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TESTIMONY OF
PHILLIP A. MESA, TERRIN L. PEARSON, BYRON G. KEEP,
AND RONALD J. HOMENICK

Witnesses for Bonneville Power Administration

SUBJECT: Slice of the System Product

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1 TESTIMONY OF

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4 Witnesses for the Bonneville Power Administration

5
6 **SUBJECT: SLICE OF THE SYSTEM PRODUCT**

7 **Section 1. Introduction and Purpose of Testimony**

8 *Q. Please state your names and qualifications.*

9 A. My name is Phillip A. Mesa. My qualifications are contained in WP-02-Q-48.

10 A. My name is Terrin L. Pearson. My qualifications are contained in WP-02-Q-55.

11 A. My name is Byron G. Keep. My qualifications are contained in WP-02-Q-34.

12 A. My name is Ronald J. Homenick. My qualifications are contained in WP-02-Q-30.

13 *Q. Please state the purpose of your testimony.*

14 A. The purpose of our testimony is to generally describe how the “Slice of the System”
15 (Slice) product will be priced, and how pricing of the Slice product will not affect other
16 BPA customers. Although the Slice product is described in this testimony for
17 background purposes, the entire product design is not subject to a review in the
18 2002 power rate case. Only the Slice product features that deal with pricing, costs, and
19 cost allocation are being reviewed in the 2002 power rate case.

20 *Q. How is your testimony organized?*

21 A. The testimony first will generally describe the Slice product in Section 2 for background
22 purposes only (a description of the Slice product is in the Power Subscription Strategy
23 Administrator’s Record of Decision (Subscription ROD), and the Final Report on the
24 Slice Product). Section 3 describes how the Slice product will be priced and what costs
25 will be the basis for the Slice rate. Section 4 describes the true-up process that will be
26 applied to Slice participants’ payments for the Slice product. The true-up process

1 involves a calculation of the difference between forecasted and actual Slice Revenue
2 Requirement and the difference is the true-up adjustment to the Slice payment. Section 5
3 describes the inventory solution costs that the Slice participants will be responsible for
4 paying and how these costs will be accounted for. Section 6 describes the development
5 and implementation costs associated with the implementation of the Slice product that
6 will be borne by the Slice participants. Section 7 describes how the Slice participants
7 will assume a proportionate share (based on the Slice participant's selected Slice
8 percentage) of the Bonneville Power Administration's (BPA) financial risks. Section 8
9 provides details of the Slice Cost Shift Study (Study) that proved that there were no cost
10 shifts between Slice participants and other requirements customers.

11 **Section 2. Slice Product Description**

12 *Q. What is the Slice product?*

13 A. The Slice product is a power sale based upon a Slice participant's annual net firm
14 requirements load and is shaped to BPA's generation from the Federal system resources.
15 The Slice product includes both service to net requirements firm load as well as an
16 advance sale of surplus power. Since the Slice product is shaped to BPA's generation
17 from the Federal system resources, there is no assurance that the Slice participant's net
18 requirements load will be met during any hour by the Slice product. Conceptually, the
19 Slice product is a resource-based sale and not a load-based sale.

20 *Q. What do Slice participants pay to purchase the Slice product?*

21 A. Slice participants will pay a percentage of Power Business Line's (PBL) revenue
22 requirement (with limited exclusions) equal to the percentage of the generation from
23 Federal system resources that the Slice participant elects to purchase (*see* Section 3 on
24 Slice Revenue Requirement for further details).

1 Q. *Who is eligible to purchase the Slice product?*

2 A. Only BPA Pacific Northwest public preference customers who have a Pacific Northwest
3 Power Planning and Conservation Act (Northwest Power Act) Section 5(b)(1) net
4 requirements regional firm load are eligible to purchase the Slice product
5 (*see* Subscription ROD, p. 89).

6 Q. *What is the term of the contract commitment required for Slice participants?*

7 A. The term is for a minimum of 10 years, up to a maximum of 20 years. The Slice
8 contracts will become effective on October 1, 2001 (*see* Subscription ROD, p. 96).

9 Q. *When can customers purchase the Slice product?*

10 A. Eligible customers can purchase the Slice product only during the Subscription window.
11 The Slice product will not be offered for sale at any other time (*see* the Final Report on
12 the Slice Product).

13 Q. *What are the components of the Slice product?*

14 A. The Slice product has a component that serves the Slice participant's net requirements
15 load, and an advanced sale of surplus component. The component, that serves net
16 requirements, is estimated for a year by multiplying the Slice participant's selected Slice
17 percentage by the generation from Federal system resources produced in a year, assuming
18 critical water conditions (currently defined as 1937 water). This net requirements
19 component is the amount of power BPA expects to deliver to meet the Slice participant's
20 net requirements load on an annual basis, but this power is not guaranteed to be delivered
21 on any given hour. During years when water conditions are above critical conditions, the
22 Slice power delivered in excess of the Slice participant's net requirements load is the
23 surplus component of the Slice product.

1 *Q. What options do Slice participants have with the surplus power component of the Slice*
2 *product?*

3 A. BPA anticipates that during certain times of the year and under certain water conditions,
4 there will be a surplus power component. Slice participants have several options with the
5 use of this surplus component. A Slice participant may use the surplus power to displace
6 more expensive resources needed to serve its load. In the event that the Slice participant
7 is receiving power in excess of its load, after displacing more expensive resources, it may
8 exchange the power with another utility, store the power through BPA or another utility,
9 or sell the surplus on the market.

10 **Section 3. Slice Revenue Requirement**

11 *Q. What will be included in the revenue requirements that Slice participants will be required*
12 *to pay for?*

13 A. The FY 2002-2006 power rate case will establish the Slice Revenue Requirement for the
14 first five years of the Slice contract. The Slice Revenue Requirement will not be adjusted
15 until the FY 2007-2011 power rate case. The Slice Revenue Requirement will be derived
16 from the power revenue requirements of the Federal Columbia River Power System
17 (FCRPS) as identified and estimated in the rate case. The accrued expenses that the
18 power revenue requirement is based on include the operations and maintenance programs
19 of BPA and the other entities of the FCRPS (U.S. Corps of Engineers, Bureau of
20 Reclamation, US Fish and Wildlife Service, etc.), non-Federal projects debt service,
21 Federal projects depreciation, Residential Exchange or settlement-related expenses, and
22 net interest expense (*see* Chapter 3 of the Documentation for the Revenue Requirement
23 Study, Volume 1, WP-02-E-BPA-02A for details).

1 *Q. Does the Slice product have the same revenue requirements as other Subscription*
2 *products?*

3 A. The Slice product, by design, is attributed with the same costs for its revenue requirement
4 as the other products, with three exceptions. In general, the three exceptions are power
5 purchases, inter-business line transmission costs, and Planned Net Revenues for Risk
6 (PNRR). These items are excluded because these costs or risks have been transferred to
7 the Slice participant through the product design.

