

Regional Dialogue Implementation Framework:

The Slice/Block Product General Overview

August 29, 2007

Issued on Aug. 27, 2007

For Regional Dialogue Discussion
Purposes Only -- Pre-decisional



Issues Addressed

Background

- Connection to the Regional Dialogue objectives and Policy statements.

Overview of BPA Slice/Block Product Design Philosophy

- This presentation provides a high-level overview of the Slice/Block product design philosophy from BPA's perspective. Your feedback will help guide discussions and development of materials for future working sessions.

Slice/Block and the High Water Mark

- Determination of maximum Slice/Block available to a customer.

Slice Allocation Proposal

Product Characteristics

- A more detailed look at the Slice/Block Product.

The Ten Slice Principles (Appendix A)

The Alternative 2 Concepts (Appendix B)



Terminology

- The term "Slice/Block" demonstrates BPA's design assumption that the Slice product will be combined with a Block product to form a single Slice/Block product. Because the Slice component and Block component have their own characteristics, they will be discussed separately at times throughout this presentation.
- The term "Tier 1 purchase" represents the amount of Slice/Block a customer may purchase, defined as the lesser of their High Water Mark (HWM) or their forecast Net Requirements load.



Connection to Regional Dialogue Objectives

- One aspect of the Regional Dialogue objectives guiding the Slice/Block product framework is to create equity between the Slice/Block product and BPA's other Requirements products in as many ways as possible. For instance:
 - Wherever possible, the "Slice System" resource used to develop Slice/Block criteria (such as the Selected Slice Percentages) will be equal to the Tier 1 system resource, which is defined as the FBS resource (firm energy) available at the Tier 1 rate
 - The Slice rate will be based on the Tier 1 Revenue Requirement
 - Appropriate risk mitigation treatments will be applied to each product
 - The treatment of load growth and load loss will be consistent among all requirements products
- A Regional Dialogue objective guiding the Slice/Block product design process is transparency. This entails open, public meetings and workshops where details regarding BPA's products are discussed. It will be important to continue this open, public forum throughout the Regional Dialogue contract development process.



BPA's Policy Declarations on Slice

- "BPA will develop and offer a Slice product that is similar to the original Slice product, but with a number of refinements"
 - Slice retains its general percent-of-output characteristic, but some features available in the current product will not be available, such as Dynamic Scheduling, self-supply of Ancillary Services. Also, the determination of deliver limits will be refined to more accurately reflect operational constraints.
- "BPA will clearly define Slice as a system sale of requirements power and surplus power indexed to the variable energy output of the applicable FCRPS resources".
 - The intent for clearly defining the product is to eliminate the potential for misinterpreting what Slice is, what Slice is not, and what the product includes
 - BPA will be absolutely clear that Slice is strictly a sale of power, not a sale of system resources, resource capability, or a transfer of control over those resources
 - BPA will be absolutely clear that Slice is a requirements product (which includes surplus energy), and that a specified amount of Slice energy shall be utilized to meet requirements load over a specified time period
 - This enables BPA to consider Slice/Block as a standard option among BPA's requirements products, but with its own special features and characteristics that set it apart from Block or Load Following products
- "BPA will increase the current amount of Slice product it makes available to its requirements customers to 25% of the FBS firm resource for FY 2012".
- "BPA is adopting 10 principles as the foundation for the Slice product" - See Appendix A.
- "BPA will develop the Slice product based on Alternative 2 concepts as described on pages 41 through 45 of the Regional Dialogue Policy Proposal" - See Appendix B.



Slice/Block Product Design Philosophy

- As is the case with the current Slice product, the post-2011 Slice product is a power sale that includes both requirements power and surplus power.
 - The Slice/Block contract is a Power Sales Agreement available to requirements customers for use in meeting their requirements load
 - Slice, like Block, is a sale of Federal power (energy and its associated capacity), and is not a sale of Federal resources or a transfer of operational control of those resources
 - Slice energy is made available in a quantity equal to a percentage of actual system output
- The Slice product is not a “slice of the system”, which implies a share of resource capability or control.
 - Federal agencies (BPA, COE, BOR) coordinate the operation of the FCRPS resources, in cooperation with other agencies (USFWS, NOAA, etc), and make all decisions regarding such operation. These decisions will affect the quantity and shape of the FCRPS output, and Slice/Block customers will have no rights to affect these decisions
 - Slice is scheduled within delivery limits that emulate resource capability given applicable operational constraints
- The Slice product is not a load following product and will not include within-hour services such as Dynamic Scheduling or rights to self-supply Ancillary Services using the Slice resource.
 - Slice energy will be made available for delivery in full hourly increments only



