

# Regional Dialogue Implementation Framework:

## The Slice and Block Power Sales Agreement

January 17, 2008



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# The Slice and Block Power Sales Agreement

- The Slice and Block PSA will represent a combined sale of BPA's Slice product and BPA's Block product (with specific characteristics – see Slides 16 and 17).
- The term of the Slice and Block PSA will be 20 years.
- Deliveries under the Slice and Block PSA will begin on October 1, 2011 (FY 2012) and will continue through September 30, 2028 (assuming contracts are signed in late 2008).
- Slice and Block purchasers will have a standard, one-time option to switch Requirements products within the 20-year term.



## Slice and Block Eligibility

- Only those utilities who are qualified preference customers under BPA's Standards For Service policy (1999) and section 5(b) of the Northwest Power Act will be eligible for service.

# Slice Product Risks and Requirements

- Prospective Slice and Block purchasers realize there are risks inherent in the Slice product.
  - The amount of power available under Slice in poor water years will be less than average or above-average water years and can be less than critical planning amounts
  - FBS resource reductions will reduce the amount or shape of power available under Slice
  - Additional fish measures may reduce the amount of power available under Slice
- Prospective purchasers need to realize there are infrastructure requirements needed to implement a Slice power purchase from BPA.
  - Slice purchasers must develop and maintain a Slice Computer Application and interface for electronic scheduling of Slice energy
  - Slice purchasers must develop or enlist a 24-hour scheduling service
- Prospective Slice and Block purchasers will need to meet specified creditworthiness requirements in order to qualify for Slice.



# BPA's Slice Product Philosophy

- The post-2011 Slice product will retain the fundamental characteristics of the original Slice product and it's core value as a highly flexible power product.
  - Purchasers will pay a percentage of the FBS operating cost and will receive a commensurate amount of FBS power output
  - Provides the purchaser a portion of the federal surplus power when available
  - Allows the purchaser discretion to alter requested energy deliveries, within applicable delivery limits, up to 30 minutes prior to each hour
- The post-2011 Slice product will be modified from the original Slice product, consistent with the policies and guidelines established in BPA's Policy and ROD documents submitted in July of 2007. Major changes include:
  - Removal of Dynamic Scheduling rights
  - Removal of the right to self-supply Energy Imbalance and Operating Reserves using the Slice System resources
  - Refinement of delivery limits to more closely reflect operational flexibility available after operational constraints and system obligations are met



## BPA's Slice Product Philosophy, cont.

- As is the case with the current Slice product, the post-2011 Slice product will be a sale of power, and will in no way transfer Federal resource capability or control to Slice purchasers.
  - Federal operating 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
- Slice is a combined product that includes Requirements power and surplus power
  - Slice firm power must be taken to load for a customer's Net Requirement (less Block) See Slides 14 & 15
- Slice is not a load following product and will not include within-hour service capabilities.

## BPA's Slice Product Philosophy, cont.

- The Slice product commits BPA to make a specific amount of power available to the purchaser in a shape that reasonably represents the storage and generating flexibility of the FBS resources.
  - BPA will make power available to Slice purchasers at the BPA bus in quantities equal to a specific percentage of the FBS energy output that remains after all applicable operating constraints and system obligations are met
  - Slice purchasers will have rights to shape deliveries of the Slice energy within storage and generating limits (delivery limits) determined by BPA
- Slice purchaser rights to storage will be determined through numerical accounting, and their use of storage might or might not impact the actual use of FBS storage.



# Slice Product Characteristics

- Power sold under Slice is made available in the shape of the Federal system output, as adjusted for use of available storage, rather than the shape of a purchaser's load.
- The quantity of Slice energy made available varies with hydro conditions and operating constraints.
- There is no guarantee the amount of power made available under Slice will be sufficient to meet a purchaser's load, be it hourly, daily, weekly, monthly or annually.
- A customer who purchases the Slice product is responsible for meeting the difference between their BPA purchase and their load hour-to-hour, including shortfalls due to poor water conditions or federal resource changes or underperformance.



## Slice Product Characteristics, cont.

- A customer who purchases Slice will be responsible for scheduling Slice energy from BPA.
  - Individual Slice purchasers will schedule their Slice purchase within the applicable delivery limits.
  - Pooling of Slice energy or storage will not be allowed.
  - BPA operational information shared with Slice purchasers and their scheduling agents may be subject to confidentiality and other limitations on use.
- The Slice product design will be based on the 10 principles outlined in BPA's Long-Term Policy dated July, 2007.
- The determination of Slice delivery limits will be designed consistent with the Alternative 2 concepts described in BPA's Policy Proposal, dated July 13, 2006.



