

INDEX

TESTIMONY of

BYRNE LOVELL, MARCUS A. HARRIS, MARGO L. KELLY,

RICHARD Z. MANDELL, ARNOLD L. WAGNER,

NIGEL L. WILLIAMS, and PETER T. WILLIAMS

Witnesses for Bonneville Power Administration

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6
7 **SUBJECT: POWER RISK ASSESSMENT AND MITIGATION**

8 **Section 1: Introduction and Purpose of Testimony**

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

10 A. My name is Byrne Lovell, and my qualifications are described in BP-14-Q-BPA-42.

11 A. My name is Marcus A. Harris, and my qualifications are described in BP-14-Q-BPA-26.

12 A. My name is Margo L. Kelly, and my qualifications are described in BP-14-Q-BPA-33.

13 A. My name is Richard Z. (Zach) Mandell, and my qualifications are described in BP-14-
14 Q-BPA-43.

15 A. My name is Arnold L. Wagner, and my qualifications are described in BP-14-Q-BPA-63.

16 A. My name is Nigel L. Williams, and my qualifications are described in BP-14-Q-BPA-65.

17 A. My name is Peter T. Williams, and my qualifications are described in BP-14-Q-BPA-66.

18 *Q. What is the purpose of your testimony?*

19 A. The purpose of this testimony is to sponsor portions of the Power Risk and Market Price
20 Study (Study), BP-14-E-BPA-04, and Power Risk and Market Price Study
21 Documentation (Documentation), BP-14-E-BPA-04A. We also sponsor the portions of
22 the General Rate Schedule Provisions (GRSPs), BP-14-E-BPA-09, concerning the Cost
23 Recovery Adjustment Clause (CRAC), the Dividend Distribution Clause (DDC), and the
24 National Marine Fisheries Federal Columbia River Power System Biological Opinion

1 (NFB) Mechanisms. We describe Staff's assumptions and analyses for quantitative and
2 qualitative risks and the resulting risk mitigation package for the BP-14 Initial Proposal.
3

4 **Section 1.1: Overview**

5 *Q. What is the main purpose of the risk assessment and mitigation component in the BP-14*
6 *rate case?*

7 A. The purpose of the risk assessment and mitigation component of the ratesetting process is
8 to ensure that Bonneville Power Administration's (BPA) rates meet the 95 percent
9 Treasury Payment Probability (TPP) standard articulated in the 10-Year Financial Plan
10 adopted in the 1993 Power rate case (1993 Final Rate Proposal Administrator's Record of
11 Decision (ROD), WP-93-A-02, at 72) and expressed in the policy objectives set forth in
12 Bliven *et al.*, BP-14-E-BPA-11. This standard requires BPA to set rates high enough to
13 have a 95 percent probability that BPA will be able to make all of its payments to the
14 U.S. Treasury (Treasury) within each two-year rate period. Payments to Treasury, in
15 particular principal payments, are by law subordinate to all of BPA's other payment
16 obligations. Therefore, if BPA meets its Treasury payment obligations, it will have met
17 all its other financial obligations as well. For this reason, TPP serves as the key
18 prospective measure of BPA's ability to recover all its costs.

19 *Q. Is the TPP standard required by BPA's enabling statutes or other rulemaking?*

20 A. No. BPA adopted this standard in consultation with customers and other interested
21 parties after missing a portion of its scheduled payments to Treasury for seven years in a
22 row. BPA's enabling statutes require it to set rates sufficient to recover its costs on a
23 prospective basis. The TPP standard supports BPA's cost recovery by acknowledging
24 that BPA's costs and revenues cannot be known in advance. Accounting for the

1 uncertainty of costs and revenues in setting rates permits BPA to obtain a higher
2 probability of recovering its costs within each rate period.

3 *Q. How is TPP calculated?*

4 A. We calculate TPP using a Monte Carlo modeling approach in which 3,200 separate
5 iterations, or games, are generated by a financial model. For this rate case, each game
6 covers three years: FY 2013 and the two years in the BP-14 rate period, FY 2014 and
7 FY 2015. FY 2013 is simulated to reflect the uncertainty of the starting FY 2014 balance
8 of Power Services (PS) reserves available for risk. In each game, a test is performed to
9 see if BPA has sufficient reserves available for risk to make its Treasury payment during
10 each year of the rate period. The TPP is the percentage of those 3,200 games in which
11 BPA makes its Treasury payment on time and in full in both years.

12 *Q. What tool is used to calculate the TPP?*

13 A. We use a model called the ToolKit to calculate TPP. The ToolKit is used to assess the
14 effects of various policies, assumptions, changes in data, and risk mitigation measures on
15 the level of PS year-end reserves and thus on Treasury payments.

16 *Q. How does BPA measure the TPP standard for each business line?*

17 A. BPA's 2008 Financial Plan update confirmed that BPA will measure TPP separately for
18 each business line in the ratesetting process. We believe that if each business line is
19 meeting the TPP standard as it sets rates, then BPA as a whole will also meet the TPP
20 standard.

21 *Q. How do you define "risk"?*

22 A. We use "risk" to refer to possible future events that could have impacts on BPA's
23 objectives.

1 Q. *Using that definition, could a risk have positive (i.e., beneficial) impacts?*

2 A. Yes. In colloquial or casual usage, risks are often assumed to entail the possibility of
3 harmful effects. We deliberately include the possibility of beneficial impacts in our
4 definition. An example of a risk that could have both negative and positive impacts is PS
5 net secondary revenue risk. There is roughly a one-in-six chance that the net secondary
6 revenue PS receives in a fiscal year will be more than \$200 million lower than the value
7 that the Rate Analysis Model (RAM2014) uses for setting rates. That is clearly a
8 substantial possibility of a harmful impact on the PS financial condition. On the other
9 hand, there is roughly the same chance that the actual net secondary revenue will be more
10 than \$200 million higher than the amount RAM2014 has incorporated. We use “risk” to
11 refer to the entire spectrum of possible events, not only those with harmful impacts.

12 Q. *Does the risk assessment consider the possible impacts on all of BPA’s objectives?*

13 A. No, the risk assessment focuses on possible events that can affect BPA’s financial
14 objectives, particularly the objective of having sufficient cash and liquidity to make all of
15 BPA’s payments to the Treasury.

16 Q. *What is the difference between risk and uncertainty?*

17 A. We use the terms interchangeably and do not mean to imply that our choice of one word
18 instead of the other is significant. For instance, we interpret “net secondary revenue risk”
19 and “net secondary revenue uncertainty” to mean the same thing; similarly, “modeling
20 the uncertainty around prices” and “modeling the risk around prices” mean the same
21 thing.

1 **Section 1.2: Quantitative versus Qualitative Risk Assessment and Mitigation**

2 *Q. How do you distinguish between quantitative and qualitative risk assessment and*
3 *mitigation?*

4 A. BPA's TPP test is essentially quantitative. In the TPP test, we model the effect of many
5 financial risks that affect BPA's ability to make scheduled cash payments to the Treasury.
6 We also take into account the quantitative risk mitigation tools that BPA has available.
7 Our general approach is to create Monte Carlo (simulation) models for each of the risks
8 that we capture quantitatively, merge the results from different models, apply the
9 quantitative mitigation tools to these aggregated financial results, and measure TPP.

10 For example, BPA has used the Cost Recovery Adjustment Clause (CRAC) as
11 one of its main risk mitigation tools in determining power rates since 2002 (as well as
12 having forms of CRAC provisions in most years since 1987). The CRAC in each rate
13 case is calibrated to be strong enough, after accounting for any other risk mitigation tools
14 BPA has adopted, to meet the TPP standard, given the risks that are modeled. The
15 CRAC cannot be designed to be strong enough to mitigate all the risks BPA faces; its
16 ability to mitigate risk can be tested in the ToolKit only against the risks that we model
17 quantitatively; that is, the risks that the ToolKit "knows about." Therefore, our approach
18 is such that if we intend that the CRAC is strong enough to mitigate a particular risk
19 (among others), that risk must be modeled so that our test of TPP takes into account both
20 the risk and the CRAC that we use to mitigate the risk.

21 Some risks that we know of are not modeled quantitatively. Some are simply too
22 difficult to model, for example, because there is no basis for estimating the probabilities
23 of possible outcomes; others are unsuitable for quantitative modeling because they
24 concern possible future actions of human beings whose behavior might be influenced by
25 the quantitative modeling. Because they are not part of our quantitative risk modeling,

1 we cannot measure their impact on TPP, and we have to mitigate them outside the arena
2 of our quantitative modeling. These risks are analyzed qualitatively.

3 *Q. What can make an uncertainty suitable or unsuitable for quantitative modeling?*

4 A. There are a number of factors, including availability of data from previous years, that
5 may make a risk more or less suitable for modeling. Risks that depend on the future
6 actions of a particular person or organization can be very difficult to quantify (for
7 example, the possibility that litigation will result in a new Federal Columbia River Power
8 System (FCRPS) Biological Opinion (BiOp)). Risks for which historical analogies can
9 be found can be modeled by reference to the history of similar risks. Risks that are
10 technical in nature and for which BPA has subject matter experts (SMEs) that can assess
11 the relative likelihood of possible outcomes can be modeled even if there are no historical
12 data.

13 *Q. Please give examples of quantitative and qualitative risks.*

14 A. An example of a quantitative risk – and mitigation – is the uncertainty in Power Services’
15 net secondary revenue. We model this risk in the Operating Risk Models. We simulate
16 the impact of variable market prices, variable loads, and variable supplies of energy on
17 the sales of secondary energy and the purchases of balancing energy. We then send the
18 results of these simulations to the ToolKit to measure TPP. The TPP test takes into
19 account both this risk and the quantitative mitigation tools, such as the CRAC.

20 An example of a qualitative risk – and mitigation – is the litigation over the 2008
21 FCRPS BiOp, which could result in BPA adopting a new FCRPS BiOp. This would
22 require modifications to BPA’s hydro operations, which might reduce BPA’s net
23 revenue, which in turn could reduce BPA’s ability to make its scheduled Treasury
24 payment. We do not model this risk, which means that we cannot test whether
25 quantitative risk mitigation tools, such as the CRAC, are strong enough to ensure that

1 BPA meets its TPP standard when taking this risk into account. Therefore, this risk must
2 be mitigated by tools that are outside the quantitative modeling. We have created
3 mechanisms to do this called the “NFB mechanisms.” One of these, the Emergency NFB
4 Surcharge, GRSP II.N.3, can increase power rates in a matter of weeks if a mandated
5 change in BPA’s fish and wildlife program or river operations results in a forecast loss of
6 net revenue during a year when BPA is already so short of financial reserves that the
7 probability of BPA missing part or all of its year-end Treasury payment is 20 percent or
8 higher. We do not model the probability that the NFB Emergency Surcharge will be
9 triggered, and we also do not model the impact on TPP of the implementation of the NFB
10 Emergency Surcharge.

