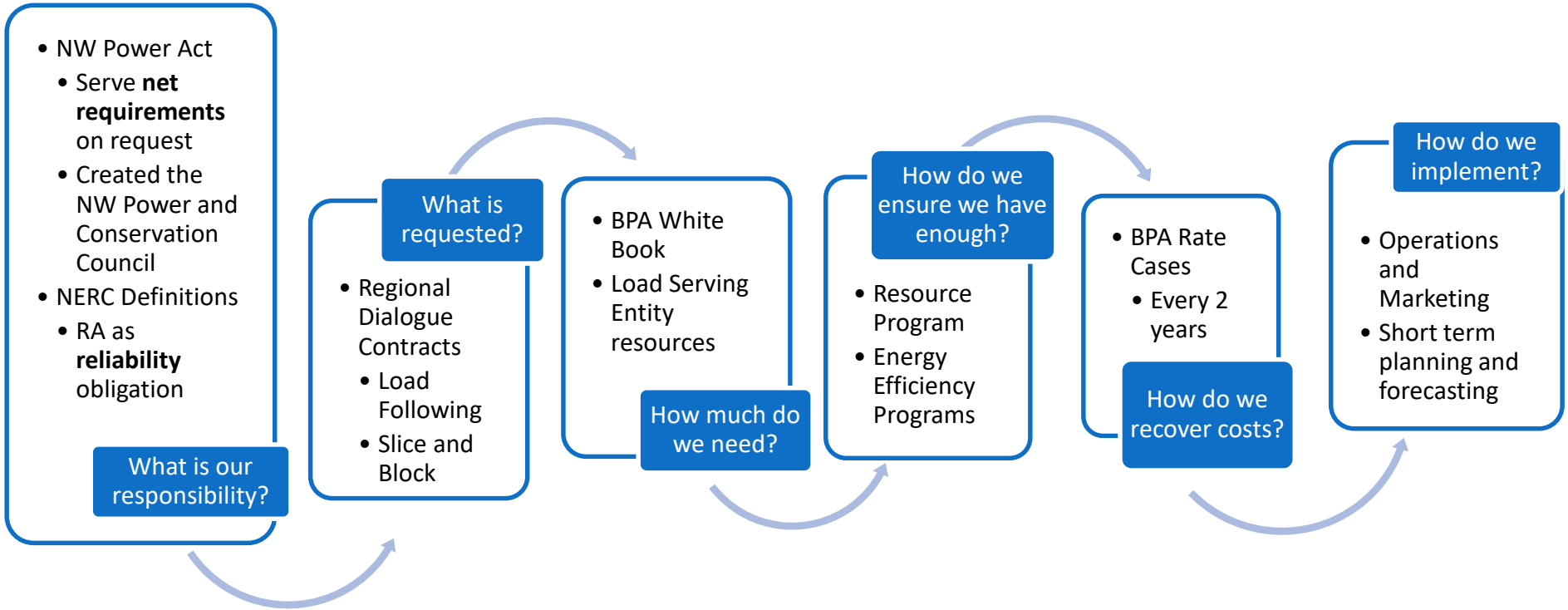
- Transmission System Operations:
  - The NWPP RA current design would not change how BPA operates its transmission system.
  - The NWPP RA current design is expected to facilitate additional situational awareness with respect to resource availability and associated transmission needed for service to load in the operational planning horizon (7 months in advance of the season).
  - The NWPP RA current design is expected to provide the opportunity for transmission providers to work closely with the Program Operator, on a voluntary basis, to further assess the state of the transmission system after Forward Showing.
    - These assessments will use current forecasted load and current forecasted resources to be dispatched.
  - After further experience with this program, NWPP RA participants may explore design improvements related to transmission congestion and its possible impacts to resource adequacy so that the risk of transmission congestion impacting reliability is evaluated on an ongoing basis, including an assessment of the cost/benefits of such design enhancements.

