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TESTIMONY of

DANIEL H. FISHER, KATHERINE L. BEALE, REBECCA E. FREDRICKSON,
MARK A. JACKSON, LAWRENCE E. KITCHEN, and BARTHOLOMEW A. McMANUS

Witnesses for Bonneville Power Administration

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5

6 **SUBJECT: GENERATION INPUTS POLICY**

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

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

9 A. My name is Daniel H. Fisher, and my qualifications are contained in BP-14-Q-BPA-19.

10 A. My name is Katherine L. Beale, and my qualifications are contained in BP-14-Q-
11 BPA-03.

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

14 A. My name is Mark A. Jackson, and my qualifications are contained in BP-14-Q-BPA-28.

15 A. My name is Lawrence E. Kitchen, and my qualifications are contained in BP-14-Q-
16 BPA-36.

17 A. My name is Bartholomew A. McManus, and my qualifications are contained in BP-14-Q-
18 BPA-45.

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

20 A. The purpose of our testimony is to provide an overview of Bonneville Power
21 Administration's (BPA) use of generation inputs, how BPA allocates costs to generation
22 inputs, and how BPA is addressing particular policy issues associated with the proposed
23 cost allocation and rates for BPA's Ancillary and Control Area Services.
24

1 **Section 2: Background for Ancillary and Control Area Services in the BPA Balancing**
2 **Authority Area**

3 *Q. Please briefly describe the trend of wind development in recent years in the BPA*
4 *balancing authority area.*

5 A. The amount of wind generation in the BPA balancing authority area has increased from
6 500 MW in 2005 to over 4,700 MW today. Most of those facilities are located in a
7 relatively small area near the Columbia River Gorge. More than 50 percent of the wind
8 generation in the Pacific Northwest is being located in the BPA balancing authority area,
9 and developers are continuing to build new wind generators in BPA's balancing authority
10 area.

11 By the end of FY 2015, BPA forecasts approximately 5,200 MW of wind
12 generation will be integrated into the BPA balancing authority area. Generation Inputs
13 Study, BP-14-E-BPA-05 (Study), section 2.2; Generation Inputs Study Documentation
14 (Documentation) Table 2.1. Although the majority of new wind generation is locating
15 within the BPA balancing authority area, most of that wind generation is exported out of
16 the balancing authority area to other utilities for their load service.

17 *Q. What impacts does the significant increase in wind generation interconnected to the BPA*
18 *system have on the operations of the FCRPS?*

19 A. The increase of wind generation within the BPA balancing authority area creates
20 additional operational uncertainty and risk for BPA. Major hydro projects on the FCRPS
21 are connected to BPA's Automatic Generation Control System (AGC). AGC signals
22 these major plants to respond continuously by increasing or decreasing their generation
23 output to balance loads and resources. This balancing is necessary to keep the electric
24 system stable. As variable generation in BPA's balancing authority area has increased,
25 the AGC demands on the FCRPS have increased as well, due to both increased physical
26 generation variability and generation forecast error. This requires BPA to dedicate

1 increasing amounts of generation capacity to respond to these deviations and operate
2 more conservatively to ensure that non-power requirements, such as those for the
3 Endangered Species Act, flood control, navigation, and recreation, are honored. BPA
4 refers to this generation capacity as “balancing reserve capacity.” See section 3 below.
5 BPA adjusts its operating plans to ensure that system flexibility is available to provide
6 balancing reserve capacity to either increase or decrease generation as necessary.
7 Maintaining balancing reserve capacity that may or may not be deployed creates
8 operational uncertainty and also causes BPA to have to buy or sell energy to maintain
9 operational balance as BPA responds to deviations from expected operations.

10 *Q. What are Ancillary and Control Area Services?*

11 A. Ancillary Services are services needed with transmission service to maintain reliability
12 within and among the balancing authority areas affected by the transmission service.
13 Under BPA’s Open Access Transmission Tariff, BPA is required to provide, and
14 transmission customers are required to purchase, certain Ancillary Services. BPA is also
15 required to offer other Ancillary Services that the transmission customer must either
16 purchase from BPA or a third party or self-supply.

