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TESTIMONY of  
TIMOTHY C. MISLEY, KIMBERLY A. FODREA,  
REED C. DAVIS, GLEN S. BOOTH,  
and STEVEN R. BELLCOFF  
Witnesses for Bonneville Power Administration

**SUBJECT: LOADS AND RESOURCES**

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5  
6 **SUBJECT: LOADS AND RESOURCES**

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

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

9 A. My name is Glen S. Booth, and my qualifications are contained in BP-14-Q-BPA-08.

10 A. My name is Timothy C. Misley, and my qualifications are contained in BP-14-Q-  
11 BPA-49.

12 A. My name is Reed Davis, and my qualifications are contained in BP-14-Q-BPA-15.

13 A. My name is Kimberly A. Fodrea, and my qualifications are contained in BP-14-Q-  
14 BPA-20.

15 A. My name is Steven R. Bellcoff, and my qualifications are contained in BP-14-Q-BPA-04.

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

17 A. The purpose of this testimony is to sponsor the Power Loads and Resources Study  
18 (Study), BP-14-E-BPA-03, and the Power Loads and Resources Study Documentation  
19 (Documentation), BP-14-E-BPA-03A.  
20

21 **Section 2: Load Forecasts**

22 *Q. Is the load forecasting process different from what was used in the BP-12 rate case?*

23 A. No.  
24  
25

1 Q. *How is the customer involved in the load forecasting process?*

2 A. A BPA analyst contacts or meets with the customer to learn about potential new  
3 additional load or load loss in the customer's service territory. The customer reviews the  
4 growth rate the analyst has developed, and they discuss new facilities that are being  
5 planned in the customer's service territory. If the growth rate of the analyst's forecast  
6 does not reflect the new load additions or load loss, the analyst will add the new facility  
7 or subtract the load loss. The analyst then reviews the forecast considering all of the  
8 information obtained from the customer and adjusts the forecast if necessary. Study  
9 section 2.2.1.

10 Q. *Please summarize the growth estimates in the Public Agency load obligation forecast.*

11 A. Load Following customer PSC obligations are projected to grow at an average annual  
12 rate of approximately 1.7 percent from FY 2014 to FY 2015. Slice/Block customer PSC  
13 obligations are projected to decrease by an average annual rate of about 5.0 percent from  
14 FY 2014 to FY 2015. Overall, PSC obligations for Load Following and Slice/Block  
15 customers are projected to grow at an average annual rate of about 2.9 percent from  
16 FY 2014 to FY 2015. Study section 2.2.1.

17 Q. *What historical time period did you use in the estimation of BPA's loads and sales  
18 obligation forecast models?*

19 A. The time period for the historical series of data on which BPA's loads and sales  
20 obligation forecasts are based varies by customer. In general, we used the historical data  
21 for FY 2001 through 2011, when possible, in Total Retail Load (TRL) and PSC  
22 obligation forecasts. However, if discrete changes in a customer's historical loads or  
23 sales obligations occurred, changes in the length of the historical data streams may be  
24 incorporated to reflect the current conditions in the customer forecast.

25

1 Q. *Why would the historical time period used in the estimation of BPA's loads and sales*  
2 *obligation forecast models vary?*

3 A. For some customers, the historical data reflect long-term or near-term changes that could  
4 possibly skew load growth trends. For example, BPA customers may have large (relative  
5 to their system) discrete consumer loads that started or ended during the historical period.  
6 The historical data provided to the loads and sales obligation forecast models in such  
7 instances would take into account the most recent stable data.

8 Q. *Are the historical data used in the forecast period adjusted for weather?*

9 A. No, we do not adjust the historical data for weather. We believe that the regression  
10 approach models the impact of weather on the load and provides weather impact  
11 coefficients. The models use temperatures averaged over the years 1970–2004 as the  
12 expected temperature in the future. Temperature is the only weather variable we use in  
13 the modeling process. We believe that the monthly temperature reflects effects of other  
14 variables on a monthly basis to capture the effects of most weather conditions on loads.

15 Q. *For the Initial Proposal the percentage of Slice product purchased by customers cannot*  
16 *exceed 26.8126 percent of the forecast annual RHWM Tier 1 System Capability. Will*  
17 *that percentage change for the Final Proposal?*

18 A. No, the Slice percentage will not change for the Final Proposal. However, customers'  
19 Block amounts could potentially change for the Final Proposal due to changes to Slice  
20 amounts based on the updated hydro regulation study that will be used in the Final  
21 Proposal. The total amount of power Slice customers will receive is limited to the  
22 customers' Contract High Water Marks. Study section 3.4.

1 Q. *Has the Tier 1 System output been updated for the Study and, if so, how is it different*  
2 *from the RHWM Tier 1 System Capability calculated in the RHWM Process?*

3 A. Yes. The the RHWM Tier 1 System Capability is calculated in the RHWM Process for  
4 the FY 2014–2015 rate period in advance of the BP-14 Initial Proposal and does not  
5 change in the rate case. The forecast of the Tier 1 System output is updated for this  
6 Study as allowed by section 3.1 of the Tiered Rate Methodology. The updates include  
7 revised hydro regulation studies, purchase contracts, and resource generation forecasts  
8 that are used in the Study. Study section 3.4. The Initial Proposal Tier 1 System output  
9 is about 7,058 aMW when averaged over the two-year rate period. The total RHWM  
10 Tier 1 System Capability used to calculate Slice Right to Power is the Tier 1 System  
11 output (7,058 aMW) plus the 2-Year of the RHWM Augmentation (57aMW) totaling  
12 7,115 aMW. The RHWM Tier 1 System Capability in the RHWM Process was  
13 calculated to be 7,016 aMW.

