# Provider of Choice Workshop: Firm Power Products

February 21 and 22, 2023

PROVIDER OF CHOICE POST 2028

# Today’s Workshop

Michelle Lichtenfels, Program Manager, Provider of Choice

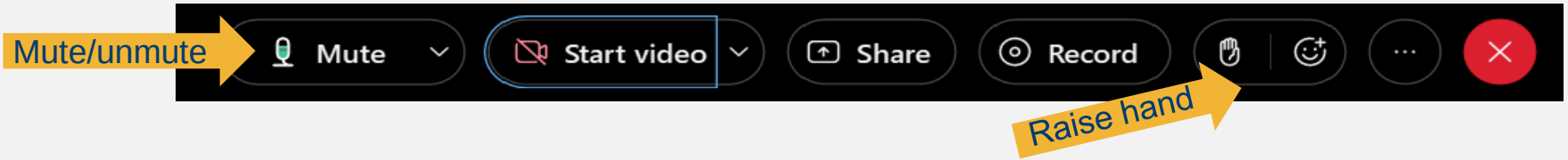
# Format

- Presenters will take pauses for questions and feedback.
  - **In-person**: Raise your hand in Webex or physically raise hand; when called on, use microphone to speak.
  - **Webex**: Write it in the Webex chat or raise your Webex hand; when called on, mute/unmute yourself.
- Questions will be addressed in the order received.
- Please state your name and organization for the benefit of all.

**RHR Microphone:**

Press the horizontal button to turn on and off. **GREEN** = **ON**


**Webex**:



# Agenda – Day 1

| Time Start | Time End | Topic | Presenter(s) |
|---|---|---|---|
| 1 pm | 1:05 pm | Welcome, Format, Workshop Expectations | Michelle Lichtenfels |
| 1:05 pm | 1:15 pm | Opening Remarks | Kim Thompson |
| 1:15 pm | 2:15 pm | Peak Net Requirements | Steve Bellcoff and Lindsay Bleifuss |
| 2:15 pm | 2:30 pm | B R E A K | |
| 2:30 pm | 3:15 pm | Products Framework | Sarah Burczak |
| 3:15 pm | 4:15 pm | Above-RHWM | Daniel Fisher |
| 4:15 pm | 4:30 pm | Wrap up | Michelle Lichtenfels |

# Agenda – Day 2

| Time Start | Time End | Topic | Presenter(s) |
|---|---|---|---|
| 9 am | 10 am | Reflections on Day 1 | All |
| 10 am | 10:20 am | BREAK | |
| 10:20 am | 12 pm | Product Design & Intent | Rob Burr and Sarah Burczak |
| 12 pm | 1:30 pm | LUNCH | |
| 1:30 pm | 2:30 pm | Product Design & Intent (Cont'd) | Rob Burr and Sarah Burczak |
| 2:30 pm | 2:50 pm | BREAK | |
| 2:50pm | 3:45 pm | Discussion, topics TBD | All |
| 3:45 pm | 4 pm | Wrap up | Michelle Lichtenfels |

# Workshop Objectives

## DAY 1:

1. **Share** peak net requirements methodology
2. **Present framework** for load following vs. planned products
3. **Present proposed framework** for above-RHWM service

## DAY 2:

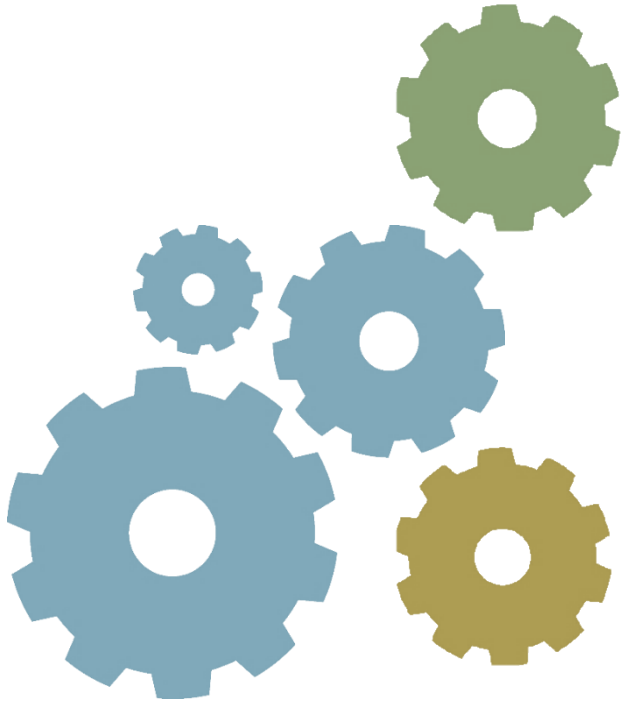
1. **Discuss intent and design** of load following and planned products
2. **Continued** discussions from Day 1

# Adding on to the Foundation

Policy intent and design elements for the *tiered rate construct*, *CHWM calculation*, and *system size* **provide a foundation upon which to stack other policy elements**.

BPA acknowledges that discussions of these foundational elements will continue.

This workshop focuses on an additive layer of the Provider of Choice policy – **power products.**



# Workshop Roles & Expectations

**Bonneville:** Provide open and inclusive opportunities for feedback.

**Participants:** Provide feedback and share perspectives.

**All**: Respect one another and assume good intentions.

Bring a constructive mentality.

# Opening Remarks

Kim Thompson, Vice President,
Northwest Requirements Marketing

# Peak Net Requirements

Steve Bellcoff, Public Utilities Specialist
Lindsay Bleifuss, Power Account Executive

# Northwest Power Act 5(b)(1)

- **Northwest Power Act 5(b)(1)** - BPA shall offer to sell electric power to meet a requesting public body, cooperative and investor owned utility's regional consumer load to the extent the load is not served by firm energy or peaking energy from the customer's non-federal resources: 5(b)(1)(A) resources used in 1980; 5(b)(1) resources used ("dedicated") after 1980.
- **The legislative history regarding section 5(b)** indicates that BPA should separately identify and calculate the firm energy capability of a customer's resources applied to its load from the peaking energy capability applied to that load. H. Rpt 96-976 96th Cong. 2d Sess. Part I.
- **BPA's contract offer of power** is based on determining the requesting utility's firm power load and its resources, i.e., net requirements.

# PNR Task Force

- The July 2022 **Provider of Choice Concept Paper** included a draft proposed  Peak Net Requirements methodology.
- Customers raised concerns with the approach and requested a forum to discuss the methodology. **The PNR Task Force was established** to discuss and propose a PNR methodology to the Provider of Choice process.
- While BPA's draft proposed methodology presented today is an output of the PNR Task Force, this does not represent the opinion or perspective of all task force participants, nor does it imply alignment on the direction proposed today.
- **The draft methodology shared today is now part of the larger Provider of Choice policy process.** All interested parties are welcome to comment and provide feedback.

# Peak Net Requirement Goals

1. **Create a methodology** for Peak Net Requirement that is durable and sustainable.
2. The methodology should **address the diverse types of non-federal resources** (fuel based) used by utilities to account for their different firm energy and peaking capabilities.
3. **Uses standard planning considerations and definitions** that accounts for normal expectations, such a expected loads
4. Peak Net Requirement should be **agnostic of BPA product**.
   - Customer requests/selects from products offered by BPA in contract that best fit their specific needs.
   - Products offered by BPA do not define net requirement calculations (energy or peak).

# Key Components of Methodology

- Determine non-federal resource power (energy and peak); remaining power needed to serve load can be supplied by BPA.
- Power Metrics
  - Energy is a volume of power over time.
  - Peak is an amount of power at an instant (or over a defined period of time).
  - Energy and Peak methodologies look at two distinctively different metrics of power needs, which are related to each other.
- Components recognize risk/uncertainty around forecasted values in methodology.

# Net Requirement

## *Total Retail Load – New Large Single Loads – Dedicated Resources*

**Energy Net Requirement* includes:**

**Total Retail Load** = 1:2** forecasted energy load on an annual basis

**New Large Single Load** = 1:2 forecasted energy load on an annual basis

**Dedicated Resource** = Forecasted firm energy output from dedicated resource on an annual basis (as established in contracts)

* The load eligible for service at PF rates discussed on this and subsequent slides are public utility net requirements less NLSL.
** Expected load under normal weather conditions; 1 in 2 chance of occurring.