17 Control Area Services are balancing services charged to customers that do not
18 have a transmission service arrangement with BPA and BPA has identified the service as
19 necessary to meet reliability obligations that are not met by the equivalent Ancillary
20 Service or some other arrangement. See Jackson *et al.*, BP-14-E-BPA-28, section 2, for
21 further discussion on Ancillary and Control Area Services.

22 *Q. What are generation inputs?*

23 A. Generation inputs are the various uses of generation resources that are needed by the
24 BPA transmission operator in order to provide the Ancillary Services, Control Area

1 Services, and other services that are necessary to support reliable operation of the
2 transmission system.

3 *Q. What is balancing reserve capacity, and how is it used as a generation input?*

4 A. The balancing authority determines the generation capacity that it needs to have available
5 to balance generation and load. As mentioned above, BPA refers to that generation
6 capacity as “balancing reserve capacity,” which BPA reserves or stands ready to provide
7 so that it is available if needed. The balance between generation and load may change
8 because of more or less load than expected, more or less generation than expected, or the
9 loss of the expected ability to move planned generation to load. The balancing authority
10 has strict parameters that it is expected to operate within based on the composition of the
11 generation and load in the balancing authority area and the reliability of its transmission
12 system. Based on these parameters, the balancing authority is required to have balancing
13 reserve capacity that it can call upon to either increase or decrease generation within
14 specific time windows. These time windows range from seconds up to 10 minutes. The
15 time windows and the conditions under which the balancing reserve capacity may be
16 called on define the types of generation inputs the balancing authority requires.

17 *Q. Please summarize how the balancing authority uses generation inputs to provide*
18 *Ancillary and Control Area Services to maintain reliability of the system.*

19 A. The electrical grid in North America is divided into various balancing authority areas.
20 Each balancing authority is responsible for ensuring that, in its area, electrical generation
21 (power production) equals electrical load (power consumption). This is known as
22 balancing generation with load or maintaining load-resource balance. Usually, a
23 transmission provider is also the balancing authority in its area.

24 The BPA balancing authority utilizes generation inputs to provide Ancillary and
25 Control Area Services to maintain load-resource balance at all times and to respond to the

1 many variables that affect transmission system reliability. All balancing authorities must
2 maintain reliability within their balancing authority area in accordance with applicable
3 regional reliability standards. It is difficult to predict exactly how much power the load
4 will need at any given moment in time; therefore, each balancing authority must plan its
5 system to ensure system flexibility to respond to system changes that can jeopardize
6 reliable electrical service.

7 *Q. Please explain how this applies to BPA.*

8 A. BPA is divided functionally into two organizations, known as Transmission Services
9 (TS) and Power Services (PS). BPA is a balancing authority pursuant to standards issued
10 by the North American Electric Reliability Corporation (NERC) and Western Electricity
11 Coordinating Council (WECC). TS is responsible for ensuring that all balancing
12 authority area responsibilities are met. As such, TS has the crucial responsibility of
13 maintaining reliability for BPA's balancing authority area by keeping electrical
14 generation in balance with electrical load. To maintain balance, TS must have access to
15 balancing reserve capacity; that is, generators that are standing by ready to increase or
16 decrease output when called on. When load or other generators increase or decrease
17 relative to a pre-arranged schedule, TS must be able to call on generators to produce
18 either more or less power, depending on whether the load or other generation has
19 increased or decreased. Historically, TS has obtained balancing reserve capacity from PS
20 with the exception of a small decremental balancing reserve capacity purchase pilot from
21 a third-party provider.

22 *Q. What happens if BPA does not maintain load-resource balance?*

23 A. When generation and load are out of balance, the frequency of the electrical grid will
24 move away from its nominal value of 60 hz (cycles/second). In extreme cases, the grid
25 may become unstable, which could cause a number of problems, including variations in

1 electrical frequency that can damage electronic equipment or cause generators to trip
2 offline. Due to the hazards posed by this type of imbalance, NERC and WECC have
3 developed reliability standards that apply to balancing authorities, including BPA. For
4 example, BPA is required under NERC and WECC reliability standards to maintain load-
5 resource balance and to keep Area Control Error within acceptable limits for Control
6 Performance Standard 1. The generating facilities that provide generation inputs for
7 Ancillary and Control Area Services are operated on AGC to maintain performance
8 within the NERC and WECC standards. If BPA violates these standards, it runs the risk
9 of causing damage to the grid and equipment connected to it and, if the standard violated
10 is Control Performance Standard 1, incurring sanctions from NERC and WECC.