11 *Q. Are there any general principles you can state that help clarify how you treat risks that*
12 *are “in” or “out” of the quantitative realm?*

13 A. Yes. If we are aware of a risk, say, Risk A, and we want to assert that our regular
14 quantitative risk mitigations, such as the CRAC, are strong enough to mitigate Risk A,
15 we must model Risk A so that it is part of the test of our quantitative risk mitigation tools.
16 Conversely, if we are aware of a risk, say, Risk B, that we are not going to model but that
17 could have significant financial consequences, then we need to create risk mitigation
18 measures that are also not modeled. In other words, if we say that the mitigation for a
19 risk is in the regular quantitative arena, then we must be sure that the risk itself is also
20 captured in the quantitative arena. A risk that is out of the quantitative arena cannot be
21 claimed to be mitigated by the tools that are in the quantitative arena, because the ability
22 of the tools to mitigate that risk has not been tested in the assessment.

23 *Q. How can you mitigate risks that are not in the quantitative arena?*

24 A. There are many techniques for mitigating risks without modeling them quantitatively.
25 One of the most widely applicable techniques is the use of terms and provisions of sales

1 and purchase contracts that speak specifically to risks. For example, if BPA is relying on
2 revenue from a particular sale to cover its costs and is concerned that the customer might
3 reduce its purchase from BPA, thus jeopardizing cost recovery, BPA might include a
4 take-or-pay provision in the contract for that sale, or a provision that the customer would
5 be liable for liquidated damages if BPA is not able to find a replacement market for the
6 unpurchased quantity. This is how Tier 2 risks are mitigated.
7

8 **Section 2: Quantitative Risk Assessment**

9 **Section 2.1: Operating Risk Models**

10 **Section 2.1.1: Changes in Operating Risk Modeling Since the BP-12 Final Proposal**

11 *Q. Did you make any changes since the BP-12 Final Proposal to any of the Operating Risk*
12 *Models that simulate risk data for direct input into RevSim?*

13 A. Yes, since the BP-12 Final Proposal we made changes in the methodology used to model
14 load variability, CGS generation risk, and PS wind generation risk. These changes are
15 discussed in the testimony of Williams *et al.*, BP-14-E-BPA-14.
16

17 **Section 2.1.2: Federal Hydro Generation**

18 *Q. Are any adjustments made to the Federal hydro generation data in Tables 3 and 4 in the*
19 *Documentation?*

20 A. Yes. Adjustments to Federal hydro generation in Tables 3 and 4 are made to account for
21 efficiency losses associated with standing ready to provide and deploy within-hour
22 balancing reserves for both load and wind generation variability and carrying the
23 spinning portion of the operating reserve obligation.
24

1 Q. *Why are hydro generation adjustments made to Federal hydro generation for efficiency*
2 *losses and incremental energy shift?*

3 A. Losses of efficiency and value occur as the system is set up to allow reserves to be
4 deployed, and additional losses occur as the reserves are actually deployed. Generation
5 Inputs Study, BP-14-E-BPA-05, section 3. Hydro generation adjustments are made to
6 account for this variable cost component, allowing BPA to appropriately allocate the cost
7 of these losses to the parties that benefit from these reserve services.

8 Q. *Is a Non-Treaty Storage Agreement considered in this Initial Proposal?*

9 A. Yes. A new Non-Treaty Storage Agreement with Canada was signed in April 2012. The
10 effect of this agreement on Federal hydro generation is included in the Federal hydro
11 generation data supplied to the risk assessment by the Loads and Resources Study,
12 BP-14-E-BPA-03, section 3.1.2.

13
14 **Section 2.1.3: PS Wind Generation**

15 Q. *Do you make any changes to the output of the PS Wind Generation Risk Model?*

16 A. Yes. The PS Wind Generation Risk model considers wind projects that do not support
17 BPA loads, so the output of the PS Wind Generation Risk Model is scaled so that the
18 average of the 3,200 iterations from the model is equal to the forecast amount of wind
19 generation available to meet BPA loads.

1 **Section 2.2: Development of the Net Secondary Revenue Forecast**

2 *Q. In the Initial proposal is BPA continuing to use the median net secondary revenue to*
3 *calculate the surplus energy revenues and balancing purchase expenses?*

4 A. Yes. For the reasons previously stated in the BP-12 Final Record of Decision, BPA is
5 continuing to use the median net secondary revenues as the basis for calculating surplus
6 energy revenues and balancing purchase expenses. Using the median net secondary
7 revenue reflects BPA management's risk tolerance for actual net secondary revenue
8 turning out to be below the forecast amount assumed in setting rates.

9 *Q. Are you currently aware of any operating risks not currently modeled that might be*
10 *modeled for the Final Proposal?*

11 A. Yes. Uncertainty in the amount of the Colville Settlement payments has been removed
12 from NORM for the Initial Proposal. In evaluating and updating that model, we found
13 that several key components of the calculation are already modeled in the Operating Risk
14 Models, including Power Sales Revenue, Power Sales MWh, and Grand Coulee
15 Generation MWh. The correlation between these items is not readily assessable in
16 NORM; nor is the correlation between the level of the Colville Settlement Payment and
17 Power Services Net Revenue. When modeling the risk without correlations, Colville
18 Settlement risk will increase BPA's net revenue risk, as measured by the standard
19 deviation of net revenue. We suspect that, if correlations were taken into account, the
20 Colville Settlement risk is likely to decrease or have minimal effect on overall Net
21 Revenue uncertainty. Thus, we have not modeled Colville Settlement risk within NORM
22 for the Initial Proposal and plan to model the risk within the Operating Risk Models for
23 the Final Proposal.

1 **Section 2.3: Non-Operating Risk Model**

2 *Q. What is the Non-Operating Risk Model?*

3 A. The Non-Operating Risk Model, or NORM, is a model that quantifies risks not arising
4 directly from operation of the Federal power system. NORM uses a simulation
5 methodology to create a set of alternative outcomes, or games. The frequency
6 distribution of the output data reflects our estimates of the probabilities of occurrence of
7 non-operating risks. The output from NORM is used in the ToolKit model to calculate
8 TPP. NORM is described in Study sections 2.2.4 and 2.7.

9 *Q. Please distinguish operating from non-operating risks.*

10 A. Operating risks are risks, variability, or uncertainty that stem directly from operating the
11 power system, such as variability in electricity market prices, variability in generation
12 caused by uncertain hydro volumes or forced outages of hydro or nuclear generation, and
13 transmission losses. Non-operating risks are risks not tied directly to operating the power
14 system, and include such things as variability in the expenditures on Operations &
15 Maintenance (O&M) for Columbia Generating Station (CGS), the U.S. Army Corps of
16 Engineers (Corps), and the U.S. Bureau of Reclamation (Bureau).

17 *Q. What revenue risks are modeled in NORM?*

18 A. There are four revenue risks modeled:

- 19 • The possibility of a court order related to the 2008 FCRPS BiOp that requires
20 BPA to spill more than the amount assumed in ratesetting
- 21 • Variability in revenue from Variable Energy Reserve Balancing Service (VERBS)
22 due to uncertainty in the amount of installed wind capacity
- 23 • Variability in revenue from the sale of operating reserve services due to WECC
24 adoption of BAL-002 operating reserve requirements occurring later than is
25 assumed in ratesetting

- Revenue at risk from uncertainty in the length of the scheduled refueling outages at CGS in FY 2013 and FY 2015

Q. *What expense risks are modeled in NORM?*

A. NORM models the uncertainties in the following expense categories:

- CGS O&M
- Corps O&M
- Bureau O&M
- Spokane Settlement
- Conservation Acquisition
- Low Income & Tribal Weatherization
- Transmission Acquisition & Ancillary Services
- Corporate General and Administrative (G&A)
- PS Internal Operations
- Fish & Wildlife O&M
- Lower Snake Hatcheries
- Leavenworth Complex O&M
- Fish Passage Facilities O&M
- Federal and Non-Federal Interest Expense

These risks are described in Study section 2.7.

Q. *Why did you choose this particular set of non-operating risks?*

A. We model uncertainties that meet both of the following criteria: (1) the risk has a significant range of financial uncertainty; and (2) the risk is suitable for quantitative modeling.

1 *Q. How did you gather the information regarding non-operating risks modeled in NORM?*

2 A. To obtain the data for the probability distributions, we interviewed SMEs for each risk
3 modeled. We asked SMEs to provide input as to the expected outcome, likelihood of
4 variation, and range of outcomes of each item. We also asked SMEs for factors that
5 could influence the item and asked for any other information, such as historical data,
6 relevant to our investigation of the specific item.

7 *Q. How did you develop the risk parameters and distributions?*

8 A. Based on the results of the SME interviews, we developed the probabilities and
9 deviations for NORM using Excel and @Risk. The shape and specific parameters for
10 each distribution were modeled around the input provided.

11 *Q. What factors contributed to the type and shape of the expense distributions used in*
12 *NORM?*

13 A. The type and shape of each expense distribution depends on two key factors:

14 (1) The factors that influence the cost being analyzed;

15 (2) BPA's ability to quantify the uncertainty associated with these factors.

16 *Q. Are there any risks previously modeled in NORM that you are no longer modeling?*

17 A. Yes. The Colville settlement is no longer modeled in NORM, as discussed in Section 2.

18 *Q. Are there any risks in NORM that are new for the BP-14 rate proceeding?*

19 A. Yes. Uncertainty about revenue from sales of operating reserve services is now modeled.
20 This uncertainty reflects the possibility that the operating reserve requirements in place in
21 BPA's balancing authority area may be based on the current WECC requirements instead
22 of the proposed BAL-002-WECC-1 (BAL-002) requirements, which were assumed when
23 Transmission Services (TS) set Ancillary and Control Area Service (ACS) rates. The
24 current standard requires more operating reserves to be carried by parties within BPA's
25 balancing authority area, resulting in TS receiving more revenue from the sale of

1 operating reserves. As TS passes this revenue to PS to compensate PS for the related
2 generation inputs, PS revenue would be higher. Study section 2.7.