## Slice Delivery Limits – The Framework

- Through the Regional Dialogue process, BPA and interested parties reached agreement in principle on a method for determining Slice Delivery Limits for the post-2011 Slice contract.
- This agreement was documented and discussed as part of the December 14, 2007, Regional Dialogue workshop in BPA's Rates Hearing Room.
- The document is titled, "A Framework for Slice Product Modeling and Scheduling Delivery Limits" and is available on BPA's external website.
  - BPA acknowledges this is a working document, subject to modification
- The concept is to design river routing models that reasonably represent the storage and shaping flexibility of the FBS available after all operational constraints and system obligations are met.
- BPA will develop and maintain the models, including all model inputs and parameters.
- Slice purchasers will obtain interfaces that enable interaction with BPA's models to determine a mock operation, which will in turn determine individual customer delivery limits within the operational constraints and parameters that apply to BPA.



## Framework Consistency with Alternative 2

- The “Framework” developed by BPA and prospective Slice purchasers is consistent with the concepts outlined as Alternative 2 in BPA’s Policy Proposal document, dated July 13, 2006.
- Any changes or modifications to the Framework will also be consistent with the Alternative 2 concepts.



# System Obligations and Other Contract Obligations

- System Obligations are defined as those obligations imposed on BPA by statutes, treaties, and contracts which require the generation or delivery of power, or forbearance from generating power, in order to support the operation of the FCRPS.
- BPA also has several contractual obligations that generate revenues and will exist in FY 2012 and beyond. These obligations diminish the power available from the Federal system resources and reduce the amount of power dedicated to Tier 1 service.
- The obligations that reduce Federal System resources dedicated to Tier 1 service include USBR loads, exports, intra-regional transfers (out), and other Federal system obligations.
- The following is a draft list of System Obligations and Other Contract Obligations:
  - All transactions and operating constraints under the US/Canadian Treaty and associated agreements, Non-Treaty Storage Agreement, Pacific Northwest Coordination Agreement, Mid-C Hourly Coordination Agreement, and Encroachment Agreements
  - All transactions and operating constraints under the Biological Opinion, Irrigation Agreements, BPA/COE/BOR Memorandums of Agreement, BPA TS/PS Memorandums of Agreement, and the Hanford Reach Protection Agreement.
  - BPA's prudent operating practices, including uncertainty buffers.
  - All contracts listed in Table 3.2 in the TRM entitled, "Federal System Other Contract Obligations."



# Slice - Requirements Slice Output (RSO) Test

- Each Slice purchaser will be obligated to meet a monthly firm power to load standard as in the current contract.
- Each Slice purchaser will provide monthly power delivery to load for the firm power taken from the federal system.
- This requirement supports BPA offering Slice as a Requirements product.
- The amount of required delivery to load will be the lesser of the following criteria for the each month:
  - Monthly Critical Slice Amount (forecast of firm capability)
  - Monthly forecasted net Requirement, less Block
  - Monthly actual net Requirement, less Block
- ☆ BPA may consider additional criteria when the federal system generates less than the Critical Slice Amount



## Slice - Requirements Slice Output (RSO) Test, cont.

- BPA can make adjustments to the test criteria for operational conditions that affect the amount of Slice energy available within the month.
  - Unanticipated loss of an FBS resource
  - TDA natural flows running below critical levels
- Failure to meet the monthly RSO test after considering the above parameters will not result in termination of the contract, but can result in assessment of a penalty.
- ☆ BPA does not intend to make the 2% / 4% deviation bandwidth (section 7(i) of Ex J) available in the post-2011 Slice contract.
  - ☆ The deviation bandwidth was negotiated in response to customer concerns over a contract termination clause in the original agreement
  - ☆ BPA is concerned the bandwidth approach could be viewed as adversely impacting the validity of the RSO test, and believes the monthly test should be retained with a reasonable consequence



## Block Product Characteristics

- The Block combined with Slice will have certain characteristics, depending upon whether it is available at the Tier 1 rate or the Tier 2 rate.
- The Block combined with Slice may include a portion charged at the Tier 1 rate and a portion charged at the Tier 2 rate.
- The amount of Block available at the Tier 1 rate will be limited to the lesser of each customer's HWM or Net Requirement, minus their Slice amount.
- Block available at the Tier 1 rate will have the following characteristics:
  - Delivered flat annually, or delivered flat monthly, but shaped based upon each customer's actual 2010 TRL, less 2010 resources declared in 2006, and as impacted by applicable BPA Policy decisions (such as treatment of Centralia)
    - This shape will be fixed for the term of the Agreement
  - No diurnal shaping, no capacity factoring
- The amount of Block available at the Tier 2 rate will be limited to the amount each customer's Net Requirement exceeds their HWM, and only to the extent each customer elects and specifies Tier 2 service from BPA.
- Block available at the Tier 2 rate will be delivered flat annually.



