INDEX

TESTIMONY of

TIMOTHY C. MISLEY, STEVEN R. BELLCOFF, GLEN S. BOOTH,

REED C. DAVIS, HOLLY C. HARWOOD, TYLER J. LLEWELLYN,

EMILY G. TRAETOW, and DANIEL R. YOKOTA

Witnesses for Bonneville Power Administration

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SUBJECT: LOADS AND RESOURCES

Section 1: Introduction and Purpose of Testimony

Q. Please state your names and qualifications.

A. My name is Timothy C. Misley, and my qualifications are contained in BP-16-Q-BPA-32.

A. My name is Steven R. Bellcoff, and my qualifications are contained in BP-16-Q-BPA-03.

A. My name is Glen S. Booth, and my qualifications are contained in BP-16-Q-BPA-07.

A. My name is Reed C. Davis, and my qualifications are contained in BP-16-Q-BPA-11.

A. My name is Holly C. Harwood, and my qualifications are contained in BP-16-Q-BPA-16.

A. My name is Tyler J. Llewellyn, and my qualifications are contained in BP-16-Q-BPA-25.

A. My name is Emily G. Traetow, and my qualifications are contained in BP-16-Q-BPA-40.

A. My name is Daniel R. Yokota, and my qualifications are in BP-16-Q-BPA-43.

Q. Please state the purpose of your testimony.

A. The purpose of this testimony is to sponsor the Power Loads and Resources Study (Study), BP-16-E-BPA-03, and the Power Loads and Resources Study Documentation (Documentation), BP-16-E-BPA-03A.

Section 2: Load Obligation Forecasts

Q. Is the load forecasting process different from what was used in the BP-14 rate case?

A. No.

Q. Are BPA's customers involved in the load forecasting process?

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

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

A. Load Following customer power sales contract (PSC) obligations are projected to grow at an average annual rate of approximately 0.32 percent from FY 2016 to FY 2017. Slice/Block customer PSC obligations are projected to decrease by an average annual rate of about 1.86 percent from FY 2016 to FY 2017. Overall, PSC obligations for Load Following and Slice/Block customers are projected to grow at an average annual rate of about 0.87 percent from FY 2016 to FY 2017.

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

A. The time period for the historical series of data on which BPA's loads and sales obligation forecasts are based varies by customer. In general, we used the historical data for FY 2001 through 2013, when possible, in Total Retail Load (TRL) and PSC obligation forecasts. However, if discrete changes in a customer's historical loads or

sales obligations occurred, changes in the length of the historical data streams were incorporated to reflect the current conditions in the customer forecast.

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

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

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

A. No. We believe that the regression approach models the impact of weather on the load and provides weather impact coefficients. The models use temperatures that have been averaged over the years 1970–2004 as the expected temperature in the future. Temperature is the only weather variable we use in the modeling process. We believe that the monthly temperature reflects the effects of other variables on a monthly basis to capture the effects of most weather conditions on loads.

Q. *Will the sum of the customers' Slice percentages used in this Study change for the Final Proposal?*

A. We do not anticipate any changes to the Slice percentages in the Final Proposal. The sum of all Slice percentages used in this Study was 26.61866 percent, and in the Final Proposal the sum of all Slice percentages will not exceed that amount. *See* Study § 3.4. However, the sum of all Slice percentages may be less than 26.61866 percent if a customer's net requirement forecast is less than its forecast Critical Slice Amount as defined in the CHWM Contract. In such case the customer's Slice percentage would be

scaled down until its forecast Critical Slice Amount is equal to the customer's annual net requirement forecast.

Q. Are customer-reported conservation amounts included in the Study?

A. Yes. Each customer's load obligation forecast accounts for the reported amount of conservation that the customer plans to achieve during the FY 2016–2017 rate period. *See* Study § 2.2.4.

Q. Does the Study forecast any BPA-funded conservation beyond what customers have reported they plan to achieve?

A. No. The load obligation forecast does not include additional BPA-funded conservation beyond what the customers have reported they plan to achieve. Due to the structure of Tiered Rates it is important to attribute conservation achieved to individual customers. As individual customers achieve conservation measures in addition to what they already committed to, the customers will receive credits on their power bills reflecting lower loads due to those conservation measures. *See* Study § 2.2.4.

Q. Will customers' load forecasts and Federal contract sales forecasts be updated for the BP-16 Final Proposal?

A. Yes. The load obligation forecasts will be updated for customers in the Spring of 2015 for the BP-16 Final Proposal. In addition, any revisions to forecast Federal contract sales will be included in the BP-16 Final Proposal.

Section 3: Resource Forecasts

Q. Does the Columbia Generating Station generation forecast reflect improvements in terms of increased generation or capacity since the BP-14 Final Study?

A. Yes. Since the BP-14 Final Proposal, the generation forecast for Columbia Generating Station has been updated to incorporate facility improvements. This increased the

project's annual generation by 55 aMW to 1,075 aMW in non-maintenance years, and by 38 aMW to 916 aMW in years that include maintenance. *See* Documentation Tables 2.4.1, 2.4.2, and 2.4.3, line 1. We will continue to monitor performance and may update generation estimates in the Final Proposal if justified by the Columbia Generating Station's actual performance.

Q. Are there any resources from which BPA acquired generating output whose purchase contracts expired after the BP-14 Final Study?

A. Yes. BPA's contract for the acquisition of the generation from the Foote Creek 2 wind project expired June 18, 2014, and was not renewed. BPA's contract for the acquisition of power output from the Wauna Cogeneration project will expire March 31, 2016.

Q. Was the Tier 1 System Capability updated in the BP-16 Rate Period High Water Mark (RHWM) Process and, if so, how is it different from the Tier 1 System Capability calculated for the BP-14 RHWM Process?