3 *Q. Have you changed any of NORM's risk models substantially?*

4 A. Yes, we made three changes. The first involved modeling the uncertainty over the length
5 of planned outages of CGS. In the BP-12 rate case, this model accounted for uncertainty
6 in the duration of the FY 2011 planned outage at CGS, which involved replacement of
7 the main condenser at the plant. NORM did not account for uncertainty in the duration of
8 the FY 2013 refueling outage. No such major replacement work is planned for the
9 FY 2013 or FY 2015 outages. Therefore NORM reflects uncertainty due only to the
10 refueling process, which we are modeling for both the year prior to the rate period,
11 FY 2013, and the second year of the rate period, FY 2015.

12 The second change is the recharacterization of the BiOp Secondary Sales risk as
13 the BiOp Related Court Order risk. The BiOp Secondary Sales risk captured uncertainty
14 in the financial impact of the fish operations BPA would be required to implement due to
15 decisions made under the Adaptive Management Implementation Plan (AMIP). The
16 AMIP has been subsumed in the 2010 Supplemental BiOp, so uncertainty due to the
17 effects of the AMIP no longer needs to be modeled. However, there is uncertainty about
18 the amount of spill that will be required as the 2010 Supplemental BiOp is implemented;
19 the actual spill in FY 2014 or FY 2015 required by the court order that formalizes spill
20 requirements may be different from the amount that has been forecast in this rate
21 proposal to be implemented under the 2010 Supplemental BiOp. We made a
22 corresponding change in the ToolKit that we explain below in section 3.7.

23 The third change is in how we modeled uncertainty in the interest expense on
24 Federal and non-Federal bonds. In BP-12, we modeled interest expense for only the two
25 years of the rate period; in BP-14 we are also modeling interest expense for the year prior

1 to the rate period. We have also refined our modeling of interest rates. We now have
2 separate base-case forecasts of interest rates for each of the three years for Federal bonds,
3 and two interest rates, depending on maturity, for each of the three years for non-Federal
4 bonds. High and low forecasts were used to construct Gaussian probability distributions
5 around the base case forecasts. We modeled these nine types of interest rates as
6 correlated across types within each year, and as correlated over time for each type.

7 In each year of each game, interest rates are generated and then combined with
8 the forecasts of new borrowing and refinancing to produce simulations of interest
9 expense. For FY 2014 and 2015, the interest expense includes interest on bonds issued in
10 the previous year(s) as well as interest on bonds issued in that year. The total Federal and
11 non-Federal interest is compared to the amount assumed in the Revenue Requirement to
12 compute a deviation that is part of the NORM output to be used by the ToolKit. We
13 believe this new modeling provides a more nuanced reflection of the interest expense
14 uncertainty.

15 *Q. How does NORM work?*

16 *A. Identified risks are modeled using probability distributions built around inputs received*
17 *from SMEs. Games, or iterations, are run in which a cost (or revenue) is randomly drawn*
18 *from the modeled probability distribution. The related value in the revenue requirement*
19 *is then subtracted to yield a cost (or revenue) deviation. The resulting deviations for the*
20 *modeled risks are summed by fiscal year (and adjusted by the Slice percentage when*
21 *appropriate) to yield a set of overall deviations to net revenue by fiscal year. A total of*
22 *3,200 iterations are run, and an output file containing these iterations is created for the*
23 *Toolkit.*

1 Q. *Why are the deviations adjusted by the Slice percentage?*

2 A. The Slice customers pay for actual expenses. NORM assumes that when a risk event
3 occurs, 26.812 percent (Power Rate Study Documentation, BP-14-E-BPA-01A,
4 Table 2.3.8) of its cash impact is absorbed by Slice customers the following fiscal year
5 through the Slice True-Up, and the remainder is absorbed by PS in the year in which the
6 risk event is modeled to occur.

7 Q. *How is the Accrual-to-Cash (ATC) adjustment incorporated into NORM?*

8 A. A deterministic version of the ATC table is developed by BPA's finance staff and then
9 copied into NORM. An output file is created with the results of the 3,200 iterations, each
10 of which includes NORM and ATC data for each of the three years relevant to the BP-14
11 rate period, FY 2013 and FY 2014–2015. See section 2.4 below.

12 Q. *Why are you modeling the variability of revenue from VERBS, a product sold by
13 Transmission Services? (Study, section 2.7.11.)*

14 A. TS sells VERBS to generators, but TS is not able to supply the balancing services from
15 TS resources and assets. Rather, TS buys this capability, known as “generation inputs,”
16 from PS. Generation Inputs Study, BP-14-E-BPA-05, section 10.5. TS sets rates for
17 these balancing services such that forecast revenue is sufficient to pay for the costs of the
18 generation inputs purchased from PS. If balancing services sales match the forecast, then
19 TS revenues will match the costs of services purchased from PS. Prior to the conclusion
20 of the WP-10 and TR-10 rate proceedings, BPA decided to split evenly between TS and
21 PS the risk of actual sales differing from the forecast. Staff continues this treatment in
22 the BP-14 Initial Proposal. Study section 2.7.11. Under this method, the actual amount
23 of revenue TS receives for sales of balancing services will affect PS revenue, and
24 therefore PS needs to model this source of financial variability.

25

1 Q. *Are all revenue changes due to variability in the amount of wind capacity on the system*
2 *shared by TS and PS under this arrangement?*

3 A. No. The risk-sharing covers only the variability of VERBS revenue intended to cover
4 embedded and direct costs, not the portion covering variable costs.

5 Q. *What is the difference among these three cost components?*

6 A. The TS rates for VERBS are designed to recover three generation inputs cost
7 components. Klippstein *et al.*, BP-14-E-BPA-24. Variable costs are the financial impact
8 on PS operations imposed by the quantity of physical reserves that must be set aside to
9 ensure that a given quantity of wind generation can be integrated into BPA's system
10 while maintaining adequate system reliability. The setting aside of physical reserves
11 reduces the freedom the system's operators have to optimize the production and sale of
12 secondary energy. Embedded costs reflect the cost of the hydro projects themselves and
13 the proportionate benefit VERBS customers receive from the projects. Direct costs are
14 expenses PS incurs specifically to support balancing services to variable energy
15 generation.

16 Q. *Why do you need to distinguish among these three components?*

17 A. If less wind generation is installed than forecast, TS receives less revenue than was
18 forecast to cover the variable costs. However, the quantity of physical reserves PS needs
19 to set aside is also smaller than forecast, allowing PS to generate more net secondary
20 revenue. The decrease in revenue received for the variable cost portion of VERBS
21 should be offset by an equal increase in net secondary revenue. BPA therefore faces no
22 financial risk due to variability in revenue received for the variable cost component of
23 balancing services rates. However, there is no corresponding natural offset for changes
24 in the amount of balancing services revenue intended to recover embedded and direct
25 costs.

1 Q. *How does the risk-sharing arrangement work?*

2 A. Staff calculates the portion of the actual balancing services revenue intended to cover
3 variable costs, and TS pays PS this amount. Staff calculates the portion of the actual
4 balancing services revenue intended to cover embedded and direct costs, and also
5 calculates the corresponding portion of the forecast of balancing services revenue.
6 TS pays PS the forecast amount of embedded- and direct-cost revenue plus one-half of
7 any additional embedded- and direct-cost revenue or minus one-half of any shortfall in
8 embedded- and direct-cost revenue.

9 Q. *How will you update NORM for the Final Proposal?*

10 A. We will update the costs and revenues for FY 2013 to be consistent with BPA's most
11 recent Quarterly Review, typically the Second Quarter Review. The subject matter
12 experts we consulted may indicate that the uncertainty around revenues or expenses
13 modeled in NORM needs to be updated. If a second Integrated Program Review process
14 is held, we will update FY 2014–2015 expenses and revenues consistent with any
15 changes made to the FY 2014 and FY 2015 revenue requirement. We may also model
16 uncertainties around additional costs or revenues that emerge as a result of this rate
17 proceeding.

18 VERBS risk will be updated with the most recent capacity forecast, consistent
19 with the Generation Inputs Study.

20 The CGS Outage Duration risk module will be updated if BPA receives
21 significant new information from Energy Northwest on the likely or possible length of
22 the refueling outages in FY 2013 or FY 2015. The CGS Outage Duration risk will also
23 be updated with the current market price forecast.

1 **Section 2.4: The Accrual-to-Cash (ATC) Adjustment**

2 *Q. What is the purpose of the ATC adjustment?*

3 A. The ATC adjustment makes the necessary changes to convert RevSim and NORM
4 simulation results from net revenue (*i.e.*, accrual accounting) to financial reserves
5 (*i.e.*, cash accounting). This adjustment is necessary because while BPA generally uses
6 accrual accounting for managing and projecting business performance, the ToolKit needs
7 cash results to calculate TPP. Study Table 7 provides a point estimate of the ATC
8 adjustments that are supplied to NORM. A few NORM variables affect the translation
9 from accruals to cash; therefore uncertainty in these variables affects the associated ATC
10 adjustments within NORM. Study section 2.7.13. The gamed ATC adjustments are then
11 read in by the ToolKit from the NORM output.

12 *Q. Is this adjustment new for this rate proceeding?*

13 A. No.

14 *Q. Why do net revenue and cash differ?*

15 A. There are three major factors that cause cash and net revenues to differ. First, some
16 revenues and expenses included in net revenue do not affect cash. These include the
17 depreciation and amortization of Power Services' physical and non-physical assets and
18 interest adjustments shown on lines 1 and 2 of Study Table 7. Second, there are timing
19 differences between when certain revenue and expense items are accrued and when the
20 associated cash is received or paid. These items include the Energy Northwest direct-pay
21 prepaid expense adjustments line 3 of Table 7, the Slice True-Up, and various terminated
22 purchase and sales contract amounts and other miscellaneous items included in the "All
23 Other" category on line 4 of Table 7. Third, there are various sources and uses of cash
24 associated with BPA's capital spending program that are neither revenue nor expense and

1 therefore do not flow through the income statement, including Scheduled Federal Debt
2 Amortization, line 6 of Table 13.