# Minimum Block Amount

- BPA will require a minimum amount of Block be purchased in conjunction with Slice for the following reasons:
- In the case of load loss (reductions in Net Requirement), the Block will act as a shock absorber, rather than the Slice component, which will protect each purchaser's Slice percentage and their rights to surplus power.
  - Load loss that exceeds Block amounts will result in a reduced Slice percentage
- Simplified contract administration and fewer disputes
  - No Exhibit N
  - No Excess Requirements Energy
- Spreads the available amount of Slice among more customers
- Each Slice and Block purchaser should determine their own risk tolerance. However, from BPA's perspective, the minimum Block requirement reduces the risk a Slice and Block purchaser will request BPA's assistance managing difficulties resulting from risks inherent to the Slice product.



## Minimum Block Amount, cont.

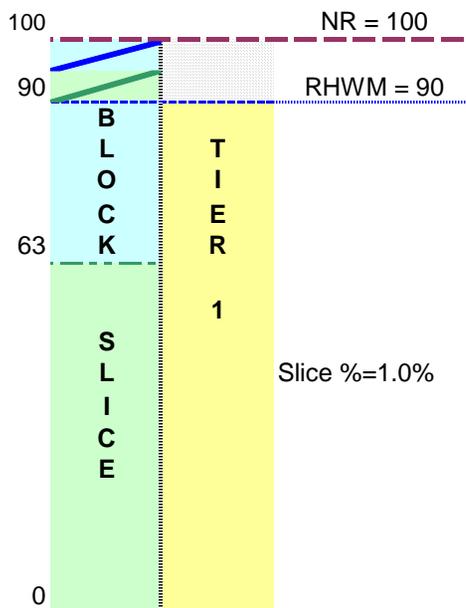
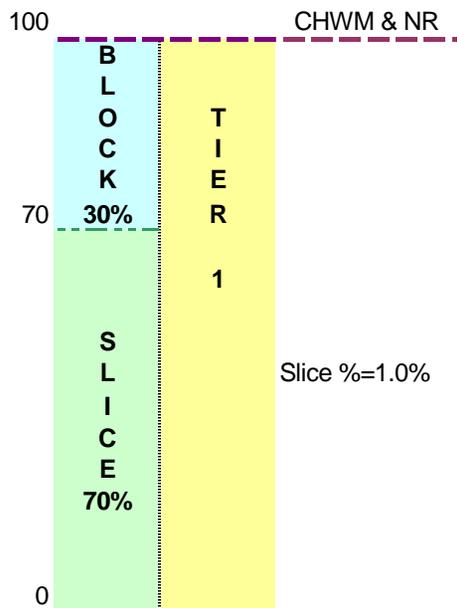
- The Block component of the Slice and Block PSA will be established at a minimum of 30% of each customer's forecast Net Requirement.
  - In discussion with customer trade groups, BPA agreed to offer Regional Dialogue products with characteristics similar to current Subscription products (the exception being that Slice would be developed under the Alternative 2 guidelines)
  - 30% is similar to original Block elections (current Slice customers initially chose roughly 33% Block and 67% Slice)
  - 30% is considerably less than current Block amounts (most current Slice customers have 40% to 50% Block)
- ☆ BPA may consider reducing the minimum Block requirement if customers can demonstrate adverse impacts resulting from the requirement, or if interest in Slice and Block is at a level that allows a lesser amount of Block while maintaining the Slice amount at 25% of the FBS firm resource.



# Changes in Slice and Block Mix due to HWM Changes (10% HWM Decrease)

CHWM=NR=100 aMW  
 Available FBS Energy = 7000 aMW  
 Block = 30 aMW  
 Slice = 1.0% (70 aMW)

RHWM = 90 aMW (10% drop)  
 Available FBS Energy = 6300 aMW  
 Block = 27 aMW  
 Slice = 1.0% (63 aMW)



Slice deliveries and Block are reduced proportionally

Energy available under the 1% Slice decreases from 70 aMW to 63 aMW (reduced FBS firm resource)

