6.0 RISK ANALYSIS

6.1 Introduction

The objective of the Risk Analysis Study is to identify, model, and analyze the impact that key risks have on BPA's net revenue (revenues less expenses) risk exposure. The impacts of operational risks are quantified through the use of the RiskMod and non-operational risks through the use of the Non-Operating Risk Model (NORM). The results from the Risk Analysis Study are subsequently used in the ToolKit model to evaluate the impact that certain risk mitigation measures have on reducing BPA's net revenue risk, so that BPA can develop rates that cover all its costs and provide a high probability of making its Treasury payments on time and in full during the rate period. In addition to its use in the Risk Analysis Study, WP-02-E-BPA-03, RiskMod is used to calculate the average surplus energy revenues and power purchase expenses reported in the Revenue Forecast component of the Wholesale Power Rate Development Study, WP-02-E-BPA-05.

6.2 RiskMod Model

The RiskMod model quantifies the impact that various Federal load, Federal resource, and wholesale spot market price conditions have on BPA's net revenue risk. Included in these operating risks are the hydro generation impacts of the alternative hydro operations incorporated in the 13 Fish and Wildlife Alternatives under various water supply conditions.

The RiskMod model calculates net revenues (revenues less expenses) using monthly data for HLH and LLH electricity generation, firm loads, surplus energy sales, and power purchases. Monthly HLH and LLH energy values are calculated using load and resource data from the Loads and Resources Study, WP-02-E-BPA-01; HLH and LLH load and resource data not in the Loads and Resources Study, but which are provided by analysts who perform the Loads and Resources Study and the Revenue Forecast component of the Wholesale Power Rate Development Study; and hydro generation data for alternative hydro operations incorporated in the 13 Fish and Wildlife Alternatives. Monthly HLH and LLH hydro generation for each of the 50 water years is estimated by the Hourly Operating and Scheduling Simulator (HOSS) model, which estimates the ability of the FCRPS to shape hydro generation between HLH and LLH under system operational constraints.

Net revenues are calculated using PNW HLH and LLH spot market prices estimated by the AURORA model, WP-02-E-BPA-04; expense data and PF and Industrial Firm Power (IP) rates computed by the Rate Analysis Model (RAM), WP-02-E-BPA-05; and various revenue data from the Revenue Forecast component of the Wholesale Power Rate Development Study, WP-02-E-BPA-05. Monthly HLH and LLH PNW spot market prices from AURORA for the months of April-June under high hydro generation conditions are adjusted downward in RiskMod to better reflect the amount of surplus energy revenues that BPA analysts believe it would receive. Risk Analysis Study Documentation, WP-02-E-BPA-03A.

Issue 1

Whether BPA appropriately estimated the upper price parameters for its linear price adjustment algorithm in RiskMod.

Parties' Positions

The Joint DSIs identified a discrepancy in the prices BPA uses for the upper price parameters in the price adjustment algorithm in RiskMod. This price adjustment algorithm estimates surplus energy prices during high hydro generation conditions in the months of April through June. The Joint DSIs claim that this discrepancy lowers the prices estimated for surplus energy below the prices that would be estimated if BPA correctly implemented the pricing methodology described in BPA's direct testimony. Schoenbeck *et al.*, WP-02-E-DS/AL/VN-03, at 26-27.

BPA's Position

Although no party raised the issue in its initial brief, BPA agreed in its rebuttal testimony to revise its methodology to address the discrepancy identified by the Joint DSIs. Conger *et al.*, WP-02-E-BPA-41, at 5-7.

Evaluation of Positions

BPA revised its methodology to address the discrepancy identified by the Joint DSIs.

Decision

BPA has made changes in the final rates to correct the discrepancy identified by the DSIs to appropriately estimate the upper price parameters for the linear price adjustment algorithm in RiskMod.

6.3 Heavy Load Hour (HLH) and Light Load Hour (LLH) Surplus Energy Sales

Issue 1

Whether it is reasonable for BPA to adjust the AURORA monthly marginal spot market prices downward for the April-June period.

Parties' Positions

The DSIs argue:

> [BPA] staff casts the AURORA prices aside in favor of a "linear price algorithm in RiskMod" (BPA-41, at 6), suggesting that during high water conditions, "it is likely that market participants will understand that [BPA] is limited to the PNW market and has not [sic] alternative load. The seller (BPA) will therefore receive less than marginal clearing prices." *Id*. at 8-9. There is no evidence that this has ever really happened, even in the record water year of 1997. Staff is being unreasonably conservative.

DSI Brief, WP-02-B-DS-01, at 59. The DSIs also suggest that BPA's position in its Draft ROD (at 6-4) is that energy markets do not operate consistent with economic theory. DSI Ex. Brief, WP-02-R-BPA-DS-01, at 12.

BPA's Position

AURORA monthly marginal spot prices for the Q2 (April through June) period are adjusted downward, based upon surplus quantities produced in each month of the 50 water years of record in the April-June period, to account for the impact that large amounts of surplus energy sales have on the prices that BPA receives. Conger *et al*., WP-02-E-BPA-15, at 16. The AURORA prices far exceed prices BPA has received. Tr. 760-61.

Historical data support BPA's adjustments. Conger *et al*., WP-02-E-BPA-41, at 9. The adjustments yield, on average over the 50 water years, reasonable estimates of the prices and resulting surplus energy revenues that BPA will receive during April-June for FY 2002-2006. *Id*. at 10.

Evaluation of Positions

BPA explained the limitations of the AURORA model:

> The AURORA model economically determines resources to be dispatched based on price and thus effectively displaces non-hydro resources as the supply of hydro generation increases. However, the AURORA model makes no distinction of specific suppliers (entities such as BPA) when dispatching resources to meet demand. Under high water conditions during the April, May, and June months, entities such as BPA, that have large portions of the regional hydro supply, cannot sell every megawatt (MW) at the hourly marginal price.

Conger *et al*., WP-02-E-BPA-15, at 16.

BPA further noted that BPA's inability to sell every MW at the hourly marginal price under high water conditions during the months of April-June is primarily due to the following:

- the inability to move large amounts of electric power on an hour-to-hour basis at marginal cost given the absence of a marginal hourly market in the Northwest;

- during high water conditions in the Northwest, the Interties to the Southwest are capacity-constrained, capping access to the California Power Exchange (CalPX), thereby limiting sales from the Northwest that receive hourly marginal prices; and

- during extremely high water conditions, market saturation may occur and water will have to be spilled due to lack of market and inability to store.

Conger *et al*., WP-02-E-BPA-15, at 16-17.

Additional discussion of market limitations can be found in the DSIs' cross-examination of a BPA witness:

> Q. (Mr. Uda) Let us suppose a scenario where you have a lot of short-term energy available, and you cannot get it down through the southern intertie because the intertie is constrained. Under those conditions, how would you describe how the market reacts to what BPA does?
>
> A. (Mr. Lamb) So in that instance, parties are aware of the fact that BPA has a large amount of power to sell, knows that BPA has to move that power, has to move it, cannot, has limited storage capability in which to wait out for prices to recover and will hold out for the lowest price offerings in whatever markets, be it the hourly, the next day, the within month, knowing that we have to move that water and preferably through turbines. Does that --
>
> Q. (Mr. Uda) That was a good answer.

Tr. 817-18.

BPA also noted during cross-examination that competitors and customers know that during April-June, under high water conditions, BPA has a lot of surplus energy to sell, so they can wait until prices drop. Tr. 780-81. BPA staff stated that BPA would prefer to run water through the turbines rather than spill the water over the dams. Tr. 781. AURORA perfectly dispatches the resources by project and simply spills if there is excess generation. Tr. 781. The result is that during these times, the marginal costs estimated by AURORA do not accurately reflect BPA sales of surplus energy and the revenue it will receive. *Id*. at 776-77, 780-81. The downward adjustments of AURORA prices in RiskMod yield, on average over the 50 water years, reasonable estimates of prices and resulting surplus energy revenue that BPA will receive for FY 2002-2006 during the April-June or Q2 period. *Id*. *See also* Conger *et al.*, WP-02-E-BPA-41, at 10. This is not a concession that AURORA does not follow economic theory.

Decision

The downward adjustments made in RiskMod to the monthly marginal spot market prices estimated by AURORA under high streamflows in April-June are reasonable.

Issue 2

Whether BPA's observation is reasonable that it receives reduced prices for its surplus energy sales under high streamflow conditions during the months of April-June because BPA cannot make large anonymous sales.

Parties' Positions

The DSIs argue that "[u]pon cross-examination, [BPA] staff acknowledged that BPA can and does use brokers to buy and sell power anonymously, Tr. at 819-20; so that the market would not necessarily perceive all power to be sold by a "single supplier." DSI Brief, WP-02-B-DS-01, at 59, footnote 26.

BPA's Position

The DSIs have waived this issue, since it is not fully developed in their brief. *Procedures*, §1010.13(b). BPA however, responds to the claim.

BPA uses brokers to buy and sell power, but notes the limitations of such use, particularly with respect to anonymity:

> [Mr. Lamb:] There is a broker market out there . . . They [brokers] do not take ownership, but they do match party to party anonymously.
>
> Now in the real world, when you are marketing power, large amounts of power are being marketed, quickly parties know that there are only a few entities out there marketing. . . . [T]here is a lot of information on the net the parties can see with respect to Chief Joseph and Grand Coulee and make some assumptions that, "Gee, Bonneville has to move power."
>
> In the event of trying to move large amounts anonymously, in my experience, . . . [BPA has a] very limited ability and potential . . . to do so without it being known that [BPA is] out in the market . . . .

Tr. 819-20.

Evaluation of Positions

The DSIs' argument challenges the "single supplier theory." However, the DSIs provide no description of the theory, cite no authority, and do not offer their own description and evidence of market effects that result from BPA, a large supplier of hydroelectric energy, being in the market during the high flow months of April-June. Consequently, the DSIs have waived their argument, since they have not fully developed their argument in their brief. *Procedures*, §1010.13(b).

As BPA noted, "[t]he AURORA model makes no distinction of specific suppliers (entities such as BPA) when dispatching resources to meet demand." Conger *et al*., WP-02-E-BPA-15, at 16. This is problematic for BPA because "[u]nder high water conditions . . . entities such as BPA, that have large portions of the regional hydro supply, cannot sell every MW at the hourly marginal price." *Id*.

BPA's witness, Mr. Lamb, was "responsible for managing the market-based bulk power product pricing, development of BPA's near-term (up to two years out) forward price curves, market price analysis, near-term inventory tracking, secondary energy revenue analysis, and development of the trading floor technical systems supporting Bulk Power Marketing." WP-02-Q-BPA-40, at 3. In Mr. Lamb's expert professional judgment, "In the event of trying to move large amounts anonymously, in my experience, ...[BPA has a] very limited ability and potential . . . to do so without it being known that [BPA is] out in the market . . ." Tr. 819-20.