3 *Q. What are the interest adjustments on line 2 of Table 7?*

4 A. These adjustments reflect the amortization of the Capitalization Adjustment that resulted
5 from the restructuring of BPA's Federal appropriated debt in the Bonneville
6 Appropriations Refinancing Act, implemented October 1, 1997. Power Revenue
7 Requirement Study, BP-14-E-BPA-02, section 1.2.4. For the PS portion of the
8 refinanced debt, part of the Capitalization Adjustment is amortized (written off) annually
9 and recognized on the income statement, but with no associated cash effect on the
10 balance sheet. Because this transaction has no cash impact, only net revenue, the PS
11 actual cash obligation to Treasury is not reduced. Therefore, the PS cash interest
12 payment is higher than the amount of PS accrued interest expense by the amount of the
13 Capitalization Adjustment.

14 *Q. What transmission data, if any, are included in the ATC adjustments?*

15 A. None. Only PS non-cash adjustments and other PS sources and uses of cash not included
16 in Net Revenue are captured in the ATC adjustment.

17
18 **Section 3: Quantitative Risk Mitigation**

19 **Section 3.1: Risk Mitigation Tools**

20 *Q. What risk mitigation tools are you using to achieve the 95 percent TPP standard?*

21 A. Section 3 of the Study lists potential risk mitigation tools as part of a comprehensive risk
22 management plan. The tools that are included in the ToolKit analysis for the Initial
23 Proposal are *financial reserves available for risk attributed to PS* (PS Reserves), the
24 Treasury Facility, Planned Net Revenues for Risk (PNRR), a CRAC, and a DDC. These

1 tools address the uncertainties PS faces in FY 2013–2015, particularly hydro conditions,
2 market prices, operating and non-operating costs, and fish and wildlife costs, while
3 ensuring that PS reserves do not accumulate to unnecessarily high levels.

4 *Q. Do you include other risk mitigation tools in the Initial Proposal that are not modeled in*
5 *ToolKit?*

6 A. Yes. We are proposing to continue the two NFB Mechanisms, the NFB Adjustment and
7 the Emergency NFB Surcharge, but are generally not modeling them or the risks they
8 mitigate. The NFB Adjustment is an upward adjustment to the Maximum CRAC
9 Recovery Amount (Cap) for FY 2014 or FY 2015 if unforeseen fish and wildlife costs or
10 financial impacts arise from a prescribed set of circumstances in FY 2013 or FY 2014
11 related to the litigation over the FCRPS BiOp (*i.e.*, NFB Trigger Events). Study
12 section 4.2.1. The Emergency NFB Surcharge mitigates the risks of the same set of
13 possible events that might occur during FY 2014 or FY 2015 should BPA as a whole be
14 experiencing a serious cash shortage during one of those years. Study section 4.2.2.
15 With the exception of the BiOp Related Court Order risk, we are not modeling the
16 impacts of these risks nor the mitigation tools for the risks, because BPA prefers not to
17 model independent actions of the Federal court or the possible outcomes of ongoing
18 negotiations for long-term agreements regarding fish funding levels. See section 4 for
19 further discussion of the NFB Mechanisms.

20 *Q. Will the risk mitigation package apply to Slice purchases?*

21 A. No. The Slice product is not subject to the proposed risk mitigation package because
22 Slice customers cover their proportional share of risk by paying actual costs through the
23 Slice True-Up Adjustment charge (GRSP II.W), and taking on their proportional share of
24 secondary revenue risk through an advance sale of secondary energy in the Slice product.

1 **Section 3.2: Liquidity in Treasury Payment Probability**

2 *Q. What does liquidity mean in the context of BPA's risk mitigation?*

3 A. Liquidity is the temporary availability of cash. In the risk mitigation context, when BPA
4 has difficult financial years and must tap liquidity sources to pay bills, such access to the
5 liquidity sources is considered to be temporary because it must be paid back to be
6 available for future risk mitigation. Liquidity is not a source of funding, because it must
7 be restored if it is used to meet cash obligations.

8 *Q. Please explain how liquidity functions as a risk mitigation tool.*

9 A. During years when Power Services' net revenue and resulting cashflow are low, BPA can
10 draw on sources of liquidity to pay operating expenses and the Treasury; during years of
11 high net revenue, those liquidity sources can be replenished. The primary focus of BPA's
12 risk assessment and TPP modeling is simulating changes in the balance of liquidity from
13 the start of the rate period to the end, as various modeled risks deplete or restore that
14 liquidity.

15 *Q. What sources of liquidity is BPA proposing to rely on in the BP-14 Initial Proposal?*

16 A. The primary source of liquidity is financial reserves; an important second source is the
17 Treasury Facility.

18
19 **Section 3.2.1: PS Reserves – Financial Reserves Available for Risk Attributed to Power**

20 *Q. Please explain the term "financial reserves."*

21 A. Financial reserves comprise cash and other investments in the Bonneville Fund and cash
22 equivalents in the form of a deferred borrowing balance. The investment instruments in
23 the Bonneville Fund can be sold quickly and converted into cash as necessary. These are
24 all similar to cash but are technically not cash, and thus are not included in BPA's reports
25 on its cash balances.

1 Q. *What does the phrase “attributed to Power” mean?*

2 A. We use the word “attributed” because BPA has only one account, the Bonneville Fund, in
3 which it maintains financial reserves. There is no way to code the money in the
4 Bonneville Fund as Power funds or Transmission funds. Staff in the Chief Financial
5 Officer’s (CFO’s) organization “attribute” part of the BPA Fund balance to the
6 generation function and part to the transmission function. The word “attributed” is also
7 used as a reminder that reserves attributed to Power do not belong to Power Services;
8 they belong to BPA.

9 Q. *What does the phrase “available for risk” mean?*

10 A. Three categories of the financial reserves attributed to Power are considered unavailable
11 for risk because they are committed to be distributed to customers at some point, have
12 been received as a result of partial but incomplete resolution of disputes, or are
13 committed to be spent on customers’ behalf in the near future. The first category
14 comprises financial reserves that BPA has accumulated due to the May 2007 suspension
15 of payments under the 2000 REP Settlement to the IOUs upon the a 9th Circuit Court of
16 Appeals ruling. During the remainder of FY 2007 and all of FY 2008, BPA’s power rates
17 continued to generate revenue intended to cover the expense of the 2000 REP Settlement
18 payments, even though these payments had been interrupted. These funds will eventually
19 be disbursed to IOUs customers, so they are considered unavailable for risk purposes.

20 The second category refers to money BPA has been sent for receivables that had
21 remained unpaid since the 2000–2001 energy crisis. Because it is possible that BPA may
22 need to refund some money as a result of current litigation over energy crisis events,
23 these funds are not now counted as available for risk.

24 The third category is funds deposited with BPA by customers who have
25 contracted for work to be performed by BPA’s Energy Efficiency group. Because BPA

1 will have to either use these funds to perform the contracted work for customers or refund
2 the deposits, these funds are also unavailable for risk.

3 These three kinds of funds have been subtracted from the total financial reserves
4 attributed to Power at the beginning of FY 2013 in the calculation of the starting FY 2013
5 PS Reserves.

6 *Q. Why do you include PS Reserves as a form of liquidity, implying that the availability of
7 those reserves is temporary?*

8 A. BPA relies on PS Reserves as a primary risk mitigation tool in each rate case. If BPA has
9 to use some of its reserves to pay bills during difficult financial circumstances, BPA
10 needs to replace those reserves so they can be relied upon again for the next rate period.
11 In this way, the reserves provide cash on only a temporary basis.

12
13 **Section 3.2.2: The Treasury Facility**

14 *Q. What is BPA's Treasury Facility?*

15 A. It is an agreement between BPA and Treasury that permits BPA to borrow for a short
16 time as much as \$750 million to cover expenses. BPA would issue notes with a
17 maximum term of one year. Any note could be extended for up to one additional year, at
18 which time it would need to be paid off.

19 *Q. After the Treasury Facility has been exercised, can it be used again?*

20 A. Yes, the Treasury Facility can be exercised multiple times, as long as the outstanding
21 total is not more than \$750 million.

1 **Section 3.2.3: Within-year Liquidity Need**

2 *Q. Why does BPA need any within-year liquidity?*

3 A. There are two general reasons that BPA needs liquidity within each fiscal year. The first
4 is to deal with predictable timing issues. Even though rates for each fiscal year are set to
5 eventually generate enough cash for all planned payments, the cash may not all have been
6 received by the time a payment is due. This timing issue can be predicted but still
7 requires liquidity.

8 The second reason BPA needs within-year liquidity is to deal with the uncertainty
9 of the timing of cash receipts and cash payments. Many of BPA's cash receipts and cash
10 payments are quite regular, but some are less predictable. If it happens at some point that
11 some cash receipts are delayed and cash payment obligations are not, BPA will need
12 temporarily available cash, *i.e.*, liquidity, to pay the obligations while waiting for the
13 delayed cash receipts to materialize.

14 *Q. How much within-year liquidity does PS need?*

15 A. BPA assumed in the WP-10 and BP-12 rate proceedings that it needs \$300 million of
16 within-year liquidity for responding to cashflow timing and uncertainty issues associated
17 with PS. For the BP-14 rate proceeding, we are assuming a higher amount, \$320 million.

18 *Q. What accounts for the higher need?*

19 A. BPA has now authorized its Trading Floor to use financial instruments in addition to
20 physical instruments to hedge the price risk of forecast balancing power purchases and
21 balancing power sales. Being able to hedge in both physical and financial markets gives
22 the Trading Floor more choices about what instruments to use, and when to use them, to
23 manage price risk. This should reduce the overall cost of hedging, or increase its
24 effectiveness, or both. However, using financial instruments makes BPA subject to
25 margin payments, which are essentially a kind of deposit that BPA will have to make in

1 some market conditions. After a financial instrument closes and settles, margin payments
2 are returned to the parties who paid them. These margin payments do not increase the
3 cost of using financial instruments, but they can result in the temporary unavailability of
4 the cash used to make the payments. This requires that BPA have additional liquidity to
5 compensate for the possible temporary loss of liquidity that is tied up in outstanding
6 margin payments. With the small program in financial trading BPA has authorized, we
7 are assuming that \$20 million of liquidity might be tied up in this fashion, and therefore
8 we are increasing the Within-year Liquidity Need to \$320 million.

9
10 **Section 3.2.4: Liquidity Reserves Level**

11 *Q. What does “Liquidity Reserves Level” mean?*

12 A. The Liquidity Reserves Level is the amount of PS Reserves that will be used in the
13 ToolKit to meet the Within-year Liquidity Need. Before the Treasury Facility was
14 available, PS Reserves were the only source of within-year liquidity. Since the Treasury
15 Facility has been available, it has been sufficient to meet the Within-year Liquidity Need,
16 and that is the case in the BP-14 initial proposal as well. Thus, the Liquidity Reserves
17 Level is \$0.