8 *Q. How are capital investments recovered in the revenue requirements for Slice*
9 *participants?*

10 A. Since the revenue requirement is based on accrued expenses, capital investments are
11 recovered through depreciation expense (recovery of the investment) and net interest
12 expense (recovery of financing costs).

13 *Q. What if BPA does not borrow, but revenue finances a capital investment relevant to Slice*
14 *participation? Does that still enter the revenue requirement?*

15 A. Yes, the capital investment still enters the revenue requirement in the same areas that it
16 would if BPA financed the capital investment by borrowing. Regardless of how a capital
17 investment is funded, it is depreciated over its average service life. When cash, rather
18 than borrowing, is used to fund investments, there is less interest income from the BPA
19 fund related to power to offset interest expense. So, net interest expense is affected as
20 well.

21 *Q. Will Slice participants receive a credit for what they have contributed to financial*
22 *reserves if BPA faces an extraordinary expense or capital cost?*

23 A. These types of events are dealt with on a case-by-case basis when they occur, so it is
24 impossible to say beforehand what the treatment would be. However, Slice participants
25 would face the same treatment as other ratepayers. Generally, the guidance for how to
26 treat such events is determined by whether they were addressed in some way in the

1 existing rates or if BPA would intend to defer the costs to be recovered in subsequent
2 rates. Even if BPA elected to expense a particular cost that was not anticipated in rates or
3 whose magnitude was not anticipated, the payment of that cost in the Slice true-up will be
4 consistent with the treatment of other ratepayers.

5 *Q. How will monetary credits that PBL receives be accounted for in the Slice Revenue*
6 *Requirement?*

7 A. All monetary credits (“revenue credits” in the rate development process, such as the
8 4(h)(10)(C) credit against Treasury payments) shall be included in the Slice Revenue
9 Requirement with the exception of Nonfirm Energy Generation revenue credits and Firm
10 Power Products and Services Generation revenue credits. The included monetary credits
11 are those credits relevant to costs in the Slice Revenue Requirement and shall be credited
12 to the Slice participant in the true-up procedure consistent with the treatment of other
13 ratepayers in the development of their rates.

14 *Q. Does the Slice product recover an appropriate share of PBL costs?*

15 A. Yes. Typically, rates are developed through cost allocations and rate design steps that are
16 intended to assure that rates will collect the overall revenue requirement. The Slice
17 product bypasses these steps, and instead is assigned an appropriate share of costs
18 directly. The result of the direct cost assignment is that Slice participants pay a
19 proportionate share of costs equivalent to that which would be expected to be recovered
20 from purchasers of other traditional Subscription products.

21 *Q. Does the Slice product shift costs to other customers not purchasing Slice?*

22 A. No. BPA has incorporated into the Slice product design, additional provisions that
23 ensure appropriate cost recovery. BPA is including in the Slice rate the costs associated
24 with various PBL obligations. These obligations are: (1) the inventory solution;
25 (2) System Obligations; (3) the Low Density Discount (LDD); (4) the Conservation and
26 Renewables discount; and (5) General Transmission Agreements (GTAs). Furthermore,

1 the true-up to the actual cost of the Slice Revenue Requirement transfers the appropriate
2 risks to the Slice participant. Therefore, there is no cost shift.

3 To test if the Slice product design produced cost shifts, BPA assessed the Slice
4 product under varying water and market price conditions using a Cost Shift Study
5 (Study). Based on the product design and the Study results, BPA concluded that the Slice
6 product did not shift costs to other products (*see* Section 8 on the Slice Cost Shift Study
7 for further details).

8 *Q. How are inter-business line transmission costs borne by the Slice participant?*

9 A. The Slice participant is responsible for marketing, as well as acquiring transmission for,
10 the secondary energy it receives in the Slice product. The majority of the inter-business
11 line transmission costs are costs associated with PBL's surplus marketing or other pre-
12 existing power sales (*see* the Inter-business Line Issues, Transmission Expense/Other
13 Issues testimony of BPA witnesses Pedersen, Capper, McRae, and Hart, WP-02-E-BPA-
14 28, for further details of the types of transmission expenses). The remainder of the inter-
15 business line transmission costs are included in the Slice Revenue Requirement as
16 System Obligations or revenue credits (e.g., Canadian Entitlement Credit). As the Slice
17 participant takes on the responsibility for secondary energy directly, the inter-business
18 line transmission costs will be incurred directly by the Slice participant.

19 *Q. What are System Obligations and their associated costs?*

20 A. System Obligations include return of the Canadian Entitlement under the Columbia River
21 Treaty; transactions under the Pacific Northwest Coordination Agreement (PNCA), the
22 Non-Treaty Storage Agreement, and the Mid-Columbia Hourly Coordination Agreement;
23 any power transactions that are needed to support fish and wildlife requirements; and
24 power provided to BPA's Transmission Business Line (TBL) in support of their reserves
25 and ancillary services. The Slice participants will be responsible for paying for a
26 proportionate share of PBL's transmission costs associated with System Obligations. The

1 Slice participants will also be entitled to a credit based on a proportionate share of any
2 revenues associated with the System Obligations.

3 *Q. Are Slice participants obligated to pay for a proportionate share of PBL's GTA costs?*

4 A. Yes. Slice participants are obligated to pay for a proportionate share of PBL's GTA costs
5 for Federal deliveries because these costs are allocated to the PBL and borne by all
6 customers (*see* Subscription ROD, Section E on GTAs, p. 129-136). Therefore, Slice
7 participants are responsible for paying their proportionate share of these costs. These are
8 shown with the other components of the Slice Revenue Requirement used for Slice
9 product costing on a table in Attachment 1 to this testimony, which shows the costs in
10 terms used in the Cost of Service Analysis (COSA). The components of the Slice
11 Revenue Requirement also are shown in Attachment 2 to this testimony in a form that
12 will be used to reconcile forecasted expenses with the actual expenses for the true-up
13 process for the Slice product.

14 *Q. How will various rate discounts, such as the Conservation and Renewables Discount, the
15 LDD, rate mitigation, etc., be accounted for in the Slice Revenue Requirement?*

16 A. Slice participants will be responsible for paying their proportionate share of the
17 quantified "costs" of implementing the various discounts.

18 *Q. Is there any other component of the Slice product that will affect what the Slice
19 participant pays for the product?*

20 A. Yes. There is a separate annual charge (the Slice true-up adjustment charge) that will
21 apply to the Slice product that is based on the difference between forecasted and actual
22 expenses (and credits) of the Slice Revenue Requirement. This charge will affect the
23 Slice payments but is not an adjustment to the Slice Revenue Requirement.

1 **Section 4. True-Up Process**

2 *Q. Will the Slice revenues be adjusted to ensure that Slice participants pay actual costs?*

3 A. Yes. BPA will calculate or “true-up” the difference between the forecasted Slice
4 Revenue Requirement and actual expenses (and credits) of the Slice Revenue
5 Requirement. This adjustment (the Slice true-up adjustment charge) will be in the form
6 of a true-up adjustment charge that will apply to the Slice product. The true-up
7 adjustment charge may be positive, indicating a payment from the Slice participant, or it
8 may be negative, indicating a credit back to the Slice participant.