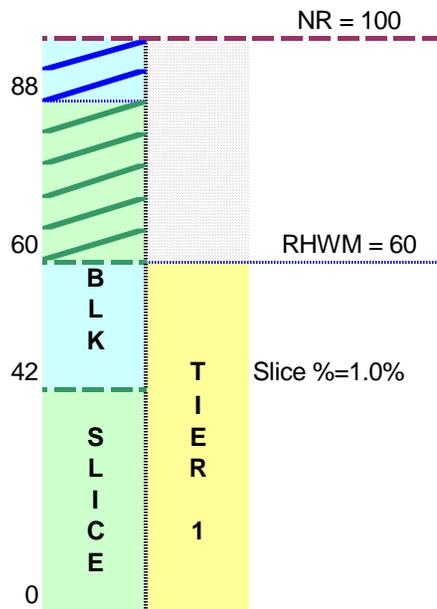
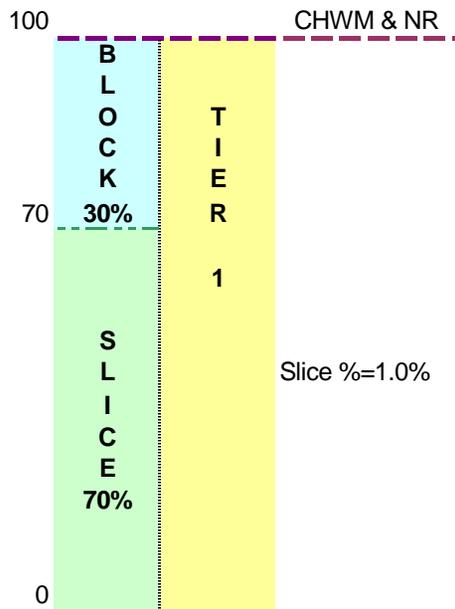
The Block decreases from 30 aMW to 27 aMW



# Changes in Slice and Block Mix due to HWM Changes (40% HWM Decrease)

CHWM=NR=100 aMW  
 Available FBS Energy = 7000 aMW  
 Block = 30 aMW  
 Slice = 1.0% (70 aMW)

RHWM = 60 aMW (40% drop)  
 Available FBS Energy = 4200 aMW  
 Block=18 aMW  
 Slice=1.0% (42 aMW)



Slice deliveries and Block are reduced proportionally

Energy available under the 1% Slice decreases from 70 aMW to 42 aMW (reduced FBS firm resource)

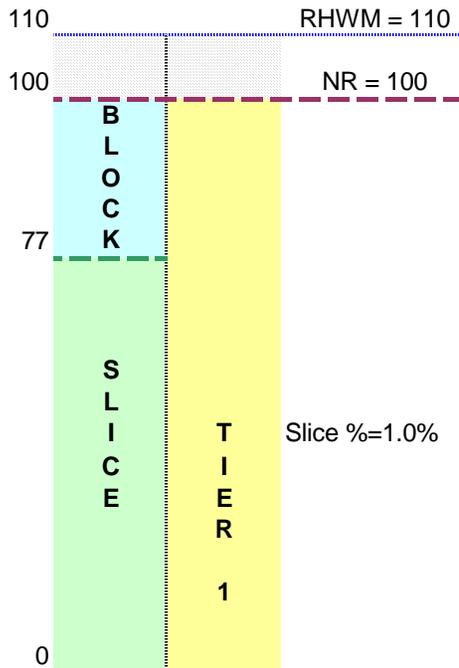
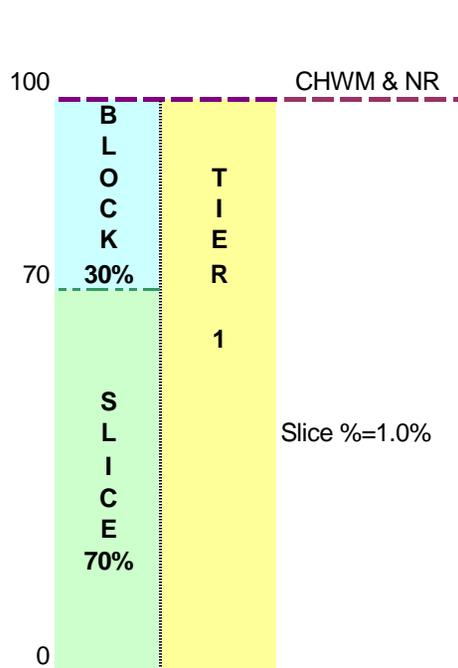
The Block decreases from 30 aMW to 18 aMW



# Changes to Slice and Block Mix due to HWM Changes (10% HWM Increase)

CHWM=NR=100 aMW  
 Available FBS Energy = 7000 aMW  
 Block = 30 aMW  
 Slice = 1.0% (70 aMW)

RHWM = 110 aMW (10% increase)  
 Available FBS Energy = 7700 aMW  
 Block=23 aMW  
 Slice=1.0% (77 aMW)



Slice deliveries increase and Block is decreased by an equal amount.