BPA's expert judgment is that its ability to market large amounts of surplus power anonymously during its high streamflow conditions during April-June is very limited. Whether or not this refutes the "single supplier" theory, BPA accurately described the basis for which it adjusted AURORA prices in RiskMod, including describing the impacts of the market on BPA's surplus energy revenues under these conditions.

Decision

BPA exercised its expert judgment to conclude that its ability to market large amounts of surplus power anonymously is limited during high streamflow periods (April-June). This assumption was used in part to justify BPA's downward modification of prices during high streamflow conditions. This assumption is reasonable.

Issue 3

Whether BPA should increase predicted revenues by taking account of trading floor activity.

Parties' Positions

The DSIs propose that BPA increase predicted revenues by taking account of trading floor activity. DSI Brief, WP-02-B-DS-01, at 59, footnote 25; DSI Ex. Brief, WP-02-R-DS-01, at 14. In their brief on exceptions the DSIs argue that BPA should take into account both the revenue and the risk associated with trading floor activity. *Id*. at 14.

BPA's Position

The trading floor activities are accounted for by the spot market surplus energy sales and power purchases calculated in RiskMod. Tr. 739-42. Predicted revenues should not be increased, because the DSIs' assumption is erroneous that trading floor activity produces any additional reliable source of revenue not otherwise accounted for in RiskMod. *Id*.

Evaluation of Positions

The DSIs propose that BPA should increase predicted revenues by taking account of trading floor activity. DSI Brief, WP-02-B-DS-01, at 59, footnote 25. BPA disagrees with this proposal. The trading floor activities are adequately accounted for by modeling the spot market surplus energy sales and power purchases calculated in RiskMod. Tr. 739-42. This is not to say that the forward purchases and sales done by the trading floor are without benefit. However, this

additional revenue potential carries with it additional supply risk. Thus, surplus net revenues are not understated. Assuming higher revenues and no additional risk as suggested is imprudent, because the size and timing of any additional transactions have not been determined, and BPA could suffer substantial losses as well as gains from such activities. Tr. 746-48. Thus, forecasting revenues from such activities is speculative. Therefore, they are not a source of reliable revenues. BPA has accurately estimated its surplus energy revenues for the FY 2002-2006 rate period using a reasonable and consistent methodology.

Decision

Surplus energy revenues are not understated, and an increase in predicted revenues based on additional speculative trading floor activity is inappropriate.

Issue 4

Whether BPA understates its short-term surplus energy revenues during FY 2002–2006.

Parties' Positions

The DSIs claim that BPA has understated its short-term surplus energy revenues by overestimating the proportion of LLH surplus energy sales and understating the likely prices from its surplus energy sales. DSI Brief, WP-02-B-DS-01, at 56-57; DSI Ex. Brief, WP-02-R-DS-01, at 14. The DSIs make these claims by comparing historical (FY 1997-1999) and forecasted (FY 2002-2006) HLH and LLH energy sales, prices, and revenues. DSI Brief, WP-02-B-DS-01, at 57-60.

BPA's Position

The DSIs have waived this argument, since it is not fully developed in their brief or supported by the evidence in this rate proceeding. *Procedures*, §1010.11(a); and §1010.13(b) and (c). BPA, however, responds to the DSI claim.

BPA has accurately estimated the proportion of LLH surplus energy sales and the likely prices from its surplus energy sales for the FY 2002-2006 rate period. Conger *et al.*, WP-02-E-BPA-41, at 2-11. The DSIs have introduced new analysis that is not part of the record, and erroneously ascribed to the HOSS model the differences between historical HLH and LLH surplus energy sales and forecasted HLH and LLH surplus energy sales calculated in RiskMod. Conger *et al.*, WP-02-E-BPA-41, at 5; Tr. 749-50.

Evaluation of Positions

The Joint DSIs sponsored direct testimony (Schoenbeck *et al.*, WP-02-E-DS/AL/VN-03, at 19-36), but no rebuttal testimony, regarding BPA's estimates of the proportion of LLH and HLH surplus energy sales, BPA's adjustments to prices estimated by the AURORA model during the months of April through June, and the accuracy of hydro generation shaped between HLH and LLH by the HOSS model. The DSI initial brief, WP-02-B-DS-01, does not cite their

own analyses or the analyses of other parties. Instead, the DSIs introduce new comparisons not previously on the record. They perform these new comparisons using both data in BPA's rebuttal testimony, Conger *et al.*, WP-02-E-BPA-41; and data provided in data responses that are not part of the rate case record. BPA responds to the DSIs' new comparisons, although their non-compliance with rules of the hearing results in their waiver of all arguments which depend on evidence that is not part of the rate case record. *Procedures*, §1010.11(a); 1010.13(b) and (c).

The DSIs note that actual HLH surplus energy sales averaged 61 percent of surplus energy sales from FY 1996-1999, whereas BPA is forecasting an average of 46 percent of surplus energy sales during HLH during FY 2002-2006. DSI Brief, WP-02-B-DS-01, at 57. The DSIs indicate that BPA staff stated that HLH firm sales are "materially different" during the FY 2002-2006 rate period compared to FY 1996-1999. *Id.* at 58. Also, the DSIs indicate that BPA states that some of the HLH and LLH difference arises from future changes in dam operations for fish during the rate period. But, based on the testimony of BPA's witness, Tr. 849, these operational changes are of lesser magnitude and began in 1995 and 1998, so that they are reflected in much of the historical period with higher percentages of HLH sales. *Id.*

The DSIs claim that BPA's explanation for these differences does not account for the magnitude of the predicted changes in BPA's forecast for FY 2002-2006. *Id.* In support of their claim, the DSIs compare actual LLH surplus energy sales under very high streamflow conditions in FY 1997 (January-July runoff of 159.0 million acre feet (MAF) and forecasted LLH surplus energy sales in FY 2004 for water year 1974 (January–July runoff of 157.0 MAF). The DSIs note that the forecasted LLH sales in FY 2004 for water year 1974 are roughly 3,000 aMW higher. DSI Brief, WP-02-B-DS-01, at 58. The DSIs note that differences between the HOSS-predicted LLH generation and actual historical sales are significant. *Id.* Thus, the DSIs ascribe these differences to the way that the HOSS model shapes hydro generation between HLH and LLH.

In addition to claiming that BPA is underpredicting the proportion of HLH surplus energy sales, the DSIs argue that BPA is using lower prices for LLH surplus energy sales than either AURORA or recent history would predict. DSI Brief, WP-02-B-DS-01, at 58; DSI Ex. Brief, WP-02-R-DS-01, at 12-13. The DSIs note that from 1997-1999, BPA earned an average of $49 million per year from second quarter LLH sales compared with BPA forecasts of just $38 million per year from second quarter LLH sales during the current rate period. DSI Brief, WP-02-B-DS-01, at 58-59; DSI Ex. Brief, WP-02-R-DS-01, at 13. Also, they argue that BPA projects average second quarter LLH sales of 5,633 aMW at an average LLH price of $7.30, yet in 1999 and 1997, with sales of 5,605 and 7,415 aMW, prices averaged $11.40/MWh and $7.90/MWh. DSI Brief, WP-02-B-DS-01, at 59. Based on this comparison, the DSIs argue that BPA's LLH price adjustments in RiskMod result in average LLH prices for second quarter LLH sales that are below the LLH prices it obtained in the wettest year of record. DSI Brief, WP-02-B-DS-01, at 59; DSI Ex. Brief, WP-02-R-DS-01, at 13.

Based on these comparisons, the DSIs disagree with the price adjustments BPA makes in RiskMod that modify the prices forecasted by AURORA during April-June, which lower BPA's estimates of surplus energy revenues during these months relative to what would have been forecasted without these adjustments to prices from AURORA. DSI Brief, WP-02-B-DS-01,

at 59. The downward adjustment of prices is also addressed *supra,* at Issue 1. The DSIs downplay BPA's statement that AURORA does not take into account the effect of a single supplier with respect to the disposition of inventory under high hydro generation conditions. *Id.* at 59-60. They claim that there is no evidence that this really happened, and that BPA does use brokers to buy and sell power anonymously, so the market would not necessarily perceive all power to be sold by a single supplier. *Id.* Also, the DSIs propose that BPA should increase predicted revenues by taking account of trading floor activity, which they claim was not reflected in BPA's risk modeling. *Id.* at 59. *See* Issue 3, *supra*.

The DSIs argue that their claims are supported by a comparison of the differences between annual surplus energy revenues and power purchase expenses (which they refer to as "net revenues") in FY 1998 and 1999 and average annual "net revenues" for the 50 water years for FY 2002-2006. DSI Brief, WP-02-B-DS-01, at 60. The DSIs argue that the forecasted "net revenues" are more than $100 million less per year than recent experience. *Id.* The DSIs indicate that it is inappropriate to base rates on rising purchase power costs while, at the same time, depressing the credit for short-term surplus energy revenues. *Id*.

The DSIs' initial brief addresses only one of several explanations that BPA provides regarding the reasons for the differences in the proportion of historical and forecasted HLH and LLH surplus energy sales they identify. Conger *et al*., WP-02-E-BPA-15, at 16-17. By ignoring BPA's complete set of explanations, the DSIs' assessment is incomplete and flawed. These omissions cause the DSIs to erroneously attribute the differences between historical HLH and LLH surplus energy sales and forecasted HLH and LLH surplus energy values calculated in RiskMod to the HOSS model and the way it shapes hydro generation between HLH and LLH. *See* Issue 4, *supra***.** The DSIs inappropriately compare historical (FY 1997-1999) and forecasted average HLH and LLH sales, prices, and revenues during FY 2002-2006 to argue against BPA's adjustments to the prices estimated by AURORA during the months of April-June. Further, the DSIs' citation of BPA's resources panel testimony at Tr. 849 does not support their position, because the resources panel was not able to make any statements regarding the impact of changes in hydro operations in 1995 and 1998 on the proportion of HLH and LLH hydro generation when the DSIs raised the issue for the first time during cross-examination. Tr. 848-61. Accordingly, the assertion attributed to BPA is not in evidence. *Compare* DSI Brief, WP-02-B-DS-01, at 58, *with Procedures*, §1010.11.

BPA's rebuttal testimony, Conger *et al.,* WP-02-E-BPA-41, at 4-5; direct testimony, Conger *et al.,* WP-02-E-BPA-15, at 16-17; and cross-examination, Tr. 761-62 and 779-83, describe several different elements that explain why the percentage of HLH surplus energy sales is forecasted to be lower for the FY 2002-2006 rate period than during FY 1996-1999. First, more shaped firm loads during FY 2002-2006 are being served with additional flat energy resources, *i.e.,* flat system augmentation purchases and increased flat energy output from the WNP-2 nuclear plant. Conger *et al.,* WP-02-E-BPA-41, at 4. Second, there have been reductions (since 1998) in hydro generation due to changes in hydro operations that result in operational spill. *Id.* Third, changes in hydro operations (since 1998) reduce the capability of the hydrosystem to shape hydro generation into HLH. *Id.* at 5. Fourth, unlike the surplus and deficit energy values calculated by RiskMod, the historical data for FY 1996-1999 reflect the impact of the reduction in hydro generation from spilling water due to market saturation

conditions (market saturation spill), which occurs mostly during LLH. Conger *et al.*, WP-02-E-BPA-41, at 4; Tr. 761-62, 779-83.