9 *Q. How is BPA’s economic displacement of the WNP-2 resource reflected in the true-up
10 process?*

11 A. From time-to-time, BPA may decide that it is economically beneficial to reduce the
12 output of the WNP-2 resource (referred to as “economic displacement”) when the market
13 value of power is expected to be less than the incremental cost of running the WNP-2
14 resource. Slice participants would realize the savings of reduced operating costs of the
15 WNP-2 resource through the Slice true-up adjustment charge. Slice participants may
16 have different expectations of market prices and may not perceive the displacement of the
17 WNP-2 resource to be economically beneficial. To address this possibility, Slice
18 participants are given an option to have or not to have such economic displacement
19 reflected in their Slice entitlement (*see* the Final Detailed Product Description for the
20 Slice Product for more details). The Slice participant may elect to either: (1) have BPA
21 reflect such displacement in its Slice entitlement; or (2) have BPA adjust the Slice
22 participant’s Slice entitlement to reverse the effects of the displacement and make
23 appropriate adjustments to the Slice participant’s Slice true-up adjustment charge.

24 Under the second option, the Slice participant’s Slice entitlement is adjusted back
25 to what it would have been absent the displacement. The Slice participant’s Slice true-up
26 adjustment charge is adjusted to eliminate the economic benefit of displacement that the

1 Slice participant chose not to participate in. This financial adjustment is equal to the
2 product of Slice participant's proportionate share of the actual incremental cost of the
3 energy displaced and the amount of the displacement being adjusted (backed out). The
4 incremental cost is equal to the annual sum of the fuel cost and incremental operations
5 and maintenance costs.

6 *Q. Why is the economic adjustment in the second option appropriate?*

7 A. The adjustment is necessary to prevent cost shifts (in either direction) between the Slice
8 participant and other non-Slice customers. So long as the displacement is discretionary
9 (that is, not required for operational or nonpower purposes), the Slice participant's right
10 to energy should be based on the anticipated level of generation of the WNP-2 resource.
11 However, it is not appropriate for the Slice participant to realize the benefit of a reduction
12 in operating costs that resulted from the economic displacement if the displacement was
13 not reflected in the Slice participant's Slice capability. To correct this potential cost shift,
14 the Slice participant's Slice true-up adjustment charge is increased to reflect the cost of
15 producing the power (the decreased cost savings). This prevents the Slice participant
16 from realizing a proportionate share of the economic benefit of the displacement that it
17 did not participate in.

18 *Q. If the WNP-2 resource is displaced (not fully operating), does it shift costs to base the*
19 *economic adjustment on the incremental cost of operating the WNP-2 resource?*

20 A. No, for the economic displacement to occur, the market value of energy should be below
21 the incremental cost of operating the WNP-2 resource. This most likely will occur when
22 BPA is surplus. If the market price for power is above the incremental cost of operating
23 the WNP-2 resource, then BPA would either: (1) not displace the resource; or
24 (2) displace the resource for other reasons and no energy adjustment would occur.

1 *Q. Will all costs be subject to the true-up process?*

2 A. Section 3 addresses the cost line items in the PBL revenue requirement that the Slice
3 participants are obligated to pay their proportionate share of (the Slice Revenue
4 Requirement). All of those cost (or credit) line items, except for the inventory solution,
5 are included in the true-up process (*see* Section 5 for more details on the inventory
6 solution). However, because of the amount of power necessary to augment the system
7 for the inventory solution, BPA will examine in the rate case whether the inventory
8 solution should be excluded from the true-up process.

9 *Q. If any Investor-Owned Utilities (IOU) elect to continue participating in the Residential*
10 *Exchange, are they are costs that should be subject to the true-up process?*

11 A. Yes. If BPA incurs actual Residential Exchange costs they would be subject to the
12 true-up.

13 *Q. How often will the true-up process be conducted?*

14 A. The true-up for actual expenses will occur once a year, subsequent to the independent
15 audit of BPA's financial statements.

16 *Q. Are there any other adjustments made to the Slice payment?*

17 A. Yes. There will be an estimated Slice true-up calculation, done prior to the final true-up,
18 that will be specified in the Slice contract. The purpose of the estimated true-up is to
19 minimize the magnitude of the true-up payment and spread the payment (or credit) over
20 more than one month. The Slice rate is calculated as a uniform monthly rate for the rate
21 period and does not take into account the variability of costs from year-to-year. Since the
22 Slice participant is subject to a true-up for actual costs, there is a potential for large true-
23 up adjustments which may be detrimental to the cash-flow of either BPA or the Slice
24 participant. In doing this interim adjustment, the true-up will be prospectively spread
25 over a longer period than a single payment.

1 *Q. What sets of information will be used for the true-up process?*

2 A. Two sets of information will be used for the true-up process. The first set of information
3 is displayed in the Slice Product Costing Table (*see* Attachment 1 in this testimony),
4 which contains the forecasted line items in the Slice Revenue Requirement that will be
5 used for Slice product costing purposes. The second set of information is displayed in the
6 table containing the Basis for the Slice True-Up Adjustment Charge (*see* Attachment 2 in
7 this testimony), which contains line items in the Slice Revenue Requirement that will be
8 used to true-up forecasted expense and cost line items in the table in Attachment 1. The
9 Basis for the Slice True-Up Adjustment Charge table (Attachment 2) eventually will
10 contain actual financial data, when audited actual financial data is available, which will
11 be used to true-up the forecasted financial data in the Slice Product Costing Table
12 (Attachment 1).

13 Line 68 in the Slice Product Costing Table (Attachment 1) displays the net cost of
14 BPA's system augmentation, or "inventory solution," that the Slice participants are
15 responsible for paying their proportionate share of. As the proposal currently states,
16 these costs will not be subject to the true-up process. However, BPA will examine in the
17 rate case whether excluding such costs from the true-up process creates a cost shift. (*See*
18 Section 5 below on the Inventory Solution for more details).

19 **Section 5. Inventory Solution**

20 *Q. Please define inventory solution.*

21 A. It is anticipated that, as a result of BPA's current Subscription process, BPA may take
22 steps to supplement the capability of the Federal Base System (FBS) to meet the total
23 load placed on BPA (inventory solution). The inventory solution is defined as the power
24 purchases that are needed, on a planning basis, to meet all load service requests made
25 under the Subscription process. In the 2002 power rate case initial proposal, this includes
26 1,112 average megawatts (aMW) of firm purchases, plus firm purchases of 450 aMW for

1 DSI service, and the net cash equivalent of 800 aMW to settle the Residential Exchange
2 program. This has also been referred to as the “regional solution.” (See Subscription
3 ROD, Section C on Slice, pp. 102-103.) These purchases are not to be confused with
4 balancing purchases which are used in the 2002 power rate case to replace the lost hydro
5 system flexibility due to increased operating constraints.

