Slice/Block Product

June 24, 2024

Objectives

Overview of Slice/Block product features to be designed by end of June.

Feedback on the features as described.

Provider of Choice Slice/Block

June Features

Feature	Must Figure Out
Product Framework	Define how product serves 5(b) load obligations and what are the inherent features.
Planning Obligations	Define what planning obligations Bonneville takes on for power delivered by Slice/Block product and what planning obligations the customer takes on. Given Bonneville has joined the binding WRAP, specify how this would look under WRAP.
WRAP	Identify any constraints on Slice/Block product around WRAP implementation (daily holdback calculation).
Slice Right to Power (RTP) determination	Identify how Slice RTP is calculated from planning horizon to day-ahead.
Fixed System	Establish how Slice would be determined under a fixed system conceptually.
Slice RTP at day-ahead	Identify how a customer would submit their Slice RTP into a day-ahead market considering all market scenarios.
Slice RTP in real time	Identify if there are any gaps in real-time market based on constraining product to day-ahead and identify mitigation if necessary.
Block portion (DA and RT)	Identify how Block would work in a market.
Surplus Value (MW or $)	Identify how advanced sale of surplus value is recognized in a day-ahead market.
Settlement	Identify if there are any unique financial settlements for the Slice/block product that need to be documented in the contract.
Slice/Block Percentage	Assume that Slice/Block will be set at 50% Slice and 50% Block.
SCA	Assess whether product changes could be implemented through the SCA or not. Consideration of both short-term implementation and long-term administration to be weighed.
Cooperatives and Bonds	Identify risk of losing tax-exempt status on bonds if a certain threshold of cooperatives opt to take the Slice/Block product.

Features (cont.)

Bonneville will consider these features final after June. This is to allow additional features to evolve from the foundational design and to start contract drafting.

Note all features must be compatible with the following scenarios:

1.   Bonneville does not join a market.

2.   Bonneville does not join a market but has customers in one or both day-ahead markets (Markets+ and EDAM).

3.   Bonneville joins Markets+ and has customers in EDAM or no market.

4.   Bonneville joins EDAM but has customers in Markets+ or no market.

Product Framework

- Slice/Block would be a planned product (**providing a planned annual amount of power**) that offers customers flexibility in how they manage their loads and resources, including autonomy in marketing, and comes with the benefits and risks associated with the capabilities of the federal system.

- **Block portion of this product** will provide a planned amount of flat firm power to serve a portion of a customer's net requirements. Customers will be able to elect either a **flat annual or flat within-month block shape**.

- **Slice portion** offers a federal system sale of power that includes 1**) firm requirements power, and 2) an advance sale of surplus power**. A customer purchasing the Slice/Block product agrees to take power associated with the slice portion in the shape of the actual, approximated or simulated output of the predefined set of resources and **accepts that Bonneville will not shape it to meet their actual loads, capacity or reserve needs**.

Excerpts from Section 3.4 of the Provider of Choice Policy (Policy).

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Net Requirements and Slice/Block Percentage

- Bonneville completes annual net requirements transparency process ahead of the upcoming fiscal year (details discussed in June 12 workshop).

- Bonneville would set the Slice/Block percentage at this time. Bonneville will limit the Slice percentage to 50%.

- For example, the process calculates that the customer's energy net requirements is 150 aMW. The customer's Slice/Block percentage split would be:

  – Block portion = 75 aMW
  – Slice portion* = 75 aMW or 1.05%

*Slice portion percentage is an estimate based on FY 2024 Slice/Block.

Planning Obligations

- Bonneville stated in the Policy that it would not be responsible for the planning obligations for any utility that elected a planned product.

- However, the Policy also stated that Bonneville will outline what planning obligations the agency will be responsible for each product including what will be covered for the planned annual power delivered under planned products.

- Bonneville has also clarified that Western Resource Adequacy Program (WRAP) is one of its planning obligations based on its decision to join the binding program.

  - WRAP's Planning Reserve Margin is not considered a net requirements obligation. It is a planning obligation.