# Western Resource Adequacy Program

- Bonneville proposes using the method being established in the **Western Resource Adequacy Program (WRAP)** by the Western Power Pool to determine a resource's peaking energy capability.
- WRAP defines the term **Qualifying Capacity Contribution (QCC)** as the MW quantity of capacity provided by a resource, contract, or portfolio. For more information on WRAP QCC assumptions and specific resource type calculation methodology see Part II of the WRAP Tariff.
- In the Forward Showing process WRAP also accounts for risk through the use of a **Planning Reserve Margin (PRM)**.

# Net Requirements at its Simplest

***Total Retail Load – New Large Single Loads – Dedicated Resources***

| Energy | Peak (Proposed) |
|---|---|
| **Total Retail Load** | **Total Retail Load** |
| 1:2 forecasted energy load on an annual basis | 1:2 forecasted peak hour load on a monthly basis |
| **New Large Single Load** | **New Large Single Load** |
| 1:2 forecasted energy load on a annual basis | 1:2 forecasted peak hour load on a monthly basis |
| **Dedicated Resource** | **Dedicated Resource** |
| Forecasted firm energy output from dedicated resource on an annual basis | Peak monthly capability for dedicated resource, based on adjusted WRAP QCC methodology |

# Energy – Accounting for Risk

| Energy | Energy, Accounting for Risk |
|---|---|
| **Total Retail Load** | **Total Retail Load** |
| 1:2 forecasted energy load on an annual basis | provides ‘expected case’ load forecast |
| **New Large Single Load** | **New Large Single Load** |
| 1:2 forecasted energy load on a annual basis | provides ‘expected case’ load forecast |
| **Dedicated Resource** | **Dedicated Resource** |
| Forecasted firm energy output from dedicated resource on an annual basis | provides a generation value believed to be achievable in most conditions – not a simply an average expected generation, but evaluated based on a firm capability |

# Peak – Accounting for Risk

| Peak |
| --- |
| **Total Retail Load** |
| 1:2 forecasted peak hour load on a monthly basis |
| **New Large Single Load** |
| 1:2 forecasted peak hour load on a monthly basis |
| **Dedicated Resource** |
| See next slides |

| Peak, Accounting for Risk |
| --- |
| **Total Retail Load** |
| Provides peak hour ‘expected case’ load forecast |
| **New Large Single Load** |
| provides peak hour ‘expected case’ load forecast |
| **Dedicated Resource** |
| See next slides |

# Peak – Accounting for Risk (Cont'd)

## Adjusting WRAP QCC values:

- WRAP WCC is based on average performance of resource during Capacity Critical Hour, or the peak Effective Load Carrying Capability of the resource.
- WRAP accounts for risk in Forward Showing through the use of a PRM
  - WRAP PRM is defined as: An increment of resource adequacy supply needed to meet conditions of high demand in excess of the applicable peak load forecast and other conditions such as higher resource outages, or lower availability of resources. For more information on WRAP FSPRM (PRM) see WRAP Tariff.
  - WRAP PRM's are established based on a 1:10 Loss of Load Expectation (LOLE) calculation that accounts for both 'resource' and 'load' risk/uncertainty. WRAP PRM does not have individual 'resource' and 'load' values.
  - WRAP PRM includes 6% of Contingency Reserve*.

*Contingency Reserve in the Region is held as 3% on Load and 3% on Resources, in a balanced Load and Resource system 6% on load (or resources) would account for the same MW value.

# Peak – Accounting for Risk (Cont'd)

## Dedicated Resource:

- Peak monthly capability for Dedicated Resource, based on adjusted WRAP QCC methodology.
  - Individual resource WRAP QCC amount.
  - WRAP QCC reduced to isolate the risk related to resource generation capability.

- Proposal:
  - Values used for Dedicated Resources in Peak Net Requirements calculation should account for risk. Bonneville proposes to reduce WRAP QCC values to appropriately recognize resource-related risk.

***= WRAP QCC adjusted for Resource Share of PRM and CR served by BPA***

# Peak – Accounting for Risk (Cont'd)

## Dedicated Resource, Accounting for Risk:

***WRAP QCC adjusted for Resource Share of PRM and CR served by BPA***

Adjusting WRAP QCC:

- Bonneville proposes using a value of ½ the monthly WRAP PRM as a reduction of Dedicated Resource QCC values.
- Ideally, WRAP would provide a clear methodology associated with just the resource risk/uncertainty, but it does not.
- Not having a specific resource component identified, Bonneville proposes a 50/50 split of the PRM to account for the resource specific uncertainty/risk.
  - The entity responsible for load following service would be responsible for the other ½ of the associated PRM (load side).
  - Bonneville takes on the PRM risk for both load and resources of Load Following customers.
  - Customers electing a Planned Product take on the risk for serving the variation in their hourly loads and resources.

# PNR Calculation Example

| Component | Value |
|---|---|
| Assumptions | a. Total Retail Load = 1,000 MW peak in January<br>b. WRAP QCC = 100 MW<br>c. PRM = 19% in January<br>d. CR BPA carrying = 3% |
| Dedicated Resource Calculation | WRAP QCC adjusted for Resource Share of PRM and CR served by BPA:<br>= WRAP QCC – (0.5*(PRM – CR)*WRAP QCC<br>= 100 MW – ((0.5*(19%-3%))*100 MW = 92 MW |

**Total Retail Load – Dedicated Resources = Peak Net Requirement**

**1,000 MW – 92 MW = 908 MW**

# Peak Net Requirement Calculation

## Total Retail Load – New Large Single Loads – Dedicated Resources

Dedicated Resources = WRAP QCC – (0.5x(PRM – CR)*WRAP QCC)

| 2028 | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Retail Load | | 14,635 | 16,452 | 16,585 | 15,815 | 15,026 | | | 13,982 | 14,578 | 14,660 | 13,396 |
| NLSL | | 1,628 | 1,628 | 1,628 | 1,628 | 1,628 | | | 1,628 | 1,628 | 1,628 | 1,628 |
| Dedicated Resources | | 1,866 | 1,984 | 2,094 | 2,238 | 2,166 | | | 2,250 | 2,008 | 1,573 | 1,424 |
| PRM | | 21.60% | 17.70% | 19.00% | 19.90% | 26.90% | | | 16.50% | 10.40% | 10.30% | 17.90% |
| Resource Share of PRM | | 50% | 50% | 50% | 50% | 50% | | | 50% | 50% | 50% | 50% |
| BPA Serving Reserves | | 3% | 3% | 3% | 3% | 3% | | | 3% | 3% | 3% | 3% |

| 2028 | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Retail Load | | 14,635 | 16,452 | 16,585 | 15,815 | 15,026 | | | 13,982 | 14,578 | 14,660 | 13,396 |
| NLSL | | (1,628) | (1,628) | (1,628) | (1,628) | (1,628) | | | (1,628) | (1,628) | (1,628) | (1,628) |
| Dedicated Resources Capacity Value | | (1,692) | (1,838) | (1,927) | (2,049) | (1,907) | | | (2,098) | (1,934) | (1,516) | (1,318) |
| *Dedicated Resources QCC* | | *1,866* | *1,984* | *2,094* | *2,238* | *2,166* | | | *2,250* | *2,008* | *1,573* | *1,424* |
| *Dedicated Resources Adjustment* | | *174* | *146* | *168* | *189* | *259* | | | *152* | *74* | *57* | *106* |
| **Net Requirement** | | **11,315** | **12,987** | **13,031** | **12,139** | **11,491** | | | **10,256** | **11,017** | **11,516** | **10,450** |

# BPA Total Peak Load – Surplus/Deficit

## Example BPA Peak Surplus/Deficit Position

= Resource QCC - Peak Obligations

| 2028 | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Net Requirement load (RD Participants) | | 11,315 | 12,987 | 13,031 | 12,139 | 11,491 | | | 10,256 | 11,017 | 11,516 | 10,450 |
| Other Load Placed on BPA | | - | - | - | - | - | | | - | - | - | - |
| | | | | | | | | | | | | |
| Other BPA Obligations | | 4,282 | 4,002 | 4,204 | 4,216 | 4,989 | | | 3,624 | 2,935 | 2,950 | 3,786 |
| *Treaty* | | *1,142* | *1,142* | *1,142* | *1,142* | *1,142* | | | *1,142* | *1,142* | *1,142* | *1,142* |
| *Reserves* | | *825* | *825* | *825* | *825* | *825* | | | *825* | *825* | *825* | *825* |
| *Transmission Losses* | | *522* | *527* | *537* | *522* | *538* | | | *460* | *445* | *472* | *529* |
| *Load Service LF* | | *1,301* | *1,092* | *1,243* | *1,255* | *1,826* | | | *925* | *403* | *391* | *986* |
| *Load Service Block* | | *492* | *417* | *457* | *472* | *658* | | | *272* | *121* | *121* | *305* |
| *Load Service Other Load* | | - | - | - | - | - | | | - | - | - | - |
| | | | | | | | | | | | | |
| Federal Resources | | 17,415 | 17,565 | 17,896 | 17,405 | 17,948 | | | 15,329 | 14,845 | 15,722 | 17,623 |
| **Surplus Deficit** | | **1,818** | **576** | **661** | **1,049** | **1,468** | | | **1,449** | **894** | **1,256** | **3,387** |

# Products Framework

Sarah Burczak, Policy Lead

# Firm Power Products

- The scope for today's discussion is for firm power products for **PF-eligible load**.