6 *Q. What inventory solution costs would the Slice participants be required to pay?*

7 A. Slice participants would be required to pay their proportionate share of all costs
8 associated with increasing the current inventory in order to meet the total Subscription
9 load. The costs associated with replacement of FBS generating capability due to
10 increased operating constraints are excluded, since the Slice product is indexed to actual
11 Federal system generation and the Slice participant will receive less power under those
12 circumstances. Since all purchased power costs (in the 2002 power rate case) associated
13 with the replacement of decreased FBS generation due to increased operating constraints
14 are shown as balancing purchases and are not included in the inventory solution
15 calculation, all of the inventory solution costs in the 2002 power rate case are applicable
16 to the Slice product. As noted, BPA will examine in the rate case whether excluding the
17 net costs of the inventory solution from the true-up process creates a cost shift.

18 *Q. How are the inventory solution costs factored into the Slice rate?*

19 A. The estimated net cost of the inventory solution will be included in the Slice Revenue
20 Requirement. Since the net costs are used, there will be no increase to the Slice
21 participant’s Slice system capability corresponding to the inventory solution.

22 *Q. What does the “net cost” of the inventory solution mean?*

23 A. The “net cost” of the inventory solution refers to the net amount of the costs associated
24 with any inventory augmentation and the associated revenues from such inventory
25 augmentation. That is, if the Federal system is augmented to serve additional load
26 associated with Subscription sales, the revenue from those sales would be credited

1 against the augmentation costs. Slice participants would not receive any power
2 associated with the augmentation.

3 *Q. Why are Slice participants charged for the net cost of the inventory solution, instead of*
4 *receiving power associated with the augmentation?*

5 *A.* In order to prevent cost shifts, the financial effects of any obligation or benefit associated
6 with the FBS needs to be shared proportionately between BPA and the Slice participants.
7 In the case of the inventory solution, BPA has an obligation to serve loads that are
8 expected to be in excess of BPA's expected firm generation (inventory) resulting in BPA
9 augmenting the inventory to meet the additional load.

10 One method of calculating the cost allocation effect associated with the inventory
11 solution, the "gross cost approach," is to include the gross costs of the inventory solution
12 in the Slice Revenue Requirement and increase the Slice system capability by the
13 associated purchased power (the Slice participant receives a proportionate share of the
14 purchased power). The cost allocation effect of this approach is shown in Equation 1
15 (*see* Attachment 3 of this testimony). Another method of calculating the cost allocation
16 effect, the "net cost approach," would be to look at the net cost of the inventory solution.
17 The net cost is calculated using Equation 2. The cost allocation effect of this approach is
18 shown in Equation 3. If these two methods are equivalent with respect to their cost
19 allocation effects, then there is no cost shift associated with using one method over the
20 other. BPA chose the net cost approach because it is easier to administer, and results in
21 the appropriate assignment of inventory solution costs to the Slice participant.

22 The cost recovery effect of using net costs may be simply illustrated by the
23 following example. Using the cost allocation Equations 1 and 3, we can prove that the
24 two equations are equal (*see* the proof in Attachment 3). By substituting Equation 2 into
25 Equation 3 and simplifying the expression, we can demonstrate that Equation 3 is equal
26

1 to Equation 1. This means that the net cost method results in the same rates as increasing
2 the costs and loads directly.

3 *Q. How will inventory solution costs be estimated for the second five years (or more) of the*
4 *Slice participant's contract?*

5 A. The inventory solution net cost for the second five years (or more) of the Slice
6 participant's contract will be estimated in the applicable rates process for that period.
7 BPA will set the Slice Revenue Requirement with regards to the net cost of any inventory
8 solution in a manner that is equitable to the treatment of such net cost in rates for other
9 long-term Subscription requirements contracts.

10 *Q. Will the net cost of the inventory solution be subject to the true-up process?*

11 A. In BPA's initial proposal the estimated net cost of the inventory solution is not subject to
12 the true-up process. Such costs will be paid by the Slice participants through the Slice
13 rate, which is developed on a forecasted basis. However, when Slice was initially
14 designed the amount of the inventory solution was smaller than the levels currently
15 anticipated and, therefore, the probability of a cost shift to other customers was small.
16 Given the increase in the size of the inventory solution, BPA will need to examine, in the
17 rate setting process, whether relieving Slice participants from a true-up for the actual
18 costs of the inventory solution creates a high potential for a cost shift and, therefore,
19 whether the inventory solution should be included in the true-up process.

20 **Section 6. Development and Implementation Costs of the Slice Product**

21 *Q. What development and implementation costs will be borne by Slice participants?*

22 A. Slice participants will be responsible for paying for all direct and indirect costs (including
23 overhead) incurred by BPA that are attributable to the set-up and implementation of the
24 Slice product. Cost associated with the contract development are normal costs of doing
25 business and as such will be borne by BPA. Separate agreements will be established to
26 cover set-up costs associated with the Slice product incurred prior to the start of power

1 deliveries under the Slice contract. All payments received under these side agreements
2 will be refunded if there is at least one Slice participant. The refund will be made at the
3 time of the first true-up and recovered through (included in) the true-up mechanism under
4 the Slice product. That is, Slice participants shall reimburse customers who paid for
5 (fronted) the set-up costs.

6 *Q. Why are the development and implementation costs for the Slice product handled in this*
7 *manner?*

8 A. Slice is a new product that bears little resemblance to the traditional, service-to-load
9 products that BPA has served in the past. BPA's costs associated with computer
10 modeling and staffing necessary to develop and to implement the Slice product are
11 currently unknown and unquantifiable. BPA agreed to develop the Slice product on the
12 condition that the customers interested in the Slice product would pay for these set-up
13 costs. Since customers entering into these separate agreements may not necessarily be
14 Slice participants, a refund mechanism was needed to ensure that the Slice participants
15 were ultimately bearing these costs. The side agreements also eliminate the risk that
16 development costs would not be recovered in the event that no customer purchases the
17 Slice product since no refund would occur in that situation.

18 **Section 7. Slice Participant's Assumption of Risk**

19 *Q. Does the Slice product bear an appropriate share of BPA's financial risk?*

20 A. Yes. The Slice product differs from BPA's other Subscription products in many ways,
21 one of which is the way the Slice participant assumes some of BPA's risks directly. The
22 core Subscription products include two general mechanisms for dealing with BPA's risk
23 of not meeting its financial obligations. These mechanisms are the Planned Net
24 Revenues for Risk (PNRR) which is incorporated into the PBL revenue requirement, and
25 the Cost Recovery Adjustment Clause (CRAC) which would allow the rates applied to
26 sales of general requirements power to be raised if certain financial targets were not

1 achieved. The PNRR and the CRAC provide BPA with protection against the variability
2 of water supply, market price uncertainties, and BPA's actual costs. These features are
3 discussed in the Risk Mitigation testimony of BPA witnesses Lovell, Sapp, Lefler, and
4 Bleifuss. *See Lovell, et al., WP-02-E-BPA-14.*

5 Neither of these features applies to the Slice product. Instead, the Slice product
6 addresses financial risks in a different manner that provides an equivalent assurance that
7 BPA can meet its financial obligations. The Slice product addresses BPA's financial
8 risks by: (1) shifting the power supply and market price risks directly to the Slice
9 participant; and (2) incorporating an annual true-up adjustment charge for differences
10 between planned and actual costs (and credits) of the Slice Revenue Requirement
11 (*see* Section 4 for details on the true-up process). These mechanisms assure that the Slice
12 participants will pay a proportionate share of BPA's PBL costs. These Slice product
13 features are discussed in more detail in the question and answer below.