WRAP

- For the **WRAP Forward Showing**, the customer gets to count:
  - **Slice portion**: the customer's Slice percentage determines the percentage of the system QCC they could count towards their own WRAP compliance. The system QCC Slice/Block customers would be able to count would be limited to the resources attributed to serve power at a PF Tier 1 rate.
  - **Block portion**: the customer receives the flat capacity equal to the energy delivery amount. For Slice/Block product, the block portion is shaped to net requirements load in flat monthly amounts.

- To date, Bonneville has not identified any product constraints required for WRAP implementation (daily holdback calculation).

Fixed System: By Rate Period

Each rate period BPA will:

1. Calculate total expected CHWM load (or power available at a PF Tier 1 rate)

   – Subsequent CHWM adjustments: Determine if any customer is eligible for an additional CHWM and adjust those that qualify.

   – Net Requirements Load: Calculation will determine if customers have load up to their CHWM or if their expected load is less than their CHWM. For Slice/Block customers, this calculation would determine their slice percentage and their block portion.

   – The total amount of power available at a PF Tier 1 rate will not exceed 7,250 aMW absent subsequent CHWM adjustments, which then will be capped at 7,250 aMW plus subsequent adjustment amounts.

2. Determine what set of resources will be considered in the cost allocation to the PF Tier 1 cost pools.

   – This determination will set the resources that feed into the Slice Computer Application (SCA) through the hydro modelling or Balance of System (BOS) calculation.

Slice RTP Determination

- Slice/Block customers would leverage the SCA and their BOS amount to determine their maximum Slice RTP.

- If a customer does not take their full hourly RTP, they forfeit the MWs they did not elect to take (similar to Regional Dialogue).

- The Slice RTP amounts are based off a modeled system and may not reflect actual operations or all constraints on the federal system.

Slice RTP in SCA

- For the SCA, BPA would include the six projects currently modeled in the SCA in the resources cost-allocated to PF Tier 1 rates in every rate period.

  – The six resources modeled in the SCA are: Ground Coulee, Chief Joe, McNary, John Day, The Dalles, and Bonneville.

- BPA, through the SCA, would model the constraints and available output of the hydro projects to the customers. Customers would elect how to manage their water within the given constraints.

- **Under a fixed system:** The SCA modeling would not look different from Regional Dialogue SCA.

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Slice RTP in BOS Calculation

- The resources that would be included in the BOS calculation could change from rate period to rate period based on the amount of power available at a PF Tier 1 rate and what resources are determined to be cost-allocated to the PF Tier 1 cost pool.

- BPA would convey the amount of MWs available to a customer based on the BOS calculation.

- **Under a fixed system,** the BOS calculation output communicated to customers would look similar to today.

Slice RTP Election at Day-ahead

- **Assumes that a Slice/Block customer will be a market participant.**

  - Market participant is an entity that is directly participating in the market, usually by virtue of having load and/or generation in the market footprint or by otherwise participating and receiving settlements from the Market Operator in the market (e.g. virtual bidding).

- **Slice/Block customers as market participants will determine their own MOO and their resource offer based on their non-federal resources.**

  - Bonneville has yet to determine how planned products would be modeled or communicated in a day-ahead market.

Slice RTP in Real-time

- Customer-elected Slice RTP in the day-ahead remains the hourly value going into the real-time market.

- If Bonneville resources' capability shifts significantly into real-time, Bonneville will adjust DA bid curves and the market will solve for changes in real-time.

- If Slice/Block (or standalone Block) customer load or resources change in real time relative to their DA RTP submission, the customer can adjust their non-federal resource participation, or the market will adjust other factors to address changes.

Block Portion in DA and RT

- Monthly flat block amounts would be established during the annual net requirements process.

- Bonneville will ensure delivery of the flat annual block amounts in both the day-ahead and real-time time frames.

Surplus Value

- Bonneville will deliver the MWs elected by a Slice/Block customer as requested.

  – This is the approach that Slice/Block has enabled since its conception.