11 *Q. Please describe the distinction between energy and capacity in the context of generation*
12 *inputs.*

13 *A.* Energy is the actual use of electricity to do work and is commonly measured in
14 megawatthours (MWh) (the amount of power delivered multiplied by the amount of time
15 that the amount of power is delivered). In the context of generation inputs, energy is the
16 difference in MWh between an entity's actual generation or load and the hourly schedule
17 for that generator or load.

18 Capacity is the maximum amount of power output, commonly expressed in
19 megawatts (MW), that generating equipment can supply to system load. In the context of
20 generation inputs, capacity is the maximum amount of power output that generation may
21 be required to increase or decrease during any given period.

22 For example, the difference between energy and capacity is reflected in the
23 provision of generation imbalance. The energy component is recovered through the
24 difference between scheduled and the actual generation of energy through the Generation
25 Imbalance Service charge. This energy charge does not, however, account for the cost of

1 the balancing reserve capacity that must be maintained each hour in order for BPA to
2 supply this energy, whether this energy is actually supplied or not. Jackson *et al.*,
3 BP-14-E-BPA-28, section 4.

4 *Q. Please describe the various types of balancing reserve capacity used to balance*
5 *generation and load.*

6 *A.* The generation inputs for Ancillary and Control Area Services used to balance between
7 generation and load are provided through balancing reserve capacity. The balancing
8 reserve capacity is either incremental (*inc*) or decremental (*dec*) reserves. *Inc* reserves
9 are provided from generators that can increase generation (or loads that can reduce
10 consumption) when loads increase or other generation decreases. *Dec* reserves are
11 provided from generators that can reduce generation when loads decrease or other
12 generators increase.

13 *Q. Please explain spinning and supplemental reserves.*

14 *A.* Spinning reserves are defined as unloaded generating capacity that is synchronized to the
15 power system and can be increased on very short notice. Supplemental reserves are
16 defined as generating capacity that is not spinning but that can be brought online,
17 synchronized, and capable of serving load on a sustained basis within 10 minutes, or
18 loads that can reduce consumption, when directed, on a sustained basis within
19 10 minutes. *Inc* reserve capacity is either spinning or supplemental reserve capacity.
20 *Dec* reserve capacity is spinning reserve capacity, because generation can be reduced
21 only on units that are already producing energy.

22 *Q. Please describe the Ancillary and Control Area Services that use balancing reserve*
23 *capacity.*

24 *A.* Balancing reserve capacity is used to provide the generation inputs for several Ancillary
25 and Control Area Services. Regulation and Frequency Response Service utilizes

1 balancing reserve capacity to meet the moment-to-moment variations in loads in the BPA
2 balancing authority area. Variable Energy Resource Balancing Service (VERBS) utilizes
3 balancing reserve capacity for wind and solar resources to meet (1) the moment-to-
4 moment variations in generation (regulation), (2) the longer timeframe variations over
5 10 minutes (following), and (3) the total hourly deviation between actual and scheduled
6 output (imbalance). Dispatchable Energy Resource Balancing Service (DERBS) utilizes
7 balancing reserve capacity to enable non-Federal thermal generators to meet their
8 regulation, following, and imbalance reserve requirements. Operating Reserves (spinning
9 and supplemental) Service utilizes balancing reserve capacity to provide contingency
10 energy for events that qualify under NERC, WECC, or Northwest Power Pool (NWPP)
11 rules for calling on the contingency energy. Study section 10.