14 *Q. How are power supply, market risks, and BPA's cost uncertainties shifted to the Slice*
15 *participant?*

16 *A.* The Slice participant does not get a proportionate share of the secondary revenue credits
17 in the calculation of the Slice rate. Instead, the Slice participant receives the secondary
18 energy directly and must realize the secondary revenues on its own. The Slice participant
19 must deal with the same uncertainties, variability, and costs that BPA incurs with the
20 marketing of its secondary energy. If the supply of secondary energy decreases, or if the
21 market prices for secondary energy decreases, or if the costs (or difficulty in) transmitting
22 the secondary energy increases, then the Slice participant's net revenues will decrease,
23 just as BPA's net revenues do in similar circumstances. The Slice participant assumes
24 the risks that the secondary energy will be available and that the related market prices
25 will be adequate. Therefore, PNRR and the need to raise the Slice rate (like CRAC) are
26 unnecessary.

1 The Slice participant also accepts the risk of having to purchase power when the
2 Slice participant's Slice share does not produce the power expected from it. Therefore,
3 PNRR and the need to raise the Slice rate (like CRAC) are unnecessary. The amount,
4 shape, and timing of the power received are subject to actual conditions and the Slice
5 participant accepts the risks associated with this uncertainty and variability. The Slice
6 participant also accepts the risks associated with the uncertainty of market prices for
7 purchasing or selling power. Therefore, PNRR and the need to raise the Slice rate (like
8 CRAC) are unnecessary.

9 The Slice participant also is subjected to the variability of BPA's costs since the
10 Slice Revenue Requirement is trued-up for actual expenses.

11 *Q. Why was it assumed throughout the 2002 power rate case studies that there would be*
12 *zero percent of the Federal system generation sold as Slice products?*

13 *A. This was assumed because of the one-for-one linear relationship between the percent of*
14 *the Federal system generation sold as Slice products and the percent effect on expenses*
15 *and credits within the 2002 power rate case that can be eliminated. With the one-for-one*
16 *linear effect of the Slice product, any rate case studies, regardless of the percent Slice*
17 *assumed, would have had the same effect on the PF rate.*

18 *Q. What is meant by "linear relationship"?*

19 *A. The linear relationship, used in context of the Slice product in the 2002 power rate case,*
20 *refers to the effects of the Slice product on all expenses and credits within the 2002*
21 *power rate case. This means that, with respect to BPA's other non-Slice participants, the*
22 *amounts of net revenues for risk, secondary revenues, and balancing power purchases are*
23 *reduced in proportion to the percent of the Federal system generation sold as Slice*
24 *products.*

25 For example, starting with the two extreme cases (zero and 100 percent of the
26 Federal system generation sold as Slice products) the amount of PNRR, balancing power

1 purchases, and secondary revenues that would be applied to the PF rate design would be
2 the full amount or zero percent, respectively. For any percentage between zero and
3 100 percent (15 percent for example) the amount of the reduction in these items would
4 correspond to the percentage sold as Slice products (15 percent in this case). If the
5 percent reduction would be graphed against the assumed percentage of the Federal
6 system generation sold as Slice products, this would be represented by a straight line
7 going from zero percent reduction and zero percent of the Federal system generation sold
8 as Slice products to 100 percent reduction and 100 percent of the Federal system
9 generation sold as Slice products, hence a linear relationship.

10 *Q. Why assume a "linear relationship"?*

11 A. BPA investigated the effects of the Slice product on BPA's power rate design in its
12 attempt to identify potential cost shifts. The effects of the Slice product on power rate
13 design are either direct, such as costs that are included in the Slice Revenue Requirement,
14 or indirect, such as the reduction of power purchase costs or secondary revenues. Since
15 revenues from the Slice product are based on a percentage of the Slice Revenue
16 Requirement, the direct effect of Slice are linear by definition (a purchase of 1 percent
17 Slice pays for 1 percent of the Slice Revenue Requirement). The indirect effect of the
18 Slice product includes items such as the reduction of: (1) BPA's purchases (Slice product
19 deliveries are in the shape of BPA's generation so no power purchases are required);
20 (2) secondary energy and revenues (the Slice product includes surplus power, so to the
21 extent surplus power is delivered through the Slice product, this amount of surplus power
22 must be reduced from the surplus power available to BPA); (3) transmission costs not
23 included in the Slice Revenue Requirement (Slice participants must secure their own
24 transmission for the surplus power included in the Slice product and BPA's transmission
25 costs will decrease due to decreased secondary energy sales); and (4) PNRR (PNRR can
26 be reduced because the Slice product includes an adjustment for actual expenses and the

1 power delivered through the Slice product is based on what is actually available,
2 therefore, BPA's revenue recovery is more stable with the Slice product).

3 **Section 8. Slice Cost Shift Study**

4 *Q. Briefly describe BPA's Slice Cost Shift Study.*

5 A. BPA conducted a detailed spreadsheet analysis to examine the potential for cost shifts
6 between the Slice product and other requirements products. The Study measured the
7 changes in BPA net revenues that would result from a customer switching from a
8 requirements product purchase to a Slice product purchase.

9 *Q. What are the primary assumptions of the Study?*

10 A. The Study assumes that 15 percent of the Federal system capability would be sold as
11 Slice products in the "Slice case." In the "non-Slice case," the Study assumes that the
12 same annual load would be served with requirements power at the PF rate. Given that
13 there may be a tremendous flexibility in how the customer may place a requirements load
14 on BPA, the Study assumes that the month-to-month variation in load match the load
15 shape of BPA's (aggregate requirements) system firm load.

16 A sensitivity analysis also was performed where the percent of Slice products sold
17 varied from 1 percent to 100 percent of the Federal system capability.

18 The Study assumes that the forecasts for PBL revenue requirements and market
19 prices for power are consistent with those used in the 2002 power rate case.

20 In the Slice case, the Study assumes that Slice participants would use their Slice
21 product to maximize the associated economic value. Since the hydroregulation study
22 conducted for the 2002 rate case is assumed to operate to the same objective, the Slice
23 participant is assigned a percent share of BPA's generation. An estimate of the amount
24 of additional revenues BPA would receive from the true-up adjustment is included. The
25 amount is consistent with the assumptions used in the non-Slice case.

1 The Study was run for both cases over 50 water conditions and the results, in
2 terms of net revenue changes for BPA, were averaged over the 50 water years.