- Customers will be responsible for figuring out surplus value whether the MWs are serving load, non-federal resources are dispatched to get market benefits, or if completing other trades to derive value.
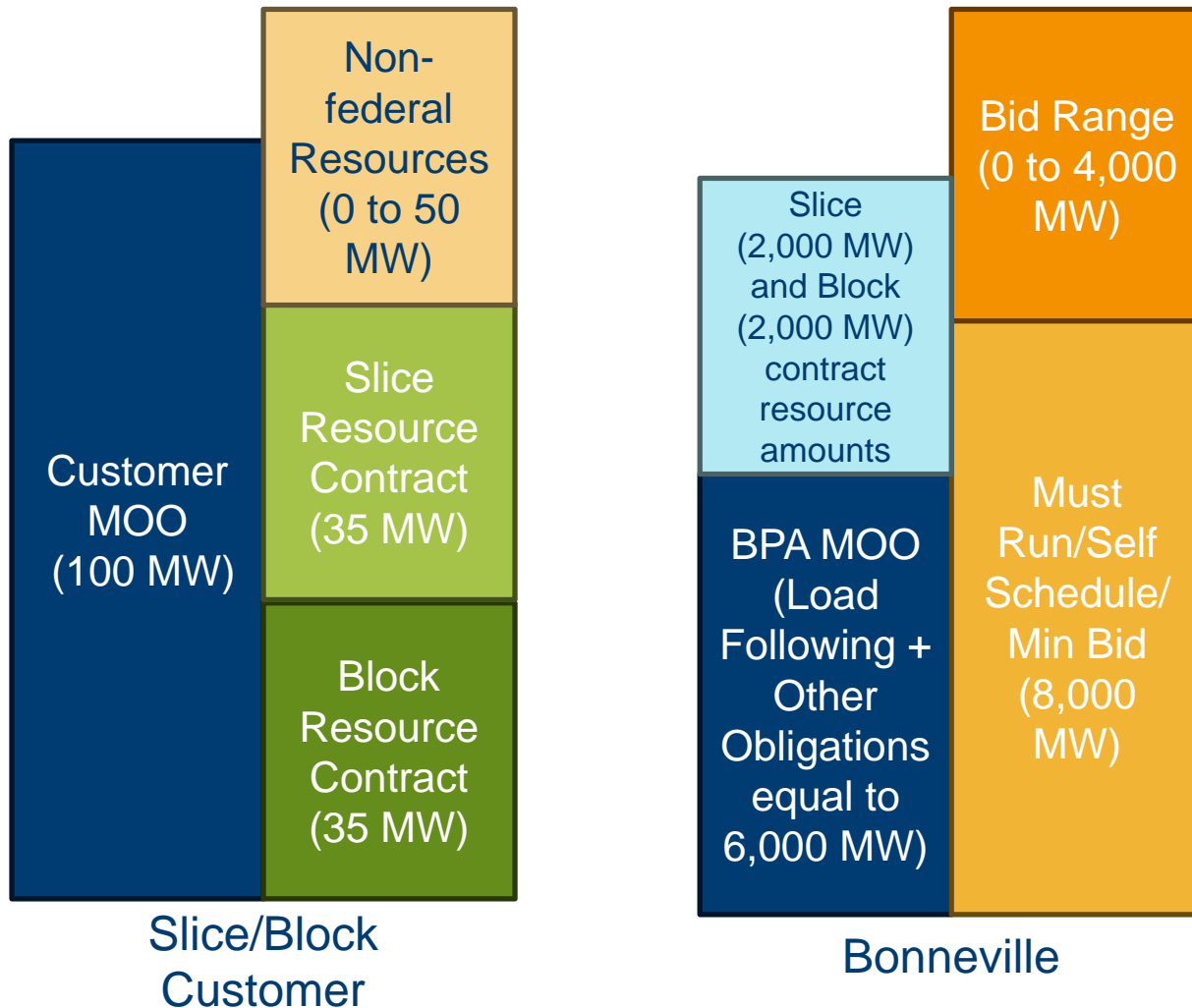
Settlements

- The discussion of financial settlements only applies if BPA joins a day-ahead market and the Slice/Block customer is in the same market.