BREAK

How BPA Ensures Resource Adequacy Today

Ryan Egerdahl
James Vanden Bos
Steve Bellcoff

How BPA Ensures Resource Adequacy



FCRPS Needs Assessment

- The Needs Assessment measures the Federal Columbia River Power System, in relative isolation, against Bonneville's obligations to supply power to show whether any long-term energy and/or capacity shortfalls exist over a 10-year study horizon.

- Informs later steps of the Resource Program, where resource optimization techniques are used to evaluate and select potential solutions for meeting Bonneville's long-term needs based on cost and risk.

Needs Assessment Metrics

- **Annual Energy**: Evaluates the annual energy surplus/deficit under 1937 critical water conditions, using forecasted load obligations and expected Columbia Generating Station output
- **P10 Heavy Load Hour**: Evaluates the 10th percentile (P10) surplus/deficit over heavy load hours, by month, given variability in hydropower generation, load obligations, and Columbia Generating Station output
- **P10 Superpeak**: Evaluates the P10 surplus/deficit over the six peak load hours per weekday by month, given variability in hydropower generation, load obligations, and Columbia Generating Station output
- **18-Hour Capacity**: Evaluates the surplus/deficit over the six peak load hours per day during three-day extreme weather events and assuming median water conditions. Winter and summer extreme weather events, such as cold snaps or heat waves, are analyzed for February and August

Resource Program

Resource Program

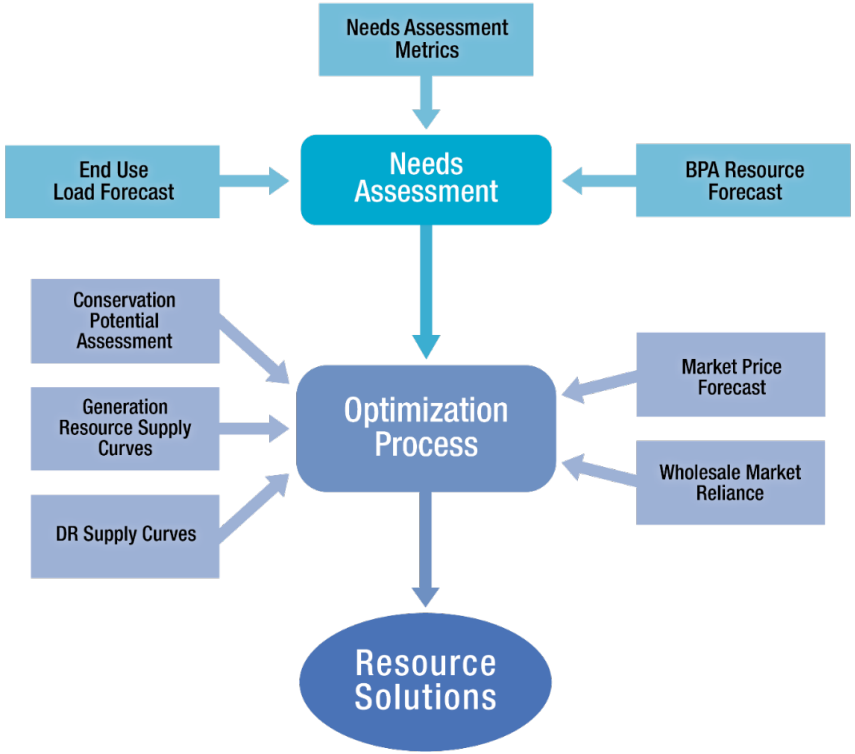
The Resource Program:

- Begins with the Needs Assessment
- Identifies and evaluates potential solutions to meeting those needs
  - Energy efficiency, demand response, market purchases, wind, solar, capacity resources, etc.
- Identifies least-cost method of meeting future needs

The Resource Program is not:

- A decision or policy document such as an Administrator's Record of Decision
- A requirement of law or a regulating body such as FERC or NERC

Resource Program



- Bonneville's Resource Program involves coordinating many individual planning processes
- Different work groups produce necessary components, either as part of their normal routine, or by special request
- From start to finish, the process takes around 18 months

Resource Program

In the Resource Program, BPA addresses adequacy by identifying the resource acquisitions necessary to:

- Serve load at the 10th percentile (P10) of a distribution of random loads and resource production, *by month*.
  - The monthly P10 is more conservative than an annual P10
- Serve load according to the 18-hour capacity metric
  - Like a 3-day heat wave… sound familiar?