3 *Q. Were there any financial adjustments included in the Study?*

4 A. Yes. There was an estimated “additional net revenue adjustment” included in the Study.

5 *Q. What was the purpose of the estimated additional net revenue adjustment?*

6 A. The estimated additional net revenue adjustment was included in the Study to make
7 revenues under the Slice and non-Slice cases comparable.

8 As noted previously in this testimony (*see* Section 7 on Slice Participant’s
9 Assumption of Risk), the combination of the Slice true-up adjustment charge and the
10 direct assumption of risks by Slice participants obviates the need to include PNRR and
11 CRAC in the Slice Revenue Requirement. Therefore, to fairly compare revenues
12 expected under the Slice and non-Slice cases, the revenues in one of the cases needed to
13 be adjusted. The options were to deduct a portion of the modified PNRR (adjusted to
14 reflect the expected value of the CRAC) from the non-Slice case, or to add the same
15 share of modified PNRR to the Slice case. The Study reflects the latter option, with Slice
16 case revenues increased by 15 percent of the modified PNRR. That adjustment reflects
17 the fact that the Slice true-up adjustment charge covers the risk of BPA cost uncertainty,
18 and the Slice participants’ fixed payments cover risks associated with variations in power
19 supply, market prices for power, and customer loads, which are taken on directly by the
20 Slice participant (*see* Section 7 on Slice Participants’ Assumption of Risk).

21 *Q. In the Study, why does the change in BPA’s net revenues vary by water condition?*

22 A. The Study shows that the change in BPA’s net revenues from selling the Slice product is
23 inversely proportional to the prevailing water condition. That is, when water conditions
24 worsen from the 50-year average, the study shows that BPA’s net revenue benefits from
25 selling the Slice product increases. When water conditions improve from the 50-year
26 average, the Study shows that BPA’s net revenue benefits decrease. This is because the

1 revenues that BPA receives from Slice are independent of water conditions and the
2 associated amount of power produced on the FBS. Therefore, because the expected net
3 revenues in the Slice case and the expected net revenues in the non-Slice case counteract
4 each other, any comparison of the Slice case and the non-Slice case results will be close
5 to zero.

6 *Q. What were the results of the Study?*

7 A. Overall, the results of the Study indicated that the 50 (water) year average annual cost
8 shift to BPA of selling 15 percent Slice is equal to \$7.7 million. The cost shift is
9 comprised of two components: the cost shift resulting from a nonlinear effect on BPA's
10 net revenues (\$7.0 million); and the cost shift resulting from power revenues
11 (\$0.7 million). Given the sensitivity of the study, the margin of error in the assumptions,
12 and the relatively small size of the cost shift results, BPA cannot conclude that there is a
13 cost shift.

14 *Q. What are nonlinear effect cost shifts and revenue cost shifts and are the Study results
15 significant?*

16 A. The nonlinear effect occurs when the reduction to BPA's net revenues resulting from
17 changes in secondary revenues and balancing power purchases is greater than the
18 assumed linear effect. For 15 percent Slice, the reduction in BPA's secondary revenues
19 and power purchase cost should equal 15 percent of the secondary revenue credits and
20 balancing purchase costs. For the rate case, this calculates to an expected reduction of
21 \$59.8 million. Since the Study showed an expected reduction of 66.8 million, the
22 nonlinear effect is estimated to be \$7 million, or 2.6 percent of the estimated Slice
23 revenue. The nonlinear effect is a function of the assumed non-Slice load shape, the
24 assumed shape of the Slice load, and the market prices. The results of the nonlinear
25 effect are very sensitive to changes in any of these three assumptions. The margin of
26 error for the three inputs are enough to eliminate the \$7 million cost shift or possibly

1 indicate a negative cost shift. BPA expects that as the rate case assumptions are changed
2 over the course of the rate case the cost shift result will change. BPA concludes that the
3 \$7 million value is not significant enough to indicate a cost shift.

4 The revenue cost shift occurs when the additional power sales revenues collected
5 from the Slice product (over the alternative PF revenues from the non-Slice case) are less
6 than the assumed linear effect on BPA's secondary revenues and power purchases. The
7 Study estimated that the additional revenue from a 15 percent Slice sale is \$59.1 million,
8 which is \$0.7 million less than the \$59.8 million linear effect, or 0.3 percent of the
9 estimated Slice revenue. The revenue cost shift is a function of the assumed non-Slice
10 load shape, what costs are included in the Slice Revenue Requirement, and the amount of
11 the estimated Slice true-up adjustment charge. The revenue cost shift is similarly
12 sensitive to changes in assumptions. This result is within the noise of the study and is
13 considered to be a null effect.

14 *Q. What are the conclusions from the results of the Study?*

15 A. BPA concludes that over the term of the Slice contract, selling part of its system as Slice
16 products is net revenue neutral to BPA and its customers, and therefore, there are no
17 resulting cost shifts to or from Slice participants to or from other customers and no
18 further adjustments to the Slice rate is necessary.

