

INDEX

TESTIMONY OF

STEVEN R. BELLCOFF, GLEN S. BOOTH,

REED C. DAVIS, TYLER J. LLEWELLYN,

AND JASON C. SWEET

Witnesses for Bonneville Power Administration

SUBJECT: LOADS AND RESOURCES	Page
Section 1: Introduction and Purpose of Testimony	1
Section 2: Load Obligation Forecasts.....	1
Section 3: Resource Forecasts	9
Section 4: Hydro Regulation Studies.....	11
Section 5: Load-Resource Balance	13

This page intentionally left blank.

1 TESTIMONY OF

2 STEVEN R. BELLCOFF, GLEN S. BOOTH,

3 REED C. DAVIS, TYLER J. LLEWELLYN,

4 AND JASON C. SWEET

5 Witnesses for Bonneville Power Administration

6
7 **SUBJECT: LOADS AND RESOURCES**

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

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

10 A. My name is Steven R. Bellcoff, and my qualifications are contained in BP-18-Q-BPA-02.

11 A. My name is Glen S. Booth, and my qualifications are contained in BP-18-Q-BPA-03.

12 A. My name is Reed C. Davis, and my qualifications are contained in BP-18-Q-BPA-06.

13 A. My name is Tyler J. Llewellyn, and my qualifications are contained in BP-18-Q-BPA-24.

14 A. My name is Jason C. Sweet, and my qualifications are contained in BP-18-Q-BPA-37.

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

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

19
20 **Section 2: Load Obligation Forecasts**

21 *Q. Is the BP-18 load forecasting process different from what was used in the BP-16 rate*
22 *case?*

23 A. No, BPA continues to use the same load forecasting process.
24
25

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

2 A. Yes. A BPA analyst contacts or meets with each customer to learn about potential new
3 load additions 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.

9 *See Study § 2.2.1.*

10 Q. *What historical time period was used in the load obligation forecast models?*

11 A. The time period for the historical series of data on which BPA's load obligation forecasts
12 are based varies by customer. In general, the historical data for FY 2003 through 2015,
13 when possible, are used for Total Retail Load and PSC obligation forecasts. However, if
14 distinct changes in a customer's historical load obligations occurred, changes in the
15 length of the historical data sets were incorporated to reflect the current conditions in the
16 customer forecast.

17 Q. *Why would the historical time period used in the load obligation forecast models vary*
18 *between customers?*

19 A. For some customers, the historical data reflect long-term or near-term changes that could
20 possibly skew load growth trends. For example, BPA customers may have consumer
21 loads that are large relative to their system that started or ended during the historical data
22 period. In such instances, the historical data provided to the load obligation forecast
23 models would take into account only the most recent stable data, reflecting the current
24 situation.

25

1 Q. *Do you adjust the historical data the load forecast is based on for weather?*

2 A. No. We believe that the regression approach models the impact of weather on load and
3 provides weather impact coefficients. The models use monthly temperatures that have
4 been averaged over the years 1970–2004 to estimate the expected temperature for this
5 Study. Temperature is the only weather variable we use in the modeling process. On a
6 monthly basis, we believe that the monthly averaged temperature reflects the effects of
7 other variables and captures the effects of most weather conditions on loads.

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

9 A. Yes. Each customer’s load obligation forecast accounts for the reported amount of
10 conservation that the customer plans to achieve during the FY 2018–2019 rate period.
11 *See Study § 2.2.4.*

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

14 A. No. The load obligation forecast does not include additional BPA-funded conservation
15 beyond what the customers have reported they plan to achieve. If individual customers
16 implement greater conservation measures than what they committed to, those customers
17 will see lower power bills reflecting reduced power purchases from BPA due to those
18 additional conservation measures. *See Study § 2.2.4.*

19 Q. *Please summarize the year-to-year (FY 2018 to FY 2019) load growth estimates for this
20 Study.*

21 A. For FY 2018 to FY 2019, BPA’s total firm load obligations are projected to grow at an
22 average annual rate of approximately 0.4 percent (28 aMW). The year-to-year load
23 growth estimates from FY 2018 to FY 2019 for each customer class and contract type are
24 as follows:
25

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

2 A. Yes. A BPA analyst contacts or meets with each customer to learn about potential new
3 load additions 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.