Energy available under the 1% Slice increases from 70 aMW to 77 aMW (increased FBS firm resource)

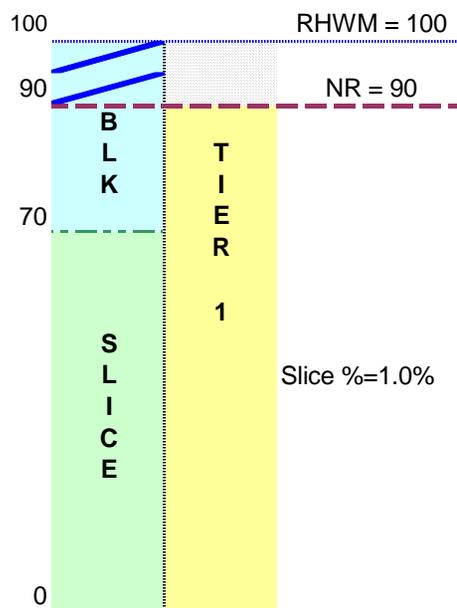
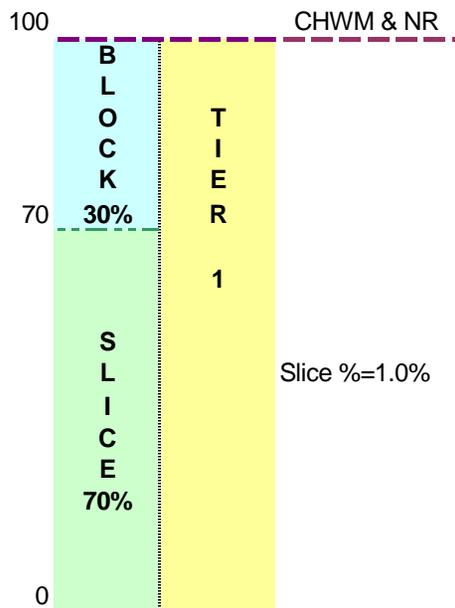
The Block decreases from 30 aMW to 23 aMW



# Changes to Slice and Block Mix due to NR Changes (10% Net Requirement Decrease)

CHWM=NR=100 aMW  
 Available FBS Energy = 7000 aMW  
 Block = 30 aMW  
 Slice = 1.0% (70 aMW)

NR = 90 aMW (10% drop)  
 Available FBS Energy = 7000 aMW  
 Block = 20 aMW  
 Slice = 1.0% (70 aMW)



Slice deliveries are unchanged, but the Block is reduced

Energy available under the 1% Slice remains at 70 aMW (FBS firm resource is unchanged)

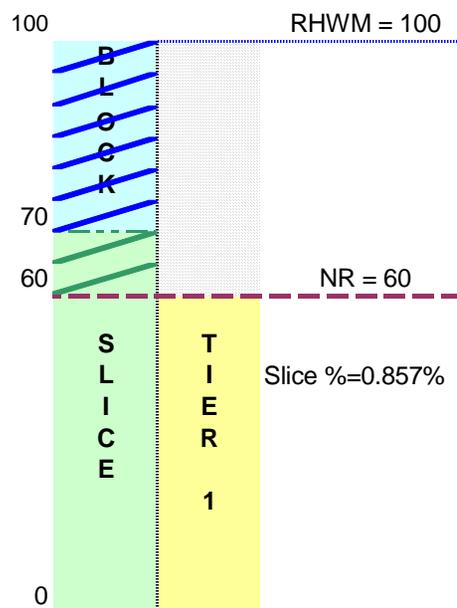
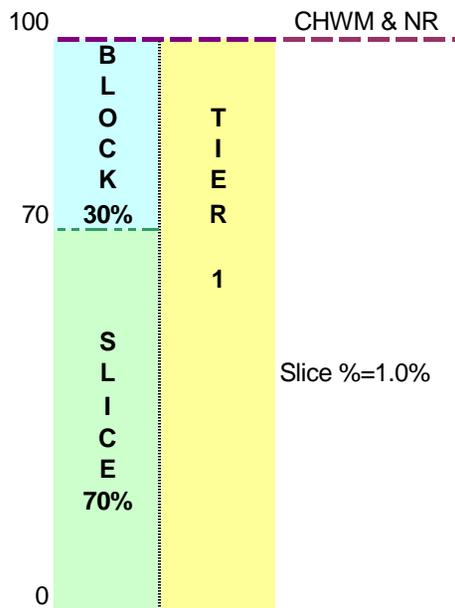
The Block decreases from 30 aMW to 20 aMW



# Changes to Slice and Block Mix due to NR Changes (40% Net Requirement Decrease)

CHWM=NR=100 aMW  
 Available FBS Energy = 7000 aMW  
 Block = 30 aMW  
 Slice = 1.0% (70 aMW)

NR = 60 aMW (40% drop)  
 Available FBS Energy = 7000 aMW  
 Block = 0 aMW  
 Slice = 0.857% (60 aMW)