The DSIs' initial brief introduces a new comparison between actual LLH surplus energy sales under very high streamflow conditions in FY 1997 (January-July runoff of 159.0 MAF) and forecasted LLH surplus energy sales in FY 2004 for water year 1974 (January-July runoff of 157.0 MAF). DSI Brief, WP-02-B-DS-01, at 58. According to the DSIs, the way the HOSS model shapes hydro generation between HLH and LLH explains why forecasted LLH surplus energy sales in FY 2004 for water year 1974 (during the months of April-June) are roughly 3,000 aMW higher. *Id.* This comparison was not made by the parties during either direct or rebuttal testimony and is waived. *Procedures,* §1010.11 and 1010.13.

The DSIs' claim that HOSS is the source of the difference of 3,000 aMW during LLH is waived and also erroneous. HOSS is a hydroregulation model that estimates the amount of HLH and LLH hydro generation that can be produced by the Federal System under various streamflow conditions based on hydro operation constraints. Tr. 856. As a hydroregulation model, HOSS does not take into account whether or not there is a market for all the HLH and LLH surplus energy that can be produced by the Federal System. RiskMod does not reflect the impact of market saturation spill conditions on surplus energy revenues. Tr. 779. The HOSS input to RiskMod is similar in that it describes only potential generation, not market limitations or revenue. Tr. 782; Risk Analysis Study Documentation, WP-02-E-BPA-03A, at 9.

The HLH and LLH surplus energy values calculated in RiskMod for water year 1974 include loads and resources (including WNP-2 output under biennial maintenance schedules) documented in the Loads and Resources Study, WP-02-E-BPA-01, at 32-43; Federal Hydro Generation for the 50 water years from the Hydroregulation, Loads and Resources Study Documentation, WP-02-E-BPA-01A, at 34-36; and HLH and LLH hydro generation ratios from the HOSS model, Risk Analysis Study Documentation, WP-02-E-BPA-03A, at 12. The surplus energy values calculated by RiskMod reflect materially different firm loads and resources during FY 2002-2006 than during the current rate period (which includes FY 1997) and do not reflect spillage of energy due to market limitations. Conger *et al.*, WP-02-E-BPA-41, at 3-5; Tr. 761-62, 779-83.

The DSIs note that streamflow conditions during January-July in FY 1997 are the highest on record. DSI Brief, WP-02-B-DS-01, at 60. This conclusion is supported by data from 1929-1999. *See* Conger *et al*., WP-02-E-BPA-41, Attachment 1, at 18. Accordingly, actual LLH surplus energy sales during April-June of FY 1997 should closely approximate the maximum amount of LLH energy that can be marketed, with the remaining potential generation being spilled. The DSIs fail to account for this phenomenon in their assessment.

Instead, the DSIs emphasize the 3,000 aMW more LLH surplus energy calculated by RiskMod in FY 2004 for water year 1974 during the months of April-June than LLH surplus energy sales in FY 1997 during the months of April-June. The DSIs fail to note that BPA's initial proposal showed that HLH surplus energy calculated by RiskMod in FY 2004 for water year 1974 during the months of April-June is also approximately 740 aMW higher than the HLH surplus energy sales during April-June in 1997. Wholesale Power Rate Development Study Documentation,

WP-02-E-BPA-05A. Additionally, the higher HLH surplus energy sales of 740 aMW during April-June in FY 2004 for water year 1974 include the impact of changes in firm loads and resources stated in BPA's testimony that reduce HLH surplus energy sales during FY 2002-2006 relative to the current rate period (which includes FY 1997). Conger *et al*., WP-02-E-BPA-41, at 3-5.

Both HLH and LLH surplus energy values calculated in RiskMod for water year 1974 (which are based on lower January-July streamflows than in 1997) are higher during both HLH and LLH periods. The additional 3000 aMW of LLH surplus energy sales that the DSIs use as the foundation of their argument that HOSS overstates LLH hydro generation at the expense of HLH hydro generation is flawed, because lower streamflow conditions during water year 1974 produce more HLH and LLH surplus energy sales in RiskMod. Thus, how HOSS shapes hydro generation between HLH and LLH is irrelevant, because market saturation spill and differences in firm loads and resources explain the difference in LLH surplus energy sales. These factors were discussed by BPA, but ignored by the DSIs.

BPA adjusts the prices estimated by AURORA downward under high streamflow conditions during the months of April-June, when the Federal system is awash with power, to reflect that all surplus energy calculated in RiskMod cannot be sold, but energy will be spilled due to lack of market. Conger *et al*., WP-02-E-BPA-15, at 16-17; Conger *et al*., WP-02-E-BPA-41, at 7-11; Tr. 759-67, 779-83. Also, BPA becomes a single supplier and cannot earn the prices forecasted by AURORA under high hydro generation conditions, because BPA cannot sell such large quantities anonymously. *See* Conger *et al*., WP-02-E-BPA-15, at 16-17; Conger *et al*., WP-02-E-BPA-41, at 8-9; Tr. 818-20.

In BPA's experience, the power marketing group sometimes uses brokers to sell small amounts of power anonymously. Tr. 819. In the real world when large amounts of power are marketed during high streamflow conditions, parties quickly know that BPA is one of a very few entities likely to have such large volumes of power available for sale. Tr. 819-20. *See also* Issue 2, *supra*. Parties are able to see the status of BPA resources such as Chief Joseph and Grand Coulee, make assumptions, and wait for BPA to reduce the price of power (below the marginal cost). Tr. 819-20. The DSIs suggest that BPA can sell large amounts of power anonymously through brokers, DSI Brief, WP-02-B-DS-01, at 59, but this has not been BPA's experience. Tr. 819-20.

The DSIs' observation that there is 3,000 aMW more LLH surplus energy, and BPA's observation that there is 740 aMW more HLH surplus energy, calculated by RiskMod in FY 2004 for water year 1974 during the months of April-June than LLH and HLH surplus energy in FY 1997 during the months of April-June requires that BPA either adjust the amount of energy and/or the prices for its surplus energy sales when calculating surplus energy revenues under high hydro generation conditions. Otherwise, BPA would substantially overstate its surplus energy revenues. For instance, BPA testified, Tr. 759-67, 779-83, that it is inconceivable that BPA could sell 11,000-15,000 aMW of LLH surplus energy at the AURORA price of approximately $12 megawatthour (MWh) in June of 2002. *See* Conger *et al*., WP-02-E-BPA-41, Attachment 1, at 7, describing the amount of LLH surplus energy and the associated AURORA price in June. BPA sold 7,415 aMW of LLH surplus energy at $7.90/MWh during April-June in

1997 (the highest January-July streamflows from 1929 through 1999). *Id.*, Attachment 1, at 16. Both the price and the quantity for LLH surplus energy sales during April-June of 1997 are substantially below the $12/MWh estimated by AURORA and the 11,000-15,000 aMW of LLH surplus energy calculated in RiskMod. Accordingly, BPA would substantially overstate the surplus energy revenues that it could earn under such high streamflow conditions unless adjustments are made to either the amount of surplus energy calculated by RiskMod (which does not account for market saturation spill and WNP-2 displacement) and/or the prices estimated by AURORA. Tr. 759-67, 779-83.

BPA's adjustments to AURORA prices in RiskMod are made because the adjustments yield reasonable forecasted surplus energy revenues under high hydro generation conditions. *See* Conger *et al*., WP-02-E-BPA-41, at 9-11; Tr. 759-67, 779-83. Using the example from the DSIs' initial brief, between April-June in FY 1997 and FY 2004 for water year 1974, actual total surplus energy revenues for April-June in FY 1997 were $140.6 million, Conger *et al*., WP-02-E-BPA-41, Attachment 1 at 16; and forecasted total surplus energy revenues reported in tables in the Wholesale Power Rate Development Study Documentation, WP-02-E-BPA-05A, at 196, 199 during April-June in FY 2004 for water year 1974 are $158.7 million. The increase in forecasted surplus energy revenues of $18.1 million during April-June of FY 2004 under such high water conditions is reasonable.

The DSIs also claim that BPA uses lower prices for LLH surplus energy sales than recent history would predict. DSI Brief, WP-02-B-DS-01, at 58. In their initial brief, the DSIs argue for the first time that from 1997-1999, BPA earned an average of $49 million per year from second quarter LLH sales compared with BPA's forecasts of an average of $38 million per year from second quarter LLH sales during the rate period. *Id.* at 58-59. In their initial brief, the DSIs also note for the first time that BPA's LLH price adjustments in RiskMod result in average LLH prices for second quarter LLH sales that are below the LLH prices it obtained in the wettest year of record. DSI Brief, WP-02-B-DS-01, at 59; *see also*, DSI Ex. Brief , WP-02-R-DS-01, at 13. This comparison was not made during either direct or rebuttal testimony and is waived. *Compare* DSI Brief, WP-02-B-DS-01, at 58-60, with *Procedures*, §1010.11 and §1010.13.

Since rates are calculated using total (HLH and LLH) surplus energy revenues, rather than just LLH surplus energy prices and revenues, BPA's criterion for making adjustments to HLH and LLH surplus energy prices in RiskMod was that the HLH and LLH price adjustments, in total, produced reasonable total surplus energy revenues under high streamflow conditions during April-June in FY 2002-2006. Conger *et al*., WP-02-E-BPA-41, at 10. BPA demonstrated that forecasted average surplus energy revenues (HLH and LLH) in FY 2002-2006 during April-June are roughly 2 percent ($3 million) lower than the average total surplus energy revenues during 1997-1999. The forecasted average surplus energy revenues (an average for the 50 Water Years) during FY 2002-2006 are reasonable, since the forecasted average surplus energy revenues are indicative of surplus energy revenues for average January through July runoff volumes (the mean of the January through July runoff volume for the hydro study Water Years 1929 through 1978), while the historical surplus energy revenues are based on much higher January through July runoff volumes for years 1997, 1998, and 1999 that were 154, 101, and 120 percent of the average January through July runoff volumes. *Id.*

BPA also compared forecasted average surplus energy revenues during April-June in FY 2002-2006 with average surplus energy revenues during April-June in year 1998 (when January to July runoff volume was 101 percent of average) and found that forecasted surplus energy revenues were $15 million higher, a reasonable value. Conger *et al*., WP-02-E-BPA-41, at 11. Additionally, the surplus energy revenues are reasonable given that surplus energy revenues during FY 2002-2006 are based on lower proportions of HLH surplus energy sales (which receive higher prices) and higher proportions of LLH surplus energy sales relative to the current rate period (which includes 1998), for reasons previously discussed in Issue 4, *supra*. BPA's forecasted total surplus energy revenues for April-June in FY 2002-2006 are reasonable when they are reviewed in their entirety, rather than focusing on piecemeal and incomplete comparisons between historical and forecasted LLH prices and revenues, as the DSIs have done. *Id*.