9 *See Study § 2.2.1.*

10 Q. *What historical time period was used in the load obligation forecast models?*

11 A. The time period for the historical series of data on which BPA's load obligation forecasts
12 are based varies by customer. In general, the historical data for FY 2003 through 2015,
13 when possible, are used for Total Retail Load and PSC obligation forecasts. However, if
14 distinct changes in a customer's historical load obligations occurred, changes in the
15 length of the historical data sets were incorporated to reflect the current conditions in the
16 customer forecast.

17 Q. *Why would the historical time period used in the load obligation forecast models vary*
18 *between customers?*

19 A. For some customers, the historical data reflect long-term or near-term changes that could
20 possibly skew load growth trends. For example, BPA customers may have consumer
21 loads that are large relative to their system that started or ended during the historical data
22 period. In such instances, the historical data provided to the load obligation forecast
23 models would take into account only the most recent stable data, reflecting the current
24 situation.

25

1 Q. *Do you adjust the historical data the load forecast is based on for weather?*

2 A. No. We believe that the regression approach models the impact of weather on load and
3 provides weather impact coefficients. The models use monthly temperatures that have
4 been averaged over the years 1970–2004 to estimate the expected temperature for this
5 Study. Temperature is the only weather variable we use in the modeling process. On a
6 monthly basis, we believe that the monthly averaged temperature reflects the effects of
7 other variables and captures the effects of most weather conditions on loads.

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

9 A. Yes. Each customer’s load obligation forecast accounts for the reported amount of
10 conservation that the customer plans to achieve during the FY 2018–2019 rate period.
11 *See Study § 2.2.4.*

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

14 A. No. The load obligation forecast does not include additional BPA-funded conservation
15 beyond what the customers have reported they plan to achieve. If individual customers
16 implement greater conservation measures than what they committed to, those customers
17 will see lower power bills reflecting reduced power purchases from BPA due to those
18 additional conservation measures. *See Study § 2.2.4.*

19 Q. *Please summarize the year-to-year (FY 2018 to FY 2019) load growth estimates for this
20 Study.*

21 A. For FY 2018 to FY 2019, BPA’s total firm load obligations are projected to grow at an
22 average annual rate of approximately 0.4 percent (28 aMW). The year-to-year load
23 growth estimates from FY 2018 to FY 2019 for each customer class and contract type are
24 as follows:
25

- 1 • BPA’s total Load Following obligation forecasts, which include Preference
2 Customers, Federal Agencies, and USBR, are projected to grow at an annual rate of
3 0.5 percent (16 aMW) from FY 2018 to FY 2019. Specifically, the loads of BPA’s
4 Preference Customers with Load Following obligation forecasts under their CHWM
5 Contracts are projected to grow at an average annual rate of 0.1 percent (2 aMW)
6 from FY 2018 to FY 2019. *See* Study Table 3 and Documentation tables 9.1.1, 9.1.2,
7 and 9.1.3.
- 8 • BPA’s Slice load obligation forecasts, which are made up of customers with CHWM
9 Contracts for Slice Block and Slice Output from the Tier 1 System, are projected to
10 grow at an average annual rate of 0.3 percent (11 aMW) from FY 2018 to FY 2019.
11 *See* Study Table 3 and Documentation tables 9.1.1, 9.1.2, and 9.1.3.
- 12 • BPA’s Direct Service Industries load obligation forecasts are projected to grow at an
13 average annual rate of 44 percent (27 aMW) from FY 2018 to FY 2019, mainly due
14 to lower delivery obligations to Alcoa under a curtailment agreement that expires
15 February 14, 2018. *See* Study § 2.4 and Table 3, and Documentation tables 9.1.1,
16 9.1.2, and 9.1.3.
- 17 • BPA’s load obligation forecasts for Exports deliveries are projected to decline by
18 5.2 percent (26 aMW) from FY 2018 to FY 2019, as long-term contracts expire.
19 BPA’s load obligation forecasts for Intra-Regional Transfers (Out) deliveries remain
20 unchanged from FY 2018 to FY 2019. *See* Study Table 3 and Documentation
21 tables 9.1.1, 9.1.2, and 9.1.3.

