



Provider of Choice Phase 1 Workshop: System Size

August 31, 2022

PROVIDER OF CHOICE

**POST
2028**





Today's Workshop

Michelle Lichtenfels, Program Manager

Agenda

Time Start	Time End	Topic	Presenter(s)
9 a.m.	9:10 a.m.	Intro and Expectations	Michelle Lichtenfels
9:10 a.m.	11:45 a.m.	System Size Overview: <ul style="list-style-type: none"> • System Size and Concept Paper Options • Resource Program • Carbon Considerations • Resource Acquisition • Buy and Meld Construct • Adjustment Categories 	Sarah Burczak, Steve Bellcoff, Alisa Kaseweter
11:45 a.m.	Noon	Q&A	

Note: There will be a 5 minute break around 10:30 a.m.

Format

- Presenters will take pauses for questions.
- There is scheduled Q & A time.
- If a question arises during a presentation, please:
 - Hold your question until a pause, or
 - Write your question in the Webex chat with the corresponding slide number.
-  Chat questions will be addressed in the order received.
- We will call on raised hands.  You can unmute/mute yourself. 
 - **Please state your name and organization.**

Workshop Roles & Expectations: BPA

- Distribute workshop materials a minimum of 48 hours in advance via email and/or post on BPA website.
 - Materials will not be printed.
- Start and end workshops on time.
- Facilitate and moderate conversations with an eye on workshop objectives and scope.
- Provide open and inclusive opportunities for feedback, both within and following workshops.
- Respect others and assume good intentions.
- Bring a constructive mentality.



Workshop Roles & Expectations: Participants



- Come prepared by reviewing materials in advance of workshops.
- Participants are empowered to represent utility or organization, as applicable.
- Share your perspective and provide feedback.
- Limit discussion to the scope of each workshop. Don't start side conversations.
- Respect others and assume good intentions.
- Bring a constructive mentality.

Workshop Purpose

Phase 1: Issue Development



- Introduction and education
- Description of the issue
- Public provides feedback for alternative analysis

Phase 2: Alternative Analysis



- Discuss alternatives
- Discuss public feedback
- Note: This is an iterative phase

Phase 3: Policy



- Draft policy position
- Public feedback and discussion; workshops
- Final policy decision



Tier 1 System Size

Steve Bellcoff, Public Utilities Specialist

Sarah Burczak, Policy Lead

Setting the Tier 1 System Size

- The **tiered rate construct** enables public power customers to purchase low-cost Tier 1 System power up to their high water mark for the term of the contract.
- BPA's tiered rates structure **allocates the costs and risks** associated with supplying power from BPA's existing firm system capability (Tier 1 System) compared to the cost of additional power needed (e.g. market purchases or other resource acquisitions) to supply a customer with load above their high water mark.
- BPA proposed continuing to tier rates. The alternative would be a return to a "**buy and meld construct**" as was done prior to the Regional Dialogue contracts and the Tiered Rate Methodology.
 - If this were to happen, all Priority Firm sales would be at a single rate that would blend the cost of the FBS with the cost of necessary resource additions.