In their initial brief, the DSIs introduce for the first time a table that compares the difference in annual surplus energy revenues and power purchase expenses in FY 1998 and FY 1999 and average annual "net revenues" for the 50 water years for FY 2002-2006. DSI Brief, WP-02-B-DS-01, at 60. Based on this comparison, they indicate that the forecasted "net revenues" are more than $100 million less per year than recent experience. *Id.* This comparison was not made during either direct or rebuttal testimony and is waived. *Compare* DSI Brief, WP-02-B-DS-01, at 60, *with Procedures*, §1010.11 and §1010.13.

The DSIs' analysis is based on BPA responses to data requests (DS-BPA 113SS, 114SS, 115SS, and 116SS) that are not a part of the rate case record. DSI Brief, WP-02-B-DS-01, at 60. The DSIs attribute the data used in their analysis to BPA data. *Id.* BPA included in its rebuttal testimony only Data Responses DS-BPA 115S and DS-BPA 116S. Conger *et al.*, WP-02-E-BPA-41, Attachments 2 and 3. The data responses with the double letters "SS" mentioned above are data responses that include updated data that was consistent with information provided previously in "S." However, the DSIs could have included the BPA data responses with "SS" (DS-BPA 113SS, 114SS, 115SS, and 116SS) in their testimony or even submitted them for admission as part of the cross-examination of BPA witnesses. *Procedures*, §1010.11 and §1010.12. They did neither. Instead, the DSIs introduce them in their initial brief. This portion of the DSIs' argument is waived. *Procedures*, §1010.11 and §1010.12. Should the DSIs argue that either a scrivener's error or excusable oversight has occurred, they are no better off. The surplus energy revenues in FY 1999, based on the DSIs' cite to BPA's testimony, Conger *et al*., WP-02-E-BPA-41, Attachment 2-3, are $250.65 million less than that reported in the DSIs' initial brief. Thus, the data attributed to BPA's evidence by the DSIs shows that their analysis is flawed. *See*, DSI Brief, WP-02-B-DS-01, at 60; Conger *et al*., WP-02-E-BPA-41, Attachment 2-3; and *Procedures*, §1010.11 and §1010.13.

The DSIs' analysis is also flawed because it ignores major differences in loads and resources between year-specific data for FY 1998-1999 and average data for FY 2002-2006. The amounts of annual surplus energy sales and the proportion of HLH and LLH surplus energy sales during these years are materially different between FY 1998-1999 and FY 2002-2006. Surplus energy revenue during FY 1998-1999 should be much higher, since both the amount of annual average surplus energy sales and the proportion of surplus energy sales during HLH is substantially higher during FY 1998-1999 than in FY 2002-2006. Conger *et al*., WP-02-E-BPA-41,

Attachment 1, at 1. The DSIs' analysis ignores the changes in firm loads and resources for FY 2002-2006. They also make a faulty comparison of "net revenues" by comparing atypical recent conditions (wetter than average, January-July streamflow conditions) in FY 1998-1999 with typical average conditions (lower January-July streamflows conditions reflected in the 50 water years) in FY 2002-2006. Conger *et al*., WP-02-E-BPA-41, Attachment 1, at 18.

The DSIs also make a new argument that it is inappropriate to base rates on rising purchase power costs while depressing the credits for surplus energy revenues. DSI Brief, WP-02-B-DS-01, at 61. However, the DSIs' analysis, DSI Brief, WP-02-B-DS-01, at 60, does not support this argument. A table in the DSIs' brief shows that for FY 2002-2006, forecasted surplus energy revenues rise by $81.1 million (from $443.5 million to $524.6 million), while power purchase costs rise by $2.1 million (from $94.8 million to $96.9 million). *Id.* Because surplus energy revenues are forecasted to rise substantially more than power purchase costs, the conclusion that BPA is depressing credits for surplus energy revenues while basing rates on rising power purchase costs is not borne out by the information the DSIs employ. Their argument is without merit.

Decision

BPA accurately estimated its surplus energy revenues for the FY 2002-2006 rate period using a reasonable and consistent methodology. Surplus energy revenues are not understated.

Issue 5

Whether the failure to disclose BPA's proprietary HOSS model to parties invalidates the risk analysis panel's evidence and, therefore, the 2002 rates.

Parties' Positions

In their initial brief, the DSIs argue for the first time that BPA's failure to share its proprietary HOSS model (which estimates the amount of HLH and LLH hydro generation that the FCRPS can produce under various streamflow conditions) results in insufficient evidence to support BPA's risk analysis and, therefore, to set BPA's rates. DSI Brief, WP-02-B-DS-01, at 57. "Unless and until the model and its inputs are produced, BPA will not have put forth evidence in the record on which it can lawfully set rates. The DSIs and all customers are entitled pursuant to section 7(i) to test staff's assertions." *Id*. The DSIs suggest that BPA's "explanations do not cover the magnitude of predicted changes." *Id*. at 58. Finally, the DSIs suggest that BPA has denied the parties an opportunity to rebut its evidence. DSI Ex. Brief, WP-02-R-DS-01, at 16.

BPA's Position

The DSIs have waived this issue, since the DSIs did not seek disclosure of the model under existing rate case procedures and they did not fully develop their argument in their brief. *Procedures*, §1010.8(b), (e), and (f), and §1010.13(b). Moreover, the parties received sufficient information to overcome any limitations in their inability to access and assess BPA's proprietary

HOSS model. Risk Analysis Study Documentation, WP-02-E-BPA-03A, at 9; Conger *et al*., WP-02-E-BPA-41, at 2-5. Nevertheless, BPA responds to the DSIs' claim.

Evaluation of Positions

The HOSS model estimates the ability of the FCRPS to shape average monthly hydro generation into HLH hydro generation under various streamflow conditions (the 50 water years). Risk Analysis Study Documentation, WP-02-E-BPA-03A, at 92. This ability is measured as ratios or the proportion of average energy that can be shaped into HLH. *Id.* It is reported in a 50 x 12 table. *Id*. at 12.

Although the DSIs requested HOSS as part of their discovery, BPA asserted that it is proprietary, which is a response permitted by the rules. *Procedures*, §1010.8 (e), (f), and (g). However, BPA provided the DSIs and other parties alternative data, which allowed adequate analysis of BPA's risk analysis, including whether BPA's use of HOSS produced the differences between historical and forecasted outcomes that the DSIs attempt to exploit or, more generally, whether HOSS produced unreasonable results which might invalidate the risk analysis. Little of this data has been made a part of the rate case record, because the DSIs did not address the issue during the evidence-gathering portion of the rate case as the discovery rules require. *Procedures*, §1010.8(b), (e), and (f). Instead, the DSIs attempt to circumvent the rate case procedures by arguing late, and with little support, that, "[u]nless and until the model and its inputs are produced, BPA will not have put forth evidence in the record on which it can lawfully set rates. The DSIs and all customers are entitled pursuant to section 7(i) to test staffs [sic] assertions." DSI Brief, WP-02-B-DS-01, at 57.

The DSIs cited many BPA data request responses, but none explicitly related to HOSS, its operation or output. Data Responses in DSI Testimony, WP-02-E-DS/AL/VN-05. The Risk Analysis uses HOSS to produce monthly HLH hydro generation (50 water year) data. In turn, BPA derives HLH and LLH Federal hydro generation ratios. Risk Analysis Study Documentation, WP-02-E-BPA-03A, at 12. Historical data BPA provided and more precise questions might have been asked given the extended open discovery that has characterized this rate case. Information available and accessible to the DSIs could easily have been used to evaluate whether HOSS estimates of HLH and LLH generation follow historical patterns (under comparable water conditions) or whether they produce reliable results for the risk analysis. The DSIs could have used such information to evaluate BPA's explanations in rebuttal testimony, Conger *et al*., WP-02-E-BPA-41, at 2-5; Conger *et al*., WP-02-E-BPA-15, at 7; Tr. 750, 760-84.

BPA specifically addressed the DSIs' suggestion that HOSS accounts for differences in BPA's forecasted HLL and LLH surplus energy sales for FY 2002-2006 and historical HLH and LLH surplus energy sales. Conger *et al*., WP-02-E-BPA-41, at 5. Moreover, BPA has addressed the differences the DSIs raise respecting BPA's forecasted HLH and LLH surplus energy sales. *Id.;* Tr. 750, 760-84. The Parties including the Joint DSIs received adequate information to test the risk analysis element of BPA's rate case. Finally, BPA's evidence also established that the use of HOSS in the risk analysis is reasonable. *See* Issues 2-4, *supra.*

The rate case discovery rules directly address the issue the DSIs raise for the first time here:

- Motions to compel. Anyone whose data request or clarification question is not answered may file a motion with the hearing officer to compel an answer. The movant must certify that it first attempted to resolve the objection informally with the objecting party. Motions to compel must be made within the time specified in the procedural schedule.

- Privileged Information. The hearing officer may issue protective orders or make in camera inspection of documents as necessary to protect copyrighted, proprietary, or otherwise privileged information. The hearing officer may not order release of documents in BPA's possession withheld on the basis of exemptions to the *Freedom of Information Act*, 5 U.S.C. §552, or the *Trade Secrets Act*, 18 U.S.C. §1905.

- Sanctions. The hearing officer may remedy any refusal to comply with an order compelling answer to a data request or clarification question by:

    (1) Striking the testimony or exhibits to which the question or request relates; or

    (2) Limiting discovery or cross-examination by the party refusing to answer or respond; or

    (3) Recommending to the Administrator that an appropriate adverse inference be drawn against the party refusing to answer or respond.

Procedures, §1010.8(e), (f), and (g).

Since the DSIs made a tactical choice to ignore the rules, BPA's data and analysis, they cannot argue that BPA's failure to deliver its proprietary model HOSS invalidates the Risk Analysis Study. *Id.*

HOSS is proprietary. BPA unequivocally noted this status to the DSIs and other parties. Because this issue is being raised for the first time in the DSI brief, BPA's ability to mount an especially complete defense is limited to arguments and comparisons of data which can be gleaned from information on the record. That record shows BPA's consistent treatment of the HOSS information as proprietary. It shows disclosure of compiled historical HLH and LLH surplus energy sales and revenues and HOSS outputs. The record also provides reasonable explanations for differences in HLH and LLH surplus energy sales to establish that these differences are not attributable to HOSS. Tr. 750, 760-84. On the whole, this information allows parties to confirm the accuracy of the risk analysis, including the HOSS related elements.

Finally, the DSI argument is insufficiently developed for this rate case. *Procedures*, §1010.13(b). The argument contains no analysis, only the conclusions that BPA's analysis is invalid and BPA's failure to provide the HOSS model injured the DSIs.