12 *Q. How are Operating Reserves different from the balancing reserve capacity products?*

13 A. Operating Reserves provide capacity for contingency events, such as the failure of a
14 generator or the loss of transmission components within an hour. Operating Reserves do
15 not provide balancing reserve capacity to meet the within-hour differences between
16 actual and scheduled energy during normal operating conditions. There are WECC and
17 NERC standards related to the Operating Reserve obligation for the balancing authority
18 area, and the NWPP has specific rules for the events that qualify for deployment of
19 Operating Reserves by the generator source balancing area or the generator sink
20 balancing area. The “source” balancing area refers to where the energy is generated, and
21 the “sink” balancing area refers to where the load served by the energy resides. For more
22 detail on Operating Reserves see Study section 4 and Messenger *et al.*, BPA-14-E-
23 BPA-25.

1 Q. Does PS provide other balancing reserve capacity to TS for use by the BPA balancing
2 authority?

3 A. Yes. PS provides within-hour balancing reserve capacity to TS to follow changes in
4 Federal loads during the hour. These reserves are called Load Following. The costs
5 associated with Load Following Reserve are accounted for in BPA's rate methodology
6 and are recovered in BPA's power rates rather than in transmission rates. Study
7 section 3.1.1. Load following is sometimes referred to in a broader sense to describe all
8 following reserve capacity, including the following reserve capacity needed to support
9 generation. For purposes of understanding the various generation inputs described in this
10 Initial Proposal, "Load Following Reserve" is the following reserve capacity needed to
11 follow changes in Federal loads, and "following reserve" is used to refer to the
12 component of balancing reserve capacity that is used to follow changes in both loads and
13 generators.

14 Q. What is DSO 216?

15 A. Through the rate case process, and in consultation with customers, BPA establishes an
16 amount of *inc* and *dec* balancing reserve capacity that it stands ready to provide.
17 Dispatcher Standing Order (DSO) 216 is a tool used to help BPA keep the amount of in-
18 hour balancing reserve capacity deployed within the bounds established in the rate
19 proceeding. When 85 percent of the balancing reserve capacity that is standing ready
20 (either *inc* or *dec*) has been deployed, a warning alarm is issued to BPA dispatch and the
21 wind generating facility operators. Once 90 percent of *dec* reserve capacity has been
22 deployed, BPA automatically limits wind generation for each wind generator or each set
23 of netted wind generation to the wind schedule plus the reserve capacity allocation for the
24 wind generators. If, in the same hour, 100 percent of *dec* reserve capacity is deployed,
25 the wind output is limited to the schedule. Once 90 percent of *inc* reserve capacity has

1 been deployed, BPA curtails wind e-Tags to the actual wind output plus the wind reserve
2 capacity allocation. If, in the same hour, 100 percent of *inc* reserve capacity has been
3 deployed, BPA curtails wind e-Tags to the actual output of the wind.

4 *Q. Why is DSO 216 a necessary reliability tool for BPA?*

5 A. BPA has a finite amount of balancing reserve capacity available to deploy for load and
6 generation changes in the BPA balancing authority area. For *inc* reserve capacity, once
7 that reserve capacity has been deployed, BPA would have to encroach on other reserve
8 capacity commitments (such as Operating Reserve) if BPA did not have a reliability tool
9 such as DSO 216 to limit the use of balancing reserve capacity to the planning
10 assumptions adopted in the rate proceeding. If BPA was not able to limit the output of
11 wind generation and deployed all *dec* reserve capacity on the system, BPA could fail
12 NERC compliance standards and create a large Area Control Error by pushing excess
13 energy onto the system. This also has the possibility of adversely affecting the frequency
14 of the interconnection.

15 *Q. How is DSO 216 an economic choice for wind generators?*

16 A. Wind generators can elect to purchase from BPA balancing service that is subject to
17 DSO 216 curtailments when the total amount of balancing reserve capacity in the BPA
18 balancing authority area for wind, load, and thermal generation is exhausted.
19 Alternatively, they can elect a higher cost VERBS “Full Service,” which is expected to be
20 subject only to reliability-based curtailments that apply to all types of generation whose
21 schedules exceed actual generation. Wind generators may also purchase VERBS
22 Supplemental Service to mitigate their exposure to DSO 216 curtailments. See section 5
23 for an explanation of these services. If wind generator customers do not purchase
24 VERBS Full Service or Supplemental Service, however, they receive the economic
25 benefit of a lower rate but must accept the risk of curtailment associated with having a

1 lower quality level of service. Hence, there is an economic choice made by the wind
2 generators in their service elections. From BPA's standpoint, the use of DSO 216 is
3 necessary to protect system reliability by ensuring that the use of balancing reserve
4 capacity on the system is consistent with, and kept within the parameters of, the
5 customers' service elections and the planning assumptions adopted in the rate case.