18 *Q. If the Liquidity Reserves Level is \$0, and has been for the last couple of rate proceedings,*
19 *is there any reason to mention it?*

20 A. There are two reasons; the first reason is that it is still a parameter of the ToolKit, visible
21 on the main page. The second reason is that additional within-year liquidity might be
22 required from PS Reserves in the future. This need could arise because the Within-year
23 Liquidity Need increases substantially or the availability of the Treasury Facility
24 decreases. The latter circumstance might arise, for example, because BPA’s borrowing

1 authority is nearly exhausted, or because some of the Treasury Facility is needed for TS
2 purposes.

3
4 **Section 3.2.5: Liquidity Borrowing Level**

5 *Q. Is all of the Treasury Facility available to support the Power Services TPP?*

6 A. No. A substantial portion of it is used to meet the Within-year Liquidity Need described
7 above. As BPA is relying on only two sources of liquidity in the BP-14 rate proceeding,
8 the amounts of these two types of liquidity dedicated to within-year needs must add up to
9 the total within-year need; that is, the sum of the Liquidity Reserves Level and the
10 Liquidity Borrowing Level must equal the Within-year Liquidity Need. In this rate
11 proceeding, the assumed Liquidity Borrowing Level is \$320 million. This means that the
12 balance of the \$750 million of the Treasury Facility, \$430 million, is considered to be
13 available for PS TPP support. In calculating TPP, if PS Reserves are exhausted at the end
14 of a year in a game, meaning the needs for cash are in excess of the reserves available, we
15 do not consider that a deferral has occurred until the need for cash exceeds the available
16 reserves by \$430 million. The Treasury Facility is assumed to be used to generate up to
17 \$430 million of additional, temporary cash to meet financial obligations.

18
19 **Section 3.2.6: Net Reserves**

20 *Q. Please explain what the phrase “net reserves” means.*

21 A. Net reserves is the amount of PS Reserves financial reserves less any outstanding balance
22 of the use of other liquidity. The concept of net reserves lets BPA distinguish among
23 different situations in which financial reserves are zero. A situation in which financial
24 reserves are zero and there is no outstanding balance of use of other liquidity is preferable

1 to one in which financial reserves are zero and there is an outstanding balance on other
2 liquidity tools. Unlike financial reserves, net reserves can be negative.

3 *Q. The ToolKit main page doesn't show net reserves; it shows an expected value of starting*
4 *FY 2014 reserves of \$190.3 million and an expected value of starting FY 2014 Treasury*
5 *Facility balance of \$8.8 million. If the Treasury Facility is exercised only if reserves are*
6 *exhausted, how can this situation come to pass?*

7 *A. It can only appear in expected values of multiple games; it can't occur in a single game.*
8 *Suppose there are only two games. In Game 1, starting FY 2014 reserves are*
9 *\$300 million, and there is no balance of Treasury Facility use. In Game 2, starting*
10 *FY 2014 reserves have been exhausted, and the balance owed on the Treasury Facility is*
11 *\$100 million. Then the expected value – the arithmetic mean, what people often think of*
12 *as the “average” – of reserves would be \$150 million (half of the sum of positive*
13 *\$300 million and \$0), and the expected value of the balance on the Treasury Facility*
14 *would be \$50 million (half of the sum of \$0 and \$100 million), which seems to contradict*
15 *our statement that the Treasury Facility is used only when reserves are 0.*

16 The use of the net reserves concept helps sort this out. In Game 1, net reserves
17 are \$300 million – the balance of reserves, 300, less the outstanding balance on the
18 Treasury Facility, 0. In Game 2, net reserves are negative \$100 million – the balance of
19 reserves, 0, less the outstanding balance on the Treasury Facility, 100. The expected
20 value of the net reserves over these two games is \$100 million: half of the sum of 300 and
21 -100, or $.5 * (300 - 100)$. The expected value of reserves is \$150 million; subtracting the
22 expected value of the Treasury Facility balance of \$50 million yields \$100 million, the
23 same figure we calculated using the net reserves from each game.

1 Q. *What are you assuming for FY 2014 starting net reserves?*

2 A. The actual starting net reserve level for FY 2014 is unknown because of the uncertainty
3 regarding PS cashflow during the remainder of FY 2013. To account for this uncertainty,
4 we start with the amount of reserves for risk attributed to Power Services at the end of
5 FY 2012; *i.e.*, the beginning of FY 2013. That value is \$217 million. At the beginning of
6 FY 2013, the outstanding balance of the usage of other liquidity tools was zero, so the
7 balance of net reserves is also \$217 million. Next we model 3,200 games for FY 2013 to
8 produce 3,200 separate starting reserve values for FY 2012. The expected value of
9 starting net reserves for FY 2014 is \$181.5 million (\$190.3 million in ending 2013
10 reserves less \$8.8 million in ending 2013 Treasury Facility balance).

11 Q. *Does this mean net reserves will be \$181.5 million at the start of FY 2014?*

12 A. No. That is just the expected value of the 3,200 games; the actual amount of starting net
13 reserves for FY 2014 cannot be known yet. The expected value of our distribution of
14 starting net reserves is \$181.5 million; the distribution ranges from a minimum of
15 negative \$309 million to a maximum of \$684 million.

16
17 **Section 3.3: Cost Recovery Adjustment Clause (CRAC)**

18 Q. *Please describe the CRAC.*

19 A. This rate proposal includes a CRAC, which is a one-year upward adjustment to certain
20 power and transmission rates if forecast Accumulated Net Revenues (ANR) fall below
21 specified thresholds. The details of the adjustment calculations can be found in Power
22 GRSP II.C., BP-14-E-BPA-09.

1 Q. *What is ANR?*

2 A. ANR is the sum of the annual net revenue calculations for Power Services since the end
3 of FY 2012. ANR is also used in the DDC calculations.

4 Q. *Why is the trigger based on accumulated net revenues rather than PS Reserves if TPP
5 depends on the availability of reserves?*

6 A. The CRAC triggers on the basis of ANR because accumulated net revenues are subject to
7 financial audit, thus allowing independent verification of actual results. In addition, net
8 revenues are easier than reserves to segregate between generation and transmission
9 functions because BPA's financial systems and financial reporting practices focus on net
10 revenue calculations, not cash calculations. The ANR threshold, however, is set to the
11 level equivalent to \$0 reserves.

12 Q. *What is the threshold for the CRAC?*

13 A. We are proposing to set the threshold for triggering the CRAC to be at the ANR
14 equivalent of \$0 in PS Reserves as shown in Study Table 9. Thus if PS Reserves are
15 exhausted (as indicated by ANR) the CRAC will trigger for the next fiscal year to begin
16 replenishing PS Reserves.

17 Q. *Does the CRAC Threshold need to be as high as \$0 in PS Reserves for TPP reasons?*

18 A. No. The threshold could be lower with TPP still above BPA's 95 percent standard. We
19 need to set the threshold no lower than the equivalent of \$0 in PS Reserves because when
20 PS Reserves are drawn down below \$0, BPA must rely on other forms of liquidity to
21 meet cash obligations associated with PS. The only other source of liquidity for PS
22 obligations in this rate proceeding is the Treasury Facility. Any borrowing under the
23 Treasury Facility must be repaid within two years, so BPA needs to begin the process of
24 generating additional revenue to repay Treasury Facility notes quickly.

1 *Q. Are you proposing any changes in the formula for calculating the CRAC recovery*
2 *amount?*

3 A. No. We are proposing to use the same two-phase formula first proposed in the BP-12
4 Initial Proposal for determining the amount of revenue that the CRAC will generate. The
5 first phase covers the first \$100 million of shortfall in PS Reserves, which is the same as
6 saying that it covers the ANR equivalent of the range of \$0 to negative \$100 million in
7 net reserves. Any shortfall in PS Reserves up to \$100 million will result in a CRAC for
8 the next fiscal year in that amount. Beyond that level, continuing the one-for-one
9 approach could lead to large rate increases even though there is about a fifty-fifty chance
10 that the next year will result in a net increase in reserves through good net secondary
11 marketing results. Therefore, any shortfall in PS Reserves between \$100 million and
12 \$500 million will result in a CRAC of \$100 million plus one-half of the amount of the
13 shortfall in excess of \$100 million. For example, a shortfall of \$20 million would yield a
14 \$20 million CRAC; a shortfall of \$100 million would yield a \$100 million CRAC; a
15 shortfall of \$200 million would yield a \$150 million CRAC; and a shortfall of
16 \$500 million would yield a \$300 million CRAC.

17 *Q. Can BPA change the formula just described once established in the BP-12 Final*
18 *Proposal?*

19 A. BPA has no discretion to change the formula within a rate period. However, the NFB
20 Adjustment, if triggered, would change the formula, according to the rules in the GRSPs.
21 If an NFB Adjustment is triggered by an NFB Event, then both the \$100 million figure
22 and the \$500 million figure in the CRAC formula would be increased by the amount of
23 the NFB Adjustment.

1 *Q. Will all uses of the Treasury Facility result in the CRAC triggering?*

2 A. No. The Treasury Facility is being relied on for both within-year liquidity needs and the
3 year-to-year liquidity that supports TPP. If BPA borrows from the Treasury under the
4 Facility in a year when BPA forecasts that the end-of-year balance of Power net reserves
5 will be positive, then the usage of the Treasury Facility is for within-year liquidity needs,
6 and there is no need for the CRAC to trigger. If the forecast of end-of-year net reserves
7 is below zero (as measured by ANR at the time the CRAC and DDC calculations are
8 made), then whether BPA has already exercised the Treasury Facility or not, the CRAC
9 should trigger.

10 *Q. How are the CRAC thresholds in terms of ANR derived?*

11 A. The proposed ANR values for the CRAC thresholds are derived by comparing end-of-
12 year projections of ANR levels and end-of-year reserves levels for FY 2013 and FY 2014
13 in the ToolKit output; the ANR values for each year that correspond to \$0 million in PS
14 Reserves are defined as the ANR CRAC thresholds.

15 *Q. Is there any limit on how much revenue the CRAC can generate in one year?*

16 A. Yes. We propose an annual cap of \$300 million for the CRAC; this limit achieves a
17 balance between rate stability within the rate period and the need to replenish quickly any
18 liquidity that is actually used. This is the same annual cap adopted in the WP-07, WP-10,
19 and BP-12 Final Proposals. This means that a shortfall in PS Reserves of \$500 million or
20 more would yield a CRAC for the subsequent year of \$300 million.