19 *Q. Does this conclude your testimony?*

20 A. Yes.

ATTACHMENT 1

SLICE PRODUCT COSTING TABLE

PBL Costs (\$000)		2002	2003	2004	2005	2006	TOTAL
GENERATION COSTS							
1	Federal Base System						
2	Hydro	\$ 447,800	\$ 455,373	\$ 468,464	\$ 479,149	\$ 483,041	\$ 2,333,825
3	Fish and Wildlife	\$ 159,425	\$ 167,905	\$ 172,350	\$ 176,722	\$ 179,102	\$ 855,504
4	Trojan	\$ 19,547	\$ 14,154	\$ 12,564	\$ 12,589	\$ 12,609	\$ 71,463
5	WNP #1	\$ 178,104	\$ 168,240	\$ 175,007	\$ 168,294	\$ 180,376	\$ 870,021
6	WNP #2	\$ 351,536	\$ 408,804	\$ 404,348	\$ 361,649	\$ 391,800	\$ 1,918,137
7	WNP #3	\$ 153,720	\$ 152,993	\$ 149,232	\$ 149,480	\$ 147,836	\$ 753,261
8	Total	\$ 1,310,131	\$ 1,367,469	\$ 1,381,965	\$ 1,347,883	\$ 1,394,764	\$ 6,802,211
9							
10	New Resources						
11	Idaho Falls	\$ 3,740	\$ 3,737	\$ 3,744	\$ 3,754	\$ 3,754	\$ 18,729
12	Cowlitz	\$ 14,914	\$ 14,987	\$ 15,051	\$ 15,123	\$ 15,196	\$ 75,271
13	Firm Purchased Power	\$ 17,723	\$ 17,953	\$ 18,187	\$ 18,435	\$ 18,681	\$ 90,978
14	Other Acquisitions						
15	Total	\$ 36,377	\$ 36,677	\$ 36,982	\$ 37,312	\$ 37,631	\$ 184,978
16							
17	Legacy Conservation	\$ 131,799	\$ 126,452	\$ 114,284	\$ 109,498	\$ 101,240	\$ 583,272
18	Energy Services Business	\$ 11,349	\$ 11,353	\$ 11,321	\$ 11,261	\$ 11,227	\$ 56,511
19	Other Generation Costs						
20	BPA Programs	\$ 118,043	\$ 98,774	\$ 88,465	\$ 84,222	\$ 80,209	\$ 469,713
21	Other						
22	WNP #3 Plant	\$ 3,086	\$ 3,169	\$ 3,169	\$ 3,169	\$ 3,169	\$ 15,762
23	Total	\$ 121,129	\$ 101,943	\$ 91,634	\$ 87,391	\$ 83,378	\$ 485,475
24							
25	COSA Table Subtotal	\$ 1,610,784	\$ 1,643,893	\$ 1,636,185	\$ 1,593,345	\$ 1,628,240	\$ 8,112,447
26							
27	CEA Transmission Costs	\$ 13,514	\$ 17,105	\$ 26,685	\$ 26,685	\$ 26,685	\$ 110,675
28	Ancillary and Reserve Service Costs	\$ 8,000	\$ 8,000	\$ 8,000	\$ 8,000	\$ 8,000	\$ 40,000
29	PBL PF Trans. Pass-Through Costs	\$ 14,190	\$ 14,247	\$ 14,304	\$ 14,361	\$ 14,418	\$ 71,520
30	PNCA & NTS Transmission Costs	\$ 1,957	\$ 1,957	\$ 1,957	\$ 1,957	\$ 1,957	\$ 9,785
31	General Transfer Agreement Costs	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 250,000
32							
33	REVENUE REQUIREMENT CHECK	\$ 1,698,445	\$ 1,735,202	\$ 1,737,131	\$ 1,694,348	\$ 1,729,300	\$ 8,594,426
34							
35	PF Conservation and Renewables Credit Costs						\$ 96,416
36	IP Conservation and Renewables Credit Costs						\$ 21,693
37	RL Conservation and Renewables Credit Costs						\$ 21,900
38	LDD	\$ 14,000	\$ 14,000	\$ 14,000	\$ 14,000	\$ 14,000	\$ 70,000
39	S & I Rate Mitigation Costs	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 20,000
40	Non-COSA Table Subtotal						\$ 230,009
41							
42	Total PBL Revenue Requirement						\$ 8,824,435
43							
44	Revenue Credits (\$000)						
45	Ancillary and Reserve Service Revs.	\$ 87,336	\$ 87,233	\$ 88,072	\$ 88,023	\$ 87,945	\$ 438,610
46	PBL PF Trans. Pass-Through Revs.	\$ 14,190	\$ 14,247	\$ 14,304	\$ 14,361	\$ 14,418	\$ 71,520
47	Canadian Entitlement Credit	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 5,000
48							
49	COE & USBR Project Revenues	\$ 8,100	\$ 8,100	\$ 8,100	\$ 8,100	\$ 8,100	\$ 40,500
50	4(h)(10)(c)	\$ 86,523	\$ 90,187	\$ 88,258	\$ 89,687	\$ 92,149	\$ 446,804
51	Colville Credit	\$ 4,600	\$ 4,600	\$ 4,600	\$ 4,600	\$ 4,600	\$ 23,000
52	FCCF	\$ 43,559	\$ 27,132	\$ 20,387	\$ 10,600	\$ 6,492	\$ 108,170
53	Sup/Ent Cap; Irr. Pump	\$ 938	\$ 707	\$ 471	\$ 471	\$ 471	\$ 3,059
54	Energy Efficiency Revenues	\$ 13,046	\$ 13,345	\$ 13,345	\$ 13,345	\$ 13,345	\$ 66,426
55	Property Trnfrs & Misc.	\$ 3,416	\$ 3,416	\$ 3,416	\$ 3,416	\$ 3,416	\$ 17,080
56							
57	Total Revenue Credits						\$ 1,220,169
58							
59	Power Revenues Needed						\$ 7,604,267
60							
61	Firm System Augmentation (1112 aMWs on average)	\$ 252,064	\$ 290,218	\$ 253,541	\$ 292,433	\$ 279,879	\$ 1,368,135
62	DSI Augmentation (450 aMWs)	\$ 110,770	\$ 110,770	\$ 110,770	\$ 110,770	\$ 110,770	\$ 553,851
63							
64	Subscription Settlement Costs (800 aMWs in \$s)	\$ 54,310	\$ 54,310	\$ 54,310	\$ 54,310	\$ 54,310	\$ 271,550
65	Total Cost of Inventory Solution	\$ 417,144	\$ 455,298	\$ 418,621	\$ 457,513	\$ 444,959	\$ 2,193,536
66							
67	Revenue 1112 aMWs flat, 450 aMWs to DSIs	\$ (301,889)	\$ (301,889)	\$ (301,889)	\$ (301,889)	\$ (301,889)	\$ (1,509,444)
68	Net Cost of Inventory Solution	\$ 115,255	\$ 153,409	\$ 116,732	\$ 155,625	\$ 143,071	\$ 684,092
69							
70		(\$000)					
71	Annual Slice Revenue Requirement	\$ 1,657,672					
72	Monthly Slice Revenue Requirement	\$ 138,139					
73	One Percent of Monthly Requirement	\$ 1,381.39					
74							
					Five Year Total		\$ 8,288,359