  - If BPA joins a day-ahead market, BPA would need to do a further evaluation if it could leverage a market mechanism to facilitate settlements or whether settlements would be between BPA and the customer.

- If BPA does not join a day-ahead market, BPA assumes it would convey power to customers based on day-ahead Slice RTP, and customers would determine where those MWs are being used.

- If a Slice/Block customer is in another market from BPA, the current assumption is that the BPA would schedule that power to the BA the customer is located in. Depending on market rules, that may be a self-schedule to the intertie or there may be some ability to optimize; however, working assumption is that energy would be scheduled directly to customer.

Settlements Approach

- The Slice/Block customer and BPA would settle based on the Slice RTP amount communicated by the customer. This would be regardless if BPA was dispatched to serve all its load obligations or if the market determined another source met some of the MOO. This should be agnostic as generation would clear at the same price.

- Block (including block portion of Slice/Block product) and Load Following would be settled on whatever construct is determined for that cost pool, which is to be determined.

Settlements Example

Slice/Block Customer (left chart):
- Customer MOO (100 MW)
- Non-federal Resources (0 to 50 MW)
- Slice Resource Contract (35 MW)
- Block Resource Contract (35 MW)

Bonneville (right chart):
- Slice (2,000 MW) and Block (2,000 MW) contract resource amounts
- BPA MOO (Load Following + Other Obligations equal to 6,000 MW)
- Bid Range (0 to 4,000 MW)
- Must Run/Self Schedule/Min Bid (8,000 MW)

1. In this example, a Slice/Block customer has a MOO of 100 MW that it plans to bid into the market.
2. The customer's resource offer would include:
   - Bid range for their non-federal resources.
   - Communication to market about their contract resource amounts for slice and block and would point to BPA's resource offer to serve them. Customer would communicate planned Slice Right to Power (RTP) to BPA ahead of day-ahead market run.
3. BPA's MOO it bids into the market is 6,000 MW based on its Load Following and other obligations. BPA also knows it has contracted for 4,000 MW to planned product customers.
4. BPA's resource offer would look holistically at its obligations. BPA would determine the most economic must run/self schedule/min bid as well as best bid range to optimize on behalf of all load and resource contracts within system constraints.
5. Regardless of how Bonneville is dispatched, it would settle with Slice Block customers on the 35 MW.

Slice Computer Application

- Bonneville has done an initial assessment of the scope of changes that would be required to make the foundational features fit in the Slice Computer Application.

- Staff's initial assessment is that the current application could be upgraded to enable the features envisioned for the Provider of Choice Slice/Block product.

- Staff estimates that upgrades could take three to four years.

Bonds: What is the issue?

- Bonneville meets the debt service costs of about $4.5 billion in tax-exempt bonds for Energy Northwest's Project 1, Project 3, and Columbia Generating Station (CGS).

- If a non-governmental entity, such as an electric cooperative, is considered to have direct use of CGS, BPA would not be able to preserve the tax-exempt status of the bonds.

- The Slice/Block product is considered to be a direct use of CGS as the slice portion of the product assumes a percentage of CGS is being used to serve load directly to customer.

- Under Regional Dialogue, any non-governmental entity was limited to 2.8% CHWM otherwise BPA would need to remediate a percentage of bonds to no longer be tax exempt.

Bonds: What has changed since 2008?

- Approximately $1.5 billion worth of bonds are subject to a 1% (0.5%) de minimis threshold based on changes to IRS rules.

  - This would translate to a non-governmental entity being limited to 0.5% Slice to avoid remediation.

- The remaining bonds are still subject to 3%.