6 *Q. Could there be modifications made to DSO 216?*

7 A. Yes. The Full Service election alone will likely require changes to DSO 216. There may
8 also need to be changes made for changes in self-supply. BPA will discuss potential
9 changes with stakeholders outside of this rate proceeding.

10 *Q. By paying for VERBS or DERBS, is the customer acquiring the right to use a specific*
11 *quantity of balancing reserve capacity?*

12 A. No. VERBS and DERBS are not a sale of access to balancing reserve capacity for any
13 purpose determined by the user. They are not comparable with a purchase of a put or call
14 option. VERBS and DERBS are services in which BPA commits to making a specific
15 amount of balancing reserve capacity available for specific uses, given specific
16 assumptions about the nature of that use and the ability of the FCRPS to provide that
17 balancing reserve capacity. These amounts are calculated assuming multiple uses of a
18 pool of balancing reserve capacity. The diversity of the multiple uses lowers the total
19 amount of balancing reserve capacity BPA needs to make available based on each
20 individual use and lowers the cost for all users.

21 Specifically, VERBS is designed to provide an amount of flexibility to cover
22 unavoidable schedule errors associated with the short-term unpredictability of variable
23 energy resource output. VERBS is a Control Area Service, and like other transmission
24 services there are times when the service may be limited or may not be available. For
25 wind resources, VERBS provides an amount of flexibility assuming that schedule errors

1 (the difference between the scheduled amount and actual generation) are generally
2 consistent with each service election; 30/30 or 30/60 committed scheduling Base Service
3 and with assumed 45-minute persistence-based scheduling for uncommitted scheduling
4 Base Service.

5 Likewise, DERBS provides a limited amount of balancing reserve capacity to
6 meet the imbalances during ramp periods and during the remainder of the scheduling
7 period that result from unintentional variations in thermal generation output relative to
8 the scheduled output. DERBS is not intended to provide balancing reserve capacity to
9 meet imbalances that result from a failure to adjust plant output in response to submitted
10 schedules, beginning or ending plant changes outside of ramp periods, or other
11 imbalances that are within the control of plant schedulers and operators.

12 *Q. Why is the distinction between a service and a firm capacity commitment important?*

13 *A.* The key distinction is that VERBS and DERBS are for limited use and are not general put
14 and call options. The increased risks associated with the additional uncertainty and
15 potential for energy accumulation associated with a put or call would reduce the
16 capability of the FCRPS to provide balancing reserve capacity and increase the frequency
17 of balancing reserve capacity reductions. If these services are used for purposes other
18 than to balance unavoidable schedule errors, it would become difficult to determine the
19 quantity of service required. BPA would have to plan operations to allow for full
20 deployment of *incs* or *decs* at any time, for long periods of time, and would have to
21 assume that market-driven motivations would lead to increased correlation in use of the
22 service. Currently, BPA plans operations based on an expected distribution of
23 deployments associated with unpredictable schedule errors, which are expected to be
24 random, unbiased, and net to near zero over relatively short periods of time. Under a set
25 of planning parameters that offered a firm capacity commitment, the FCRPS would have

1 much less available capacity, and the amounts of balancing reserve capacity needed for
2 any individual use would need to be increased.

3
4 **Section 3: Non-Rate Terms and Conditions for Transmission Service**

5 *Q. BPA recently conducted a series of public workshops, known as “Bonneville Open*
6 *Access Transmission Tariff” or “BOATT” workshops. What was the purpose of the*
7 *BOATT?*

8 A. The intent of the BOATT was to have regional discussions about BPA’s reciprocity safe-
9 harbor OATT in general, specific discussions about provisions of the tariff where BPA
10 was seeking a deviation from *pro forma* tariff language, and discussions of BPA’s intent
11 regarding a reciprocity safe-harbor tariff filing with the Federal Energy Regulatory
12 Commission. After filing the tariff, BPA continued public discussions in the BOATT
13 forum with customers and other interested parties about the provision of Generator
14 Imbalance Service under OATT Schedule 9 and the determination of the amount of
15 balancing reserve capacity available for generator imbalance service under BPA’s
16 proposed OATT Schedule 10. The intent of these discussions was to develop consensus
17 around services that could fit into the tariff construct and to help inform BPA’s Initial
18 Proposal for FY 2014–2015 rates.