The Block is eliminated and the Slice % is reduced to match the lower NR

The Block decreases from 30 aMW to zero

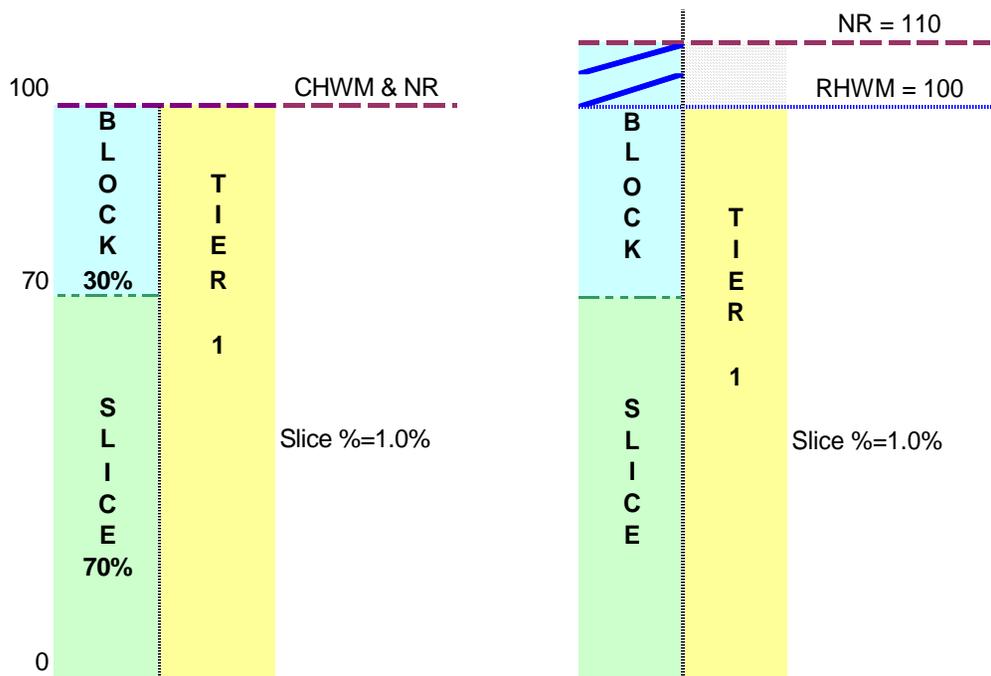
The Slice percentage is reduced from 1.0% to .875% such that the energy available under Slice is equal to the reduced NR with no Block (FBS firm resource is unchanged)



# Changes to Slice and Block Mix due to NR Changes (10% Net Requirement Increase)

CHWM=NR=100 aMW  
 Available FBS Energy = 7000 aMW  
 Block = 30 aMW  
 Slice = 1.0% (70 aMW)

NR = 110 aMW  
 Available FBS Energy = 7000 aMW  
 Block=30 aMW  
 Slice=1.0% (70 aMW)



Even though the NR has increased, the Slice % and Block are unchanged because the HWM is the limiting factor for service at the Tier 1 rate.



# Scheduling of Slice and Block Energy

- Slice energy will be scheduled consistent with prevailing BPA Power Services preschedule timelines.
- Slice purchasers will have the ability to change prescheduled Slice quantities within prevailing BPA Power Services real time timelines, and within applicable delivery limits as specified in the Slice and Block PSA
- Block energy will be scheduled consistent with prevailing BPA Power Services business practices.
  - There will be no right to change Block schedules on real time



## Maximum Slice Available

- Per BPA's Regional Dialogue Policy and Record of Decision documents, the maximum amount of Slice that will be made available for purchase is the amount equal to 25% of the FBS firm resource available for Tier 1 service, as established in the 2012 Rate Case.
- ☆ BPA may consider increasing this limit if the interest in Slice and Block cannot be supported with the amount of Slice available from 25% of the FBS firm resource.
  - ☆ Requires additional Regional Dialogue process, discussion, and agreement
  - ☆ Increases in available Slice may require changes to the product design



# The Slice System

- In terms of annual firm energy amounts, the Slice System will be equal to the FBS Firm Resource available for Tier 1 service, as established through a process defined in the Tiered Rates Methodology.
- To the extent the defined Slice System includes imports and exports related to contractual obligations, BPA will include associated hourly energy transaction amounts within the Slice Delivery Limits.
- Treatment of new Federal resources is uncertain. One approach is that resources acquired after a specified date would be used to supply augmentation, non-Slice customer balancing purchases, or load in excess of HWM, and would not be included as a Slice System resource.



# Treatment of Augmentation

- The Slice System includes Augmentation energy for existing Public customers (up to 300 aMW), and the cost of that energy is included in the Slice rate. Slice purchasers will receive a percent share of that Augmentation energy.
  - Deliveries and charges associated with Augmentation energy will be based on rate case inputs and forecasts of costs, rather than actual purchases and costs.
  - Augmentation costs will be charged to Tier 1 as a flat annual block.
  - Augmentation energy will be delivered to the Slice purchasers in a flat annual shape.
- Additional Augmentation energy purchased for other purposes (such as new Publics) will be a Tier 1 obligation, will be included as FBS available for Tier 1 service, but will not impact existing customers' HWMs (see next Slide).
- The Slice impact from additional Augmentation will be reduced Slice percentages that are applied to an increased FBS, with no impact on energy delivered under Slice (see next Slide).