14 Q. *What impacts did updating the Tier 1 System output have on the Initial Proposal?*

15 A. Since the Slice obligation has two parts, the Slice Right to Power and Slice Block,  
16 changes to the Tier 1 System Capability will revise the proportion of a customer's Slice  
17 Right to Power and Slice Block. In order to maintain the same contractual obligations to  
18 Slice customers as established in the RHWM Process, any increase in the Slice Right to  
19 Power will result in an equal decrease in the Slice Block. Conversely, any decrease in the  
20 Slice Right to Power will result in an increase in the Slice Block. Updates in the  
21 components of the Tier 1 System Capability and impacts to the Slice obligation  
22 components will be reflected in the BP-14 Final Proposal. Section 3.4.

1 Q. Will there be changes in the load forecasts and contract sales forecasts for the BP-14  
2 Final Proposal?

3 A. Yes. The load obligation forecasts will be updated for customers in the Spring of 2012  
4 for the BP-14 Final Proposal. In addition, any revisions to Federal contract sales will be  
5 included in the BP-14 Final Proposal.  
6

7 **Section 3: Resource Forecasts**

8 Q. Are the recent improvements to the Columbia Generating Station reflected in terms of  
9 increased generation or capacity in the BP-14 Initial Proposal Loads and Resources  
10 Study?

11 A. No. At this time we do not see strong enough performance from the Columbia  
12 Generating Station to justify increasing the generation or capacity estimates. We will  
13 continue to monitor performance and may update generation estimates in the Final  
14 Proposal if justified by the Columbia Generating Station's actual performance.

15 Q. Will there be other changes in the resource and contract purchase forecasts for the  
16 BP-14 Final Proposal?

17 A. Yes. The load obligation forecasts will be reviewed and updated as necessary for the  
18 BP-14 Final Proposal.  
19

20 **Section 4: Hydro Regulation Studies**

21 Q. Are anticipated future efficiency improvements at the hydro projects reflected in the  
22 hydro regulation studies?

23 A. No. The HYDSIM generation forecast for this analysis incorporates updated generation  
24 data for the regulated Federal hydro projects from the 2012 PNCA data submittal. BPA,

1 U.S. Army Corps of Engineers (USACE), and U.S. Bureau of Reclamation (Reclamation)  
2 analyzed actual operations and generation data, which led to USACE and Reclamation  
3 updating the data for most Federal projects to reflect current generating capabilities of the  
4 projects in the 2012 PNCA data submittals. We will continue to monitor the projects'  
5 actual generation compared to HYDSIM generation estimates and will work with the  
6 project owners again to update project data when warranted through the PNCA process.  
7 Study section 3.1.2.1.4.

8 *Q. How did you use AURORA<sub>xmp</sub> to estimate lack-of-market spill?*

9 *A.* We used the same process that was used in the BP-12 rate case. We first ran the  
10 HYDSIM studies with no secondary market limit. This allowed the HYDSIM model to  
11 estimate the full amount of regional energy available for generation in all periods of each  
12 80-year study. This regional energy generation was input to the AURORA model, and  
13 the AURORA model estimated the amount of regional hydro generation that could not be  
14 sold. The generation that could not be sold was then input in the final HYDSIM studies  
15 for the BP-14 Initial Proposal. Monthly spill was calculated for the FY 2014–2019  
16 period for each of the 80 water years.

17 HYDSIM first attempts to store water to avoid lack-of-market spill, and then if  
18 reservoirs are unable to store, HYDSIM uses a spill priority list to distribute the regional  
19 lack-of-market spill at the various hydro projects. In these HYDSIM studies most of this  
20 regional hydro generation that could not be sold, which came from the AURORA  
21 analysis, resulted in lack-of-market spill at the Federal projects. This spill is in addition  
22 to the spill for fish passage and forced spill already in the HYDSIM study. Study  
23 section 3.1.2.1.1.

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*Q. Will there be changes in the hydro regulation studies for the BP-14 Final Proposal?*

A. Yes. For the Final Proposal we will incorporate updated estimates of residual hydro load and any other updated estimates available at that time, such as estimates of reserve requirements.

**Section 5: Load-Resource Balance**

*Q. What process is used to produce the load-resource balance for this Study?*

A. We compile supporting data from forecasts, contracts, and computer models to estimate the Federal system loads and resources and then compare them. The load-resource balance compares the monthly energy amounts of BPA’s resources, which include hydro, non-hydro, and contract purchases, to BPA’s load obligations, comprised of BPA’s PSC obligations and other contract obligations. This comparison determines BPA’s monthly and annual energy load-resource balance, which can be negative or positive. If BPA’s expected firm energy resources under critical water conditions are sufficient to serve BPA’s expected load obligations, then BPA is considered to be in load-resource balance. If BPA’s resources are less than its load obligations, BPA will purchase power or otherwise secure (through system augmentation) resources to meet Federal system annual energy deficits. Study section 4.

*Q. Please describe how you treat FY 2014 and FY 2015 system augmentation purchase contracts in the Study.*

A. We project that for FY 2014 and FY 2015 system augmentation purchases will be needed to maintain an annual Federal system firm energy load-resource balance under 1937 critical water conditions. This analysis includes both signed and projected system

1 augmentation purchases to meet annual firm Federal system energy needs. These system  
2 augmentation purchase estimates are assumed to be firm Federal system resources,  
3 purchased annually as flat energy. For FY 2014, the annual system augmentation  
4 purchase is estimated to be 118 aMW, and for FY 2015, 466 aMW. Study section 4.2.

5 Specific system augmentation purchase estimates are detailed in Documentation  
6 Tables 4.1.1, 4.2.1, and 4.3.1, Line 28.

7 *Q. Does this conclude your testimony?*

8 *A. Yes.*

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