Tier 1 System Size Options

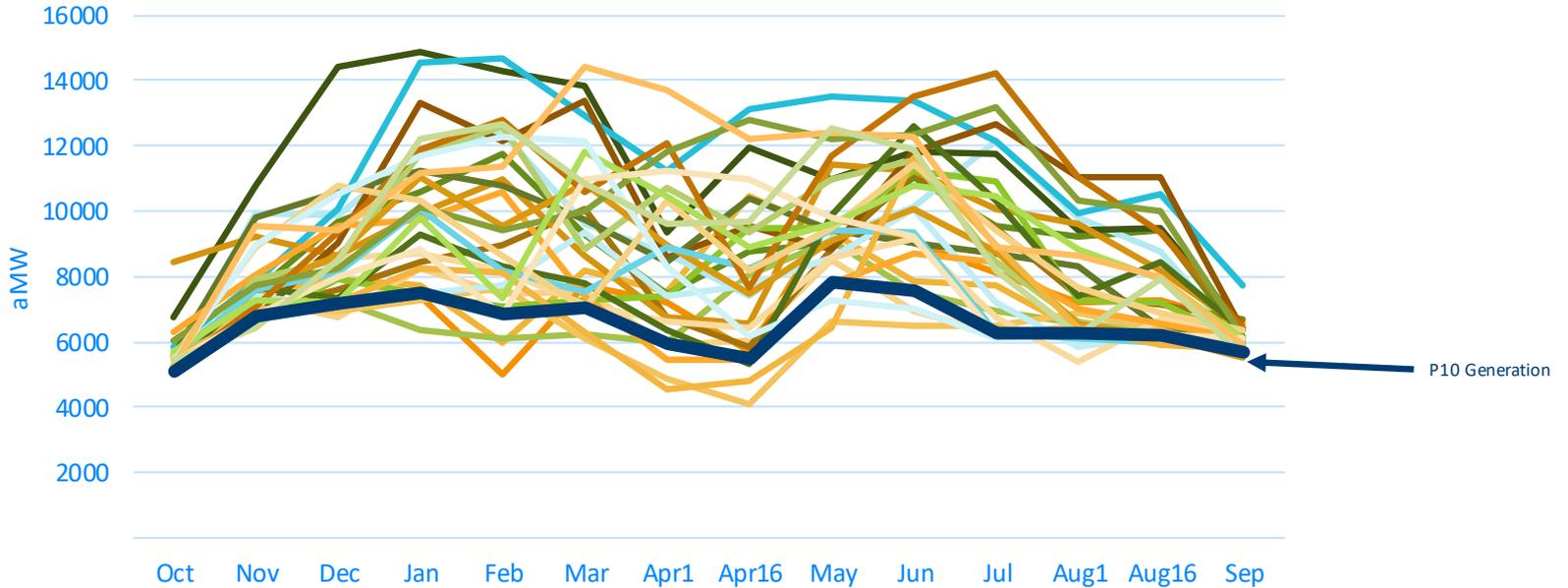
- **P10 Firm Monthly (Regional Dialogue methodology)**
 - Leverage most recent 30-year period of record and monthly 10th percentiles to establish firm system output.
- **Fixed System Size (Bonneville's concept paper proposal)**
 - Set the Tier 1 system at a single size for the life of the contract.
- **Fixed Amount Added to Tier 1 System Size**
 - Add a fixed amount of additional average megawatts to firm system (P10 Firm Monthly).
- **P35 Firm Monthly**
 - Set Tier 1 system closer to an average water year by using P35 firm monthly hydro profile to set the Tier 1 size and firming, via acquisitions, to that scale.

Planning Today: Firm Planning

- **To ensure sufficient generation to meet load**, Bonneville bases its resource planning on firm expected generation, traditionally seen as energy over the month.
- **The firm expected generation** across the month gives Bonneville the base expectation for its resource fleet, or the amount of monthly energy it can reasonably expect to have available from its resource portfolio, under constrained conditions.
- **Firm hydro generation** is the total generation from regulated, independent and small hydro projects.
- **Hydro generation** is modeled as a coordinated system, meeting the latest available power and non-power requirements.
- **As of June 6, 2022**, Bonneville's long-term hydro forecasting methodology evaluates the recent 30-year subset of streamflows (1989-2018), using the monthly 10th percentile (P10) from that period as the firm expected generation.

Firm Generation

30 Year Variable Generation and Firm P10 Monthly



Regional Dialogue Tier 1 System Size

- **Tiered Rate Methodology:** The Tier 1 system is the collection of resources and contract purchases that comprise the Tier 1 system resources, minus the collection of contract loads and obligation that comprise the designated Bonneville system obligations.
 - Tier 1 system resources are the federal system hydro generation resources (TRM Table 3.1), the designated non-federally owned resources (TRM Table 3.2), and the designated BPA contract purchases (TRM Table 3.3).
 - Designated BPA system obligations are the set of obligations specified in TRM Table 3.4, or imposed on BPA by statutes, regulations, court order, treaties, executive orders, memoranda of agreement, or contracts, that require the generation or delivery of power, forbearance from generating power, or receipt of power, in order to support the operation of the Federal Columbia River Power System, including any obligations to the Bonneville balancing authority (Transmission Services), and that are not intended for commercial purposes.
- **Tier 1 System Firm Critical Output** is the firm critical output of Tier 1 system resources less the designated Bonneville system obligations.