BPA's use of the HOSS model in the development of its Risk Analysis is reasonable. In light of the timing and inadequate argument of the DSIs, the argument must be rejected because it has been waived. Even if withholding the HOSS model by BPA is error, the error is not harmful. BPA provides adequate explanations for differences in HLH and LLH surplus energy sales in RiskMod compared with historical data, and alternative information by data request responses, which would allow parties to confirm the accuracy of the risk analysis, including the HOSS related elements. BPA's risk analysis was not invalidated by its decision to withhold release the HOSS model as proprietary.

Decision

BPA's refusal to provide the proprietary HOSS model to parties invalidates neither the risk analysis panel's evidence nor the 2002 power rates.

6.4 Non-Operating Risk Model (NORM)

The NORM quantifies BPA's non-operating risks including the uncertainties in capital costs and expenses (but not operational impacts) associated with the 13 Fish and Wildlife Alternatives identified in the Principles. NORM also quantifies the uncertainty in achieving cost reductions identified in the Cost Review recommendations, costs associated with business line separation, and costs associated with conservation and renewable resources.

Issue 1

Whether BPA is understating the risk that WNP-2 will not be operating due to age and other factors.

Parties' Positions

UCUT claims that the BPA risk analysis has not accounted for the risk of higher operating expenses of WNP-2 as it ages and the risk that the nuclear reactor will not be operating and could require decommissioning. UCUT Brief, WP-02-B-UC-01, at 24.

BPA's Position

BPA addressed this issue in its rebuttal testimony. Conger *et al*., WP-02-E-BPA-41, at 13-15. Though not all costs would be covered, the insurance coverage BPA maintains for WNP-2 is sufficient to justify not including the risks in NORM. *Id*.

Evaluation of Positions

UCUT raises this issue for the first time in its initial brief. Consequently, the argument is waived. *Procedures*, §1010.11(a) and §1010.13(b), and (c).

BPA carries both business interruption and property insurance and pays into a decommissioning fund. Conger *et al.*, WP-02-E-BPA-41, at 13-15. This insurance would cover many of the costs

associated with prolonged closures due to accidents or expensive repairs. *Id*. Though not all costs would be covered, the insurance is sufficient to justify not including the risks in NORM. *Id*.

Decision

BPA has sufficient insurance coverage on WNP-2 that it justifies not including this risk in NORM.

Issue 2

Whether BPA should modify its risk analysis to include a range of probabilities that BPA's CRAC will not be implemented as designed.

Parties' Positions

CRITFC/Yakama argue that BPA's risk analysis should include a range of probabilities between 0 and 100 percent that CRAC will not be implemented, with equal weighting in the range. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 56. CRITFC/Yakama argue that their initial brief described unrebutted evidence that BPA has never successfully implemented a cost recovery or interim rate adjustment (IRA). CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 21-22. They state that BPA's assumption that there is a 100 percent probability that it can and will do something that it has not done before is arbitrary and capricious. *Id*. at 22. They state: "There is also evidence on [ROD page] 7-24 where Bonneville believes a more robust CRAC would be difficult to implement. This raises the obvious question how BPA knows that the CRAC that it has proposed will be 100 percent successful. Bonneville has no basis in the record for its assumption that it will be able to trigger a CRAC successfully." *Id*.

Also, "UCUT agrees with NEC that BPA should model at least some probability that a CRAC will not be able to be implemented." UCUT Brief, WP-02-B-UC-01, at 29.

BPA's Position

BPA rebutted this argument in rebuttal testimony. Conger *et al*., WP-02-E-BPA-41, at 15. BPA is confident that CRAC will be successfully implemented as designed, so it is reasonable not to model the non-implementation of CRAC. *Id*. The appropriate standard for review of this rate case is addressed in ROD sections 1.4 and 6.7.

Evaluation of Positions

CRITFC/Yakama argue that BPA should model a full range of possibilities that CRAC would not be implemented. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 56. UCUT supports this position. UCUT Brief, WP-02-B-UC-01, at 29. Such modeling is not appropriate for this rate case for several reasons. First, CRITFC/Yakama do not provide evidence to support the proposal. *See Procedures*, §1010.11. While CRITFC/Yakama note that BPA has never successfully implemented a CRAC or IRA, they have provided no evidence that BPA has ever

failed in implementation of a CRAC or IRA. BPA has never attempted to implement a CRAC or IRA, so there is no record of success or failure.

Second, BPA has decided that CRAC will be implemented. It would be illogical to model non-implementation, because CRAC is a part of the 2002 rates and triggers automatically. Conger *et al*., WP-02-E-BPA-41, at 15.

CRITFC/Yakama also argue that it is arbitrary and capricious of BPA to assume it will be able to implement this rate feature. CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 21. BPA has often introduced new rates or new rate features. It has not ascribed a probability of its being unable to implement these new rates or rate features. It is within the Administrator's discretion to introduce new rates and new rate features, subject to applicable statutes and regulations. *Alcoa v. BPA*, 903 F.2d 585, 595-599 (9th Cir. 1989). And it is within the Administrator's discretion to determine for the purposes of a rate proposal if there is a substantial risk that the rates or rates features will be unimplementable. *Id.*

Third, CRITFC/Yakama make a factual argument which was not part of their proposal, so the argument has been waived. *Procedures*, §1010.11(a) and §1010.13(b) and (c). BPA pointed out the limitations of the argument in its rebuttal testimony. Conger *et al*., WP-02-E-BPA-41, at 15.

CRITFC/Yakama argue that in a previous rate period, when financial pressures were closer to triggering an IRA, BPA cut costs and the IRA did not trigger. Lothrop, WP-02-E-CR/YA-02, at 10-11. There is nothing unreasonable about cutting costs. It is a regular part of BPA's responsibility to employ sound business principles. *See, e.g., Department of Water & Power of the City of Los Angeles v. Bonneville Power Admin.*, 759 F.2d 684, 693 (9th Cir. 1985). CRITFC/Yakama argue, though, that some of the costs cut at that time were fish and wildlife costs, and that cuts of this sort would be incompatible with Fish and Wildlife Funding Principle No. 1. *Id*. That Principle was not in place at the time of the example cited by CRITFC/Yakama, so the example is not particularly relevant to the present circumstance. Moreover, BPA has made a firm and highly public commitment to the Principles, a commitment that has been endorsed by the Administration. DeWolf *et al*., WP-02-E-BPA-13, at 7. BPA *will* meet all of its fish and wildlife obligations once they have been established. Hansen *et al*., WP-02-E-PP-09, Attachment B.

Decision

It is reasonable for BPA not to model the non-implementation of CRAC in its risk analysis, since CRAC is designed to trigger automatically after the reserve threshold shortage has been confirmed.

Issue 3

Whether BPA's risk analysis properly reflects the possibility that a portion of the 1996 MOA carryforward will be programmed to the current rate period.

Parties' Positions

CRITFC/Yakama argue that BPA has inadequately accounted for the risk that the MOA funds could be reallocated among categories and expended either before the current rate case ends or during the upcoming rate period. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 38.

NEC/SOS recommends that BPA model the uncertainty that some of the carryforward balance will be reallocated. Weiss, WP-02-E-NA-01, at 19.

CRITFC/Yakama maintain that the *"de minimus"* reallocation of MOA funds merely "shows that Bonneville is unwilling to act in good faith when it comes to fish and wildlife issues." CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 39.

BPA's Position

In the proposal, BPA did not model the uncertainty that the MOA carryforward balance would be reallocated and expended prior to FY 2002. Lovell *et al.*, WP-02-E-BPA-40, at 23-24. However, risk distributions have been added to the NORM for FY 2000 and FY 2001 to calculate the final rates to determine the risk-adjusted beginning reserves for FY 2002. *Id*. at 24. BPA has modeled the following probabilities in NORM: a 50 percent chance that none of the carryforward balance will be reallocated, a 25 percent chance that $5 million will be reallocated, and a 25 percent chance that $10 million will be reallocated. *Id*.

"[T]he Administrator has made it clear that a regional plan is pivotal to deciding how these funds would be spent and would be hesitant to agree to reallocation unless a plan were agreed upon." Tr. 721. *See also*, Lovell *et al*., WP-02-E-BPA-40, at 24. Moreover, BPA noted in rebuttal that the MOA states that ". . . the carryforward balance, and the interest credits . . . may not be reallocated to another category without the agreement of the parties in consultation with the tribes." Lovell *et al*., WP-02-E-BPA-40, at 18.

The probabilities of reallocation that BPA included "took into account . . . [BPA fish and wildlife experts'] view of the likelihood of a regional plan being developed and costs reallocated within the next year and a half." Tr. 722. BPA has not unilaterally reallocated funds between categories. The MOA does not permit it. Lovell *et al.*, WP-02-E-BPA-40, at 18. The actual expenses have been lower than predicted because fewer Congressional appropriations have been made. *Id*. at 22. Less investment has been placed in service by the COE and there is no regional plan, so BPA is unable to ensure that reallocated funds would be spent prudently and consistent with other initiatives. *Id*. at 21.

Evaluation of Positions

The MOA is the 1996 Memorandum of Agreement Concerning BPA's Financial Commitments for Columbia River Basin Fish and Wildlife Costs signed by the Secretaries of the Departments of the Army, Commerce, Energy, and Interior. The MOA obligates BPA to apply any year's underspent funds associated with fish and wildlife costs in this rate period (carryforward amounts) to fish and wildlife purposes in subsequent years. Lovell *et al*., WP-02-E-BPA-40,

at 18. The MOA also provides for a process to reallocate the carryforward balance among categories (other than "operations"). *Id*. The amounts pertaining to a category may not be reallocated to another category without the agreement of the parties in consultation with the Council and the Tribes. *Id*.

CRITFC/Yakama and NEC/SOS argue that BPA should model the possibility that the MOA carryforward balance would be reallocated before the beginning of the next rate period (FY 2002). Lothrop, WP-02-E-CR/YA-02, at 8-9; Weiss, WP-02-E-NA-01, at 19. NEC/SOS recommend that BPA include as an uncertainty the possibility that some of the carryforward balance will be reallocated. Weiss, WP-02-E-NA-01, at 19.