22 *Q. Does BPA have any long-term sales contracts that have ended or expired since the BP-16*
23 *Final Proposal?*

24 *A. Yes. Several BPA contracts have expired since the BP-16 Final Proposal and are not*
25 *included in this Study. These contracts include:*

- 1 • BPA to Big Horn Electric Cooperative (Legacy) contract, which expires June 30,
2 2017, decreasing average annual load obligations by 6 aMW from the BP-16 Final
3 Proposal.
- 4 • BPA to Avista Corp (WNP-3 Settlement) contract, which expires June 30, 2017,
5 decreasing average annual load obligations by 45 aMW from the BP-16 Final
6 Proposal.
- 7 • BPA's contract with the City of Riverside (Capacity/Energy Exchange and Seasonal
8 Energy Exchange), which expired April 30, 2016. Unlike the two contracts listed
9 above, this contract had deliveries from BPA to the customer and returns to BPA
10 from the customer. The net contract deliveries and returns result in increased average
11 annual BPA resources of 6 aMW from the BP-16 Final Proposal.

12 The expiration of these contracts results in a load obligation reduction of 45 aMW
13 when averaged annually over the two-year rate period when compared to the BP-16 Final
14 Proposal.

15 *Q. How do BPA's load obligation forecasts in this Study compare to those forecast for*
16 *FY 2016–2017?*

17 *A.* BPA's two-year average load obligation forecast for FY 2018–2019 is 2.4 percent
18 (189 aMW) lower than the two-year average forecast published for FY 2016–2017 in the
19 BP-16 Final Proposal. BPA's total two-year average load obligation forecasts for
20 customer classes in this Study compared to the BP-16 Final Proposal are as follows:

- 21 • Total load following obligation forecasts are 2.3 percent (77 aMW) lower.
- 22 • Tier 1 Block obligation forecasts are reduced to zero from 16 aMW.
- 23 • Slice obligation forecasts are 0.3 percent (12 aMW) lower.
- 24 • DSI obligation forecasts are 18.6 percent (17 aMW) lower.
- 25 • Export deliveries are 4.7 percent (24 aMW) lower.

1 • Intra-Regional Transfers (Out) are 41.2 percent (43 aMW) lower in this Study.

2 *Q What are the primary drivers behind the decrease in forecast two-year average annual*
3 *load obligation between this Study and the BP-16 Final Proposal?*

4 A. The decrease in two-year load obligations presented in this Study is a result of annual
5 load, resource, and contract updates used in developing BPA's load-resource analysis.
6 The two major drivers that constitute the bulk of the differences between this Study and
7 the BP-16 Final Proposal are described below.

8 First, under Intra-Regional Transfers, the expiration of the BPA to Avista Corp
9 (WNP-3 Settlement) contract, which expires June 30, 2017, decreases the two-year
10 average annual loads by 45 aMW over the rate period.

11 Second, BPA's two-year average annual load following obligations decrease by
12 77 aMW over the two-year rate period. Specific causes for decreases in the load
13 following forecasts are not easy to define, but directly reflect changes to BPA's Tier 1
14 load obligations.

15 *Q How do customer load changes affect BPA's Tier 1 obligations?*

16 A. The load forecasts incorporate a variety of parameters based on changing actual
17 conditions, including load growth, load reductions, and changing local economics.
18 Across BPA's service territories some customers have experienced load growth while
19 other customers have had load losses, including some from the industrial sector. The
20 impact on BPA's Tier 1 load obligations depends on the customer.

21 BPA's Tier 1 load obligations are reduced when (1) customers whose loads are
22 already below their Rate Period High Water Mark (RHWM) decrease or (2) customers
23 whose loads are greater than their RHWM experience load decreases large enough to
24 reduce their load obligations below their RHWM. BPA's Tier 1 obligations increase
25 when customers whose loads are below their RHWM experience load growth; however,

1 BPA's increase is limited to the load growth up to those customers' RHW. For those
2 customers, load growth larger than their RHW is Above-RHW load and is served as
3 elected by the customer, under terms of the TRM. See Study § 2.2 and TRM § 4.3.

4 Above-RHW load placed on BPA is served through the purchase of power to
5 meet those customer-elected Above-RHW (Tier 2) loads. Power purchased or acquired
6 by BPA to serve Tier 2 load is separate and distinct from BPA's Tier 1 System
7 Capability. Therefore, customers' Above-RHW load service elections are not included
8 in loads and resources studies and do not affect BPA's annual firm energy load-resource
9 balance.

10 In summary, customer load growth impacts BPA's Tier 1 obligations only up to
11 the individual customer's RHW. Customer load losses affect BPA's Tier 1 load
12 obligations as customer loads drop below RHWs.