21 *Q. Will the CRAC, triggered by Power's financial results, be collected from power rates?*

22 A. Mainly, but not entirely. Some capacity reserve-based Ancillary and Control Area
23 Services rates (ACS rates) are also subject to the CRAC. The gist of the logic of this is
24 that these ACS rates pay for a product produced by the power system and should
25 participate in mitigating the financial risks of that power system. ACS customers benefit

1 from basing the calculation of the cost of generation inputs on average water conditions,
2 and there is considerable risk in any given year that the actual volume of water will fall
3 short of the average amount. This risk is one of the two largest risks that we treat with
4 the Power risk mitigation package, and it is reasonable that customers that benefit from
5 the rate case anticipation of average water, including those that pay these ACS rates, help
6 shoulder the treatments of hydro volume risk. The BP-12 testimony of Mainzer *et al.*,
7 BP-12-E-BPA-23, explained this more fully.

8 The variable cost of VERBS is based on calculations of the impact of VERBS on
9 Power Services' marketing of secondary energy, and the magnitude of this impact
10 depends on the market price for power, the second of the two largest risks mitigated by
11 the Power risk mitigation package. The allocation of CRAC amounts between power and
12 ACS rates, and the application to power rates, are described in Power GRSP II.C. The
13 application of the CRAC to the subject ACS rates is described in Transmission
14 GRSP II.H, BP-14-E-BPA-10.

15 *Q. How did you determine how much of the CRAC revenue should be collected from the*
16 *reserves-based ACS rates?*

17 *A. We decided to base this determination on the fraction of PNRR that would be borne by*
18 *those ACS rates, which is governed by the Generation Inputs revenue requirement. The*
19 *Generation Inputs revenue requirement is based on a subset of the Power revenue*
20 *requirement. PNRR is a standard line item in both the Power revenue requirement and*
21 *the Generation Inputs revenue requirement. (PNRR in the Initial Proposal is \$0.) The*
22 *way these two revenue requirements are linked, when we tested this by adding*
23 *\$100 million to the Power revenue requirement, PNRR in the Generation Inputs revenue*
24 *requirement increased from \$0 to \$8.2 million. Since 8.2 percent of Power PNRR would*

1 be picked up in the Generation Inputs revenue requirement, we determined that 8.2% of
2 any CRAC revenue should also be picked up by the reserves-based ACS rates.

3 *Q. How does this CRAC Threshold compare to that set in the BP-12 Final Proposal?*

4 A. It is the same, actually, as expressed in net reserves, though the translation from PS
5 Reserves into ANR has been updated.

6
7 **Section 3.4: Dividend Distribution Clause (DDC)**

8 *Q. Please describe the DDC.*

9 A. This Initial Proposal includes a DDC, which is a temporary downward adjustment to
10 certain power and ACS rates if forecast ANR is above the thresholds shown in Study
11 Table 9. It is an inverse of the CRAC.

12 *Q. Is there an annual cap on the amount of the DDC?*

13 A. Yes. To prevent the illogical situation of having rates that are negative, that is, a situation
14 in which we pay customers to take our product, the DDC distribution is capped at
15 \$1 billion per fiscal year.

16 *Q. Please explain the timing of the DDC.*

17 A. The DDC calculations are made at the same time as the CRAC calculations – there is
18 really only one set of calculations. In July 2013 and September 2014, BPA will
19 determine whether the forecast of ANR at the end of the year is above the applicable
20 DDC threshold, or below the applicable CRAC threshold, for the next fiscal year. If
21 ANR is above the threshold, BPA would decrease the rates eligible for the DDC for the
22 next fiscal year. This Initial Proposal does not require a forecast of year-end ANR in
23 FY 2015, since the next year, FY 2016, is outside the rate period.

1 *Q. How does the DDC interact with the CRAC?*

2 A. They are both triggered by a comparison of forecast ANR against their thresholds. The
3 threshold for the DDC is proposed to be \$750 million higher than for the CRAC, so they
4 cannot both trigger for the same year. It is possible for neither to trigger.
5

6 **Section 3.5: Planned Net Revenue for Risk (PNRR)**

7 *Q. What is PNRR?*

8 A. BPA often includes PNRR as a component of the revenue requirement in order to build
9 up reserves in order to provide stronger risk mitigation. Increasing the PNRR component
10 of revenue requirement forces the rate level up. Since there is no corresponding use of
11 cash associated with PNRR, unlike most line items in the revenue requirement, PNRR
12 generates additional net revenue and thus additional financial reserves, which improves
13 BPA's ability to make Treasury payments in years when hydro, market price, and other
14 risks depress its financial performance. PNRR is not needed if reserves plus other risk
15 mitigation measures are adequate to meet BPA's TPP standard.

16 *Q. What is the relationship between PNRR and the other risk mitigation tools?*

17 A. PNRR, the CRAC, and the DDC are risk mitigation tools that BPA can adjust in rate
18 proceedings, unlike the level of reserves available for risk, which is a result of previous
19 decisions and exogenous circumstances. If TPP is below BPA's standard of 95 percent,
20 BPA can increase PNRR or make the CRAC stronger; different "strengths" of these two
21 tools can be traded off against each other. Since PNRR is a quantity that is added to the
22 revenue requirement during the ratesetting process, it has a predictable effect on rates.
23 On the other hand, because PNRR is set before the rate period starts, it cannot be adjusted
24 as circumstances change. It will generate additional revenue even if it turns out BPA no
25 longer needs the additional revenue due to other circumstances.

1 The CRAC works quite differently. The threshold and cap for the CRAC are set
2 during the rate case, but the calculations to determine whether the CRAC has triggered,
3 and if so, how much additional revenue it should generate, are made later and can take
4 into account financial effects of developments occurring after the rate proceeding. This
5 makes the impact of the CRAC on rates less predictable than the impact of PNRR, but on
6 average, the CRAC has a smaller impact on rates than PNRR does for the same
7 improvement in TPP. When BPA needs to increase TPP, it generally relies on a
8 combination of PNRR and the CRAC in order to create a balance between the greater
9 predictability of PNRR and the lower expected rate impact of the CRAC.

10 *Q. Please summarize how BPA calculates the amount of PNRR needed.*

11 *A.* Given a set of risk mitigation measures, such as a particular CRAC design and
12 distribution of starting reserves, and the risks as modeled in RevSim and NORM, ToolKit
13 measures the TPP. To begin the process of measuring the TPP, a set of “base case” rate
14 assumptions is prepared outside the risk assessment and mitigation process that does not
15 take into account any risk mitigation measures. These rate assumptions generate
16 sufficient revenue to meet the PS revenue requirement for the FY 2014–2015 rate period
17 under average conditions – that is, expected water, expected thermal plant performance,
18 planned spending levels, expected market prices, and so on. The operating and non-
19 operating risk distributions produced by RiskMod and NORM (including Accrual-to-
20 Cash), respectively, are then added to this base, which results in a distribution of
21 3,200 cashflow values that are read by ToolKit.

22 ToolKit uses these inputs to develop a distribution of annual ending reserve and
23 liquidity tool balances. These two balances, added together, produce annual ending net
24 reserve values. Then ToolKit examines the ending net reserve values to determine
25 whether the Treasury payment was made often enough to meet BPA’s 95 percent TPP

1 standard. For each of the 3,200 games, the ToolKit checks to see if each year in the
2 FY 2014–2015 rate period ended with a net reserve balance of at least negative
3 \$430 million, the equivalent of using all liquidity tools modeled in the ToolKit. ToolKit
4 counts the number of games in which both years ended with a balance of net reserves at
5 least as high as negative \$430 million in net reserves, and divides that by the number of
6 games, 3,200, to compute the TPP.

7 If this calculated TPP is below the 95 percent TPP standard, PNRR is added to the
8 revenue requirement. Through a process of trial-and-error and iterations with the
9 subsequent effect on rate levels, revenues, and expenses, amounts of PNRR are added
10 until the TPP standard is met. For this proposal, no PNRR was required to meet the TPP
11 standard, given the other features of the risk mitigation package described in this
12 testimony.

13
14 **Section 3.6: Effect of the CRAC, DDC, or Emergency NFB Surcharge on Residential**
15 **Exchange Program Benefits**

16 *Q. Do the CRAC, DDC, and Emergency NFB Surcharge apply to the PF Exchange rate or*
17 *to Residential Exchange Program (REP) benefits?*

18 A. No. The terms of the REP Settlement preclude applying the CRAC, DDC, or Emergency
19 NFB Surcharge to REP benefits. 2012 Residential Exchange Program Settlement
20 Agreement, Contract No. 11PB-12322, section 3.1.1; *see also* 2012 Residential Exchange
21 Program Settlement Agreement Record of Decision, REP-12-A-02, at 134-139.

1 **Section 3.7: The ToolKit Model**

2 *Q. Have you made any major changes to the ToolKit and how it calculates TPP?*

3 A. No, it functions essentially as it did at the time of the BP-12 Final Proposal, although we
4 have made some minor changes under the hood, so to speak. The internal logic, written
5 in Excel's Visual Basic for Applications, has been scrutinized and cleaned up. We have
6 also made the usual sort of cosmetic changes, rearranging some of the input and output
7 cells on the main page and adding and fixing some graphic and tabular displays on other
8 worksheets of the model. The charts and tables have been tweaked a bit to be more
9 readable and more useful to analysts. We have updated the logic to reflect the way we
10 mitigate one fish-related risk we mentioned in our earlier discussion of NORM in
11 section 2.3.

12 *Q. Please explain this change.*

13 A. In the BP-12 Final Proposal, the NFB Mechanisms and the BiOp-related risks they
14 mitigate were all treated qualitatively. In this proposal, we are modeling a specific BiOp
15 risk in NORM, BiOp-Related Court Order risk, and logic has been added to the ToolKit
16 to respond to any occurrences of this risk by adjusting the CRAC revenue collection
17 formula as directed by the language in the proposed GRSPs, BP-14-E-BPA-09,
18 GRSP II.C. The Emergency NFB Adjustment is not modeled; it is still treated only
19 qualitatively.