# Augmentation Impacts on Slice

	Existing Public Augmentation Only	Existing Public and New Public Augmentation
Non-Augmented FBS	7100	7100
Existing Public Augmentation	300	300
New Public Augmentation	0	50
Augmented FBS	7400	7450
Customer X CHWM	300	300
Total Customers' CHWM	7400	7450
Customer X RHWM	300	300
Customer Block at T2	0	0
Customer Block at T1	90	90
Customer Slice Amount	210	210
Customer Slice %	2.8378%	2.8188%
Effective Slice Energy	210	210



# Determination of Slice Percentage

This is a placeholder Slide. BPA intends to provide documentation regarding the process for determining Slice Percentages at the January 17<sup>th</sup> workshop.



# DETERMINING THE PRELIMINARY SLICE AMOUNT

The Preliminary Slice Amount (aMW) is calculated in the following manner:

Available FBS estimate will be set at 7400 aMW

BPA will offer 25% of the available FBS, or 1850 aMW, as Slice

Utility's FY 2012 NR forecast is provided by BPA in May 2008

BPA provides customers with a Maximum Slice Amount (aMW)  
(FY 2012 NR forecast x 0.70)

Customers interested in Slice submit a "Good Faith Estimate" of the amount of Slice and Block they want to purchase (Block  $\geq$  30% of the FY 2012 NR)

If the total Slice requests are greater than 1850 aMW, an allocation will be necessary



# DETERMINING THE PRELIMINARY SLICE AMOUNT

Continued:

## ALLOCATION

Customers may choose to allocate amongst themselves  
(must each maintain a 30% Block minimum)

or

BPA will allocate by reducing Slice requests pro-rata such that the sum = 1850 aMW

If the total Slice requests are less than or equal to 1850 aMW, no allocation is necessary

The Slice amount resulting from the allocation process will be the Preliminary Slice Amount

The remaining NR will be served with Block



# DETERMINING THE PRELIMINARY SLICE AMOUNT

## Preliminary Slice Amount (PSA) Example:

FY 2012 NR forecast = 100 aMW, requested Slice = 70 aMW, Block = 30 aMW

Total requested Slice = 2000 aMW, which exceeds 1850 aMW of available Slice

Allocation is necessary and conducted by BPA  
(e.g.,  $1850/2000$  aMW = .925)

The Preliminary Slice Amount is calculated by multiplying the customer's requested Slice amount by the ratio of the total available Slice (1850 aMW) divided by the total requested Slice (2000 aMW)

Preliminary Slice Amount =  $(70 \times 1850)/2000 = 64.75$  aMW

Block =  $100 - 64.75 = 35.25$  aMW



# DETERMINING THE PRELIMINARY SLICE PERCENTAGE

## Preliminary Slice Percentage Example:

The Preliminary Slice Percentage is then calculated by taking the customer's PSA and dividing it by the FY 2012 FBS (7400 a MW)

Continuing with the example on the previous slide where a Preliminary Slice Amount of 64.75 aMW was calculated, the following reflects the Preliminary Slice Percentage calculation

$$\underline{\text{Preliminary Slice Percentage}} = 64.75 / 7400 \text{ aMW} = .00875 \text{ or } \underline{0.875\%}$$



# DETERMINING THE CONTRACT SLICE PERCENTAGE

## Contract Slice Percentage:

BPA will reallocate Slice prior to contract signing IF there was an allocation by either BPA or customers to arrive at 25% of the available FBS of Slice requests and one or more customers that submitted Good Faith Estimates chose another power product

If necessary, BPA will reallocate on a pro-rata basis among remaining Slice purchasers  
No individual customer's Slice purchase shall exceed 70% of the forecast FY 2012 NR (meets Minimum Block requirement)

The reallocation will not allow Slice purchasers to choose a different amount of Slice

Slice purchasers may choose to NOT participate in reallocation and their Contract Slice Percentage will be equal to their Preliminary Slice Percentage

If reallocation is necessary, the Contract Slice Percentage will be calculated in the same manner as the Preliminary Slice Percentage

If no reallocation is necessary, the Contract Slice Percentage will be equal to the Preliminary Slice Percentage



# DETERMINING THE CONTRACT SLICE PERCENTAGE

## Contract Slice Percentage Example:

A 1.35 % Preliminary Slice Percentage is to be reallocated because one customer chose a different power product

Building on the previous examples:

Original customer request was 70 aMW of Slice, the allocation reduced the Preliminary Slice Amount to 64.75 aMW for a Preliminary Slice Percentage of 0.875% of the available FBS