Slice/Block Product Design Philosophy

- The Slice contract commits BPA to make a specific quantity of energy available to Slice customers within storage and delivery limits based on system constraints, but Slice energy is not necessarily generated coincidentally from Slice resources, and Slice storage does not necessarily reside within a physical Slice resource.
 - Slice energy will be made available to customers in quantities equal to a percentage of the Slice System resource output, and Slice customers will have rights to shape the delivery of that energy within storage and delivery limits determined by BPA
 - Customer elections for deliveries of Slice energy will not necessarily have a direct bearing on the actual operation of the FCRPS
 - The Federal agencies will operate the FCRPS as needed to meet applicable operating constraints and BPA will make energy available to Slice customers based on BPA's determination of Slice delivery limits that reflect modeling of these same applicable operating constraints
 - Slice customers' storage rights will reside in numerical accounts rather than in actual storage space within the Slice System resources



Slice/Block Product Design Philosophy

- Slice will be combined with Block to form a single product (the shape of the Block available in combination with Slice is yet to be determined).
- There are several reasons for combining Block with Slice, including:
 - Block will act as a shock absorber through the term of the agreement in order to maintain a constant Slice Percentage for Slice/Block customers
 - For load loss below Contract High Water Mark as well as fluctuations in Rate Period High Water Mark
 - Load loss in excess of Block amounts will result in a reduced Slice Percentage
 - Simplified contract administration (Regional Dialogue goal)
 - Spreads limited amount of Slice among more customers
 - Slice combined with Block is more in line with the typical shape of customers' loads, when compared to the shape of Slice alone
 - Maintains BPA's current risk profile related to Slice
- BPA's has yet to determine a specific minimum quantity, but the expectation is the minimum Block will be between 30% and 50% of a customer's Tier 1 purchase.
 - A customer may elect to purchase more than the minimum Block requirement
 - The Block percentage will need to increase to the extent the Slice component is fully subscribed



Slice/Block and the High Water Mark

- The quantity of Slice/Block available for purchase by a customer will be based upon the lesser of their Rate Period High Water Mark or their annual Net Requirement load (Tier 1 purchase).
- Determination of Contract High Water Marks, Rate Period High Water Marks, Net Requirements load, resource removal rights, etc, will be developed as part of the Tiered Rates Methodology.



Slice Allocation Methodology

- Slice/Block purchasers will request a Selected Slice Percentage (SSP) not to exceed 60% of their Tier 1 purchase (assuming 40% Block minimum).
- If the sum of the SSP's exceeds 25% of the FBS, BPA will reduce the individual SSP's proportionately to achieve the 25% limit.
- If the SSP is reduced, the purchaser may increase their Block by an amount less than or equal to the reduction in SSP, expressed in aMW.
- Example:
Total SSP requests = 30% of FBS (Reduced SSP will be calculated as 25/30 of the requested SSP)
Customer A's SSP request = 5%
Customer B's SSP request = 1.5%

Customer A's reduced SSP = $5 \times (25/30) = 4.1667\%$

Customer B's reduced SSP = $1.5 \times (25/30) = 1.25\%$



Product Characteristics

- Power sold under Slice is made available in the shape of the FCRPS resource energy output, as adjusted for use of available storage, rather than the shape of a customer's load.
- Slice includes an advance sale of surplus power. The quantity of surplus energy varies with hydro conditions and operating constraints. In general terms, the better the water year, the more surplus will be available under Slice.
- Though the Slice/Block product is a Requirements product, there is no guarantee the power made available will be sufficient to meet a customer's Net Requirements load in any timeframe, be it hourly, daily, weekly, monthly or annually.
- A customer who purchases the Slice/Block product becomes responsible for meeting their Net Requirements load hour-to-hour, including shortfalls due to poor water or resource underperformance.
 - BPA's obligation to supply Net Requirements energy is fulfilled through annual planning



Product Characteristics

- A customer who purchases Slice will be responsible for scheduling all of their Slice energy from the BPA bus to its ultimate destination, or will need to enlist a scheduling agent to do so.
 - Individual Slice customers will schedule their own Slice energy within the applicable storage and delivery limits. Pooling of Slice energy and storage will not be allowed.
 - Because BPA shares significant amounts of operational information with Slice customers and their scheduling agents, BPA reserves the right to limit information shared with non-Slice scheduling agents that have significant marketing roles in the Pacific Northwest.
- Various concepts have been suggested for determining the Slice rate methodology (status quo being one of them), and the final determination of the Slice rate will occur as part of the Tiered Rates Methodology process, including related workshops.
- The Slice contract will be guided by the 10 principles outlined in BPA's Long-Term Policy dated July, 2007 (see Appendix A).
- The determination of Slice delivery limits will be the sole responsibility of BPA, and will be designed consistent with the Alternative 2 concepts described in BPA's Policy Proposal, dated July 13, 2006 (see Appendix B).