The risk analysis in BPA's proposal does not examine the possibility that the MOA carryforward balance would be reallocated and expended before FY 2002. Lovell *et al.*, WP-02-E-BPA-40, at 18. For calculating the final rates, however, BPA is including the uncertainty surrounding such a reallocation. As indicated in rebuttal testimony, risk distributions will be added to the NORM for FY 2000 and 2001 to determine the risk-adjusted beginning reserves for FY 2002. *Id*. at 24; Volume 1, Chapter 12, Revenue Requirement Study Documentation, WP-02-E-BPA-02A. BPA has modeled the following probabilities in NORM: a 50 percent chance that none of the carryforward balance will be reallocated, a 25 percent chance that $5 million will be reallocated, and a 25 percent chance that $10 million will be reallocated. *Id*. As mentioned earlier, the Administrator has indicated that a Regional Plan must be in place to address funding priorities before reallocation between budget categories occurs. *Id.*

CRITFC/Yakima are not satisfied with the probabilities that BPA stated it would model in the final proposal. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 39. UCUT "encourages BPA to consider the intentions of the signatories to the MOA in undertaking this modeling and adjust its estimate of starting reserves." UCUT Brief, WP-02-B-UC-01, at 22. UCUT states that "Federal parties, states and tribes are working to reallocate" the carryforward balance. *Id*. However, a reallocation must by agreed to by all the parties. Lovell *et al*., WP-02-E-BPA-40, at 18. No such agreement has been reached.

The MOA provides a process for reallocating the carryforward balance among the non-operational categories. Lovell *et al*., WP-02-E-BPA-40, at 18. However, the BPA Administrator has indicated that a Regional Plan addressing funding priorities needs to be in place before she would favor reallocating funds among MOA budget categories. *Id*. at 24.

BPA noted during cross-examination that the probabilities and the dollar amounts used in NORM were provided by BPA fish and wildlife experts based on their professional judgment. Tr. 721-22. The probabilities take into account BPA's view of the likelihood of a regional plan being developed and costs reallocated within the next year and a half. *Id*. In addition, BPA notes in a data response that:

> BPA is hopeful that a Regional Plan will be developed through the Federal Caucus effort on the All-H paper and the NWPPC's Fish and Wildlife Program amendments. BPA anticipates that if the priorities in that plan are ready to be implemented prior to the conclusion of the MOA in 2001, and if their budgets

exceed those in current categories, they could be considered for funding through reallocation.

Most recently there has been regional discussion about the need for subbasin assessments in order to determine necessary measures and priorities for fish and wildlife recovery under the ESA and protection, mitigation and enhancement under the Northwest Power Act. BPA's estimate of a range of $5-$10 million for possible reallocation of funds between categories under the Fish and Wildlife Budget MOA is based upon an estimate of the initial costs of such an assessment effort endorsed by the Federal agencies and the states and tribes, that occurs prior to the expiration of the MOA and that exceeds the current amount budgeted for such purposes under the NWPPC's Fish and Wildlife Program budget.

Cross-Examination Exhibit, WP-02-E-NA/OP/CR/YA-02.

Finally, many carryforward costs reflect activities that have been reprogrammed into the 13 Alternatives for FY 2002-2006, and the costs of the 13 alternatives are sufficiently high. Lovell *et al.*, WP-02-E-BPA-40, at 20-21. Thus, this treatment of costs should address concerns that the reserves will be inadequate should the expenses be reallocated.

To calculate the final rates, BPA modeled the probability of a carryforward balance being reallocated and spent during the remainder of the current rate period. Lovell *et al.*, WP-02-E-BPA-40, at 24. Including these probabilities in NORM causes the risk-adjusted starting reserves to reflect the potential reallocation of the MOA carryforward. As CRITFC/Yakama note, reallocation of the carryforward balance reduces both the carryforward balance and beginning reserves for FY 2002-2006. Lothrop, WP-02-E-CR/YA-02, at 9. Including the probabilities in NORM will contribute to a lower risk-adjusted starting reserves estimate. *Id*.

Decision

BPA is incorporating uncertainties in its risk analysis that FY 2002 Starting Reserves may be reduced by a reallocation of part of the MOA carryforward during the current rate period. The uncertainty distribution is based on analysis and judgments by staff experts and policy judgment implemented by the Administrator. In any case, many of the carryforward costs reflect activities that have been included in the 13 Alternatives for FY 2002–2006.

Issue 4

Whether BPA appropriately used a probability distribution to capture the risk of not fully achieving $113 million in Cost Review recommendations.

Parties' Positions

PPC challenges BPA's use of a probability distribution in the NORM to capture the uncertainty of not fully achieving some of the cost reductions called for in the Cost Review recommendations. Opatrny *et al.*, WP-02-E-PP-02, at 3-4; PPC Brief, WP-02-B-PP-01, at 11. PPC recommends that BPA modify its assumptions by committing to 100 percent certainty of achieving the Cost Review Recommendations. Opatrny *et al*., WP-02-E-PP-02, at 3. PPC refers to the inclusion of probabilities surrounding cost reductions for some of the recommendations as ". . . reduction amounts that are still in doubt . . ." Opatrny *et al.*, WP-02-E-PP-02, at 3. CRITFC/Yakama support this position. CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 23.

BPA's Position

As with any budget, there is not a 100 percent certainty that costs will turn out precisely as planned. If BPA were to assume 100 percent certainty of achieving the Cost Review savings, the impact would be to shift risk to Treasury, meaning that the TPP result in this rate proceeding would be overstated, if everything else remained the same. DeWolf *et al*., WP-02-E-BPA-39, at 41. The inclusion of probability distributions for certain Cost Review recommendations recognizes that the Cost Review savings recommendations are "stretch" targets with significant uncertainty and risk associated with BPA's ability to realize them. *Id*. at 40.

Evaluation of Positions

In a data request, BPA asked the PPC to explain the rationale for its position that uncertainties and risks associated with achieving the Cost Review recommendations should not be included in BPA's risk analysis. PPC responded:

> During clarification, the witnesses sponsoring WP-02-E-PP-02 stated that they were recommending that BPA assume with 100 percent certainty that the Cost Review/Issues '98 cost reductions would be achieved (except for the $18 million of cost reductions associated with recommendation #9, legislation to improve administrative effectiveness and recommendation #8, administrative and other internal services costs). This means that essentially no risk should be associated with the remaining $113 million/year of cost reductions.
>
> The panel indicated that they were not overly concerned that the cost reductions achieved were generated from the specific expense categories that make up the cost reduction package. Instead, . . . BPA should be able to, at a minimum, secure the stated level of cost reductions for the upcoming rate period. Therefore, to the extent the savings associated with particular line items identified in the Cost Review/Issues '98 processes were risky, additional cost savings would be realized from other source(s)."

DeWolf *et al*., WP-02-E-BPA-39, Attachment 6.

PPC does not provide any information about "other source(s)" that BPA should look to for additional costs savings in the event the savings associated with the items identified in the Cost Review/Issues '98 processes are not sufficient to meet the $113 million figure. DeWolf *et al*., WP-02-E-BPA-39, at 40. Absent such information, it is not prudent for BPA to assume that the $113 million cost reductions can be achieved with 100 percent probability. *Id.*

The Cost Review closely examined a wide range of FCRPS costs. The only notable exceptions to these costs were fish and wildlife recovery costs and several categories of costs that were subject to change in the Subscription Strategy and rate development process. Revenue Requirement Study, WP-02-E-BPA-02, at 12. Cost Review recommendations were made in specific areas. *Id*. The recommendations recognized that implementation of the recommendations presented significant challenges for BPA and its major power suppliers. *Id.* at 71. Moreover, many of the Cost Review panel's recommendations are "stretch goals" that involve costs over which BPA has limited influence. *Id.* In addition, the reductions recommended by the Cost Review were based upon an expense baseline that had already undergone significant cost cutting. *Id*. at 97. Given the aggressive nature of the Cost Review recommendations and the already reduced budgets to which they were to be applied, it is reasonable for BPA to include probability distributions in NORM to capture the risk and uncertainty associated with cost reductions from the Cost Review recommendations. To do otherwise would inappropriately shift risk to the Treasury. DeWolf *et al*., WP-02-E-BPA-39, at 41.

Decision

BPA appropriately used a probability distribution to capture the risk of not fully achieving some of the Cost Review recommendations.

Issue 5

Whether BPA should change its risk analysis to reflect the risk that functionalization of costs assumed functionalized to the TBL in the PBL rate case would be changed after the conclusion of the PBL rate case.

Parties' Positions

The IOUs state that the separation of the power and transmission rate cases makes it more difficult to ensure that costs are properly functionalized between power and transmission functions. IOU Brief, WP-02-B-AC/GE/IP/MP/PL/PS-01, at 77. The IOUs also do not believe that FERC should finally determine in the power rate case whether all costs functionalized to transmission are proper transmission costs until the transmission rate case is completed and submitted to FERC for approval. *Id*. at 84. Finally they argue, absent a FERC audit of BPA's accounts (based on the Uniform System of Accounts), the parties cannot determine whether costs are properly functionalized. *Id.* The IOUs recommend removing the cap on the CRAC so that any costs from the power rate case wrongly functionalized to transmission can be recovered from the power customers. *Id*. at 84-85. If the cap is not removed, the IOUs claim, then power sales contracts should contain a specific provision permitting a rate adjustment to collect any costs

functionalized to transmission that FERC determines are not transmission costs. WP-02-E-AC/GE/IP/MP/PL/PS-01, at 14-15. The IOUs claim that "correctly functionalizing fiber optic expenses would result in a shift of costs from transmission rates to power rates of $25 million per year." IOU Ex. Brief, WP-02-R-AC/GE/IP/MP/PL/PS/EN-01, at 66.

BPA's Position

Although BPA does not believe that the cap on CRAC should be eliminated, BPA did agree to evaluate whether the risk that potential changes in functionalization of costs would affect its risk analysis. Lovell *et al*., WP-02-E-BPA-40, at 15. After evaluating this risk, BPA has concluded that the magnitude of the risk is small and that the NORM model already captures risks related to the risk of changes to the level of PBL's transmission expense. Risk Analysis Study, WP-02-FS-BPA-03, at 23.

Evaluation of Positions

Though there is a small risk that FERC could determine some costs are incorrectly assigned to transmission and should be assigned to power, the dollar amounts are not large. Risk Analysis Study Documentation, WP-02-E-BPA-03A, at 171. The IOUs claim that correctly functionalizing fiber optic expenses would result in a shift of costs from transmission rates to power rates of $25 million per year. BPA does not know where this number came from or how it was derived. However, as discussed in ROD section 5.5, when addressing the potential costs of refunctionalizing fiber optic expenses, the IOUs have ignored the revenues to the power function that would be associated with that refunctionalization. Presently, BPA includes PNRR in its revenue requirement, which accounts for unforeseen risks. *Id*. Additionally, the NORM model already includes risks related to "probabilities of the generation function's transmission expenses deviating from the costs included in the revenue requirement." Risk Analysis Study Documentation, WP-02-E-BPA-03, at 171, 179.

In theory, additional costs could be functionalized as a result of the transmission rate proceeding, FERC action, or audit under the Uniform System of Accounts. However, the solution proposed by the IOUs--removing the cap on CRAC--represents a substantial change to CRAC design that is not based on an analysis of risks and TPP. *See* ROD section 7.3 and Issue 4, *supra*. The IOUs' solution is disproportionate to the small risk and potential impact on the power function's cost recovery. And BPA's risk mitigation strategy is sufficiently robust to adequately address the risks associated with bifurcated rate cases and the functionalization of costs between them. *See* ROD chapter 7.