1.35% Slice,  $0.0135 \times 7400 = 99.9$  aMW of Slice to be reallocated

$70 \times 1850 / (2000 - 99.9) = 68.15$  aMW

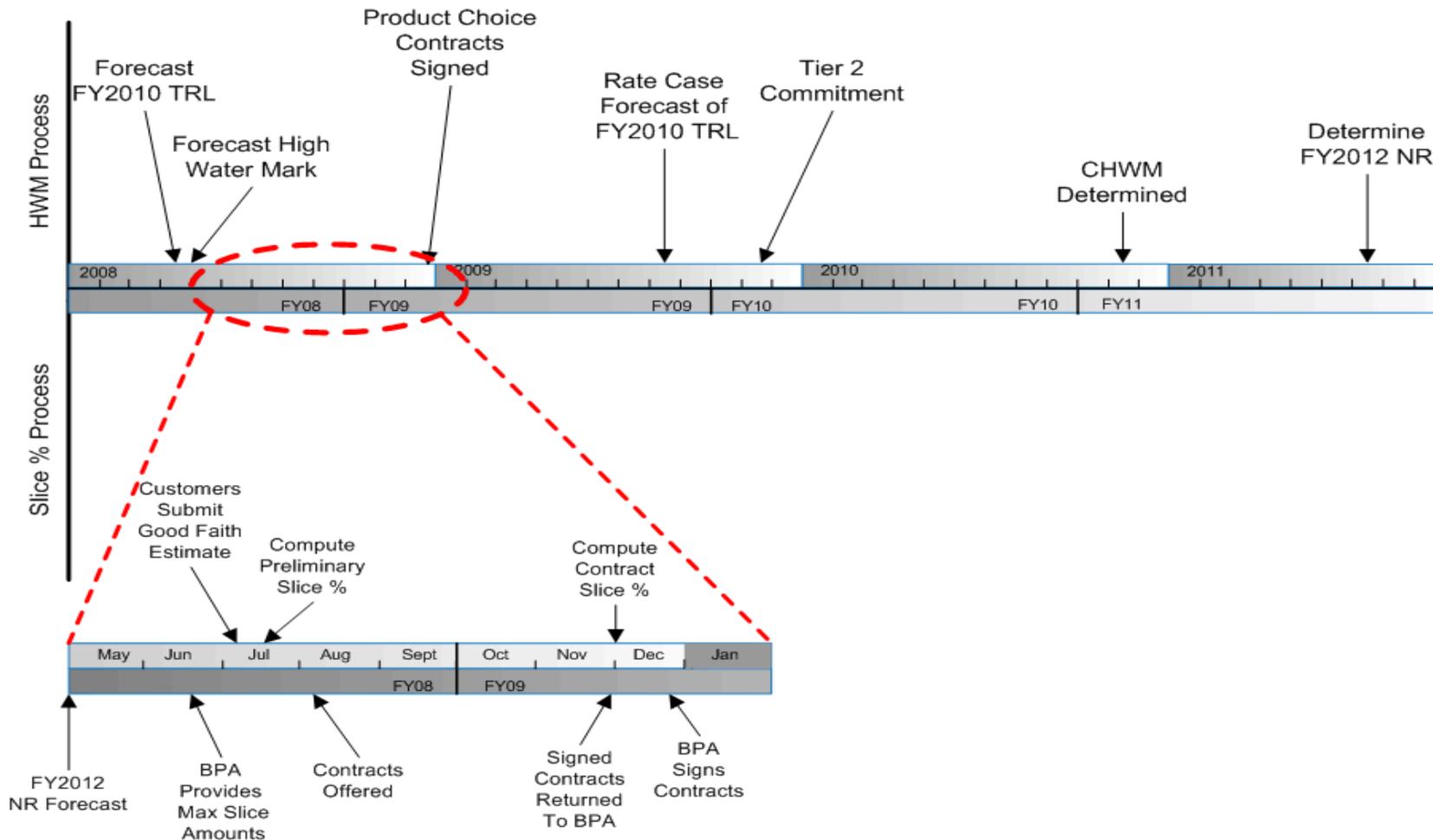
$68.15 / 7400 = 0.92\%$  Contract Slice Percentage

Block =  $100 - 68.15 = 31.85$  aMW

The Contract Slice Percentage = 0.92% and the Block amount is 31.85 aMW, these will be the amounts used in the contract



# Slice Percentage and RD Contract Timeline



For Regional Dialogue Discussion  
Purposes Only -- Pre-decisional



# Rates Applicable to the Slice Product

- Slice customers will pay a Composite Customer Charge multiplied by their Slice percent. The Composite Customer Charge is applicable to all PF customers.
- Slice customers will also pay a Slice Customer Rate that is based on Slice-specific costs and credits.
- Slice customers will pay True-Up Adjustment Charges that are applicable to the costs and credits that are the basis for the Composite Customer Charge and the Slice Customer Rate.