Resource Program

Historically, planned actions to address adequacy at BPA include:

- Acquiring a steady amount of energy efficiency
- Planning for market purchases to balance out hydro variability

Resource Adequacy by Obligation Type

Regional Dialogue Load Following Product

- The Regional Dialogue Load Following product provides firm power to meet the customer's total retail load, less the customer's dedicated power from non-Federal resource generation and purchases from other suppliers (unspecified resource MW amounts).

- BPA is responsible for assuring an adequate power supply to meet the customers total retail load less the customer's dedicated power from non-Federal resource generation and purchases from other suppliers.

Regional Dialogue Block Product

- The Regional Dialogue Block product provides a planned amount of firm requirements power to serve the customer's retail load up to its planned net requirement.

- Fixed monthly shape.

- The customer is responsible for using its own non-Federal resources (physical and contract purchases) to meet load in excess of its planned monthly BPA purchase on a real-time basis.

Regional Dialogue Slice/Block Product

- Slice is a Federal system sale of power including firm requirements power, hourly scheduling rights, and surplus power, all of which are indexed to the customer's Slice Percentage and the variable output capability of the FCRPS resources that comprise the "Tier 1 System" under the Tiered Rates Methodology (TRM) after BPA's System Obligations and Operating Constraints have been met (Slice Output).

Regional Dialogue Slice/Block Product

- In certain periods of the year, the Slice product may deliver more power due to water conditions and system operations. Thus the Slice product includes an advanced sale of surplus power (over-generation) in certain conditions and in certain periods (e.g., the spring runoff period). Slice Output is sold on a variable basis based on a planning percentage of firm power from the Tier 1 System. BPA does not guarantee any amount of power from the Slice Output. Nor does BPA guarantee that the amount of Slice Output combined with the Block product's firm power will be sufficient to meet the customer's loads or variations in those loads. The customer is responsible for meeting its TRL each hour and is obligated to supply any amount of power needed to meet such load that is not met by the Slice and Block products.

Regional Dialogue Slice/Block Product

- Slice is a Federal system sale of power including firm requirements power, hourly scheduling rights, and surplus power, all of which are indexed to the customer's Slice Percentage and the variable output capability of the FCRPS resources that comprise the "Tier 1 System" under the Tiered Rates Methodology (TRM) after BPA's System Obligations and Operating Constraints have been met (Slice Output).

Regional Dialogue Slice/Block Product

- Block portion provides a planned amount of Firm Requirements power to serve a portion of the customer's Annual Net Requirement. Customers can choose either 1) Flat, equal amount of power in all hours of the year, or 2) shaped Block of power.

Other Contracts

- BPA provides Federal power to customers under a variety of other (non-Regional Dialogue) contract arrangements
  - Surplus Power sales
  - Power or energy exchanges
  - Capacity sales or capacity-for-energy exchanges
  - Power payments for services
  - Power commitments under the Columbia River Treaty
  - DSI sales

Other Contracts

- Contract obligations are considered to be firm and are assumed to be served by the Federal system regardless of weather, water, or economic conditions. BPA is responsible for assuring an adequate resource supply to meet these firm obligations.

BPA Planning Responsibility

- BPA is responsible to plan in the long term, short term, and in real-time, to assure an adequate power supply to meet its contractual obligations, given operational uncertainties.
  - Load Following Deliveries on a real time basis
  - Block Deliveries under the planned fixed monthly shape
  - Other Contract Deliveries under the planned delivery shape

Responsibility under NWPP RA Program

- BPA remains responsible to plan to assure an adequate power supply to meet its contractual obligations, as well as uncertainty of loads and resources (PRM) in the Forward Showing and Operational Periods
  - Load Following Deliveries on a real time basis
  - Block Deliveries under the planned fixed monthly shape
  - Other Contract Deliveries under the planned delivery shape

BPA as the Load Responsible Entity

Tim Johnson, Assistant General Counsel, Power

Point of Compliance

- The entity having the obligation to serve retail load either directly or indirectly.