- If the bonds lose their tax-exempt status, they would need to be remediated immediately. The remediation would need to start at contract signing (FY 2026).
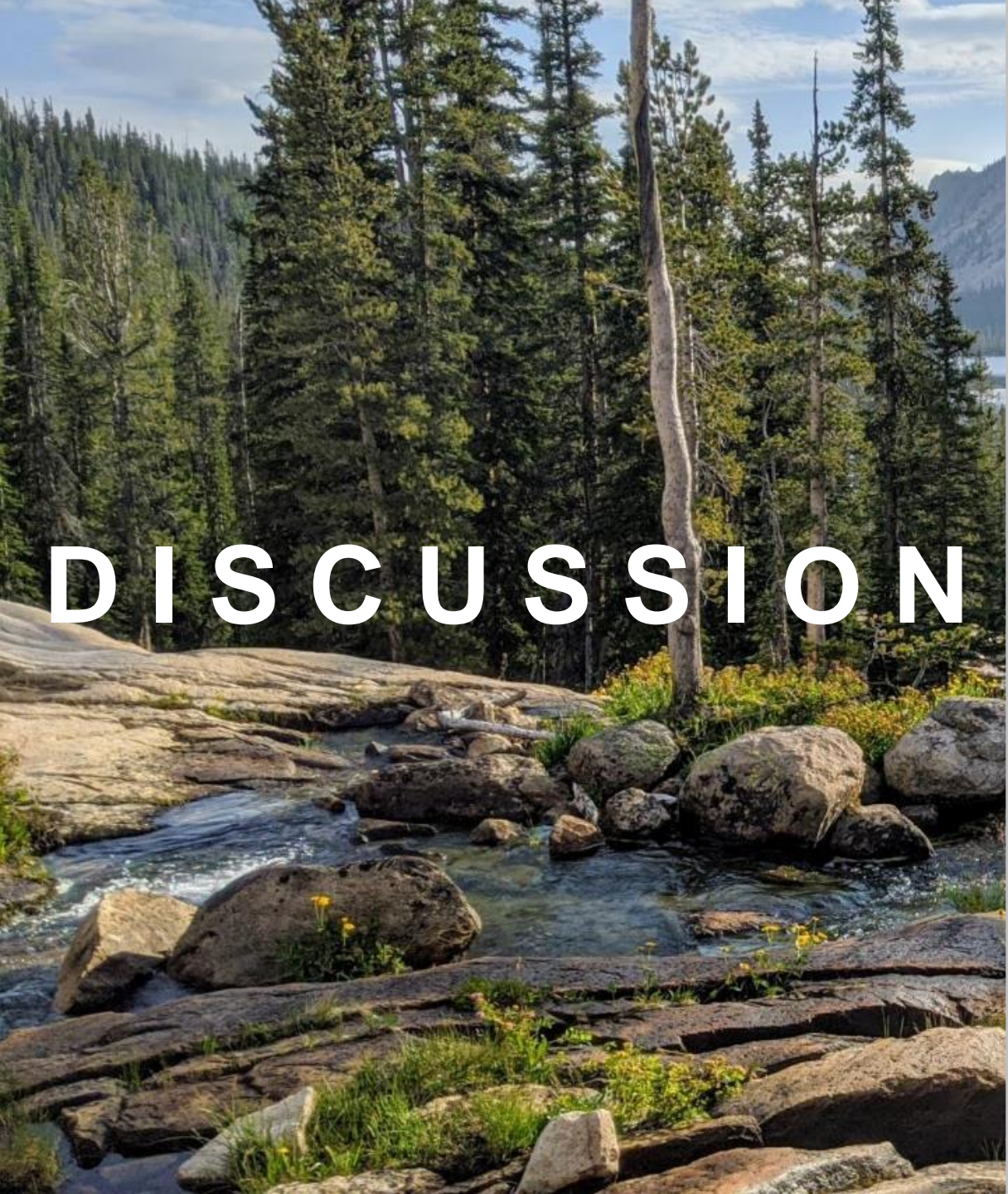
DISCUSSION

Is there any feature that concerns you or needs further discussion?

What is customer sentiment for Slice/Block product as proposed?