Product Characteristics

- Prospective Slice/Block customers should realize there are risks inherent in the Slice product.
 - The amount of energy available under Slice in poor water years will be less than the energy available in average or above-average water years and can be less than critical planning amounts
 - Changes in FBS resources, such as the loss of CGS or removal of the lower Snake projects will reduce the amount energy available under Slice
 - Additional fish measures, such as increased spill volumes, will reduce the amount of energy available under Slice
- Prospective Slice/Block customers need to realize there are infrastructure requirements needed to implement Slice.
 - Customers must develop and maintain a Slice Computer Application and interface for electronic scheduling of Slice energy
 - Customers must develop or enlist 24-hour scheduling services
- Prospective Slice customers will need to meet specified creditworthiness requirements.



Appendix A – Slice Principles

1. There are no unintended shifts of costs, risks or benefits among power products, and all power products bear a share of the costs and risks.
2. There is no risk or cost shift to Federal taxpayers.
3. Slice purchasers bear an allocation of FCRPS costs and risks and receive a commensurate amount of FCRPS energy, hourly scheduling flexibility, and specific power revenues.
4. To the maximum extent possible, the rate adjustment mechanisms for common cost components in the Slice and other PF products are the same.
5. FCRPS operating decisions are solely Federal decisions, and there will be no interference in those decisions.
6. BPA estimates of applicable FCRPS resource capability, after reducing such capability for system obligations, determine Slice delivery limits for pre-schedule.
7. BPA will establish a forecast system operation that accommodates Slice and non-Slice customer pre-schedules.
8. Delivery limits established for real-time will reflect BPA's determination of updated flexibility of the applicable FCRPS resources, as determined by FCRPS operating decisions establishing actual system configuration.
9. The Slice product will not include within-hour load-following, dynamic scheduling or ancillary services. Generating capacity and energy provided from the FCRPS to Transmission Services for Interconnected Operating Services will come "off the top" and revenues Power Services receives from those generating inputs will be shared on a proportional basis.
10. The Slice product offering will require no changes in Federal law.



Appendix B – Alternative 2 Concepts

Product Defined

- The Slice product will be clearly defined as a system sale of Requirements and surplus power indexed to the variable FCRPS energy and storage capability, within defined delivery limits.
- Slice is not a transfer of resource ownership, control or capability.
- Slice delivery limits would be defined by sustainable energy over a specified time period.
- Slice energy would be scheduled in full hourly increments.

Ancillary Services

- The Slice product would not include within-hour load following, dynamic scheduling or ancillary services. Generating capacity and energy provided from the FCRPS to TBL for Interconnected Operating Services would come “off the top,” and revenues BPA Power receives from BPA Transmission for those generation inputs would be shared in proportion to the customers’ Slice share.

Off-the-top Obligations

- Off-the-top obligations would reduce the amount of FCRPS output provided from the Slice system (a defined set of Federal resources) and include system obligations similar to those defined in the existing Slice contract such as fish obligations, Canadian Entitlement, plus other obligations such as those that pertain to regional reliability, regional requirements and prudent system operation.
- Examples of other obligations may include system capability needed for wind integration, system optimization, generation redispatch and operational uncertainty.



Appendix B – Alternative 2 Concepts

Off-the-top obligations, cont.

- Prudent system operation includes additional capacity buffers deemed necessary based on the professional judgment of BPA hydro duty schedulers. Off-the-top obligations related to operational uncertainty and prudent system operations (buffers) do not have direct costs or revenues and would be applied proportionally to Slice and non-Slice customers.
- BPA Power revenues resulting directly from off-the-top obligations would be shared proportionally with Slice customers.
- The amount, value and distribution of any revenue or credit provided to Slice and non-Slice customers for Integrated Operating Services (IOS) provided to BPA's FERC-regulated transmission services function is a matter of rate design and cost recovery and would be established in BPA rate proceedings.

Design and Flexibility Concepts

- The Slice product would be clearly defined as a system sale of Requirements and surplus power indexed to the variable FCRPS energy and storage capability, within defined delivery limits.
- Slice is not a transfer of resource ownership, control or capability.
- Slice delivery limits would be defined by sustainable energy over a specified time period.
- Slice energy would be scheduled in full hourly increments.
- Dynamic scheduling, self-supply of Operating Reserve, and self-supply of Energy Imbalance are not a features of the Slice product.



Appendix B – Alternative 2 Concepts

Provisions that determine Slice delivery limits would be developed in a manner that enables simplified and improved implementation of the Slice product while maintaining the allocation of energy and hourly scheduling flexibility concept, consistent with principle #3.