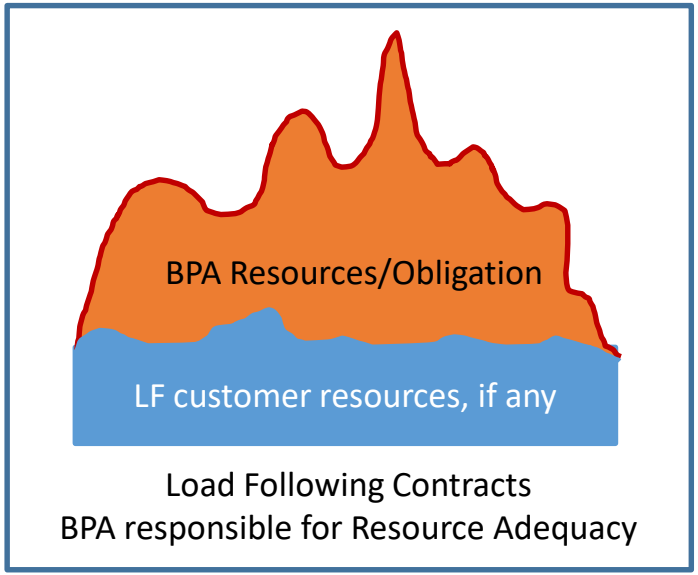
- RA Program design covers diverse entities that supply power to satisfy that obligation.

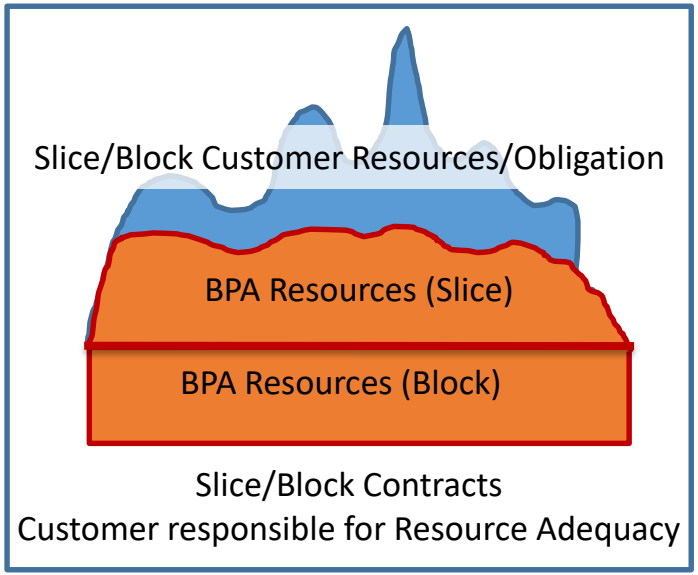
Load Responsible Entity

An entity that (i) owns, controls, and/or purchases capacity resources, or is a Federal Power Marketing Agency, and (ii) has the obligation, either through statute, rule, contract, or otherwise, to meet energy or system loads at all hours. Subject to the aforementioned criteria, an LRE may be a load serving entity (“LSE”) or either an agent or otherwise designated as responsible for an LSE or multiple LSEs or load service under the RA Program.

Responsibility for Meeting Resource Adequacy

- NW Power Act requires BPA to meet Net Requirements of requesting customers
- Net Requirements = (Customer Load – Customer Resources) + Uncertainty/Variability
- Uncertainty/Variability includes Resource Adequacy
  - Where is responsibility for planning for and serving long term/short term uncertainty?





LUNCH

Cost Allocation

Daniel Fisher
Steve Bellcoff

Punchline

- The TRM provides guidance on how RA costs and benefits should be allocated to Priority Firm Power rates.
- To the extent the cost/benefit is determined to be a new category of cost/benefit, then the principles in the TRM can be applied and treatment determined through a 7(i) process.