19 *Q. What is the current status of the BOATT?*

20 A. Participants in the BOATT developed a preliminary joint proposal that has informed the
21 proposed “Full Service” option rate for VERBS. BOATT participants, including BPA,
22 would like to continue discussions about a variety of processes and practices that are
23 related to implementation of Generator Imbalance Service and the VERBS Full Service
24 option.

1 *Q. Does BPA expect to have additional BOATT meetings during this rate proceeding?*

2 A. Yes. However, BPA expects to address only issues that fall within the reciprocity tariff
3 under the BOATT framework. For issues that do not fall within the reciprocity tariff, but
4 may be related to the implementation of Ancillary and Control Area Service rates, BPA
5 expects to conduct discussions with customers in noticed public meetings coincident with
6 the rate proceeding timeline. BPA refers to this forum as the “ACS Practices Forum.” In
7 the ACS Practices Forum, BPA will address business practices related to the provision of
8 Ancillary and Control Area Services under the tariff and the rates.

9 *Q. Which issues does BPA expect to address in the ACS Practices Forum?*

10 A. BPA expects to discuss and develop the requirements that are necessary to provide
11 variable energy resources and purchasing entities with sufficient information to enable
12 wind energy to be e-tagged as “firm” energy. These discussions will also address
13 whether the schedules under VERBS Base Service can and should be broken out into
14 firm and non-firm components (VERBS Base Service is described in more detail below).
15 Accordingly, energy product e-Tag protocols and verification practices for wind
16 generation sourced in BPA’s balancing authority area will also be discussed.

17 Additionally, BPA will discuss its purchase strategy for resources to provide
18 balancing reserve capacity to meet the reserve requirements of Full Service. These
19 discussions will address quantity of balancing reserve capacity needed, the timing of the
20 purchase, the duration of the purchase, and how an inability to purchase sufficient
21 balancing reserve capacity to fulfill the reserve requirement fits into the firm energy
22 e-Tag protocols for those taking the Full Service option.

23 *Q. Why is BPA addressing these issues in a different forum from this rate proceeding?*

24 A. The issues described above are not rate case issues of cost allocation or cost recovery, but
25 are closely related. For example, to offer Full Service and establish a formula rate to

1 recover the costs of providing that service, we do not need to have a predetermined fixed
2 reserve requirement or a regionally accepted upper limit on the number of curtailments
3 for wind energy to be considered as “firm.” However, to make the Full Service product
4 useful to purchasers, we acknowledge the need to develop practices to implement the
5 product in a way that works for BPA and its customers.

6 It is important to note that we have had success in addressing non-rate issues in
7 separate but parallel forums to rate proceedings in the past. For example, BPA developed
8 DSO 216 and several wind integration initiatives in the Wind Integration Team forum
9 concurrent with the WP-10 rate proceeding. BPA developed the requirements for its
10 committed intra-hour scheduling pilot in a separate forum while establishing a rate
11 discount and persistent deviation penalty charge exemption for participants in the
12 committed intra-hour scheduling pilot in the BP-12 rate proceeding. BPA also developed
13 the requirements for VERBS Supplemental Service in its business practice forums while
14 establishing the rate for that service in the BP-12 rate proceeding.

15 *Q. When does BPA expect to make decisions regarding those issues?*

16 *A.* We expect BPA to resolve these issues prior to April 1, 2013, when customers’ VERBS
17 elections are due. However, we realize that some related issues are outside of BPA’s
18 control, such as Northwest Power Pool rules on acceptable energy product codes for
19 e-Tags. If needed, BPA will continue regional discussions past the date customers’
20 VERBS elections are due and work with the region to refine the implementation of
21 Ancillary and Control Area Services.