**PF-Eligible Load =**

**Total Retail Load – New Large Single Loads – Dedicated Resources**

- This excludes service to DSI, NLSLs or IOUs.
  - Note: BPA proposed that the Block standalone product offered to PF-eligible utilities is what would be offered to NR-eligible loads. This is similar to IOU service offerings under Regional Dialogue.

# Firm Power Products

- Firm power products provide firm power to customers to meet their retail load net of their non-federal resources, also known as net requirements.
- Products may offer additional services (e.g. meeting planning obligations or the additional service Slice gets of embedding an advanced sale of surplus energy) but the **statutory requirement is to meet net requirement load**.
- Different products include distinct features. Balance and equity is a function of product features and rate design. It is not inherently 'unfair' to have different services in different products, so long as the costs and benefits of services across products achieve rough balance.

# Products

## Intent

- Meet the customer's electric power needs.

## Design

- Power products to meet different customer needs.

## Considerations

- Non-federal Resources
- Planning Obligations
- Resource Adequacy

# Load Following Intent & Design

## Intent

Offer a product in which BPA takes on obligations to **meet customer's net requirement on an hourly basis**.

Customer **benefits from load service** certainty.

## Design

**Meets a customer's load on an hourly basis.**

- BPA takes on load-responsible-entity obligations.

**Provides opportunities to:**

- Develop non-federal resources; shaping service may be required.
- Select among all Above-RHWM options.

# Planned Product* Intent & Design

## Intent

**Provide customers advanced assurance** on the amount of power Bonneville will provide and degree of flexibility in taking that power to load.

**Offers customers flexibility** in how they use their non-federal resources to meet loads.

## Design

Provides energy to meet annual net requirement on a planned basis** but **does not guarantee meeting the customer's actual hourly needs**.

The **customer is responsible** to use its non-federal resources to meet any load in excess of its planned BPA purchases.

**Customer retains planning obligations**, including resource adequacy, to meet its Total Retail Load (TRL).

**Proposed offerings**: Block, Block with Shaping Capacity and Slice/Block.

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*Planned products include Block, Block with Shaping Capacity, and Slice-Block.
**At forecasted energy net requirement.

# Non-Federal Resources

Regardless of product, when a customer elects to use its non-federal resources to serve a portion of its load, it must do so **consistent with section 5(b)(1) of the Northwest Power Act.**

## Load Following

Proposed concepts offer customers flexibility to add non-federal resources to serve load.

Depending on the type of resource and its output, a shaping service may be required to be purchased either from BPA or non-federal sources for purposes of matching the resource to an expected shape and amount of load.

## Planned Product

Customers have flexibility to bring non-federal resources to serve actual load.

Customers are not required to purchase a shaping service from BPA.

Customers are expected to take on the responsibility for meeting any shaping needs to meet loads.

# Planning Obligations

## Load Following

BPA is responsible for meeting energy and capacity adequacy standards for the portion of a customer's TRL that is served by BPA.

Customers are responsible for meeting energy and capacity standards for the portion of TRL served by non-federal resources. Customers will be responsible to provide required data to validate resource amounts to meet compliance with WRAP.

## Planned Product

Customer is responsible for meeting its energy and capacity adequacy standards for its TRL.

# Resource Adequacy and WRAP

Whether or not Bonneville serves a customer's resource adequacy requirements is dependent on the planning obligations of a particular product. For Provider of Choice, WRAP will define that metric.

## Load Following

BPA has the resource adequacy obligation for the load obligation not served by non-federal resources because it has taken on the planning obligation to serve that load as a function of the load following product.

For context of WRAP, BPA is responsible for the PRM for total retail load of load following customers, regardless if served by federal or non-federal resources.

## Planned Product

BPA will not take on the resource adequacy obligation for planned products because customers take on that obligation as a function of a planned product.

For context of WRAP, BPA's load responsibility ends at the planned delivery of power identified in each product. As such, BPA will not cover PRM requirements.

# Above-RHWM Load Service

**Daniel Fisher, Power Rates Manager**

# Above-RHWM Intent & Design

## Intent

**Provide customers flexibility** to determine how to serve Above-RHWM load.

**Insulate customers** from costs of other customers' load and resource decisions.

Create clear expectation of who has the **obligation to serve future loads**.

## Design

**Federal Options:**

**1. Long-Term Rate**. Offer customers a **one-time opportunity to elect** BPA to plan for and serve all or a portion of their Above-RHWM Load (Long-Term).

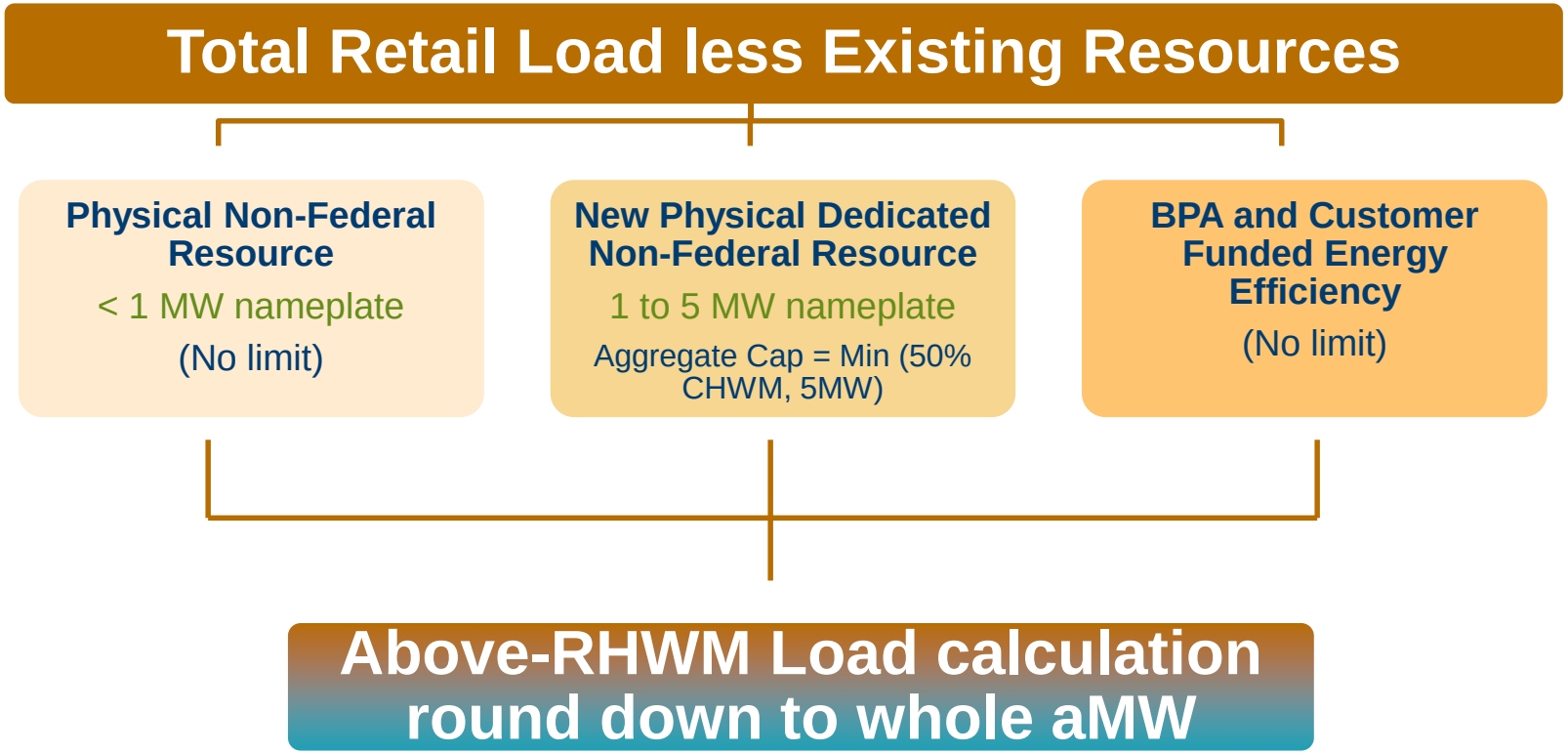
**2. Short-Term Rate**. Provide an Above-RHWM Load backstop service with short notice requirements and rate period length durations.