Staff Thinking on RA Cost/Benefit Allocation

Cost/Benefit	Proposed Allocation
BPA Staffing/Systems Costs	Composite Cost Pool
NWPP Assessed Fees/Charges	Non-Slice Cost Pool
Costs/Benefits of RA Participation	Non-Slice Cost Pool
RA impacts of non-Federal resources choices – e.g., specified v. unspecified	Monitor. Potentially Resource Support Services and NR load & resource services

- This approach to cost/benefit allocation is based on our current understanding of the benefits of RA. To the extent those benefits extend beyond non-Slice products, this approach should change.
- For example, if RA benefits extend to Transmission Services and/or the Slice product.

TRM Cost Allocation Principles

- Costs not otherwise expressly allocated in the TRM will be allocated to Cost Pools based on the principles of cost causation, meaning the costs will be allocated to the Cost Pool(s) that benefits from such costs.
- BPA's allocation of costs among the Composite, Non-Slice, and Slice Cost Pools will recognize the types of costs distinct to the type of service associated with each Cost Pool.
- To ensure proper cost allocation among Cost Pools, BPA will allocate the cost of certain Federal resource acquisitions as follows:
  - Capacity for following customer load—costs allocated to the Non-Slice Cost Pool. *(Staff initial thinking)*
  - Acquisitions other than the foregoing—costs allocated to the Cost Pool determined in the applicable 7(i) Process.

Designated BPA System Obligations

- The Designated BPA System Obligations are considered firm obligations supplied by the FCRPS regardless of weather, water, or economic conditions. Due to the nature of these obligations, the Tier 1 System Obligations may be based on energy and capacity requirements stated in or estimated by BPA based on signed contract provisions, treaty, statute, regulations, court orders, memoranda of agreement, or executive orders, or a combination of the foregoing. The Tier 1 System Obligations arising from these Designated BPA System Obligations can vary from year to year and change through time. **Any costs related to or revenues recovered from Designated BPA System Obligations will be assigned to the Composite Cost Pool.**

DESIGNATED BPA SYSTEM OBLIGATIONS

29	Obligation	Contract Number	Expiration Date	Discretionary Contract?
51	Other reserve obligation	n/a	(year to year)	

New Discretionary Contracts

- Any costs pertaining to or revenues recovered from such new Discretionary Contracts would be assigned to the Non-Slice Cost Pool.
  (Staff initial thinking)

Unspecified Resource Amounts

- Under the RA methodology BPA is responsible for meeting the Forward Showing Peak Capacity Requirement, which is the P50 peak load of our LF customer plus the PRM.
- Forward Showing Peak Capacity Requirement, is determined 7 months in advance of each binding season.
- Capacity to meet Forward Showing Peak Capacity Requirement includes all of BPA's own resources as well as any and all resources/contracts that Load Following customers have in place to serve any portion of load.

Unspecified Resource Amounts

- Unspecified Resource Amounts are not ***specified*** 7 months in advance for BPA to receive credit for the capacity from these resources in the FS period of the RA Program. Unless customers agree to provide more information regarding their Unspecified Resource Amounts BPA would need to cover those amounts.
- Unspecified resources become identified (specified) in the Operations timeframe, that ***specified*** resource would then be used to actually serve the associated load rather than BPA's system.
- To the extent an RA cost is determined to exist as a result of using Unspecified Resource Amounts to serve load, BPA could design and propose new Transmission Scheduling Service or Resource Support Services charges/credits based on these new costs.

New Large Single Load (NLSL) Resources

- BPA and customers will need to evaluate whether BPA is incurring a cost as a result of how NLSLs are served by customers.
  - NLSL served by ‘specified’ resource (reported to BPA) results in resource having a capacity contribution to meet FS Capacity Requirement
  - NLSL served by ‘unspecified’ resource at FS period (7 months in advance of season) would NOT have a capacity contribution available to meet FS Capacity Requirement

New Large Single Load (NLSL) Resources

- To the extent a cost is determined to exist, BPA could design and propose that a service charge be applied to those resources or loads similar to:
  - Energy Shaping Service for NLSLs Charge
  - NR Resource Flattening Service Charge
  - Transmission Schedule Service and Transmission Curtailment Management Service Charge

Business Case

Steve Bellcoff
Ryan Egerdahl
Edison Elizeh
John Anasis

Resource Adequacy

- The North American Electric Reliability Corporation (NERC) defines adequacy as “the ability of the electric system to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled and reasonably expected unscheduled outages of system components.” This means a region is resource adequate when there are enough resources to serve load across a range of conditions.