How the Tier 1 System is Determined

Tier 1 System = Tier 1 System Resources – Tier 1 System Obligations

Tier 1 System Resources available Post 2028 (TRM defined):

Federal System Hydro:

Regulated Hydro

- Albeni Falls
- Bonneville
- Chief Joseph
- Cowlitz Falls
- Dworshak
- Grand Coulee
- HungryHorse
- Ice Harbor
- John Day
- Libby
- Little Goose
- Lower Granite
- Lower Monumental
- McNary
- The Dalles

Independent Hydro

- Anderson Ranch
- Big Cliff
- Black Canyon
- Boise River Diversion
- Chandler
- Cougar
- Detroit
- Dexter
- Foster
- Green Peter
- Green Springs
- Hills Creek
- Lookout Point
- Lost Creek
- Minidoka
- Palisades
- Roza

Non-Federally Owned Resources:

- Columbia Generating Station
- Dworshak/Clearwater Small Hydropower
- Fourmile Hill Geothermal

Designated Purchases:

- Priest Rapids CER for Canada
- Rock Island #1 CER for Canada
- Rock Reach CER for Canada
- Wanapum CER for Canada
- Wells CER for Canada
- BCHP to BPA PwrS

How the Tier 1 System is Determined (Cont'd)

Tier 1 System = Tier 1 System Resources – Tier 1 System Obligations

Tier 1 system obligations → Designated System obligations :

- BPA to BRCJ Chief Joseph
- BPA to BRCB Columbia Basin Project
- BPA to BR CR Crooked River Project
- BPA to BROP Owyhee Project
- BPA to BRRP Rathdrum Prairie Project
- BPA to BRSID Southern Idaho Projects
- BPA to BRSIN Spokane Indian Develop.
- BPA to BRSV Spokane Valley
- BPA to BRTD The Dallas Reclamation Project
- BPA to BRTV Tualatin Project
- BPA to BRUB Umatilla Basin Project
- BPA to BRYK Yakima Project
- BPA to BCHA Can Ent
- BPA to BCHA NTSA
- Federal Intertie Losses
- BPA to PSE Upper Baker 2
- BPAP to BPAT (Dittmer/Substation Service)
- Federal Power Trans. Losses
- Slice Transmission Loss Returns

Status Quo

- P10 Firm Monthly (Regional Dialogue methodology)
 - Leverage most recent 30-year period of record and monthly 10th percentiles to establish firm system output.
- Consistent with BPA Firm planning

P10 Firm Energy	aMW
Total Federal System Hydro Generation	6,660
Total Designated Non-Federally Owned Resources	1,079
Total Designated BPA Contract Purchases	135
Total Designated System Obligations	<u>-881</u>
* Based on current BP24 RHWM numbers for FY24/25	6,993
Current RHWM augmentation	<u>69</u>
T1 System	7,062

P10 Firm Monthly

Total Tier 1 Firm System Output	RHWM Augmentation	Tier 1 System
6,993 aMW	69 aMW	7,062 aMW

- This is the current methodology, as of June 2022, used to set the Tier 1 system size under Regional Dialogue.
- Sets Tier 1 system in consistent manner with how BPA does Firm planning
- RHWMs would **vary rate period to rate period** as the output of the Tier 1 system varies.
- *Note: Bonneville assumes that current augmentation of 69 aMW would be carried forward as part of Tier 1 system under Provider of Choice. Bonneville is open to discussing and changing this assumption.*

Growing the Tier 1 System Size



If the size of the proposed Tier 1 system need exceeds the Firm (P10) Tier 1 System capability, Bonneville may, if needed, acquire resources to ensure it could meet firm load obligations.

Bonneville would only acquire if there is a load obligation to serve.

In determining which resources to acquire on a long-term basis, Bonneville would be informed by Bonneville's Resource Program and act consistent with the Northwest Power Act and the Council's Power Plan.