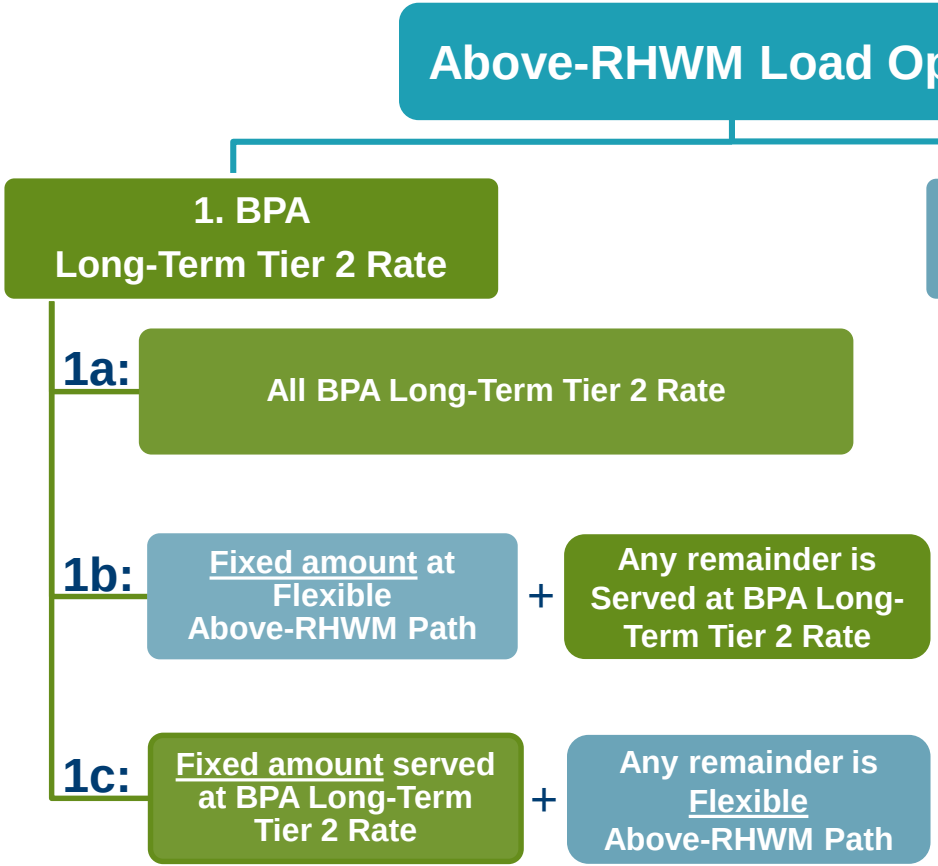
**3. Vintage Resource Rate**. Provide opportunity to receive power at a Vintage Resource Rate based on the cost of any physical resources BPA determines it needs to meet BPA's load

# Load Service Options

- Customers have several options to serve load.
- BPA proposes several Above-RHWM Load options.
- BPA plans to round Above-RHWM Load down to whole aMW.
- BPA Long-Term Tier 2 Rate and Flexible Above-RHWM Path would be elected at contract signing.
- All Above-RHWM Load options available regardless of PF product.

# Before Above-RHWM Load Service Options






1a, 1b, 1c and 2 would be elected at contract signing.

# Above-RHWM Options

## 1. BPA Long-Term Tier 2 Rate

- **1a:** All BPA Long-Term Tier 2 Rate
- **1b:** Fixed amount of Flexible Above-RHWM Path + Any remainder is Served at BPA Long-Term Tier 2 Rate
- **1c:** Fixed amount served at BPA Long-Term Tier 2 Rate + Any remainder is Flexible Above-RHWM Path

## 2. Flexible Above-RHWM Path

- **2a:** BPA Short-Term Tier 2 Rate (Rate period market cost/value)
- **2b:** BPA FPS Sale (Negotiated rate if available)
- **2c:** BPA Vintage Resource Tier 2 Rate (Multiple rate periods)
- **2d:** Non-Federal Market and Physical Resources up to Above-RHWM Amount

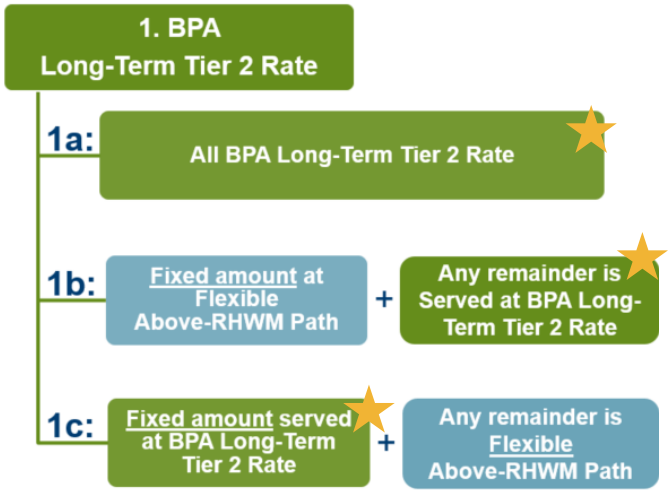
# BPA Long-Term Tier 2 Rate

**Approach:**

- **BPA manages as portfolio**: existing inventory and physical resources as balanced by market-based sales and purchases.
- **Rate based on the cost of the portfolio** as established in each 7(i) process.
- Purchases would be **resource adequacy compliant** and strive to be **carbon content minimized**.

**Treatment of Existing Inventory:**

- **Any existing firm inventory after all Tier 1, 7(c), and 7(f) obligations are met** are allocated to the Long-Term cost pool at Tier 1 cost regardless of the market value of that power (higher or lower).



# BPA Long Term Tier 2 Rate (Cont'd)

**One-time Change Option:**

- **Customers provided a one-way, one-time option** to switch to 100% Flexible Above-RHWM Path.
- **Cost of using this option** would be equal to a BPA calculated liquidated damages calculation plus $X/MWh multiplied by the customer's Tier 1 Load for the remainder of the contract.
- **One-time Change Option revenue** would be allocated to the Long-Term Tier 2 cost pool.

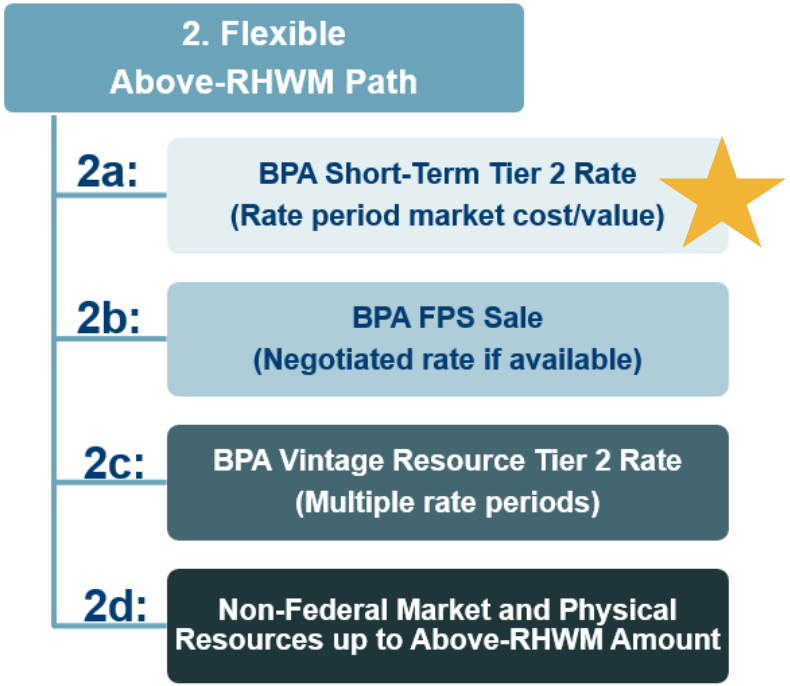
**Stranded Cost Provision:**

- **To the extent BPA has Long-Term Tier 2 costs and no Long-Term Tier 2 load**, all costs (net of any One-time Change Option revenue) would be allocated **proportionately** to the Tier 1 load of all customers that elected the service at BPA's Long-Term Tier 2 rate at contract signing (including partial options).
- **The stranded cost provision may also apply to a portion of Long-Term Tier 2 costs**, as decided in a 7(i) process, if conditions arise that cause a minority subset of BPA Long-Term Tier 2 Rate customers to bear an inequitable amount of the Long-Term Tier 2 costs.