20 *Q. Does this change apply to all three years in the risk study?*

21 A. It doesn't apply the same way to all three years, though we need to consider all three
22 years. The FY 2013 hydro studies assume the BiOp-Related Court Order risk occurs.
23 The ToolKit uses data from NORM to assess the financial impact of this risk in each
24 game, using the water year and market prices associated with that game elsewhere in the

1 Risk Study, and then modifies the CRAC revenue formula for FY 2014 accordingly. In
2 some games, this results in higher collection of CRAC revenue in FY 2014, as it should.

3 In FY 2014, if the BiOp-Related Court Order risk occurs, the ToolKit uses data
4 from NORM in two ways. First, the financial impact is calculated and then used to
5 reduce FY 2014 net revenue. Then the CRAC revenue collection formula for FY 2015 is
6 modified accordingly. If the BiOp-Related Court Order risk occurs in FY 2015, net
7 revenue for that year is reduced, but no changes to the CRAC are made, because it would
8 be the CRAC applicable to FY 2016 that might be modified by an NFB Adjustment; rates
9 and risk mitigation for FY 2016 will be set in a later rate proceeding.

10
11 **Section 4: Qualitative Risk Assessment and Mitigation**

12 **Section 4.1: BiOp Litigation Risks and the NFB Mechanisms**

13 *Q. Are you handling fish and wildlife risks in TPP modeling in a fashion similar to the*
14 *approach in the BP-12 Final Proposal?*

15 A. Yes. We use a base-case river operation in the Operating Risk Models, and a base-case
16 fish and wildlife program is reflected in the revenue requirement. Uncertainty over some
17 program elements is modeled in NORM. We have made a change that we noted earlier
18 in discussing NORM and the ToolKit. One specific type of NFB Event, modeled as the
19 BiOp-Related Court Order risk in NORM, is treated explicitly in the ToolKit. For more
20 information about the TPP modeling of fish and wildlife uncertainty, see the Study,
21 BP-14-E-BPA-04, sections 2.7.8. and 4.2

22 *Q. Are you treating the unmodeled fish and wildlife risks in the same manner as in the*
23 *BP-12 Final Proposal?*

24 A. Yes.

1 Q. *What is an NFB Trigger Event?*

2 A. As defined in GRSP II.N and Study section 4.2, an NFB Trigger Event is one of the
3 following events that result in changes to BPA’s FCRPS Endangered Species Act (ESA)
4 obligations compared to those adopted in the most recent wholesale power rate
5 proceeding, as modified (except for modifications for NFB Trigger Events whose
6 financial impacts have already been compensated for), prior to the Trigger Event:

- 7 (1) A court order in *National Wildlife Federation vs. National Marine Fisheries*,
8 CV 01-640-RE, or any other case filed regarding an FCRPS BiOp issued by
9 National Marine Fisheries Service (NMFS, also known as NOAA Fisheries
10 Service), or any appeal thereof (“Litigation”);
11 (2) An agreement (whether or not approved by the Court) that results in the resolution
12 of issues in, or the withdrawal of parties from, the Litigation;
13 (3) A new FCRPS BiOp;
14 (4) A BPA commitment to implement Recovery Plans under the ESA that results in
15 the resolution of issues in, or the withdrawal of parties from, the Litigation; or
16 (5) Actions or measures ultimately required under the 2010 Supplemental BiOp that
17 differ from the 2010 Supplemental BiOp implementation forecast in the rate case.

18 Q. *Why have you modified the fifth type of NFB Event?*

19 A. NOAA Fisheries submitted the 2010 Supplemental BiOp that incorporates the Adaptive
20 Management Implementation Plan (AMIP). BPA issued a Record of Decision
21 committing BPA to implement both the 2008 FCRPS BiOp and the 2010 Supplemental
22 FCRPS BiOp, which includes the AMIP. The BP-12 Final Proposal referred to the
23 possibility of actions or measures required of BPA under the AMIP. Because the 2010
24 Supplemental BiOp subsumes the AMIP, it is more useful to use that term in defining the
25 risk. While BPA is committed to implementing the 2010 Supplemental BiOp, some

1 details of the implementation are not known in advance. BPA has made a forecast of
2 what that implementation will require, but there is a possibility that the actual
3 implementation will be different. That possibility is now covered by the fifth NFB Event
4 definition.

5 *Q. Do NFB Trigger Events reduce BPA's net revenue?*

6 A. Not necessarily, though most will. BPA will calculate the difference between the
7 expected value of Power Services' net revenue (PS NR) under the expenses and
8 operations assumed in the most recent Power rate case, as modified, and the expected
9 value of PS NR under the expenses and operations as modified by the NFB Trigger
10 Event. If the PS NR calculation is lower when assuming the impact of the Trigger Event,
11 then the Trigger Event is said to have financial effects. Only Trigger Events that have
12 financial effects trigger NFB Adjustments or Emergency NFB Surcharges.

13 *Q. What does "as modified" mean in your previous response?*

14 A. It means that the fish and wildlife operation or fish and wildlife program (or both) that
15 BPA implements in a fiscal year (for example, FY 2013) may not be the same as that
16 assumed in the most recent final rate proposal (in this example, the BP-12 Final
17 Proposal). Fish and wildlife operations and program levels may have been modified after
18 the relevant Final Proposal due to NFB Trigger Events. That is, the baseline for the
19 "before" part of the NFB Trigger Event impact calculation may have been changed by
20 previous NFB Events.

21 The "before" case needs to accommodate the possibility of change because
22 customers feared that BPA would voluntarily make changes to the operation and program
23 that would increase expenses. Then, customers feared, if an NFB Trigger Event
24 occurred, BPA could roll the non-NFB related fish and wildlife changes in with the
25 litigation-related changes and increase rates more than justified by the litigation-related

1 changes alone. So adding the “as adjusted” clause means that BPA would use the
2 operation and program levels it is implementing as of the time immediately before the
3 NFB Trigger Event occurs as the baseline for calculating financial effects.

4 *Q. What if the modifications since the most recent Final Proposal are due to NFB Trigger*
5 *Events that have not been responded to by an NFB Mechanism; for instance, because*
6 *(1) BPA was not in a Cash Crunch at the time and therefore did not trigger an*
7 *Emergency NFB Surcharge, and (2) BPA did not anticipate a CRAC for the subsequent*
8 *fiscal year?*

9 A. Modifications due to unresponded-to NFB Trigger Events will be treated as part of the
10 “after” case, not the “before” case. The “before” case used in calculating the financial
11 effects of a Trigger Event should be modified only for changes that were due to NFB
12 Trigger Events whose financial effects have already been recovered.

13 *Q. How would an NFB Trigger Event that has financial effects affect rates?*

14 A. It depends on when the NFB Trigger Event occurs and whether BPA is in a Cash Crunch;
15 this is what determines whether an NFB Trigger Event might lead to an NFB Adjustment
16 for the following year or to an Emergency NFB Surcharge for the current year. If BPA is
17 in a Cash Crunch when the NFB Trigger Event occurs, then BPA would follow GRSP
18 II.N for possible implementation of an Emergency NFB Surcharge during that fiscal year.
19 If not, BPA would follow the procedures for implementing an NFB Adjustment near the
20 end of the fiscal year that could increase the Cap on the CRAC applicable to the next
21 year.

22 *Q. What would happen if an NFB Trigger Event occurs in FY 2015 and BPA is not in a Cash*
23 *Crunch?*

24 A. The proposed FY 2014–2015 rates do not provide for any response to those
25 circumstances, because the conditions for applying an Emergency NFB Surcharge to

1 FY 2015 rates would not have been met (*i.e.*, no Cash Crunch). Thus, the only NFB
2 Mechanism that could change rates in this circumstance is an NFB Adjustment to the cap
3 on the CRAC applicable to FY 2016, and the rates for FY 2016 will be set in a future rate
4 proceeding, not in this one.

5 *Q. What would happen if an NFB Trigger Event occurs in FY 2013 and BPA is not in a Cash*
6 *Crunch?*

7 *A.* If an NFB Trigger Event occurs early enough in FY 2013 that its impacts could be
8 incorporated into the BP-14 Final Proposal, then there would not be an NFB Trigger
9 Event as far as the FY 2014 rates are concerned, because the “before” and “after” studies
10 used to calculate the financial effects of the Trigger Event would be the same. If the
11 Trigger Event occurs too late for incorporation into the BP-14 Final Proposal, however,
12 then the financial effects of the Trigger Event could be considered in July 2013 at the
13 same time that CRAC and DDC calculations for the FY 2014 rates are made.

14 If the NFB Trigger Event occurs after the July 2013 CRAC calculations, it would
15 represent a change since the most recent Final Proposal. BPA is not in a Cash Crunch, so
16 rates for the remainder of FY 2013 will not be changed (the GRSP for FY 2013 rates
17 would have governed any FY 2013 Emergency NFB Surcharge). The event would
18 qualify for making an NFB Adjustment to the CRAC applicable to FY 2014 rates, but
19 those calculations were already made, so there will not be any change to the CRAC Cap
20 for FY 2014. The result is that there are unresponded-to financial effects from the
21 Trigger Event we are considering. These will be included in next NFB calculations,
22 should there be any during the FY 2014–2015 rate period. For instance, if an NFB
23 Trigger Event were to occur in FY 2014, the “before” case for calculation of any
24 financial effects of that event would exclude the impacts from the unresponded-to event
25 we are considering. Those impacts would be included in the “after” case, and could

1 contribute to the financial effects calculated for the FY 2014 event, whether that event
2 leads to an FY 2014 Emergency NFB Surcharge or an NFB Adjustment to the CRAC
3 applicable to FY 2015 rates.

4 *Q. Would BPA still go through the formal process of calculating an NFB Adjustment to the*
5 *Cap on the CRAC if there isn't likely to be a CRAC?*

6 A. Not necessarily. In the July 2013 and September 2014 CRAC and DDC calculations,
7 BPA would first calculate whether a CRAC would trigger for application to the next
8 year's rates. If the CRAC would not trigger, then an NFB Adjustment would have no
9 impact, and BPA would not necessarily calculate the financial impacts of an NFB Trigger
10 Event with the rigor that would be needed if it were to affect rates.

11 *Q. Could one NFB Trigger Event affect rates in both FY 2014 and 2015?*

12 A. Yes, there are at least two scenarios in which this could happen. First, an NFB Trigger
13 Event in FY 2014 could come when there is a Cash Crunch but not enough time remains
14 in FY 2014 to collect additional revenue equal to the magnitude of the financial impact of
15 the NFB Trigger Event. Then the balance of the financial impact could result in an NFB
16 Adjustment to the FY 2015 CRAC Cap or to another Emergency NFB Surcharge for
17 FY 2015 rates if BPA is still in a Cash Crunch as FY 2015 begins.