Resource Adequacy – Capacity

- A **capacity RA program** ensures there is adequate generating capacity available
  - to meet a region's forecasted peak hourly demand (plus required reserves)
  - with a high level of confidence
- Capacity RA requirements are set by:
  - determining a region's forecasted peak hourly demand in a year, season, or month
  - using a pre-determined peak hourly load forecasting methodology

Resource Adequacy – Phase 3

- **Phase 3A** begins in fall of 2021; work selected with Program Operator to:
  - Finalize design and build functional and operating models for program (QCC, LOLE, PRM, etc.)
  - First (non-binding) Forward Showing period in the spring of 2022
  - Establish the overall program governance structure
  - Submit the program for FERC approval
- The initial implementation phase (3A) will be a non-binding FS program to allow the program design to be finished, participants gain first-hand knowledge and experience in the RA program, and evaluation of the program's potential benefits. This will inform participants' decisions on moving forward into the binding program (FS and operational period).
- Full Binding **Phase (3B)** of the program is currently scheduled to begin in 2023, with both a binding FS and binding operational program in 2024.

Forward Showing

- FS Program **establishes regional metrics, the qualifying capacity contribution (QCC) and effective load-carrying capability (ELCC)** of various resources, deliverability expectations, and determines the periods for demonstrating adequacy. The FS Program ensures the region has enough demonstrated capacity well in advance of a season (winter and summer).
- FS Program should **provide reliability benefits** while working within existing systems and bi-lateral market frameworks to the extent possible.
  - Increased visibility
  - Transparency
  - Consistent application of metrics and methodologies
- FS Program **establishes a FS Capacity Requirement** by adding a Planning Reserve Margin (PRM) to the forecasted P50 peak load forecast for each participant. The PRM is established to meet a modeled 1 day in 10 year (season) Loss of Load Expectation (LOLE), established through the diverse mix of load and resources across the participant's footprint.

Operational Period

- The Operational (Ops) Program is designed to provide the required framework to **unlock the region's diversity** in an equitable and reliable manner.
  - Program Operator determines when a participant may not have sufficient capacity to cover the projected demand by monitoring participants forecasted load, uncertainty and reserve requirements as well as forced outages and Variable Energy Resource (VER) performance.
- When a participant is forecasted to be deficient in Ops (relative to FS), the PO would initiate a sharing event and call on participants that have forecasted positive positions (relative to FS) to hold back capacity and deliver energy to the deficient Participant(s).
  - FS Program established baseline values for components of the sharing calculation (e.g., P50+PRM, baseline forced outage rate, etc.).
  - Ops Program determines the real-time differences in these values to initiate a qualifying sharing event.
- Operational RA program is expected to go-live in 2024 as a component of the phase 3B-Binding program, and is expected to coordinate with on-going regional wholesale power initiatives and other current market requirements such as the Energy Imbalance Market (EIM).

RA Program Standardizations

Individual entities currently carry out planning and procurement of resources in a variety of ways with different oversight (regulators, councils, elected boards or customer groups). Without standardized methodology, utilities rely on different planning standards, and ways for quantifying the capacity contribution of resources.

- The NWPP RA program helps address these differences in the following ways, while still giving each participant the **autonomy to make its own resource planning and procurement decisions**:
  - Establishes a standard reliability metric (1-in-10 LOLE)
  - Establishes a standard modeling practice to derive a PRM.
  - Establishes a standard methodology or calculation of capacity contributions (ELCC, QCC) by resource type.
- The RA program **provides a single, standardized approach for modeling and analysis** that can be integrated into participants existing resource planning and procurement processes.
  - Better informed resource planning processes increase reliability region-wide and help ensure capacity is appropriately procured.
  - Over-procurement is unnecessarily expensive and under-procurement poses a reliability risk by placing undue reliance on market purchases.

