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TESTIMONY of

DANNY L. CHEN, REBECCA E. FREDRICKSON, REED C. DAVIS,  
MICHAEL R. LINN, RONALD E. MESSINGER, AND LAUREN E. TENNEY

Witnesses for Bonneville Power Administration

**SUBJECT: TRANSMISSION SALES AND REVENUE FORECAST**

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6 **SUBJECT: TRANSMISSION SALES AND REVENUE FORECAST**

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

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

9 A. My name is Danny L. Chen, and my qualifications are contained in BP-14-Q-BPA-10.

10 A. My name is Rebecca E. Fredrickson, and my qualifications are contained in BP-14-Q-  
11 BPA-21.

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

13 A. My name is Michael R. Linn, and my qualifications are contained in BP-14-Q-BPA-41.

14 A. My name is Ronald E. Messinger, and my qualifications are contained in BP-14-Q-  
15 BPA-46.

16 A. My name is Lauren E. Tenney, and my qualifications are contained in BP-14-Q-BPA-60.

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

18 A. The purpose of our testimony is to sponsor the sales and revenue forecast portion  
19 (section 2) of the Transmission Rates Study, BP-14-E-BPA-07, and Documentation,  
20 BP-14-E-BPA-07A.

21  
22 **Section 2: Sales Forecasting**

23 *Q. What is the purpose of the sales forecasts?*

24 A. The sales forecasts are used for two purposes. First, the sales forecast that is developed  
25 for each product that BPA offers is used in the development of the proposed rates for

1 those products, as described in the Transmission Rates Study. Second, the sales forecasts  
2 are used to develop forecasts of revenue at current and proposed rates. The revenue  
3 forecasts are used in the Transmission Revenue Requirement Study to test the adequacy  
4 of rates to meet cost recovery requirements. Transmission Revenue Requirement Study,  
5 BP-14-E-BPA-08, section 3. The development of the sales and revenue forecasts is  
6 described in section 2 of the Transmission Rates Study.

7 *Q. Have the sales forecast methodologies changed since the last rate proceeding?*

8 A. The methodology for forecasting Network Integration (NT) transmission service and  
9 Utility Delivery service sales has changed since the last rate proceeding. In addition, the  
10 methodologies for forecasting short-term Point-to-Point (PTP) transmission service sales  
11 on the Network and short-term Southern Intertie (IS) transmission service sales have  
12 changed slightly since the last rate proceeding. The methodologies for forecasting sales  
13 of other transmission services have not changed.

14 *Q. How has the methodology for forecasting NT and Utility Delivery sales changed?*

15 A. Because NT and Utility Delivery sales are based on load, BPA uses a point of delivery  
16 (POD) load forecast for NT and Utility Delivery sales. The POD load forecast is a  
17 forecast of the customer's load during the month. Currently, the billing factor for NT and  
18 Utility Delivery sales is the customer's load on the hour of BPA's monthly transmission  
19 system peak. Therefore, for the revenue forecast at current rates, we base the sales  
20 forecast on a forecast of the customer's load on the hour of BPA's monthly transmission  
21 system peak. The NT sales forecast using this billing factor is shown by customer and  
22 month in Table 14 in the Transmission Rates Study Documentation, BP-14-E-BPA-07A.  
23 Table 4 in the Documentation (lines labeled "NT Coincident with Transmission Peak  
24 (CP)") shows the aggregated data. The Utility Delivery annual average sales forecast

1 using this billing factor is shown by customer and point of delivery in Table 16,  
2 columns G and H.

3 In this rate case, we are proposing to change the billing factor for NT and Utility  
4 Delivery service, and we have likewise changed our methodology for developing the NT  
5 and Utility Delivery sales forecast. We are proposing forecast NT and Utility Delivery  
6 sales by forecasting the customer's highest hourly load during the month. The NT sales  
7 forecast using this methodology is shown by customer and month in Table 15 in the  
8 Transmission Rates Study Documentation, BP-14-E-BPA-07A. Table 4 (lines labeled  
9 "NT Coincident with Customer Peak (NCP)") includes aggregated data. The Utility  
10 Delivery annual average sales forecast using this billing factor is in Table 16 (columns I  
11 and J) and a summary in Table 9 (rows 2 through 5). Fredrickson *et al.*, BP-14-E-  
12 BPA-33, and Bogdon *et al.*, BP-14-E-BPA-30, discuss the reasons for the changes in  
13 these services.

14 *Q. How has the methodology for forecasting short-term PTP sales on the Network changed?*

15 *A.* We made three changes to our methodology for forecasting short-term PTP sales on the  
16 Network. (As discussed below, the changes also apply to the short-term IS sales  
17 forecast.) The forecast of PTP sales to customers other than BPA's Power Services was  
18 previously developed by using a regression analysis to identify the relationship (which  
19 we refer to as a correlation) between historical short-term PTP sales and two market  
20 indicators—historical streamflow at The Dalles and historical spread between power  
21 prices at the North-of-Path-15 (NP-15) and Mid-Columbia market trading hubs (in  
22 Northern California and the Pacific Northwest, respectively). Our current forecast also  
23 considers the month in which the sale occurs. We added this factor because we have  
24 observed that sales in certain months are higher than sales in other months even if  
25 streamflow and price spread are held constant. We refer to this as "seasonality."