Decision

BPA has reviewed the risks as it said it would in rebuttal testimony but believes that BPA's current risk analysis adequately covers the risk of refunctionalization.

6.5 Fish and Wildlife Obligations

Issue 1

Whether BPA should substitute or supplement its risk analysis with the analysis in the May 11, 1999, memorandum by regional staff of EPA, NMFS, USFWS, and Treasury.

Parties Position

CRITFC/Yakama and several other tribal sovereigns argue that BPA should incorporate the risks described in the May 11 memorandum in its risk analysis, including "the direct cost estimate of $325 million as an average over the FY 2002-2006 rate period as the most likely estimate . . ." CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 55-56; CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 16-18, 23. They also urge BPA to "conduct analysis assuming direct costs could be as high as $390 million a year during the period [FY 2002-2006]." *Id. See also*, UCUT Brief, WP-02-B-UC-01, at 19-20. Finally, CRITFC/Yakama argue that BPA has ignored the May 11 memorandum and that BPA's failure to incorporate it into its risk analysis is arbitrary and capricious. CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 18.

NRU argues that the May 11 memorandum represents information that is outside the scope of the rate case and not at issue in this rate case. Saven, WP-02-E-NI-05, at 25. NRU argues, "It would be totally unfair and objectionable to use the memorandum as an estimate of future fish and wildlife costs, or to argue for different program funding levels or policy choices concerning the fish and wildlife programs." *Id*. According to NRU, the May 11, 1999, memorandum is an unofficial document issued by regional fish and wildlife staff and the Treasury staff that was intended to increase fish and wildlife costs represented in BPA's rate proposal. Saven, WP-02-E-NI-05, at 25.

BPA's Position

BPA agrees with the arguments present by NRU. The use to which CRITFC/Yakama and others attempt to employ the May 11 memorandum is outside the scope of this rate proceeding. Moreover, BPA's analysis of fish and wildlife costs, based on a range of alternatives, is reasonable. *See* ROD sections 2.3 and 5.4 *infra*; DeWolf *et al*., WP-02-E-BPA-13, at 9. The BPA approach "keeps the options open." *Id*. BPA has not ignored the May 11 memorandum in its risk analysis, it has chosen to rely on a risk analysis which follows the Principles. BPA's actions meet the standard applicable to rate cases. *See* ROD section 1.4.

Evaluation of Positions

The May 11, 1999, memorandum is introduced into evidence by CRITFC/Yakama. Lothrop, WP-02-E-CR-02, Attachment 3, at 1. *See also*, DeWolf *et al*., WP-02-E-BPA-39, Attachment 1, at 1. The memorandum was authored by regional EPA, NMFS, and USFWS staffs and Treasury staff. The May 11 memorandum may be used in this rate case only to "test or challenge a party's risk analysis." Hearing Officer Order, WP-02-O-14. The memorandum purports to represent more recent estimates of BPA's direct funding requirements than estimates used by BPA in its

power rate proposal. Saven, WP-02-E-NI-05, at 25. "The memorandum was developed . . . without input from the public." *Id*. "It was rushed to Washington DC before BPA's rate proposal was filed to try to convince the Administration to increase fish and wildlife costs and somehow accommodate them in the BPA rate proposal. Many customers objected when . . . [they] found out about the document . . ." *Id.* Rather than seeking to "test or challenge" BPA's risk analysis, CRITFC/Yakama merely argue that BPA adopt the contents of the memorandum. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, 29-30.

The May 11 memorandum is contradicted by the May 26, 1999, memorandum of William Stelle, head of the Seattle office of the NMFS, which states, "The timing of the rate case is out of sync with the timing of decisions regarding fish and wildlife operations through 2006. Options for those decisions are being examined currently through a number of regional processes, including the Federal Caucus. In the absence of final decisions, BPA has committed to setting its rates in a way that would not foreclose any of the options being considered." Lothrop, WP-02-E-CR-02, Attachment 4, at 2. Mr. Stelle noted that while fish and wildlife costs might be higher after 2006, it is difficult to "pin down with accuracy" the range of out-year costs. *Id*. at 3. Mr. Stelle then states, "NMFS sees no reason to conclude that BPA will not be able to cover anticipated costs." *Id*. at 3.

Mr. Stelle contradicts the May 11 memorandum's claim that BPA's draft proposal was inadequate. *See* Lothrop, WP-02-E-CR-02, Attachment 3, page 1. The May 11 memorandum fails as reliable evidence: It has not been finalized; was not authenticated; and is outside the public record exception to hearsay rules. *Federal Rules of Evidence* 801 and 803(8). The May 11 memorandum does not represent a Federal consensus, new reliable information, or a serious commitment to abide by the Principles that BPA uses as a touchstone of this rate proceeding. *See, e.g.,* section 2.3 *supra*. That is, the May 11 memorandum is neither a test nor a challenge of BPA's risk analysis.

Moreover, CRITFC/Yakama's attempt to repudiate the equal weighting of fish and wildlife alternatives embedded in the Principles was specifically rejected by Mr. Stelle's memorandum: "BPA has committed to setting its rates in a way that would not foreclose any of the options being considered." Lothrop, WP-02-E-CR-02, Attachment 4, at 2. Mr. Stelle also states, "Although it is impossible to predict with precision at this time what a fish and wildlife budget agreement through 2006 would look like, the range of costs BPA could cover with its contingent funding proposal appears adequate to cover the likely range of fish and wildlife costs through 2006." Lothrop, WP-02-E-CR-02, Attachment 4, at 3.

The May 11 memorandum is also outside the scope of the rate case. Saven, WP-02-E-NI-05, at 25. The scope of the rate case specifically excluded fish and wildlife program level discussions. 64 Fed. Reg. 4321-23. As NRU stated "[I]t would be totally unfair and objectionable to use the memorandum as an estimate of future fish and wildlife costs, or to argue for different program funding levels or policy choices concerning fish and wildlife programs." Saven, WP-02-E-NI-05, at 25.

On a more basic level, each rate case party that offers an alternative for BPA to consider in meeting its fish and wildlife obligations offers choices that conflict with other choices. BPA must balance these fish and wildlife obligations with other interests and obligations to produce

its rates. This obligation is BPA's charge. 16 U.S.C. §839e(i), 94 Stat. 2726. BPA is forced by the ratesetting process and its obligations to the region to accept some positions and reject others. *See, e.g., Association of Public Agency Customers v. Bonneville Power Administration (APAC v. BPA),* 126 F.3d 1158, 1174-76 (9th Cir. 1997). Congress has granted BPA an unusually expansive mandate to operate with a business oriented philosophy, and the courts have found it wise to defer to actions such as these as it furthers these business interests, "especially when the agency is responding to unprecedented changes in the market resulting from deregulation." *APAC v. BPA*, at 1171. BPA's risk analysis, including its decision not to revise its risk analysis and to retain a "keep the options open" fish and wildlife strategy, reflects a reasonable approach to these changes in the industry and the Columbia River Basin. The decision not to modify BPA's risk analysis by including values and concepts presented in the May 11, 1999, memorandum was appropriate, because BPA's risk analysis keeps the fish and wildlife options open. Thus, BPA has not ignored the May 11 memorandum, it has chosen to rely on a risk analysis and risk mitigation strategy which follows the Principles in light of the obvious limitations of the May 11 memorandum

BPA's fish and wildlife risk analysis and risk mitigation, including its treatment of the May 11 memorandum, is supported by substantial evidence and is not arbitrary and capricious. *See* ROD section 1.4, *supra*.

Decision

BPA made appropriate judgments when it did not revise its risk analysis to reflect the information and concepts contained in the May 11, 1999, memorandum.

6.6 Risk and Environmental Obligations

Issue

Whether BPA's risk analysis adequately considers the uncertainty in BPA's fish and wildlife obligations under applicable environmental laws.

Parties' Positions

CRITFC/Yakama argue that the BPA risk analysis for the FY 2002-2006 rate period does not adequately address uncertainty in fish and wildlife obligations imposed upon BPA by the CWA. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 11-13; CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 23. They note that the EPA found that dams commonly exceed water quality standards for temperature and total dissolved gases. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 12.

CRITFC/Yakama also argue that the BPA risk analysis for the FY 2002-2006 rate period does not adequately address uncertainty in fish and wildlife obligations imposed upon BPA by the ESA (16 U.S.C. §1531-1543). CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 13-15; CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 23.

CRITFC/Yakama further argue that the BPA risk analysis for the FY 2002-2006 rate period does not adequately address uncertainty in fish and wildlife obligations imposed upon BPA by the F&WCA. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 15-17; CRITFC/Yakama Ex. Brief, WP-02-R-CR/YA-01, at 23.

CRITFC/Yakama also argue that potential Northwest Power Act obligations should be included in BPA's risk analysis. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 17-18; CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 23.

BPA's Position

BPA disagrees with CRITFC/Yakama's assertion that BPA's risk analysis does not adequately address BPA's obligations under certain Federal and environmental laws because BPA assumed a low probability for fish and wildlife alternatives that CRITFC/Yakama allege are most likely to comply with applicable laws. The 13 Fish and Wildlife Alternatives established in the Principles development process represent, in the Clinton Administration's judgment and based on extensive regional input, a reasonable range within which the costs of eventual decisions on system reconfiguration and related operations can be expected to fall. DeWolf *et al*., WP-02-E-BPA-13, at 9. The Principles are intended to "keep the options open" for future decisions by: (1) specifying that each of the 13 Fish and Wildlife Alternatives should be treated by BPA as equally likely to occur; and (2) establishing a high cost-recovery goal, expressed as an 88 percent/five-year TPP goal. *Id*. Thus, the 13 Fish and Wildlife Alternatives represent a set of assumptions, a forecasting convention, to establish capital investment and O&M levels, system operations assumptions, and risk analysis assumptions for purposes of setting rates. *Id*.

Evaluation of Positions

CRITFC/Yakama argue that potential CWA (13 U.S.C. §1313) obligations should be included in BPA's risk analysis. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 11-13. They cite water quality standards for maximum water temperature and the total dissolved gas standards as examples of those obligations. *Id*. at 12. CRITFC/Yakama argue that BPA's analytical approach for addressing fish and wildlife costs is inconsistent with the CWA. *Id*. at 13.

CRITFC/Yakama also argue that potential ESA obligations should be included in BPA's risk analysis. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 13-15. They cite the decline of Columbia River and Snake River threatened and endangered salmon stocks and most unlisted stocks as examples of those obligations. *Id*. at 13. CRITFC/Yakama argue that BPA's analytical approach for addressing fish and wildlife costs is inconsistent with the ESA, and that assumptions tend to underestimate the probabilities that BPA will be exposed to higher fish and wildlife costs than considered in the Bonneville testimony. *Id*. at 14. CRITFC/Yakama cite PATH (the Plan for Analyzing and Testing Hypothesis) biological analysis that suggests that lower cost alternatives would not likely meet ESA recovery. *Id*.