18 Second, an NFB Trigger Event could occur in FY 2014 that affects operations or
19 program elements in both FY 2014 and FY 2015. This could lead to a "deemed" Trigger
20 Event: as soon as FY 2015 begins, an NFB Trigger Event is deemed to have occurred in
21 FY 2015 even though the event actually occurred in FY 2014.

22 *Q. Could two separate NFB Trigger Events affect rates in a year?*

23 A. Yes, there are several ways this could occur. First, there could be two or more NFB
24 Trigger Events in FY 2013 (or FY 2014) in the absence of a Cash Crunch. These events

1 would be evaluated in a single analysis that might lead to an NFB Adjustment to the
2 FY 2014 (or FY 2015) CRAC Cap.

3 Second, an NFB Trigger Event could occur in FY 2013 (or FY 2014) in the
4 absence of a Cash Crunch and lead to a change in the FY 2014 (or FY 2015) CRAC Cap;
5 if the CRAC triggers, this could increase FY 2014 (or FY 2015) rates. Then an NFB
6 Trigger Event could occur during FY 2014 (or FY 2015) when a Cash Crunch is
7 occurring, leading to implementation of an Emergency NFB Surcharge in FY 2014 (or
8 FY 2015) in addition to the CRAC that had been increased by the FY 2013 (or FY 2014)
9 NFB Trigger Event.

10 Third, there could be two or more NFB Trigger Events in one fiscal year that lead
11 to Emergency NFB Adjustments. One of these events could be a deemed NFB Trigger
12 Event that is assessed as soon as the fiscal year begins. Since the existence of a Cash
13 Crunch implies that urgent measures are needed, and Emergency NFB Surcharges are
14 supposed to be implemented rapidly, the first Emergency NFB Surcharge might already
15 have been put in place when the second NFB Trigger Event occurs.

16 *Q. Are there other Biological Opinions being litigated that could affect BPA's fish and
17 wildlife costs in the FY 2014–2015 rate period?*

18 *A.* No. A BiOp was issued for the Willamette Valley Projects of the FCRPS in July 2008,
19 but it is not currently being litigated. The BiOp for the Libby Project was litigated, but
20 the litigation was settled.

21 *Q. Would future litigation over either of these BiOps be covered under the NFB
22 Mechanisms?*

23 *A.* No, by their current definitions, the NFB Mechanisms are limited to events relating to the
24 litigation over the FCRPS BiOp (including changes in operations or expense required by
25 the 2010 Supplemental BiOp).

1 **Section 4.2: Tier 2 Risks**

2 *Q. Are there risks associated with service at Tier 2 rates that you have not been able to*
3 *mitigate?*

4 A. No. The terms and conditions for service at Tier 2 rates will adequately mitigate those
5 risks. Our analysis is described in section 4.3 of the Study.

6
7 **Section 4.3: Resource Support Services (RSS) Risks**

8 *Q. Are there risks associated with RSS that you have not been able to mitigate?*

9 A. No. The terms and conditions for RSS will adequately mitigate those risks. Our analysis
10 is described in section 4.4 of the Study.

11
12 **Section 5: Possible Changes in the Final Proposal**

13 **Section 5.1: Data, in General**

14 *Q. Might some of the data on which the risk assessment and risk mitigation are based*
15 *change by the Final Proposal?*

16 A. Yes, in fact, nearly all of the data underlying our risk modeling, and thus the results of the
17 assessment and mitigation, are likely to be updated, such as gas prices, electricity prices,
18 and forecasts of installed capacity of wind generation. Changes to any of these data can
19 affect the TPP calculations. Perhaps the most important update in terms of calculating
20 TPP is the forecast of FY 2013 Net Revenue, of which updated forecasts of FY 2013 net
21 secondary revenue are the most significant component. In the Initial Proposal, PS faces
22 one whole year of NR uncertainty. TPP for FY 2014–2015 is assessed by examining the
23 distributions of ending reserves and liquidity tool balances for FY 2014 and FY 2015.
24 Each distribution of year-end results depends on simulated events in that year and on the

1 year-end distribution from the previous year. Thus, the ending FY 2014 distribution
2 depends critically on the ending FY 2013 distribution.

3 *Q. What does it mean to face a “whole year of uncertainty?”*

4 A. What we mean is that at the time of the Initial Proposal we had almost no facts about
5 FY 2013 NR results. We had a lot of information about historical variability of water and
6 forecasts of market prices, so we had a lot of information about what the NR results in
7 FY 2013 might be, but no information yet about what the NR results will be. As time
8 moves on, the possibilities for future marketing will turn into facts of past marketing. At
9 the time of the Initial Proposal, the availability of BPA generation for marketing in, for
10 example, February 2013 is very uncertain, with a great many results being possible; by
11 the middle of March 2013, NR results for February will have become facts. As the year
12 develops, the uncertainty in the forecast of total FY 2013 NR results will fairly steadily
13 decrease as possibilities turn into news. We can't know ahead of time whether the news
14 will be good news, bad news, or somewhere in between. By the time we begin making
15 calculations for the Final Proposal, we will face only about half of the uncertainty in
16 FY 2013 NR results that we face now. That reduction in uncertainty will ripple forward
17 in TPP calculations – the uncertainty in ending reserves and liquidity balances for
18 FY 2014 and FY 2015 will also be smaller, which in itself will, all else equal, increase
19 TPP. But since we don't know whether the uncertainty will have been converted into
20 good news or bad news, we don't know what impact the news itself will have had on
21 TPP.

22 *Q. How much might this matter?*

23 A. It can be extremely significant, or not. If FY 2013 develops into an average or better year
24 for NR, it is very unlikely any PNRR will be needed in the base rates in the Final
25 Proposal. However, if FY 2013 develops into a very bad year for NR, it is possible that

1 PNRR will be needed in the Final Proposal, even though the uncertainty in FY 2013 is
2 smaller.

3 *Q. Will the CRAC that could be applied to FY 2014 rates be affected by FY 2013 NR results*
4 *too?*

5 A. Yes, and again the influence of FY 2013 NR results can be very significant. We will be
6 making our calculations for the CRAC, DDC, and NFB Adjustment for application to
7 FY 2014 rates in July 2013. If the forecast of FY 2013 PS ANR at that time, based
8 largely on the Third Quarter Review, is below the equivalent of \$0 in PS Reserves, the
9 CRAC will trigger for FY 2014; if that forecast is above the equivalent of \$750 million in
10 PS Reserves, the DDC will trigger. The statistics in our Initial Proposal indicate that
11 there is a 12 percent chance that the CRAC will trigger for some amount for FY 2014.
12 What that means is that in the picture our models have drawn of the financial uncertainty
13 for FY 2012, 12 percent of the possibilities are bad enough to trigger the CRAC, and
14 88 percent are good enough that the CRAC would not trigger.

15 *Q. Are there any other possible changes to the CRAC in the Final Proposal?*

16 A. Yes. If mid-year FY 2013 NR results are especially bad, and BPA needs to make
17 changes to increase TPP significantly, BPA may accomplish that by adding some PNRR
18 to base rates, but less than the amount needed to reach 95 percent TPP, and by raising the
19 threshold for the CRAC. Such a change would modify the GRSPs. Then in July 2013, at
20 about the same time BPA publishes the Final Proposal, BPA would also perform the
21 calculations for the CRAC with its revised thresholds.

22 *Q. How would possible changes to PNRR and possible changes to the CRAC interact?*

23 A. While PNRR and the CRAC are somewhat interchangeable methods for increasing TPP,
24 PNRR is calculated earlier in the year than the CRAC amount. Because of that, BPA
25 faces more uncertainty at the time of calculating PNRR than at the time of calculating the

1 CRAC amount. Therefore, on average, the amount of PNRR needed to achieve a given
2 improvement in TPP will be larger than the CRAC amount. The potential trade-off
3 discussed here is slightly different. We are discussing an amount of PNRR that could be
4 calculated in the Final Proposal and the CRAC Threshold and Cap that could be
5 calculated in the Final Proposal. Any actual CRAC amount would be calculated
6 somewhat later. Final Proposal calculations need to be finished a few months before the
7 Final Proposal is published in July 2013. That is the timing, then, of the balancing of an
8 actual amount of PNRR and the actual CRAC Threshold and Cap, but not the timing of
9 the calculation of any CRAC amount. Customers and others, however, will see the
10 PNRR amount, the CRAC threshold and cap, and the CRAC amount at the same time.

11 *Q. What changes might be made in the Final Proposal with respect to the ATC adjustments?*

12 A. The most likely adjustments could arise from changes to the Energy Northwest FY 2014
13 and FY 2015 budget affecting the Energy Northwest pre-paid expense adjustment;
14 changes in Federal Debt amortization; changes to non-cash items, including depreciation
15 and amortization; and changes in expenses, revenues, and cash resulting from
16 transactions entered into between the time of the Initial Proposal and the Final Proposal.

17
18 **Section 5.2: Possible Changes to Qualitative Risk Assessment and Mitigation**

19 *Q. Are there changes that you might make in the NFB Mechanisms in the Final Proposal?*

20 A. There are no NFB Mechanism changes that we anticipate making in the Final Proposal.

21 *Q. What changes might you make in the Final Proposal in the assessment or mitigation of
22 risk associated with service at Tier 2 rates or RSS?*

23 A. There are no such changes that we now anticipate making in the Final Proposal. We will,
24 of course, respond to issues raised by parties in their cases.

1 Q. *What changes in the risks or risk mitigation for RSS or Tier 2 might you make in*
2 *subsequent rate cases?*

3 A. BPA reserves for future rate cases the potential of assigning to its Tier 2 Rate service the
4 costs of a variable-energy resource or a forward purchase made for only part of the year,
5 or not making any forward purchases at all. If BPA makes such a cost assignment in the
6 future it will employ a pricing approach comparable to that which is used for the Diurnal
7 Flattening Service and Resource Shaping Charge. Such an approach would convert the
8 value of those purchases into a flat amount across the year. The risks associated with this
9 type of scenario could be different from those in the FY 2014–2015 rate period and will
10 be evaluated separately if they arise in the future. If evidence emerges from either BPA
11 sources or other parties that the financial risks associated with RSS are substantial, BPA
12 will consider other approaches to treating these risks, possibly including efforts to
13 quantify the financial impacts of the risks.

14 Q. *Does this conclude your testimony?*

15 A. Yes.

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