1 Short-term PTP sales to customers other than BPA’s Power Services are generally higher  
2 in the spring months (March through June) and lower in other months. Taking the  
3 calendar month of the PTP sale into consideration helps account for these seasonal  
4 patterns.

5 We did not make this change in the forecasting of short-term PTP sales to Power  
6 Services because streamflow continues to be the only factor that tends to influence short-  
7 term PTP sales to Power Services.

8 *Q. What is the second change in the methodology for forecasting short-term PTP sales on*  
9 *the Network?*

10 A. We updated the data sets to include more recent data. When we developed the forecast  
11 for the FY 2012–2013 rate period, we used historical sales, streamflow, and price spread  
12 data from October 2004 through September 2009 to develop the correlations. To develop  
13 the forecast for the FY 2014–2015 rate period, we used data from October 2007 through  
14 May 2012, which is the most recent data that was available. We also updated the data  
15 used as inputs for future market conditions. For streamflow, previously we used a  
16 55-year (1949 through 2003) average streamflow. To develop the forecast for the  
17 FY 2014–2015 rate period, we used average streamflow from 1960 through 2010. This is  
18 a large enough data set to account for short-term variations in the data. For future price  
19 spread, we used forward prices for the FY 2014–2015 period at the NP-15 and Mid-  
20 Columbia market hubs.

21 *Q. What is the third change in the methodology for forecasting short-term PTP sales on the*  
22 *Network?*

23 A. In the previous rate case, the model produced forecasts of total short-term PTP sales to  
24 Power Services for each month of each year of the rate period and total short-term PTP  
25 sales to customers other than Power Services for each month of each year. For this rate

1 case, we have refined the model to separately produce forecasts of total hourly PTP sales  
2 to customers other than Power Services for each month of the year, and total short-term  
3 PTP sales (other than hourly) to customers other than Power Services for each month of  
4 the year. Producing the forecasts in this manner results in more accurate forecasts—in  
5 the analysis of the historical data, we observed that for sales to customers other than  
6 Power Services, hourly sales responded differently to the historical market indicators than  
7 sales of other short-term products (daily, weekly, and monthly service).

8 We did not observe the same trend for short-term sales to Power Services. As a  
9 result, we have continued our previous method of forecasting total sales to Power  
10 Services per month for each year of the rate period (we did not separately forecast hourly  
11 sales and sales of the other short-term products).

12 *Q. How has the methodology for forecasting short-term IS sales changed?*

13 *A.* In the model for forecasting short-term IS sales, we adopted the same changes as  
14 described above for short-term PTP sales. As in the previous rate case, the model for  
15 forecasting short-term IS sales is essentially the same as the model for forecasting short-  
16 term PTP sales, with a few differences. First, the regression analysis performed for  
17 short-term IS sales analyzes the relationship between historical short-term IS sales (rather  
18 than short-term PTP sales) and streamflow, price spreads, and, now, seasonality.

19 Second, short-term IS sales to Power Services are modeled in the same manner as  
20 short-term IS sales to all other customers—that is, the short-term IS sales to all customers  
21 (including Power Services) are forecast using streamflow, price spread, and seasonality  
22 (instead of only streamflow as in the short-term PTP model). Similarly, the model now  
23 produces separate forecasts of total hourly IS sales to all customers for each month of the  
24 year, and total short-term IS sales (other than hourly) to all customers for each month of  
25 the year. The model forecasts sales to all customers in the same manner because we have

1 observed statistically significant relationships between short-term IS sales and  
2 streamflow, price spread, and seasonality for all customers, including Power Services.

3 The third and final difference between the short-term PTP model and the short-  
4 term IS model is in the months in which seasonality has the greatest impact. In the short-  
5 term PTP model, we observed that sales were highest, regardless of streamflow or price  
6 spread, in March through June. In the short-term IS model, on the other hand, we  
7 observed that short-term IS sales were highest in March through August. The model thus  
8 places greater weight for seasonality in the forecasts for those months.

9 *Q. Are there any other changes to the methodologies for forecasting sales?*

10 *A. No.*

11  
12 **Section 3: Revenue Forecasting**

13 *Q. What is the purpose of the revenue forecasts?*

14 *A. BPA develops two revenue forecasts—one forecasting revenue at current rates and one  
15 forecasting revenue at proposed rates. The primary purpose of the revenue forecasts is to  
16 test whether revenue at current rates is sufficient to meet all of BPA’s transmission-  
17 related revenue requirements, and whether revenue at proposed rates is sufficient to meet  
18 all BPA’s transmission-related revenue requirements.*

19 *Q. Are you proposing any changes from the last rate proceeding to the methodology for  
20 forecasting revenue?*

21 *A. No.*

22 *Q. Does this conclude your testimony?*

23 *A. Yes.*