13 *Q. The Study forecasts a 0.4 percent increase in annual load obligation from FY 2018 to*
14 *FY 2019. The two-year average firm annual energy obligation forecasts for*
15 *FY 2018–2019 are lower than the two-year average forecast published in the BP-16*
16 *Final Proposal for FY 2016–2017. How do the increases in the yearly annual load*
17 *obligations for this Study relate to the decrease between the two studies?*

18 *A.* Despite the trend of minimal but overall positive load growth over the rate period, the
19 decrease from past levels reflects the inherent variability in loads as conditions change
20 over time. As noted previously, the load forecasting methodology continues to use the
21 same process, with updates for current information. These updates include changes that
22 individual customers have experienced over time, customer load losses, customer load
23 increases, and changes in how customers plan to serve their loads. These updates
24 resulted in a 2.4 percent decrease in the two-year average load obligation.

1 Q. *Does the Study incorporate the purchase obligation changes for Klickitat PUD and*
2 *Seattle City Light that will be effective in October 2017?*

3 A. Both Klickitat PUD and Seattle City Light requested to change products early, starting
4 their new services October 1, 2017. Klickitat PUD is changing from purchasing the
5 Slice/Block product to the Load Following product, and Seattle City Light is changing
6 from purchasing the Slice/Block product to the Block-only product. However, these
7 decisions were not final when the analyses that are the basis for this Study were
8 completed. Thus, due to the timing associated with the product switch process and the
9 early switch requests, these power purchase obligation changes under the Regional
10 Dialogue Power Sales Agreements were not incorporated in the BP-18 Initial Proposal
11 Loads and Resources Study. These power purchase obligation changes will be reflected
12 in the BP-18 Final Proposal. *See Fisher & Fredrickson, BP-18-E-BPA-16, § 3.*

13 Q. *Will the Slice percentages used in the BP-18 Initial Proposal Loads and Resources Study*
14 *change for the Final Proposal?*

15 A. Yes. The Slice percentages used in this Study total 26.5953 percent. With Klickitat PUD
16 and Seattle City Light changing product purchases from Slice/Block to Load Following
17 and Block only, respectively, the total Slice percentages will be reduced by the sum of
18 those two customers' individual Slice percentages in the Final Proposal.

19 For the Final Proposal, the remaining individual customer Slice percentages will
20 not exceed those used in this study. However, individual customer Slice percentages may
21 be reduced if a customer's forecast net requirement is less than its forecasted Critical
22 Slice Amount as defined in the CHWM Contract. In such case the customer's
23 Slice percentage would be scaled down until its forecasted Critical Slice Amount is equal
24 to its annual net requirement forecast.

1 *Q. Will customers' load obligation forecasts and Federal contract sales forecasts be*
2 *updated for the BP-18 Final Proposal?*

3 A. Yes. The load obligation forecasts will be updated for customers in the Spring of 2017
4 for the BP-18 Final Proposal. In addition, any revisions to forecasted Federal contracts
5 will be included in the BP-18 Final Proposal.

6
7 **Section 3: Resource Forecasts**

8 *Q. Does the Columbia Generating Station generation forecast reflect improvements in terms*
9 *of increased generation or capacity since the BP-16 Final Proposal?*

10 A. Yes. Since the BP-16 Final Proposal, the generation forecast for Columbia Generating
11 Station has been updated to incorporate facility improvements. This update increased the
12 project's annual generation by 25 aMW to 1,100 aMW in non-maintenance years and by
13 21 aMW to 937 aMW in years that include maintenance. *See* Documentation
14 tables 4.1.1, 4.1.2, and 4.1.3, line 1. BPA will continue to monitor Columbia Generating
15 Station's actual operational performance and may update forecasted generation estimates
16 in the Final Proposal if justified.

17 *Q. Are there any resources from which BPA acquired generating output whose purchase*
18 *contracts ended or expired after the BP-16 Final Proposal?*

19 A. Yes, there is one such resource. BPA's contract for the acquisition of the generation of
20 the Idaho Falls Bulb Turbines ended on September 30, 2016. This expiration resulted in
21 three changes to the Study. First, it reduced BPA's firm resources forecast by 14 aMW,
22 the amount of energy BPA had acquired from the Idaho Falls Bulb Turbine projects.
23 BPA's Tier 1 System as defined by the TRM is smaller by 14 aMW, the Idaho Falls Bulb
24 Turbines forecasted generation, and that resource was not included in the RHWM
25 Process for the FY 2018–2019 rate period. Second, it reduced the anticipated annual

1 80 water year average generation by 16 aMW, thereby reducing the amount of secondary
2 energy provided to the Power and Transmission Risk Study. Third, it reduced BPA's
3 power sales contract obligation to the City of Idaho Falls. The City of Idaho Falls'
4 Regional Dialogue contract stipulates that in the event of termination of the sale of Idaho
5 Falls Turbine generation to BPA, the City of Idaho Falls would dedicate 11.5 aMW of
6 anticipated annual generation to its Exhibit A dedicated resources. This result effectively
7 lowers BPA's net requirement obligation to the City of Idaho Falls by reducing the City's
8 Block purchase amount by 11.5 aMW.