BASIS FOR SLICE TRUE-UP ADJUSTMENT CHARGE

	2002		2003		2004		2005		2006		Rev Req
	Generation Expenses (\$thousands)		Total	Slice	Total	Slice	Total	Slice	Total	Slice	
1 Operating Expenses	Total	Slice	Total	Slice	Total	Slice	Total	Slice	Total	Slice	
2 CSRS Pension Expense	27,600	27,600	17,550	17,550	15,450	15,450	13,250	13,250	11,600	11,600	85,450
3 Power Marketing	16,000	16,000	15,700	15,700	8,800	8,800	6,800	6,800	5,000	5,000	52,300
4 Wheeling (GTAs)	52,000	50,000	52,000	50,000	52,000	50,000	52,000	50,000	52,000	50,000	250,000
5 Power Scheduling	20,900	20,900	12,800	12,800	12,100	12,100	12,800	12,800	12,700	12,700	71,300
6 ST Purchased Power/Upstr Benefits	154,900	1,990	151,402	2,050	160,205	2,111	169,125	2,174	176,294	2,240	10,565
7 PNCA Interchange	-	-	-	-	-	-	-	-	-	-	-
8 Generation Oversight	2,964	2,964	2,950	2,950	3,050	3,050	3,050	3,050	3,150	3,150	15,163
9 Conservation & Consumer Services (incl EE)	29,351	29,351	27,763	27,763	28,063	28,063	28,463	28,463	28,763	28,763	142,401
10 Fish & Wildlife	131,700	131,700	138,000	138,000	140,100	140,100	142,900	142,900	144,400	144,400	697,100
11 Administrative & Support Services	17,350	17,350	16,650	16,650	16,650	16,650	16,650	16,650	16,650	16,650	83,950
12 Planning Council	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	25,500
13 Corps of Engineers O&M	108,000	108,000	112,000	112,000	112,000	112,000	112,000	112,000	112,000	112,000	556,000
14 U.S. Fish & Wildlife O&M	15,400	15,400	16,197	16,197	16,995	16,995	17,892	17,892	18,789	18,789	85,273
15 Bureau of Reclamation O&M	47,000	47,000	48,300	48,300	48,300	48,300	48,300	48,300	48,300	48,300	240,200
16 Colville Settlement	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000	80,000
17 Renewable Projects	20,302	20,302	20,117	20,117	19,968	19,968	19,885	19,885	19,836	19,836	100,109
18 WNP-1 O&M	400	400	384	384	384	384	384	384	384	384	1,936
19 WNP-2 O&M/Capital Requirements	154,094	154,094	163,824	163,824	170,724	170,724	173,824	173,824	179,824	179,824	842,290
20 WNP-3 O&M	3,086	3,086	3,169	3,169	3,169	3,169	3,169	3,169	3,169	3,169	15,762
21 Trojan Decommissioning	9,600	9,600	4,200	4,200	2,600	2,600	2,600	2,600	2,600	2,600	21,600
22 Between Business Line Expense 1/	151,941	41,662	157,689	45,309	165,524	54,947	163,763	55,003	164,130	55,061	251,982
23 LT Power Purchases	26,805	26,805	27,245	27,245	27,682	27,682	28,279	28,279	28,763	28,763	138,774
24 Rate Pledge Adjustment	-	-	-	-	-	-	-	-	-	-	-
25 System Operation & Maintenance	1,010,492	745,303	1,009,040	745,308	1,024,864	754,193	1,036,234	758,523	1,049,452	764,329	3,767,655
26 WNP-1	177,704	177,704	167,856	167,856	174,623	174,623	167,910	167,910	179,992	179,992	868,085
27 WNP-2	197,442	197,442	244,980	244,980	233,624	233,624	187,825	187,825	211,976	211,976	1,075,847
28 WNP-3	153,720	153,720	152,993	152,993	149,232	149,232	149,480	149,480	147,836	147,836	753,261
29 Trojan	9,947	9,947	9,954	9,954	9,964	9,964	9,989	9,989	10,009	10,009	49,863
30 Conservation Financing	5,578	5,578	5,577	5,577	5,577	5,577	5,577	5,577	5,577	5,577	27,886
31 Renewable Projects	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880	14,399
32 LT Power Purchases	15,917	15,917	15,916	15,916	15,920	15,920	15,933	15,933	15,935	15,935	79,621
33 Total Non-Fed. Projects Debt Service	563,187	563,187	600,156	600,156	591,820	591,820	539,594	539,594	574,205	574,205	2,868,962
34 Depreciation	95,288	95,288	97,910	97,910	100,170	100,170	102,215	102,215	104,164	104,164	499,747
35 Amort.: Conservation & Fish & Wildlife	80,002	80,002	78,321	78,321	71,755	71,755	69,466	69,466	64,950	64,950	364,494
36 Total Federal Projects Depreciation	175,290	175,290	176,231	176,231	171,925	171,925	171,681	171,681	169,114	169,114	864,241
37 IOU Payment (in lieu of Residential Exchange)	-	-	-	-	-	-	-	-	-	-	-
38 Total Operating Expenses	1,760,119	1,483,780	1,785,427	1,521,695	1,788,609	1,517,938	1,747,509	1,469,798	1,792,770	1,507,647	7,500,858
39 Net Federal Interest Expense	214,665	214,665	213,507	213,507	219,193	219,193	224,550	224,550	221,653	221,653	1,093,568
40 Total Operating & Net Interest Expenses	1,974,784	1,698,445	1,998,934	1,735,202	2,007,802	1,737,131	1,972,059	1,694,348	2,014,423	1,729,300	8,594,426
41 Miscellaneous expenses 2/	-	-	-	-	-	-	-	-	-	-	-
42 TOTAL ACCRUED EXPENSES FOR SLICE TRUE-UP		1,698,445		1,735,202		1,737,131		1,694,348		1,729,300	8,594,426
43 Revenue Credits											
44 Ancillary and Reserve Service Revs.		87,336		87,233		88,072		88,023		87,945	438,609
45 PBL PF Trans. Pass-Through Revs.		14,190		14,247		14,304		14,361		14,418	71,520
46 Canadian Entitlement Credit		1,000		1,000		1,000		1,000		1,000	5,000
47 COE & USBR Project Revenues		8,100		8,100		8,100		8,100		8,100	40,500
48 4(h)(10)(c)		86,523		90,187		88,258		89,687		92,149	446,804
49 Colville Credit		4,600		4,600		4,600		4,600		4,600	23,000
50 FCCF		43,559		27,132		20,387		10,600		6,492	108,170
51 Sup/Ent Cap; Irr. Pump		938		707		471		471		471	3,059
52 Energy Efficiency Revenues		13,046		13,345		13,345		13,345		13,345	66,426
53 Property Trnfrs & Misc.		3,416		3,416		3,416		3,416		3,416	17,080
54 Miscellaneous credits 3/		-		-		-		-		-	-
55 Total Revenue Credits		262,708		249,967		241,953		233,603		231,936	1,220,168

1/ Includes BPA Generation-Integration (under Ancillary Services), PF Transmission pass-through, PNCA and NTS Transmission, CEA Transmission, and Between Business Line Expenses.

2/ Includes Slice administrative expenses, WNP-2 economic displacement charges, conservation & renewables surcharge expenses, etc. The amounts associated with these expenses will not be determined until they actually are incurred. In some years, the amount for any of these expenses could be zero. In addition, Slice administrative expenses are shared equally amongst Slice participants.

3/ Includes potential applicable revenue credits, the type and amount of which will be determined as they are accrued.

Witnesses: Mesa, Pearson, Keep, and Homenick

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ATTACHMENT 2

1
2 **Equation 1 (the gross cost approach)**

3 Let $R = \frac{(C_1 + C_{IS})}{(L_1 + L_{IS})}$

4 Where :

5 R = a rate

6 C_1 = The base cost of the FBS

7 C_{IS} = The cost of the inventory solution

8 L_1 = The base net requirement load being served

9 L_{IS} = The incremental load being served by the inventory solution

10 **Equation 2 (calculation of net costs)**

11 Let $C_{NC} = C_{IS} - R * L_{IS}$

12 Where :

13 C_{NC} = The net cost of the inventory solution

14 **Equation 3 (the net cost approach)**

15 $R = \frac{(C_1 + C_{NC})}{L_1}$

16 **Proof (net cost approach equals gross cost approach)**

17 $R = \frac{(C_1 + (C_{IS} - R * L_{IS}))}{L_1}$

18 $R * L_1 = C_1 + C_{IS} - R * L_{IS}$

19 $R * L_1 + R * L_{IS} = C_1 + C_{IS}$

20 $R * (L_1 + L_{IS}) = C_1 + C_{IS}$