22 *Q. How does BPA expect to memorialize the decisions that are based on the BOATT and the
23 ACS Practices Forum discussions?*

24 *A.* BPA plans to discuss how it proposes to memorialize the outcome of the ACS Practices
25 Forum early on in that process. After having those discussions, BPA may decide to

1 develop a final Record of Decision on the issues. At a minimum, we expect that one or
2 more Business Practices will be developed or modified to describe how BPA will
3 determine the amount of purchases of balancing reserve capacity for Full Service and to
4 describe e-Tag energy product codes and any associated tag validation rules or after-the-
5 fact assessment of compliance with BPA's Business Practices.

6 *Q. Is it critical for these non-rate case issues to be addressed before the final decision in this*
7 *rate case?*

8 *A.* No. As explained above, our Initial Proposal is designed to establish rates that ensure
9 that BPA will obtain cost recovery for the services that it provides to its customers, while
10 preserving BPA's flexibility to accommodate changes related to regional e-tagging
11 requirements and implementation of balancing reserve capacity-based services.
12 Nevertheless, although it is not critical or necessary to resolve these non-rate issues
13 before the Administrator's final decision in this rate proceeding, BPA is aiming to resolve
14 these issues by April 1, 2013.

15
16 **Section 4: Federal Energy Regulatory Commission Policy Regarding Ancillary and**
17 **Control Area Services**

18 *Q. The Commission recently issued Order No. 764 on the integration of variable energy*
19 *resources. Integration of Variable Energy Resources, Order No. 764, 139 FERC*
20 *¶ 61,246 (2012). How does this order apply to BPA?*

21 *A.* BPA has voluntarily committed to file a reciprocity safe-harbor tariff with the
22 Commission. Compliance with Order No. 764 is an aspect of the Commission's
23 reciprocity requirements. The Commission allows non-jurisdictional transmitting utilities
24 such as BPA to propose changes to their reciprocity tariffs if those changes "substantially
25 conform to or are superior to" the *pro forma* tariff. As described further below, BPA is

1 still evaluating whether it will propose any modifications to its reciprocity Tariff in
2 response to the Commission's new requirements in Order No. 764. The Commission
3 requires public utility transmission providers to file compliance filings with respect to
4 Order No. 764 by September 11, 2013. We are aware that some industry participants
5 have filed a motion for extension of this deadline, but that the Commission has not yet
6 responded to that motion. Based on the best information available at this time, BPA
7 expects to make a reciprocity safe-harbor tariff filing with the Commission with regard to
8 those requirements sometime in the fall of 2013.

9 *Q. Has the Commission adopted a specific rate design to recover costs associated with*
10 *balancing reserve capacity that is necessary to provide Ancillary and Control Area*
11 *Services?*

12 *A.* No. In Order No. 764, the Commission specifically declined to adopt a generic rate
13 design to recover the costs for reserve capacity that is needed to provide balancing
14 services for generators. Order No. 764, P 267. Although the Commission provided some
15 guidance for public (jurisdictional) utilities that may seek to propose a future generator
16 regulation rate, the Commission did not prescribe a specific methodology for
17 transmission providers to inform their determination of balancing reserve requirements or
18 rates to recover the costs of providing those balancing reserves for balancing services. *Id.*
19 P 315.

20 *Q. Order No. 764 requires public (jurisdictional) utilities to offer the option for 15-minute*
21 *scheduling or to propose enhancements that result in equivalent or superior benefits. Is*
22 *BPA planning to offer the option for 15-minute scheduling?*

23 *A.* BPA has not yet decided whether it will offer 15-minute scheduling or whether it will file
24 a reciprocity tariff deviation regarding intra-hour scheduling with the Commission. We
25 are currently evaluating the costs associated with automating our systems to

1 accommodate 15-minute schedules. In addition, BPA is participating with Northwest
2 Power Pool members in regional assessments of a number of enhancements, such as
3 moving toward an Energy Imbalance Market and a Regulation Sharing Program, which
4 may form the basis for an alternative that is superior to the Commission's 15-minute
5 scheduling requirement. The regional assessment of costs and benefits of these
6 enhancements is due to be completed in early 2013.