# BPA Short-Term Tier 2 Rate

**Approach:**

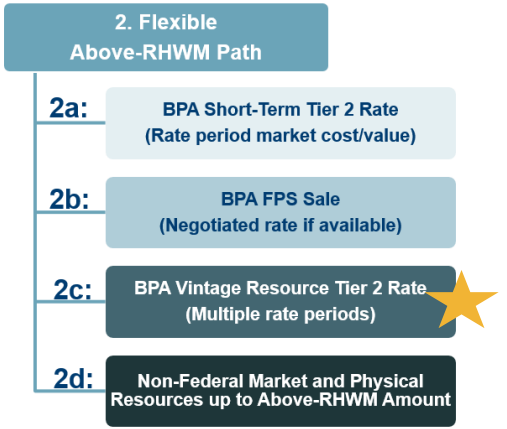
- **Elected at least X months prior** to the start of each rate case.
- **Rate based on the market cost/value** of the power as established in each 7(i) process.
- Purchases would be **resource adequacy compliant** and strive to be **carbon content** minimized.



# BPA Vintage Resource Tier 2 Rate

## Approach:

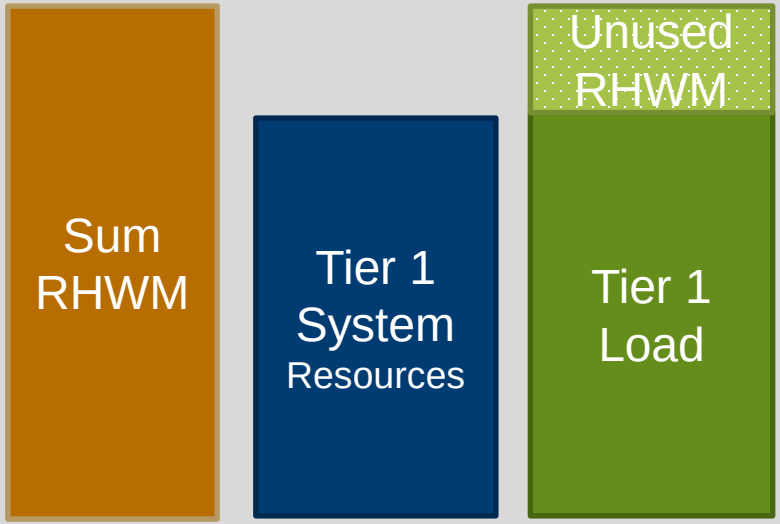
- **This rate option would become available prior to BPA making a Request for Offer (RFO)** for the output of a physical resource(s) to meet its Tier 1, Long-Term, 7(c), and 7(f) load obligations.
  - At that time, BPA would solicit interest from Flexible Above-RHWM Path customers and limit a customer's interest to the annual max forecast of its future Above-RHWM load.
- **The applicable rate** would be a formula rate that captured a pass-through cost methodology as established in a 7(i) process.
- **This approach would provide flexibility** conducive to physical resource acquisitions.
- **Any amounts purchased by a customer in excess** of actual Above-RHWM Load would be treated as an **advanced sale of surplus** to be managed by the customer.
  - This reflects the lumpiness of resource acquisitions and removes complex and controversial BPA remarketing services.



# Long-Term & Existing Firm Inventory

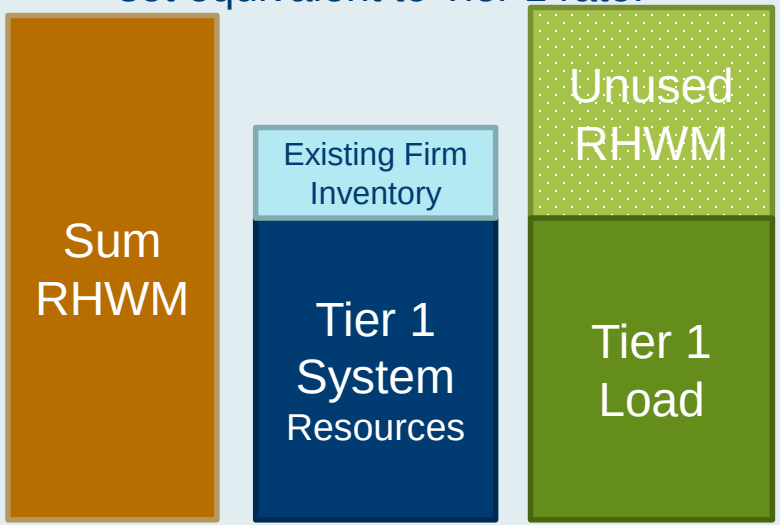
**Example 1. PF only**

No existing firm inventory is available to serve Above-HWM load.




**Example 2. PF only**

BPA's existing firm inventory would serve Above-HWM load at Long-Term Tier 2 rate set equivalent to Tier 1 rate.

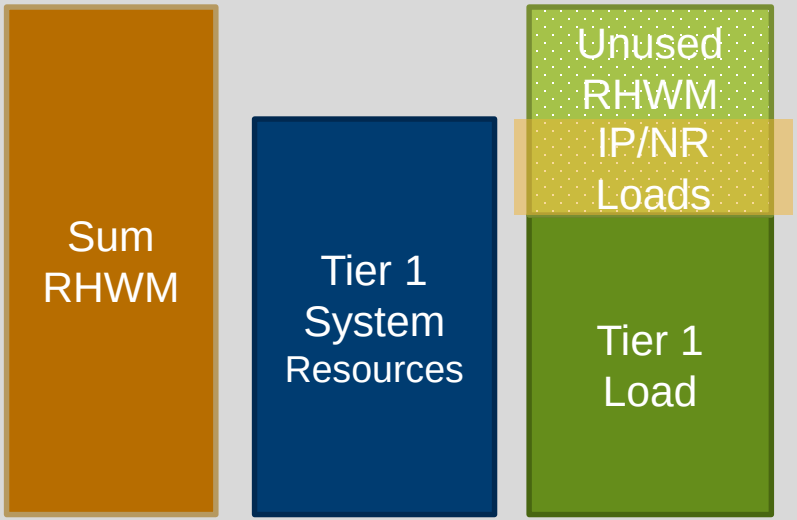



Unused RHWM ≠ Firm Surplus

# Long-Term & Existing Firm Inventory

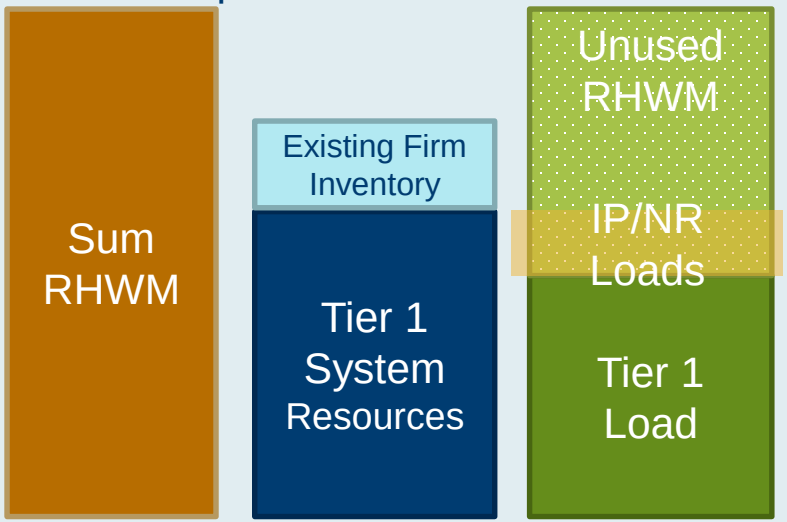
## Example 3. PF+IP+NR

No existing firm inventory is available to serve Above-HWM load.




## Example 4. PF+IP+NR

BPA existing firm inventory would serve Above-HWM load at Long-Term Tier 2 rate set equivalent to Tier 1 rate.