A. Yes, the Tier 1 System Capability has been updated. The Tier 1 System Capability calculated in the BP-16 RHWM Process was completed October 28, 2014, for the FY 2016–2017 rate period, in advance of the BP-16 Initial Proposal, and it will not change in the BP-16 rate case. The forecast of the Tier 1 System Capability is updated for the Study as allowed by section 3.1 of the Tiered Rate Methodology (TRM), BP-12-A-03. The updates include revised hydro regulation studies, purchase contracts, and resource generation forecasts that are used in the Study. *See* Study § 3.4. The Initial Proposal Tier 1 System output is 6,924 aMW when averaged over the two-year rate period, FY 2016–2017. *See* Documentation Table 2.12.1, line 6. The total RHWM Tier 1 System Capability used to calculate Slice Output from the Tier 1 System is the Tier 1 System output (6,924 aMW) plus the annual average RHWM Augmentation

(59 aMW), totaling 6,983 aMW. *See* Power Rates Study, BP-16-E-BPA-01, Table 1. The RHWM Tier 1 System Capability in the BP-14 RHWM Process was 7,016 aMW.

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

A. Yes. The resource and contract purchase forecasts will be reviewed and updated as necessary for the BP-16 Final Proposal.

Section 4: Hydro Regulation Studies

Q. Are the spill assumptions for fish passage different from what was used in the BP-14 Final Study?

A. Yes. Several spill assumptions have changed since the BP-14 Final Study. The revised assumptions reflect our expectations regarding how the 2014 National Oceanic and Atmospheric Administration (NOAA) Fisheries Supplemental Biological Opinion will be adaptively implemented during the rate period given the most recent information available. The assumptions regarding the application of a spring maximum transport operation and the resultant no-spill operation at Lower Granite, Little Goose, and Lower Monumental dams were reflected in the hydro regulation (HYDSIM) studies. The starting and ending dates assumed for spring and summer spill at Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams were also updated for the BP-16 HYDSIM studies. Finally, the BP-16 HYDSIM studies also include different assumed spill operations for Ice Harbor and John Day. *See* Study § 3.1.2.1.1.

Q. Did updating the spill assumptions have any effect on the hydro regulation studies?

A. Yes. The updated spill assumptions generally resulted in more spill at Federal hydro projects, which reduced Federal system hydro generation.

Q. Will there be changes in the hydro regulation studies for the BP-16 Final Proposal?

A. Yes. For the BP-16 Final Proposal, we will incorporate updated estimates of residual hydro load and other power and non-power requirements available at that time.

Section 5: Transfer Service Loss Factor

Q. What is the Transfer Service Loss Factor?

A. The Transfer Service Loss Factor is one of the four components of the loss factor that is calculated in the Loads and Resources Study as a deduction from generation (for energy and peak load conditions). The other three components are (1) losses on step-up transformers between Federal generation and the transmission network, (2) high-voltage network losses, and (3) step-down transformer losses from high-voltage transmission to low-voltage delivery.

Q. When was the Transfer Service Loss Factor last updated?

A. The Transfer Service Loss Factor was last updated in 1994.

Q. Why do you propose to update this component of the overall loss factor for BP-16?

A. The existing Transfer Service Loss Factor is outdated and does not accurately reflect the amount of losses incurred due to transfer service. The updated Transfer Service Loss Factor is based on actual meter data and more accurately reflects the amount of energy used by the Federal Columbia River Power System (FCRPS) to return losses incurred over third-party transmission systems for transfer service.

Q. By what amount did the Transfer Service Loss Factor change from BP-14 to the BP-16 Initial Proposal?

A. The Transfer Service Loss Factor increased from 0.34 percent to 0.49 percent for energy, HLH and LLH, and from 0.40 percent to 0.43 percent for peak deliveries, when averaged over the year. *See* Study § 3.1.5.

Q. Please explain briefly how you calculated the Transfer Service Loss Factor for BP-16.

A. The method we used to calculate the Transfer Service Loss Factor is explained in detail in the Study, section 3.1.5.2. In summary, we first calculated the percentage weights of transfer energy and peak load by transmission provider for FY 2013. Then we calculated the weighted average loss factor (energy and peak load) by transmission provider, whose sum is the weighted average transmission provider loss factor (energy and peak load). Finally, we scaled the weighted average transmission provider loss factor against the entire Federal system obligations to calculate the Transfer Service Loss Factor (energy and peak load).

Q. What meter data was used to calculate the Transfer Service Loss Factor?

A. BPA calculated the Transfer Service Loss Factor using hourly metered data from FY 2013 for the eight transmission providers to whom we physically return losses.

Q. Why did you use FY 2013 data for this calculation?

A. FY 2013 was the most recent year for which BPA had complete hourly data for transfer service amounts from third-party transmission providers.

Q. Do you plan to update or refine your studies for the Final Proposal?

A. Arrangements for transfer service change from time to time. If changes occur between the time of this Study and the time of the development of the final studies, we will reflect those changes in the Final Proposal.

Section 6: Load-Resource Balance

Q. What process is used to produce the load-resource balance for the 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. *See* Study § 4.1.

Q. Please describe how you treat FY 2016 and FY 2017 system augmentation purchase contracts in the Study.

A. We project that for FY 2016 and FY 2017 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 augmentation purchases to meet annual firm Federal system energy needs. These system augmentation purchase estimates are assumed to be firm Federal system resources, purchased annually as flat energy. For FY 2016, the annual system augmentation purchase is estimated to be 198 aMW, and for FY 2017, 318 aMW. *See* Study § 4.2. Specific system augmentation purchase estimates are detailed in Documentation Tables 4.1.1, 4.2.1, and 4.3.1, line 29.

Q. Does this conclude your testimony?

A. Yes.

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