Growing the Tier 1 System - Options

- **P35 Firm Monthly**
 - Set Tier 1 system closer to an average water year by using P35 firm monthly hydro profile to set the Tier 1 size and firming, via acquisitions, to that scale.
- **Fixed Amount Added to Tier 1 System Size**
 - Add a fixed amount of additional aMWs to firm system (P10 Firm Monthly).
- **Fixed System Size (BPA's Concept Paper proposal)**
 - Set the Tier 1 system at a single size for the life of the contract.

P35 Monthly Firm

- P35 Firm Monthly
 - Set Tier 1 system closer to an average water year by using P35 firm monthly hydro profile to set the Tier 1 size and firming, via acquisitions, to that scale.
- Not in alignment with BPA Firm Planning practices
- Generation above Firm would need to be made Firm
 - Tier 1 products would need to assume the Water Year variability risk
- Products align to Net Requirements

P35 Firm Energy	aMW
Total Federal System Hydro Generation	7,630
Total Designated Non-Federally Owned Resources	1,079
Total Designated BPA Contract Purchases	135
Total Designated System Obligations	<u>-910</u>
* Based on current BP24 RHWM numbers for FY24/25	7,934
Current RHWM augmentation	<u>69</u>
T1 System	8,003

P35 Firm Monthly (Cont'd)

Total Firm System Output	Firm System Augmentation to P35 energy	Total P35 System Output	RHWM Augmentation	Tier 1 System
6,993 aMW	942 aMW	7,934 aMW	69 aMW	8,003 aMW

- RHWMs would **vary rate period to rate period** as the output of the Tier 1 system varies.
- Option presents greatest variability and risk.
- Not aligned with BPA's Firm Planning Processes
- Generation above Firm would need to be made Firm
 - Tier 1 products would need to assume the Water Year variability risk
- Difference between Firm System and P35 system would need to be augmented with firm power
 - Customer bears cost/risk of augmentation

Fixed Amount

- Fixed Amount Added to Tier 1 System Size
 - Add a fixed amount of additional aMWs to firm system (P10 Firm Monthly).
- Consistent with BPA Firm planning
- Fixed addition allow development of purchase strategy or long term acquisition

P10 Firm Plus Fixed Energy	aMW
Total Federal System Hydro Generation	6,660
Total Designated Non-Federally Owned Resources	1,079
Total Designated BPA Contract Purchases	135
Total Designated System Obligations	-881
Fixed Additional Energy example	500 example
TX losses for additional	<u>-15</u>
* Based on current BP24 RHWM numbers for FY24/25	7,478
Current augmentation	<u>69</u>
T1 System	7,547

Fixed Amount (Cont'd)

Total Firm System Output	Fixed Additional energy	Total Added to system (after losses)	RHWM Augmentation	Tier 1 System
6,993 aMW	500 aMW	7,478 aMW	69 aMW	7,547 aMW

- RHWMs would **vary rate period to rate period** as the output of the Tier 1 system varies.
 - BPA would need to create purchase strategy around Fixed additional energy
 - Customers would bear cost of Additional Firm energy
- Hydro consistent with how BPA does Firm planning

Fixed System

- Fixed System Size sets the Tier 1 system at a single size for the life of the contract.
- Size of Fixed T1 System would need to be established based on expected HWM to be served at Tier 1 rate.
- RHWMs would be equal to CHWMs and would be **fixed for the term** of the contract.
- Allows firm planning, with development of purchase strategy for augmentation to fixed system.

Fixed System (Cont'd)

Fixed System = CHWM Tier 1 Systems	P10 Firm + RHWM Augmentation	Delta Between Firm and Fixed System
X,XXX aMW	7,062 aMW	X – Firm System = Augmentation (aMW)

- RHWMs would be equal to CHWMs and would be **fixed for the term** of the contract.
- Maximum T1 Amount known in advance for term of contract.
- Size of Fixed T1 System would need to be established based on expected HWM to be served at Tier 1 rate.
- Allows Firm planning, with development of purchase strategy for Augmentation to fixed system

System Size Considerations



1. Resource Acquisition
2. Federal Base System Capability Reduction
3. Carbon
4. Secondary Sales
5. Rate Stability

BPA Resource Program

BPA's Resource Program was created after the passage of the Pacific Northwest Electric Power Planning and Conservation Act in 1980 which established:

- BPA's authority to acquire resources on a long-term basis to assure an adequate supply of power to meet the Administrator's contractual firm power obligations.
- Northwest Power & Conservation Council and the Council's Power Plan.