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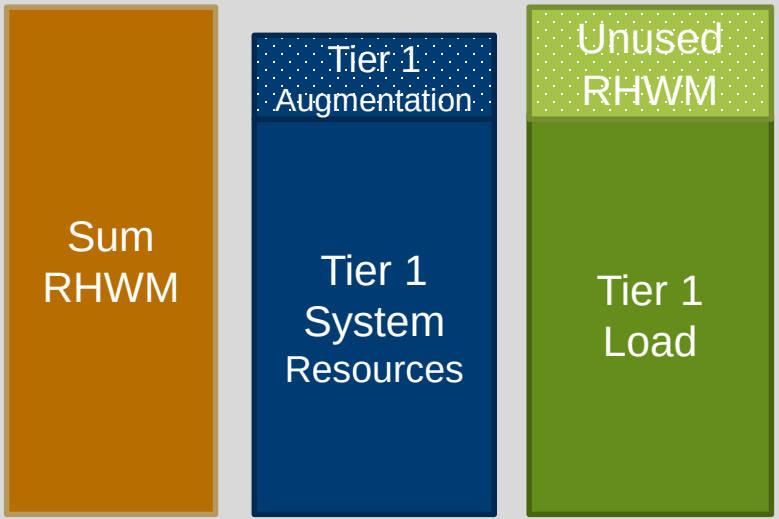
Unused RHWM ≠ Firm Surplus

# Long-Term & Existing Firm Inventory

## Example 5. PF only + Augmentation



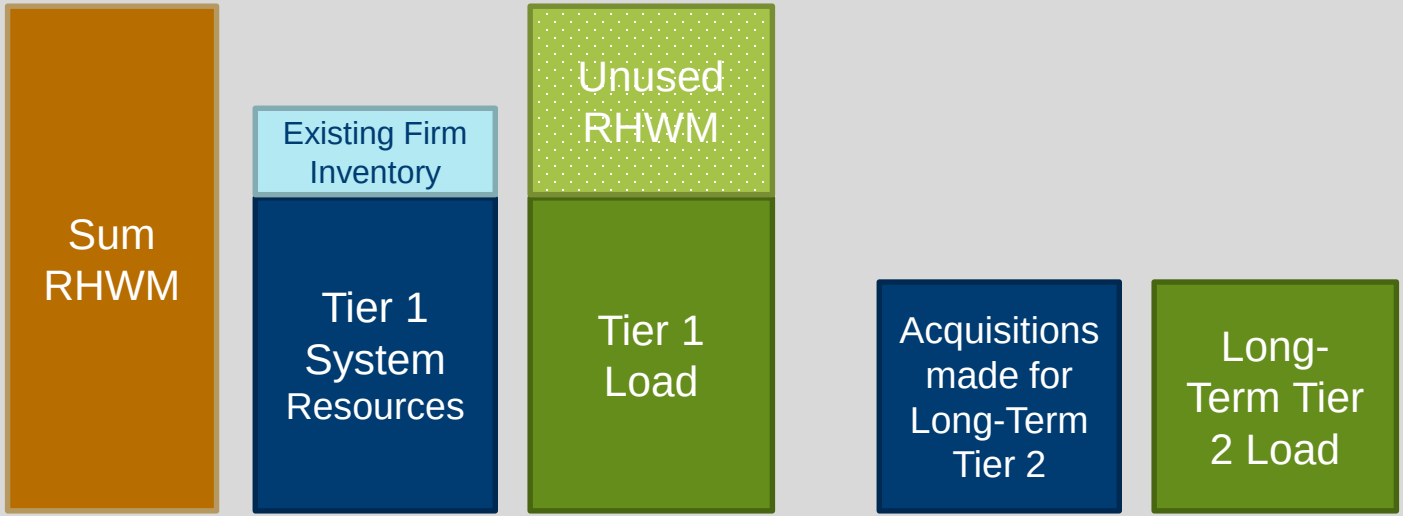

*Should this be considered as BPA having firm existing inventory?*

Unused RHWM ≠ Firm Surplus

# Long-Term & Existing Firm Inventory

**Example 6. Long-Term No Room**

Although BPA has existing firm inventory, BPA is in load and resource balance. No existing firm inventory is available for Long-Term Tier 2.






Unused RHWM ≠ Firm Surplus

# Existing Firm Inventory

- Customers requested that if BPA has existing firm inventory that it be provided to serve Above-RHWM load at a rate equivalent to the Tier 1 rate.
  - **Current BPA proposal** would allow this if customers elected BPA's Long-Term Tier 2 Rate option.
- Considerations:
  - Avoids requests for complex solutions like a HWM exchange or a new tier of power.
  - All customers provided one-time access to BPA's Long-Term Tier 2 Rate option.
  - Provides Tier 1 rate stability by increasing the chances that existing firm inventory is sold at a Tier 1 rate regardless of the then-current market conditions.
  - Could reduce non-Federal resource development if more customers want to take advantage of BPA's Long-Term Tier 2 rate option.
  - Market risk (upside and downside) passed to Long-Term Tier 2 rate pool. The power provided to the Long-Term Tier 2 rate pool could be more or less valuable when measured by the then-current market value of that power.

# Above-RHWM & Secondary Inventory

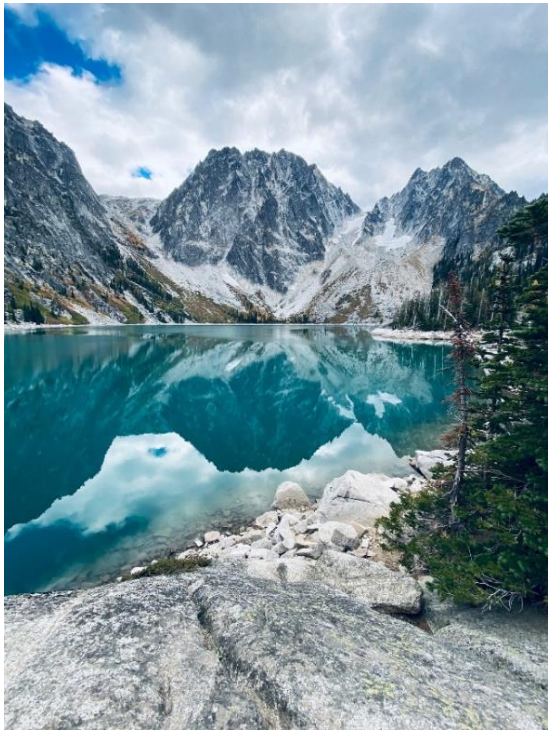
- Some customers requested BPA commit to using firm and secondary inventory to meet Above-RHWM loads at a rate equivalent to the Tier 1 rate.
- BPA will not pursue this concept:
  - Planning on uncertain secondary inventory to meet firm load obligations is inconsistent with prudent utility resource planning.
  - In addition to reliability and planning concerns, this would create significant within-rate period rate volatility that would be complex to implement and against sound ratemaking principles.
  - The proposal creates a new unsolved product-to-product equity issue as a result of Above-RHWM service by BPA being available to all customers while the benefits and risks associated with secondary inventory have traditionally been treated differently across BPA's products.
  - If existing firm inventory is provided to the Long-Term Tier 2 rate pool at a Tier 1 cost, the benefits and risks of secondary inventory would already be flowing to that Above-RHWM service rate.


DAY 2

# Reflections on Workshop Day 1

## Consider:

- What **resonated**?
- How **comfortable** are you with the proposed approach?
- Where are areas of **support** and/or **alignment**?
- Where are the **priority** areas of refinement and discussion?
- **Other thoughts**?



# Product Overview

Rob Burr, Policy Specialist

# Product Policy Considerations

1. **Enable customer choice** by providing a suite of products and services to customers.
2. **Address differences in** how customers use their non-federal resources.
3. **Provide clarity on load service** between the Load Following product, which meets a customer's hourly needs, and Planned Products, where the customer is responsible for meeting their hourly needs.

# Load Following Product

# Load Following Intent & Design

## Intent

Offer a product in which BPA takes on obligations to **meet customer's net requirement on an hourly basis**.

Customer **benefits from load service** certainty.

# Load Following Intent & Design

## Intent

Offer a product in which BPA takes on obligations to **meet customer's net requirement on an hourly basis**.

Customer **benefits from load service** certainty.

## Design

**Meets a customer's load on an hourly basis.**

- BPA takes on load-responsible-entity obligations.

-**Provides opportunities to:**

- Develop non-federal resources; shaping service may be required.
- Select among all Above-RHWM options.