CRITFC/Yakama further argue that potential F&WCA obligations should be included in BPA's risk analysis. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 15-17. They argue that the F&WCA requires Federal agencies to give "full consideration" to fish and wildlife managers, but

concede that the final decision rests with the Federal agency. *Id.* at 15-16. CRITFC/Yakama cite drawdown and breaching alternatives identified in a December 1999 USFWS Coordination Act Report, and argue that BPA had access to a copy of the draft report in the Summer of 1999 and should have given more weight to these alternatives and less weight to others. *Id*. at 16.

CRITFC/Yakama assert that BPA has not adequately funded the Columbia River Basin Fish and Wildlife Program. CRITFC/Yakama Brief, WP-02-B-CR/YA-01, at 18. CRITFC/Yakama argue that BPA's analytical approach for addressing fish and wildlife costs is inconsistent with the Northwest Power Act. *Id*.

BPA has followed the Principles and produced a reasonable range of alternatives designed to "keep the options open" for future decisions. DeWolf *et al*., WP-02-E-BPA-13, at 7-9. The risk analysis is an analysis of financial impacts, including the probability that BPA's payments to Treasury will be made in full and on time. Risk Analysis Study, WP-02-E-BPA-03, at 1-2. BPA included the full range of potential fish and wildlife costs in a manner consistent with the Principles. *Id*. at 3. These costs consist of operational impact costs, expenses, capital costs, and BPA direct program O&M. *Id*. BPA modeled the operational impact costs in RiskMod and the expenses, capital costs, and BPA direct program O&M in NORM. *Id*. Consistent with the Principles, BPA direct program O&M was modeled in NORM to range from $100 million to $179 million. Also as specified in the Principles, BPA treated each of the 13 Fish and Wildlife Alternatives as equally likely to occur. *Id*.

The Risk Analysis Study explores the hydrosystem operation implications and net revenue impacts for each of the 13 Fish and Wildlife Alternatives. Risk Analysis Study, WP-02-E-BPA-03, at 3. These 13 Fish and Wildlife Alternatives include five Fish and Wildlife Alternatives that involve the breaching of dams. *Id*. These five Alternatives include both adjusted and unadjusted schedule variants, for a total of 18 fish and wildlife scenarios. *Id*. For a more complete discussion of BPA's fish and wildlife obligations under the CWA, ESA, Fish and Wildlife Coordination Act, and the Northwest Power Act, *see, supra*, section 5.3.2, Issue 1.

Decision

BPA's risk analysis adequately considers the uncertainty in BPA's fish and wildlife obligations under applicable environmental laws.

6.7 Legal and Procedural Issues

Issue 1

Whether the Risk Analysis is deficient because it is either not supported by substantial evidence or otherwise is not well-reasoned.

Parties' Positions

Alcoa/Vanalco argue that the Administrator should strike the testimony of the risk analysis panel and recommence the rate case. Alcoa/Vanalco Brief, WP-02-B-AL/VN-01, at 54. Alcoa/Vanalco argue that the Risk Analysis does not reflect independent judgment. *Id*. at 44-47.

Finally, Alcoa/Vanalco argue that due process is violated. *Id*. at 47. The Joint DSIs also argue that when BPA holds them accountable for their failure to follow the rate case procedures, BPA is acting arbitrary and capricious and contrary to law. DSI Ex. Brief, WP-02-R-DS-01, at 13-16.

UCUT argues that BPA used no objective criteria to assess its fish and wildlife costs and did not rely on expertise in fish and wildlife agencies. UCUT Brief, WP-02-B-UC-01, at 19. This appears to be an argument that BPA's treatment of fish and wildlife costs was arbitrary and capricious. *Id*. CRITFC/Yakama argue similarly. CRITFC/Yakama Brief, WP-02-B-CR\YA-01, at 2; s*ee also,* CRITFC/Yakama Ex. Brief, WP-02-R-CRYA-01, at 23. The Shoshone-Bannock Tribes generally support the UCUT and CRITFC/Yakama arguments. Shoshone-Bannock Brief, WP-02-B-SH-01, at 3.

NEC/SOS argue that the risks BPA has analyzed are inadequate: "Faced with such uncertainty, BPA must do more planning, and more statistical analysis than ever--and develop a rate structure with more flexibility so as to react to the uncertainty." NEC/SOS Brief, WP-02-B-NA/SA-01, at 16-23. They argue that BPA's failure to accept the NEC/SOS proposal, among other things, "is unwarranted, arbitrary and capricious." *Id*. at 23.

BPA's Position

BPA's proposal includes a policy choice to consider within BPA's risk analysis "the full range of potential fish and wildlife costs represented by the 13 alternatives by assuming that each alternative is equally likely to occur." Burns and Elizalde, WP-02-E-BPA-08, at 5. Moreover, the risk analysis studies two kinds of risks, operating risks and non-operating risks. Risk Analysis Study, WP-02-E-BPA-03, at 2. Policy issues were addressed elsewhere in the rate case. Burns and Elizalde, WP-02-E-BPA-08, at 5. Finally, the arguments are waived, since the arguments are not timely or are not adequately presented.

Evaluation of Positions

Alcoa/Vanalco argue that the risk panel did not exercise independent judgment, so the panel's analysis and conclusions are invalid. In particular, Alcoa/Vanalco argued:

> Thus the professionals retained by BPA to assess its risk did not do so because instead they followed a directive from the Clinton Administration, specifically, the Fish and Wildlife Principles process spearheaded by Vice President Gore. Tr. 586, lines 25-587, at 1. Under the APA, the Administrator's decision must be upon the record developed by the decisionmaker at the time the decision was made--not on some evidence outside the record … There was no independent judgment exercised by BPA. Instead, the collective judgment of a variety of parties in and outside the process was used as a substitute for valid expert opinion on these subjects.

Alcoa/Vanalco Brief, WP-02-B-AL/VN-01, at 45.

The rate case presents a fair and balanced evaluation of risk and its impacts on BPA during the FY 2002-2006 rate period. Risk Analysis Study, WP-02-E-BPA-03, at 2-4. The panel's

treatment of the fish and wildlife issues is limited in scope. *See e.g.*, Burns and Elizalde, WP-02-E-BPA-08, at 4-5. These policy choices, including treatment of fish and wildlife issues, are discussed principally in section 5.4 of this ROD. BPA's risk analysis integrates numerous analytical tools and evaluates both operating risks and non-operating risks. *See, generally*, Risk Analysis Study, WP-02-E-BPA-03. BPA's analysis implemented the Fish and Wildlife Funding Principles developed in an extensive public process. 64 Fed. Reg. at 44321-23; ROD section 2.3. BPA's risk analysis addresses the most substantial uncertainties to confront the agency, in the form of operational constraints and potential obligations for protecting the region's fish and wildlife resources. Risk Analysis Study, WP-02-E-BPA-03, at 8-11.

BPA's risk analysis generally used models and results available to rate case parties for their own analysis. BPA made prudent changes in its risk analysis from the analysis employed in the most recent general rate case (1996) to make its analysis more reliable. Conger *et al.*, WP-02-E-BPA-15, at 2-15. BPA applied scientific rigor in analyzing the information in the models it used to produce the analysis. *Id.* BPA calibrated and adjusted its models to more accurately analyze current and future risks. *Id*. at 6-12. BPA documented its analysis. Risk Analysis Study Documentation, WP-02-E-BPA-03A. The parties' arguments are without merit.

Alcoa/Vanalco argue that BPA has violated *Daubert v. Merrel Dow Pharmaceutical, Inc.*, 509 U.S.579, 125 L.Ed. 2d.469, 113 S. Ct. 2786 (1993), the seminal case on the admission of expert testimony and the obligation of the fact finder to evaluate the admissibility of testimony. In essence a judge is responsible for the testimony of a witness resting on a reliable foundation and that the testimony is relevant. *Applying Daubert and Joiner to Scientific Evidence by Linking Legal and Scientific Reasoning*, 13 Toxics Law Reporter 338 (1998). The appropriate time for raising this argument would have been in a motion to strike, because it challenges the qualifications of BPA witnesses and the validity of the testimony and exhibits they presented at the hearing. *Procedures* at §1010.11(d). Even cross-examination would have provided an opportunity to test both the qualifications and validity of evidence. Instead, Alcoa/Vanalco deprived BPA and the other parties of an opportunity to meet the accusation with evidence, and deprived the Hearing Officer of the opportunity to rule on the issue initially. Alcoa/Vanalco have waived the argument. *Id*. at §1010.13(b) and (c).

As part of this ratesetting process, the agency and panel were faced with many choices reflecting which business risks to model and how to fairly and scientifically model the risks so as to enable a power rate case proposal and a final rate to successfully survive review by FERC and the appellate courts. The choices produced evidence reflected in the Risk Analysis Study, WP-02-E-BPA-03, and the Risk Analysis Study Documentation, WP-02-E-BPA-03A, as well as testimony of witnesses, Conger *et al*., WP-02-E-BPA-15, and Conger *et al*., WP-02-E-BPA-41, and cross-examination of the panel by rate case parties, Tr. 735- 825 and Tr. 1902-1949.

Alcoa/Vanalco plainly violate the rules of the proceeding by arguing that the rate analysis panel should be struck or disregarded by the Administrator, because "BPA's failure to conduct its risk analysis consistently with known risk variables calls into question the entire validity of the study and testimony of its risk analysis experts under *Daubert*." Alcoa/Vanalco Ex. Brief, WP-02-R-AL/VN-02, at 34.

The rules of the proceeding describe when such arguments are appropriate. *Procedures*, §1010.11(d), §1010.13. In this way, BPA and the participants can be assured that there is an opportunity for the parties to respond and contribute to the proceedings. This is a transparent attempt by some parties to circumvent rules intended to ensure a fair and efficient establishment of BPA rates. Motions to strike prefiled testimony and exhibits must be filed within seven days after service. *Procedures*, §1010.11(e). The motion was not timely.

Qualifications of the risk panel members--Conger, WP-02-Q-BPA-14; Steele, WP-02-Q-BPA-64; Lovell, WP-02-Q-BPA-44; Wagner, WP-02-Q-BPA-67; Bleifuss, WP-02-Q-BPA-04; Petty, WP-02-Q-BPA-58; Thor, WP-02-Q-BPA-66; and Lamb, WP-02-Q-BPA-40--were made available for all parties to review contemporaneous with BPA's proposal. No party moved to strike or objected to the admission qualifications of the Risk Panel members. *See* Tr. 1948. Moreover, the parties had two opportunities to question the qualifications of risk panel members and did so in a brief examination of Dr. Lovell's substantial expertise in the area of risk analysis. This effort did not lead to objections to the risk panel's testimony on the basis of their qualifications. *Daubert's* standard has been met.

Decision

BPA's risk analysis panel's testimony and exhibits are valid and did not violate any standard for the sufficiency and admissibility of evidence or due process.