9 *Q. Was the Tier 1 System Capability updated in the BP-18 Rate Period High Water Mark*
10 *(RHWM) Process? If so, how is it different from the Tier 1 System Capability calculated*
11 *for the BP-16 RHWM Process?*

12 *A.* Yes, the Tier 1 System Capability was updated. The updates include revised hydro
13 regulation studies, purchase contracts, and resource generation forecasts that are used in
14 the Study. *See* Study § 3.4. The FY 2018–2019 Tier 1 System Capability was calculated
15 in the BP-18 RHWM Process, which was completed September 21, 2016. The FY 2018–
16 2019 T1SFCO is 6,879 aMW when averaged over the BP-18 rate period. *See*
17 Documentation Table 7.1.1, line 6. The total RHWM Tier 1 System Capability used to
18 calculate Slice Output from the Tier 1 System is the T1SFCO (6,879 aMW) plus the
19 annual average RHWM Augmentation (65 aMW), totaling 6,945 aMW. *See* Power Rates
20 Study, BP-18-E-BPA-01, Table 1. For comparison, the FY 2016–2017 T1SFCO
21 capability was 6,924 aMW.

22 *Q. Will there be other changes in the resource and contract purchase forecasts for the*
23 *BP-18 Final Proposal?*

24 *A.* Yes. The resource and contract purchase forecasts will be reviewed and updated as
25 necessary for the BP-18 Final Proposal.

1 *Q. Has the contract change associated with the third party wheeling losses for Lost Creek*
2 *and Green Springs generation been accounted for in the Study?*

3 A. Yes. Effective April 1, 2016, BPA transitioned from financial to physical wheeling loss
4 returns associated with the generation from the Lost Creek and Green Springs projects.
5 These physical loss returns are based on BPA's Service Agreements with PacifiCorp and
6 are calculated as 4.45 percent of the energy generation forecast for each resource,
7 1.3 annual aMW for Lost Creek and 0.3 annual aMW for Green Springs. During the
8 process of researching these transmission losses for this Study, it was also identified that
9 a physical return for losses associated with the Cowlitz Falls project with Tacoma Public
10 Utilities needed to be modeled. This transmission loss return is calculated as 0.5 percent
11 of Cowlitz Falls' generation forecast, or 0.13 annual aMW. These transmission loss
12 returns have been added to the Total Federal System Transmission Loss calculations
13 included in this Study. *See Documentation tables 9.1.1, 9.1.2, and 9.1.3, line 39.*

14
15 **Section 4: Hydro Regulation Studies**

16 *Q. Are the spill assumptions for fish passage different from what was used in the BP-16*
17 *Final Proposal?*

18 A. Yes. The spill assumptions regarding the application of a spring maximum transport
19 operation and the resultant no-spill operation at Lower Granite, Little Goose, and Lower
20 Monumental dams were updated in the hydro regulation (HYDSIM) studies.
21 Additionally, the ending dates assumed for summer spill at Lower Granite, Little Goose,
22 Lower Monumental, and Ice Harbor dams were updated for the BP-18 HYDSIM studies.
23 The revised assumptions reflect our expectations regarding how the 2014 National
24 Oceanic and Atmospheric Administration (NOAA) Fisheries Supplemental Biological

1 Opinion (BiOp) will be adaptively implemented during the rate period given the most
2 recent information available. *See Study § 3.1.2.1.1.*

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

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

6 *Q. Why were the assumptions regarding the application of a spring maximum transport
7 operation changed from what was used in the BP-16 Final Proposal?*

8 A. The most recent available scientific information on the effectiveness of fish
9 transportation, current operations, and recent history indicates it is highly unlikely, even
10 in dry water years, that spill would be shut off on the Lower Snake River to increase fish
11 transportation rates. This conclusion is supported by the operations that occurred in
12 2015, which was one of the lowest flow years on record.