# Load Following Product Design

- **BPA is not planning to alter the basic existing design** of the Load Following product.
  - Customers have expressed satisfaction with the product's basic design and construct.
  - BPA has received requests to re-examine RSS which will be addressed at the rate design stage.
- BPA may need to change aspects of product design to align with **WRAP requirements** and **any new requirements that could potentially come from a day-ahead market or RTO**.

# Load Following Discussion

**Are there any Load Following product features or changes that Bonneville should consider?**

# Block Product

# Block Product – Intent & Design

## Intent

**Planned Product.**

Provides flexibility and potential opportunity in how customers manage their loads and resources.

Customers required to manage their own resources to meet their actual load.

# Block Product – Intent & Design

## Intent

**Planned Product**

Provides flexibility and potential opportunity in how customers manage their loads and resources.

Customers required to manage their own resources to meet their actual load.

## Design

**Planned Annual Product**

Provides firm power each month on a planned basis to meet a customer's planned annual Net Requirement load.

**Serve loads** in predefined quantities and shapes; does not follow load.

**Offer two varieties**

A standalone Block product as well as an option to add Shaping Capacity.

# Block Product – Design

## Block Product Proposal:

- Bonneville proposes to offer a **standalone Block product** as well as an option to add **Shaping Capacity**.
- Bonneville is exploring modifications that may improve these product offerings compared to Regional Dialogue offerings, especially the Shaping Capacity option.
- At this point in time, Peak Net Requirements implementation should not impact the standalone Block product as it delivers a flat block of energy and does not have a capacity component.

# Block Product Under Regional Dialogue

## Allowable Block shapes:

- Customers may choose between two shapes for the Block product:
    1. A Flat Block which delivers an equal amount of power in all hours of the year.
    2. A Shaped Block, which shapes federal power deliveries to the customer on a forecasted monthly basis for a specified year.

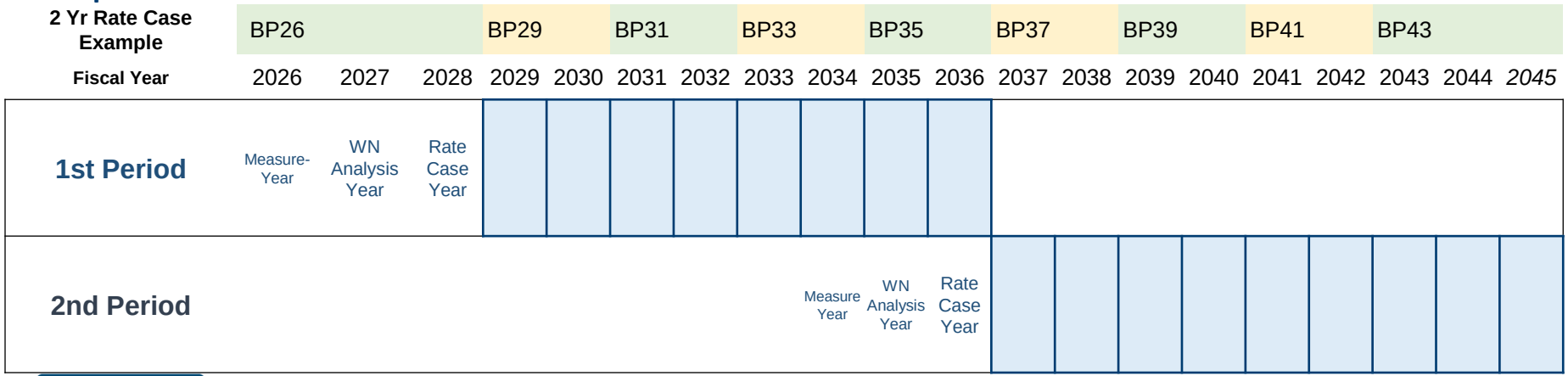
# Block Product – HLH Flexibility

- **Under Regional Dialogue** customers could opt to have up to 60% of their shaped block in Heavy Load Hours (HLH).
  - Bonneville has received requests to analyze this ratio to see if further flexibility can be provided to customers.
  - HLH are ordinarily 6 a.m. to 10 p.m., Monday through Saturday, excluding NERC holidays.
- Bonneville compared the % of energy that a customer can receive in the HLH block to what Load Following customer currently receive under that product.
  - Initial analysis shows that HLH ratios for Load Following customers averaged around 60%. Monthly total values range from 57% to 61%.
- **Bonneville proposes to not increase the % ratio** to allow customers to receive more energy in HLH to above what a Load Following customer receives.
- Bonneville also recognizes that customary diurnal load shapes may evolve due to industry changes and could be open to reconsidering in the future should that evolution occur.

# Updates to Shape of Block Purchase

- Allow customers to update the shape of their Block purchase.
- BPA proposes to offer customers the option to reshape their Block purchase one time during the contract.
- Customers would not be locked in to one block shape for the duration of the contract. Any changes in the block shape would be based on forecast (weather normalized (WN) actual load.)

**Example timeline:**



# Block Discussion

**What should BPA consider for this product?**

**What might be missing?**

# Block with Shaping Capacity

# Block With Shaping Capacity – Intent & Design

## Intent

**Provide planned amount of power** to meet net requirement load.

Provide **flexibility in operational period** to better match BPA provided power to anticipated load variation.

**Maintain customer accountability** to meet actual loads beyond the flexibilities designed into product.

# Block With Shaping Capacity – Intent & Design

## Intent

**Provide planned amount of power** to meet net requirement load.

Provide **flexibility in operational period** to better match BPA provided power to anticipated load variation.

**Maintain customer accountability** to meet actual loads beyond the flexibilities designed into product.

## Design

**Shaping Capacity** can be added to customers standalone Block purchase.

**Shaping Option** establishes a daily range for each month within which a customer may reshape the daily HLH energy amount of its Block purchase.

# Block with Shaping Capacity Product

- **Customers electing the Block-only product will also be able to add a Shaping Capacity product**, if their Net Requirement load allows for it.
- Shaping Capacity allows the Block customer to **pre-schedule a reshaped HLH block** from its planned flat average HLH block.
- **BPA is open to exploring adjustments** to shaping capacity that may allow it to better follow customer load.

# Shaping Capacity – Example

## What information and calculations are considered for the Block with Shaping Capacity product?

### Three steps:

1. Set a shaped block priced at Tier 1 rates.
2. Derive the shaping capacity purchase amount.
3. Use the shaping capacity purchase amount in a given day in that month.

### Need to establish:

1. What is the customer's monthly load data and resource information (for CHWM purposes and to set the monthly shape of the block charged at Tier 1 rates).
2. What is the customer's Net Requirement load.

# Shaping Capacity – Example

| | Monthly Load Amounts | Monthly Resource Amounts | Monthly Net Requirement |
|---|---|---|---|
| Total MWh | 400,000 | 200,000 | 200,000 |
| HLH (MWh) | 300,000 | 150,000 | 150,000 |
| LLH (MWh) | 100,000 | 50,000 | 50,000 |
| Peak (MW) | 900 | 300 | 600 |

- Net Requirement is **200,000 MWh** or **278 aMW**.
- **75%** of its monthly MWhs in the HLH period.
- The Block product priced at Tier 1 rates only allows for up to **60%** of the monthly MWhs in the HLH period.
- Bonneville will also need to factor in Peak Net Requirement, which will be explored during PNR implementation discussions.