The Resource Program examines uncertainty in loads, water supply, natural gas prices, and electricity market prices to develop a least-cost portfolio of resources that meet BPA's obligations.

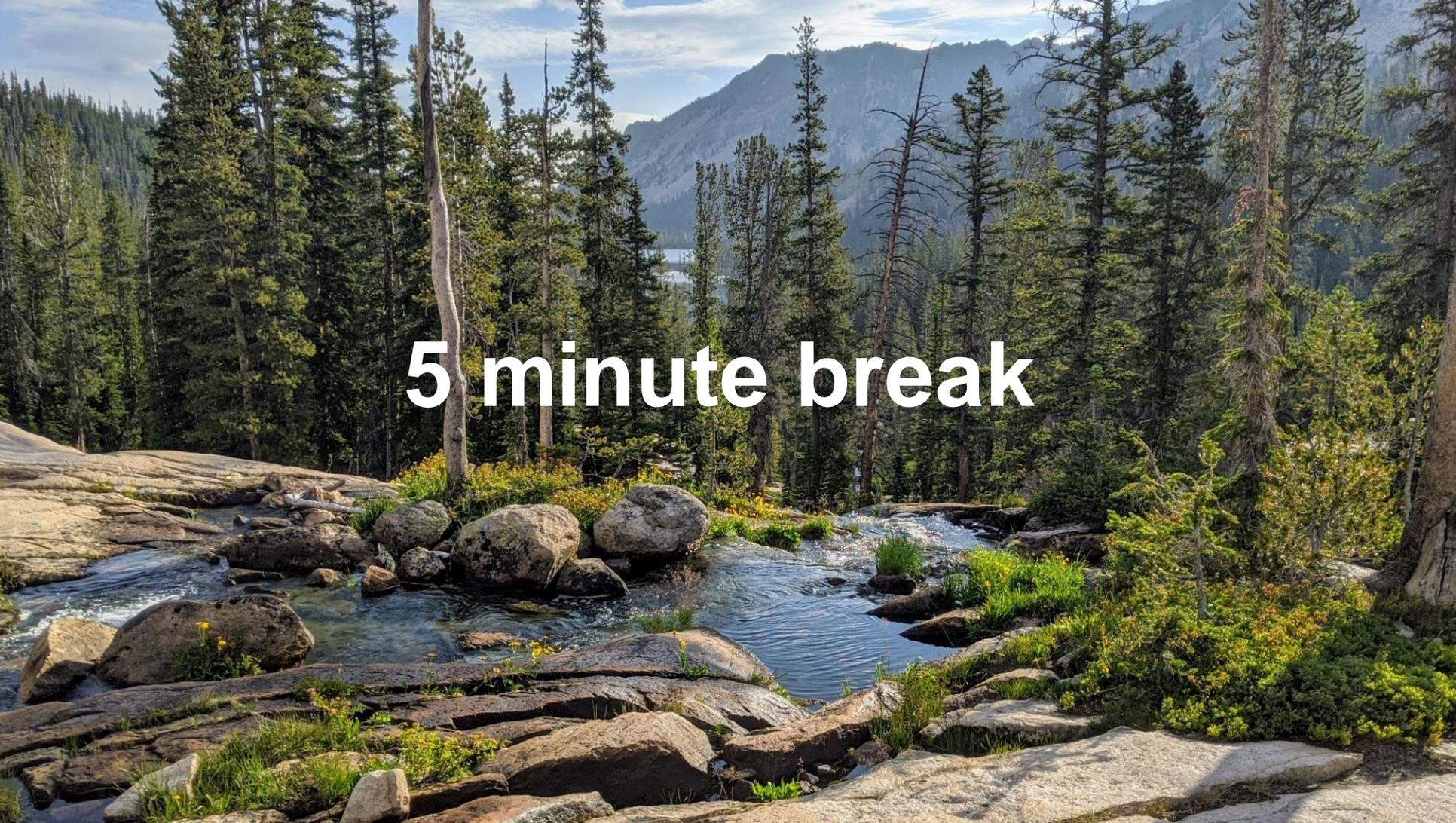
- BPA will act consistently with the Council's Power Plan recommendations.