13 *Q. Have any assumptions from the 2018 BiOp process been included in this Study?*

14 A. No. The proposed actions that will be analyzed in the 2018 BiOp are just starting to be
15 developed by the Action Agencies (BPA, Army Corps of Engineers, and Bureau of
16 Reclamation). Additionally, public scoping meetings in the National Environmental
17 Policy Act (NEPA) process related to the 2018 BiOp are just beginning. This public
18 input will inform the in-depth studies that will be conducted by the Action Agencies
19 during the NEPA process, which is expected to continue through 2021. The proposed
20 actions for the 2018 BiOp and the NEPA studies will inform long-range operations and
21 future BiOp processes once the NEPA evaluations are complete and a preferred
22 alternative is selected. Any inclusion of opinions, ideas, or other proposals in the BP-18
23 rate proceeding would be highly speculative and premature at this stage.

1 Q. Will there be changes in the hydro regulation studies for the BP-18 Final Proposal?

2 A. Yes. For the BP-18 Final Proposal, we will incorporate updated estimates of residual
3 hydro load and other power and non-power requirements available at that time.
4

5 **Section 5: Load-Resource Balance**

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

7 A. BPA compiles forecasts of load obligations, contract sales and purchases, and generating
8 resources, which are obtained through direct utility data submittals and internal BPA
9 forecasting models. The load-resource balance is estimated for several types of power
10 measurements and timeframes. These measurements and timeframes include (1) annual
11 energy in aMW; (2) monthly energy in aMW; (3) monthly HLH MWh; and (4) monthly
12 LLH MWh. See Study § 1.2.

13 The annual energy analysis focuses on BPA's firm annual energy load-resource
14 balance under critical water conditions, averaged over each fiscal year of the rate period.
15 Depending on BPA's load-resource balance condition, contract sales or purchase
16 adjustments are made to BPA's loads or resources so that the sum of BPA's firm load
17 obligations equals the sum of its firm resources. See Study § 4.1.

18 The monthly load-resource analysis in the Study presents BPA's firm monthly
19 energy load-resource balance. The monthly load-resource balance includes any annual
20 firm surplus power sale or system augmentation calculated for BPA's annual firm energy
21 load-resource balance. The resulting monthly load-resource balance is detailed in
22 Documentation tables 9.1.1, 9.1.2, and 9.1.3.
23
24
25

1 Q. *Please describe how you treat annual system augmentation purchase estimates in the*
2 *Study.*

3 A. If BPA’s annual firm energy resource forecast is less than its load obligations, BPA will
4 calculate the amount of annual power purchases or resource acquisitions needed for the
5 Federal system to achieve annual firm energy load-resource balance. This purchase or
6 resource acquisition estimate is called “system augmentation.” In FY 2018, the Federal
7 system is forecasted to be annual firm energy surplus; therefore, no system augmentation
8 is needed. However, in FY 2019, the Federal system is forecasted to be annual firm
9 energy deficit assuming 1937 critical water conditions; therefore, system augmentation
10 purchases will be needed to maintain annual load-resource balance. The system
11 augmentation for FY 2019 is estimated to be a 45 aMW flat annual purchase, which is
12 included as a Federal firm resource. *See Study § 4.3.* System augmentation purchase
13 estimates are detailed in Documentation tables 9.1.1, 9.1.2, and 9.1.3, line 33.

14 Q. *Has the way the BP-18 Initial Proposal Loads and Resources Study treats annual firm*
15 *surpluses changed since the BP-16 Final Proposal?*

16 A. Yes. In BPA’s ratemaking process, it is assumed the Federal system is in firm annual
17 energy load-resource balance. That is, BPA’s expected firm energy resources equal
18 BPA’s expected load obligations. BPA has traditionally balanced the Federal system
19 with system augmentation purchases during the rate period, because BPA’s forecasted
20 firm resources have been less than its load obligations, creating firm annual energy
21 deficits. Currently BPA forecasts a firm energy surplus of 167 aMW in FY 2018. In
22 order to treat firm annual energy surplus conditions in a similar manner to firm annual
23 energy deficits, BPA now calculates a “firm surplus sale” that is included as firm load
24 addition to maintain Federal system annual energy load-resource balance. The annual
25 firm surplus sale for FY 2018 of 167 aMW is assumed sold flat annually. *See Study*

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

§ 4.3. Firm surplus sales estimates are detailed in Documentation tables 9.1.1, 9.1.2, and 9.1.3, line 16.

Q. Does this conclude your testimony?

A. Yes.

This page intentionally left blank.