- Eliminate Slice delivery provisions that have seen little or no use in over 4 years of Slice implementation.
- Timing of real-time schedule change rights would be based on the then-current BPA power scheduling practices.
- Recognizing that a majority of system storage and shaping flexibility exists at the Grand Coulee/Chief Joseph storage complex, PBL would develop detailed Slice delivery limits that emulate that flexibility.
- Recognizing that there is much less storage and shaping flexibility at the Snake and lower Columbia run-of-river complexes, BPA's Power Business Line (PBL) would develop simplified Slice delivery limits that emulate that flexibility.
- PBL would establish Slice delivery limits that consider the hydraulic link that exists between the Coulee/Chief storage complex operation and the lower Columbia run-of-river complex operation.
- PBL would establish Slice storage limits that represent the storage space that exists only at those projects with significant and accessible storage space.
- PBL would establish pre-schedule Slice delivery limits that reflect expected energy and storage capability based on forecast stream flows, operational constraints and off-the-top obligations.
- PBL would establish real-time Slice delivery limits that result from BPA customers' aggregate pre-schedule election, as well as actual stream flows, operational constraints, off-the-top obligations and other operating criteria as determined by the BPA hydro scheduler.



Appendix B – Alternative 2 Concepts

Provisions that determine Slice delivery limits...cont.

- PBL would update Slice delivery limits on a periodic basis in real-time to represent actual operating criteria and conditions.
- Measurable(s) would be developed that enable PBL to monitor and assess: (1) the success of the Slice product in relation to product principles; (2) the accuracy of Slice limits verses actual system limits; (3) the use of Slice energy to meet Requirements load; and, (4) risk mitigation. This information would be available to BPA customers to monitor Slice product implementation.
- Charges or fees would be applied to violations of Slice delivery limits.

Transmission Scheduling/Redispatch

- Operational impacts of control area required redispatch would be shared proportionally between Slice and non-Slice customers. The impacts of future congestion management initiatives on the Slice product have not been determined, but the expectation is that Slice customers would comply with control area requirements applicable to all scheduling entities. There is a risk that Federal Points of Receipt previously identified for the purpose of acquiring transmission contracts may require greater accuracy or additional detail under new procedures.

Slice – Resource Integration

- Uses of the product by Slice customers for resource integration would be supported to the extent Slice limits allow.



Appendix B – Alternative 2 Concepts

Amount of Slice

- BPA proposes limiting the amount of Slice to 25 percent. This represents approximately a 10 percent increase over the current amount of 22.6 percent.

Net Requirements

- A specific monthly test that would be traceable, repeatable and documented for identifying power taken to customer load, and power not taken to load, similar to the current contract test but eliminating or reducing the bandwidth adjustments. The consequences for non-compliance with this test would be appropriate penalties, rather than contract termination.
- The test must be reasonable and be aimed at establishing factually what the customer did with the power it scheduled from BPA over the specific period of time.
- Changes in control area management or compliance with statutory obligations may require separate hourly schedules of requirements and surplus energy.
- A simple crediting mechanism would be developed to reimburse the Slice purchasers for power that cannot be taken, in the event that annual consumer load loss exceeds the amount of the customer's non-Federal Eliminate resource removal rights under the new contract.

Governance and Information Sharing

- PBL reserves the right to withhold any information normally shared with Slice customers from any non-Slice entity that becomes a scheduling agent for a Slice customer.
- Slice is available only to preference customers of BPA and cannot be assigned to non-preference customers or agents.



Appendix B – Alternative 2 Concepts

BPA Product Offerings

- BPA would offer other products that do not expand operational and financial risk to BPA, with various degrees of operational flexibility, as an alternative choice to meet requirements loads. Some products may be usable in conjunction with this proposed revised Slice product.

Financial Issues

- The Slice financial team reached alignment conceptually on recommending a cost recovery design that provides Slice and non-Slice customers with the same method to mitigate risk associated with the levels of commonly shared expenses (essentially, these include all risks except for power supply and secondary revenue risks).
- Issues regarding common risk mitigation measures cannot be settled until the 2012 rate case, when the risk mitigation method would be proposed and decided.
- Whatever method is selected should be simple, easy to implement, and avoid audits and contentious dispute resolution processes. BPA has expressed a preference toward an annual true-up type approach, but is also willing to consider other joint customer proposals.

Accounting for Slice Implementation Expenses

- Slice Implementation expenses would still be accounted for separately and paid for by Slice customers, much as done currently.
- These expenses consist of PBL personnel costs, Financial Services and Information Technology personnel costs, between business line costs, contractor costs, and computer equipment and hardware costs associated with implementation of the Slice contract.