Resource Program (Cont'd)

Like all power contract periods since 1980, the Resource Program will be used to help the Administrator understand the uncertainties in meeting BPA's firm power obligations.

Examples of this in practice in the future:

- Assessing how potential WRAP obligations interact with other BPA resource adequacy metrics
- Assessing if BPA needs to augment the FCRPS to ensure resource adequacy
- Assessing least cost generating resources or load modifying solutions to ensure resource adequacy

A scenic view of a rocky stream flowing through a dense forest of tall evergreen trees, with mountains in the background. The stream is surrounded by large, smooth rocks and patches of green grass and yellow wildflowers. The forest is composed of tall, thin evergreen trees, some of which are bare, suggesting a high-altitude or late autumn setting. In the background, there are large, rugged mountains under a blue sky with light clouds. The overall atmosphere is peaceful and natural.

5 minute break



Carbon Considerations

Alisa Kaseweter, Climate Change Specialist

Carbon Considerations

- Any augmentation under any option **will impact carbon content of the Tier 1 system** (all else held equal).
 - Impact for emitting resources or unspecified market purchases: Increases the emission intensity of BPA power (e.g., higher percentage of emitting resources in BPA's fuel mix, higher ACS emission factor).
 - Impact: Unspecified market purchases over 31 days also risk being considered as sourced from coal and thus prohibited in Washington.
 - Impact for carbon-free resources: decreases the emission intensity of BPA power.
- Long-term, resource-specific acquisitions allow for BPA to develop a **purchase strategy** and **better manage for carbon risks** over the duration of the next contracts.
- High amounts of augmentation would **limit or effectively eliminate Tier 2**.
 - Impact: Places risk of resource type used to meet load growth on all customers rather than conveying carbon attributes to an individual customer per its Tier 2 election.

Carbon Considerations for Specific Options

P35 Monthly Firm

- The amount of augmentation needed to get the firm system to a P35 would vary by month and rate period.
- Accordingly, **ability and costs to acquire varying monthly amounts** of carbon-free resources is more uncertain than fixed amounts.

Fixed Amount

- Provides opportunities for long-term acquisitions of cost-effective carbon-free resources, which could be easier to implement than the P35 option.
 - A “fixed amount” could reflect these acquisition opportunities.
- A **larger** fixed amount of acquisitions (e.g. 2,333 aMW) could be more difficult to acquire with largely carbon-free resources than a more **modest** fixed amount of acquisitions (e.g. 733 aMW).

Considerations for Specific Options (Cont'd)

Fixed System

- Provides opportunities for long-term acquisitions of cost-effective carbon-free resources.
 - “Fixed system size” could reflect these acquisition opportunities.
- Variations could be met with shorter-term purchases.
 - Could be carbon-free, could be fossil fuel.



Resource Acquisition

Sarah Burczak, Policy Lead

Resources Acquisitions

- **Resource acquisition decisions** are guided by the Northwest Power and Conservation Council's power plan.
- BPA leverages the Resource Program when making acquisition decisions.
- The Administrator has discretion to acquire resources to meet firm loads.
- To acquire resources of greater than 50 MW for a term of greater than five years, Bonneville must conduct a public process as directed by section 6(c) of the Northwest Power Act.



6(c) Policy

- **6(c) of the Northwest Power Act** outlines the procedure for acquiring major resources, implementing conservation measures, paying or reimbursing investigation and preconstruction expenses, or granting billing credits.
- **BPA's 6(c) policy** outlines the process BPA follows when considering major resource acquisitions.