What is BPA Deciding at this time

- BPA is evaluating joining the non-binding program of the NWPP RA program, phase 3A. In order to evaluate:
  - BPA will look at the **expected benefits** of a fully functioning RA program
  - BPA will look at the **indicative/proof-of-concept results** from the Phase 2B work performed under the NWPP RA program by SPP
  - BPA will look at the **expected cost to continue participation** in Phase 3A of the NWPP RA program
- BPA's expects that experience gained in the non-binding program will be used to inform future decisions on joining the binding program, and that BPA will continue to be able to help shape the NWPP RA program so that it is beneficial for BPA, Preference Customers, and the region.

The Balance

-Standardized reliability methodology
-Diversity benefits (holding less capacity)
-Resource planning with visibility across the region
-Increased options for power operations/commercial choices
-Situational awareness/reliability
-Information to inform future investments

-NWPP RA Program fees and charges (administration and management)
-BPA staffing and systems costs
-Operational changes (How we do business today)
-Compliance costs (Deficiency payments)
-Governance implications and exposure to FERC jurisdiction

Proof-of-Concept – Diversity Benefit

- NWPP RA program benefits its participants by lowering the cost the entity would otherwise incur to meet a planning metric entirely on its own. The **benefits are primarily derived through diversity of load and diversity of resources**.
  - Absent an RA program an entity would need to carry enough capacity to meet its own peak load plus a Planning Reserve Margin (PRM) to deal with uncertainty.
  - The PRM can be reduced because of diversity in both load and resources across the footprint of the participants.
  - Load diversity benefits are realized through planning the system to a regional coincident peak rather than the sum of utility non-coincident peaks.

Proof-of-Concept – Diversity Benefit

- Regional Proof-of-concept found:
  - Forecasted non-coincident peak demand for the participants in the design process for 2023 was found to be 61,351 MWs in the summer and 60,635 MWs in the winter.
  - Analysis shows approximately a 3.5 percent savings to the PRM for participants through the diversity of utilizing the regional coincidental peak rather than individuals.
  - PRM values for 2023: summer between 9-15%, winter between 13-19%.
- Applying NWPP RA Program's Proof-of-Concept to BPA's Forward Showing Load:
  - 3.5 percent change in PRM results in about 300 MW difference in Forward Showing Capacity Requirement. This reduction could be seen as the savings of an acquisition cost to purchase additional resources, or the potential opportunity for additional sales.

NWPP RA Program Costs (or Fees and Charges)

- Phase 3A has two primary cost pools that contribute to the non-binding program
  - **Program Administration:** NWPP is expected to serve this role. Costs would be associated with the administration and standing up of the RA program, including staffing, restructuring, contracting, etc.
  - **Program Operator:** this function is still under negotiation. NWPP has an RFQ out and is negotiating with applicants.
- Specific RA Program cost information is still under discussion among external parties and is subject to a confidentiality agreement.
  - Costs are expected to be shared among participants
  - NWPP is expected to propose a cost allocation method in the next few weeks
- It is BPA's estimate, based on what we know today, that our total NWPP RA program costs to participate in phase 3A (non-binding) program will be under $1M. Phase 3A spans 16 months across two fiscal years. A final cost will be known for the final decision.
  - Estimated costs are dependent on number of participants in the program. Current estimate assumes Phase 3A includes same participant pool as Phase 2B.
- NWPP will provide specific program costs and allocation methods prior to BPA's final decision to join the 3A program

BPA Staffing and System Costs

- At this time BPA expects that current FTE are adequate for implementation of phase 3A. BPA will make further assessment to FTE needs for a binding program.
- Incremental system costs are not necessary for phase 3A.

QUESTIONS?

Next Steps

- Please send your feedback on today's topics to techforum@bpa.gov and copy your Account Executives by August 13, 2021
- Post Draft Letter to the Region by August 20, 2021
- Next meeting is on August 25, 2021