# Example (Cont'd)

- The customer's monthly block amounts priced at Tier 1 rates.
- The adjustment from **75% to 60%** for HLH period.

| | Step 1 | | Step 2 | | |
|---|---|---|---|---|---|
| | Monthly Net Requirement (MWh) | % of Monthly MWh | November Block Amounts Priced at Tier 1 Rates (MWh) | % of Monthly MWh | MW |
| Total | 200,000 | | 200,000 | | 278 |
| HLH | 150,000 | 75% | 120,000 | 60% | 300 |
| LLH | 50,000 | 25% | 80,000 | 40% | 250 |

# Sample Day - Scheduled Tier 1-priced Block Amounts

## Deriving the Shaping Capacity purchase amount for a month:

- Determine the variance between the customer's monthly HLH peak and average HLH load for the month, compare that to the customer's Net Requirement amount.
- The customer's peak load for that month was 900 MW, compared to an average HLH load (in aMW) = 300,000/400 = 750 MW.
- Peak load is 1.2 times the average HLH load.
- A customer can increase its HLH amounts (purchased at Tier 1 rates) by up to 1.2 times 300, or 360 (and 300 + 60 = 360 MW) on any given HLH in the month. Any given HLH can also be reduced by 60 MW, or to 240 MW.

| | With No Shaping Capacity Used | With 60 MW of Shaping Capacity Used | |
|---|---|---|---|
| Hour | Schedule | Schedule | Delta from Average |
| 1 | 250 | 250 | 0 |
| 2 | 250 | 250 | 0 |
| 3 | 250 | 250 | 0 |
| 4 | 250 | 250 | 0 |
| 5 | 250 | 250 | 0 |
| 6 | 250 | 250 | 0 |
| 7 | 300 | 320 | 20 |
| 8 | 300 | 340 | 40 |
| 9 | 300 | 360 | 60 |
| 10 | 300 | 300 | 0 |
| 11 | 300 | 280 | -20 |
| 12 | 300 | 240 | -60 |
| 13 | 300 | 260 | -40 |
| 14 | 300 | 290 | -10 |
| 15 | 300 | 290 | -10 |
| 16 | 300 | 300 | 0 |
| 17 | 300 | 300 | 0 |
| 18 | 300 | 340 | 40 |
| 19 | 300 | 330 | 30 |
| 20 | 300 | 300 | 0 |
| 21 | 300 | 280 | -20 |
| 22 | 300 | 270 | -30 |
| 23 | 250 | 250 | 0 |
| 24 | 250 | 250 | 0 |

# Block with Shaping Capacity Discussion

## What else should BPA consider for this product option re-design?

- Does this address concerns or questions around policy direction?
- Note: We are focused on intent and direction, not final product design.

## What might be missing?

# Slice/Block

**Sarah Burczak, Policy Lead**

# Slice/Block Design & Intent

## Intent

Planned product that **offers customers flexibility** in how they manage their loads and resources including **autonomy in marketing**.

Customers take on **planning obligation to meet their loads.**

**Provides the benefits and risks** associated with federal system shape.

# Slice/Block Design & Intent

## Intent

Planned product that **offers customers flexibility** in how they manage their loads and resources including **autonomy in marketing**.

Customers take on **planning obligation to meet their loads.**

**Provides the benefits and risks** associated with federal system shape.

## Design

Block portion **provides a planned amount of flat firm power** to serve a portion of customer's net requirement load.

Slice portion includes a federal system sale of power **including firm power, hourly scheduling rights, and advanced sale of surplus power**.

It is **not a sale** of operational rights, Tier 1 system resources, resource capability, or transfer of control of any federal resources.

# Slice/Block – Block Portion

**Bonneville is not proposing changes to the Block portion of the Slice/Block product.**

- The **Block portion** of the product must be equal throughout a month although customers **can opt for a flat annual or flat within-month shape**.
- The annual amount of Block is calculated as the difference between the **customer's planned annual net requirements load and the firm Slice amount** from the Slice product.
- The **annual amount of Block energy can change as needed** to absorb changes to annual and rate case updates. This allows the Slice percentage to remain unchanged throughout the contract.

# Slice/Block – Slice Portion

**Bonneville is not proposing any changes to the Slice portion of the Slice/Block product, other than any changes required to make the product compatible with a potential day-ahead market, such as scheduling timing considerations or as would be impacted by Peak Net Requirement implementation (which have not been determined at this point in time).**

- The customer's Slice output is **calculated based on a percentage of the annual firm portion of the Tier 1 system**. And is a sale of firm power.
- At certain times during the year the **Slice product may deliver more or less power** due to water availability and system operations. So generally, the better the water year, the more energy is available under Slice.
- The Slice product includes **Requirements power and advance sale of Surplus power** (when Surplus is available).

# What Slice Is Not

The **Slice/Block product is not** a sale of operational rights, Tier 1 system resources, resource capability, or transfer of control of any federal resources.

Federal operating agencies **retain all operational control of all resources** that comprise the FCRPS at all times.

# Inherent Slice Product Risks

- Slice customers **take on variability risk as part of the product.**
  - Product is not designed to match a customer's load shape, or necessarily cover their load amounts in any given time frame.

- Slice power will be less during low water years, and **may be less than the planned firm power based on critical water planning** at the beginning of each contract year.
  - Loss of Federal generation or changes in Federal generation will be reflected in the Slice system resources on both a planning basis year to year and an operational basis hourly. Such changes can increase or reduce Slice power availability.
  - Additional non-power constraints, such as fish operations (i.e., increased flow or spill requirements, nitrogen saturation reductions, or other measures) may affect the amount of Slice power available.

# Slice Enhancements

- Bonneville has heard requests to provide additional flexibility with the Slice/Block product in the future, including more flexibility in shaping the Block portion of the product and additional guarantee of capacity when system shape does not align with customer loads.
- **Inherent to the Slice/Block product is that the Slice portion of the product follows the shape of the system, not the customer's load shape**. The customer agrees to meet any deficits to meet its load obligation as well as takes on disposing of any surplus.
- Given the product intent and design, Bonneville does not believe these requests align with the Slice/Block product. Customers interested in a planned product but whom want deliveries to better mirror load shapes should explore **Block with Shaping Capacity**.

# RSO Test

- **The Requirements Slice Output (RSO) test** is a requirement of the Slice product to ensure the power is being used to serve 5(b) requirements load.
- Bonneville recognizes that there are concerns with the current RSO test and requests to change the RSO test.
- **The policy will not address changes to the RSO test** but Bonneville had heard this is an important item to discuss before finalizing product design during this larger Provider of Choice process.

# Slice Discussion – Intent

## Intent

Planned product that **offers customers flexibility** in how they manage their loads and resources including **autonomy in marketing**.

Customers take on **planning obligation to meet their loads.**

**Provides the benefits and risks** associated with federal system shape.

**What is the level of alignment on intent of the Slice product?**

# Slice Discussion – Design

- **What is the level of alignment on <u>design</u> of the Slice product?**
- **Are there features of the Slice product you think should be revisited?**

## Design

Block portion **<u>provides a planned amount of flat firm power</u>** to serve a portion of customer's net requirement load.

Slice portion includes a federal system sale of power **<u>including firm power, hourly scheduling rights, and surplus power</u>**.

It is **<u>not a sale</u>** of operational rights, Tier 1 system resources, resource capability, or transfer of control of any federal resources.

# Schedule & Feedback

Michelle Lichtenfels, Program Manager, Provider of Choice

# Feedback

- Please share your initial feedback on the topics discussed during this workshop. We recognize policy discussions are ongoing and iterative.
- Feedback received by **Friday, March 3** can help inform the **Mar. 21-22** workshop.
- Please send 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.

# Mark Your Calendar

| Date | Time | Location | Workshop Topics | Post-Workshop Feedback Request Date |
|---|---|---|---|---|
| February 21, 2023<br>February 22, 2023 | 1 pm – 4:30 pm<br>9 am – 4 pm | BPA Rates Hearing Room and Webex | • Product updates (incl. AHWM); policy discussions cont'd<br>• Updates from Peak Net Requirements Task Force | March 3 |
| March 9, 2023 | 9 am – 4 pm | Webex only | • Policy discussions cont'd<br>• Updates TBD | March 17 |
| March 21, 2023<br>March 22, 2023 | 1 pm – 4 pm<br>9 am – 4 pm | BPA Rates Hearing Room and Webex | • Policy discussions cont'd<br>• Updates on LDD/IRD, Transfer Service, Other TBD | March 31 |
| April 2023 | Various | Various | • Summary of draft policy direction developed to-date | TBD |

# April Meetings

*Please mark your calendars.*
*Additional information forthcoming.*

- In April, BPA Power Services leadership and the Provider of Choice team will travel to locations throughout the region for a series of half-day public meetings.
- Objectives:
  - Share a summary of draft policy direction developed to-date.
  - Promote executive-level discussion in smaller group meetings.
- The same content will be shared at every location.
- Most meetings will be in-person only.
- The Portland location will include both in-person and Webex options.

| Utility Host + Location |
|---|
| Tuesday, April 11<br>United Electric, Heyburn, ID |
| Wednesday, April 12<br>Inland Power, Spokane, WA |
| Thursday, April 13<br>Missoula Electric Coop, Missoula, MT |
| Tuesday, April 18<br>Tacoma Power, Tacoma, WA |
| Wednesday, April 19<br>EWEB, Eugene, OR |
| Thursday, April 20<br>BPA, Portland, OR |

PROVIDER OF CHOICE POST 2028

# *Thank You.*

## Provider of Choice Lead Sponsor:

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## Provider of Choice Leads:

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