Buy and Meld Construct

Sarah Burczak, Policy Lead

Buy and Meld Construct

- Prior to the tiered rate construct, BPA implemented a **buy and meld construct**.
- Under buy and meld, any resource acquisition costs needed to meet net requirements are “melded” with the federal system costs in rates.
- By contrast, the tiered rate construct allocates resource acquisition costs to those customers with Above-RHWM load.

Buy and Meld System Costs

Tiered Rate System Costs:

	Load (aMW)	Load (MWh)	Rate (\$/MWh)	Total Cost (\$ millions)
Tier 1	7,000	61,320,000	35	2,146
Tier 2	500	4,380,000	50	219

Buy and Meld System Costs:

	Load (aMW)	Load (MWh)	Rate (\$/MWh)	Total Cost (\$ millions)
Total Cost	7,500	65,700,000	36	2,365

Customer Example

Using CHWM examples presented at previous workshop for the BP-24 rate period:

<i>In megawatt hours</i>	Flat Load	Load Growth	Load Loss
Contract High Water Mark	429,065	429,065	387,980
Above-Rate Period High Water Mark	8,935	64,123	0
Total PF-eligible Load	438,000	493,188	387,980

Note: Data converted from average megawatts to megawatt hours.

Customer Cost Examples

Tiered Rate Costs:

<i>In millions</i>	Flat Load	Load Growth	Load Loss
Tier 1	\$15.02	\$15.02	\$13.58
Tier 2	\$0.45	\$3.21	\$0
Total Cost	\$15.46	\$18.22	\$13.58

Buy and Meld Costs:

<i>In millions</i>	Flat Load	Load Growth	Load Loss
Total Cost	\$15.77	\$17.75	\$13.97



Adjustment Categories

Sarah Burczak, Policy Lead

Adjustment Categories

- BPA proposes to retain the three Regional Dialogue categories for adjusting the Tier 1 system size and CHWMs for Provider of Choice contracts:
 - 1. Newly formed public utilities placing net requirements on BPA,
 - 2. Load growth for existing tribal utilities served by BPA, and
 - 3. To serve U.S. Department of Energy Richland's vitrification plant's planned load.
- Under Regional Dialogue, this has resulted in 70.748 aMW of RHWM adjustment.
- Policy workshops will help determine how many average megawatts each category should be allowed to adjust for over the Provider of Choice contract term. Any load beyond that allotment would be treated as Above-RHWM load.

Reset Option

Customers proposed BPA offer a one time, mid-term Tier 1 system size reset, which would reset CHWMs.

- Rationale: There could be significant load growth from electrification or other potential industry changes.

BPA declines to adopt this because it is incompatible with tiered rates.

- If BPA offered a mid-term reset of system size and CHWMs, this would dis-incent investments in non-federal Above-RHWM service and lead to uncertainty about federal Above-RHWM service.



QUESTION AND ANSWER



Schedule & Feedback

Michelle Lichtenfels, Program Lead

Mark Your Calendar

Date	Time	Workshop Type	Topics
September 8	9 a.m. – 12 p.m.	Phase 2: CHWM - Conservation	<ul style="list-style-type: none">• Concept paper feedback summary• Aug 31 CHWM Workshop follow-up• Conservation context & analysis
September 22	9 a.m. – 12 p.m.	TBD	TBD
October 5	9 a.m. – 12 p.m.	TBD	TBD

BPA Event Calendar: <https://www.bpa.gov/learn-and-participate/public-involvement-decisions/event-calendar>

Feedback Requested

Informal comments accepted and feedback requested:

- Can any scenarios be removed from future analysis (e.g. P35)?
- Other scenarios of interest
- Other feedback to help inform future workshops.

Feedback



- Share feedback by **September 9** to your Power AE and/or **Post2028@bpa.gov** with a copy to your Power AE.
- Please note that direct responses will not be provided.

Thank You.

Provider of Choice Lead Sponsor:

Kim Thompson, Vice President, Northwest Requirements Marketing

Provider of Choice Team Leads:

Sarah Burczak, Policy Lead

Kelly Olive, Contract Lead

Michelle Lichtenfels, Program Manager

Provider of Choice Website:

<https://www.bpa.gov/energy-and-services/power/provider-of-choice>