7 *Q. When does BPA expect to make a decision on whether to offer 15-minute scheduling?*

8 A. BPA expects to make a decision on 15-minute scheduling in early 2013. Although our
9 Initial Proposal does not include a VERBS rate based on 15-minute scheduling, we have
10 included information pertaining to a 15-minute scheduling rate option in the
11 Documentation in Tables 2.27 and 2.28.

12
13 **Section 5: Initial Proposal for VERBS**

14 **Section 5.1: Customer options for VERBS Base Service**

15 *Q. Are you proposing to offer customers options to fulfill their VERBS obligations?*

16 A. Yes.

17 *Q. Please describe your proposed options for VERBS.*

18 A. We are proposing to offer all VERBS customers "Base Service," which will provide a
19 level of quality of service at 99.5 percent. Puyleart *et al.*, BP-14-E-BPA-22 (describing
20 the 99.5 percent quality level of service). Base Service customers will be required to
21 elect the type of scheduling that they intend to use for the rate period: (1) 30/60
22 committed scheduling; (2) 30/30 committed scheduling; or (3) uncommitted scheduling.
23 Jackson *et al.*, BP-14-E-BPA-28, section 6 (discussing the rates for 30/60, 30/30, and
24 uncommitted scheduling Base Service). VERBS customers that fail to elect a specific
25 Base Service scheduling option will be provided uncommitted scheduling Base Service.

1 In this rate proceeding, BPA refers to committed intra-hour scheduling as 30/30
2 scheduling and committed hourly scheduling as 30/60 scheduling, where the first number
3 refers to how far ahead of delivery time the schedule value is established, and the second
4 number refers to the duration of the schedule. Uncommitted scheduling gives customers
5 the flexibility to schedule on an hourly or intra-hourly basis or a combination of hourly
6 and intra-hour schedule periods. In addition, we propose to offer customers a “Full
7 Service” option under VERBS. We describe our conceptual framework for these services
8 in more detail below.

9 In addition, we note that parties may choose to self-supply the imbalance portion
10 of their reserve capacity requirement or to have BPA provide the reserve capacity.
11 Parties may also elect to supplement the level of service they purchase from BPA with
12 supplemental reserve capacity that they acquire or request BPA to purchase under
13 Supplemental Service.

14 *Q. What does “committed scheduling” mean?*

15 *A.* Under both committed 30/30 and 30/60 scheduling options, VERBS customers would
16 commit to “meet or beat” the schedule accuracy of a signal that BPA will send to the
17 customer at half past each hour and at the top of each hour. This is the approach that
18 BPA currently utilizes in its Committed Intra-Hour Scheduling pilot for FY 2012–2013.
19 Consistent with that approach, schedules must be submitted to BPA by 40 minutes past
20 the top of the hour (hr:40) for both hourly and half hour schedules, and those schedules
21 would start to ramp at hr:50 and complete their ramp to the next scheduling interval at
22 hr:10. Customers that elected 30/30 scheduling would submit a schedule again by hr:15
23 to start ramping at hr:25 and complete the ramp to the second half hour schedule level at
24 hr:35.

1 We expect that BPA will check the VERBS customer's schedule accuracy after
2 the fact to ensure that it is achieving the level of accuracy it committed to. VERBS
3 customers may decide to directly use the signal BPA sends or to use another mechanism,
4 but the performance metrics, which will be described in the business practice, remain the
5 same whether they use the BPA signal or their own forecast. VERBS customers would
6 bear any risk of signal inaccuracy or loss and are expected to independently track their
7 plant's actual output to ensure that the signal appears correct. In addition, we expect that
8 a customer that has elected hourly scheduling may occasionally decide to establish a
9 corrected schedule for the second half of the hour if it wishes to reduce its generation
10 imbalance. Its accuracy would then be measured against the half-hourly performance
11 metric for those half-hour schedule increments.

12 *Q. In what forum is BPA planning to develop the terms and conditions for committed*
13 *scheduling services?*

14 *A.* Consistent with BPA's approach in the FY 2012–2013 rate period, BPA will develop
15 with its customers the terms and conditions for committed intra-hour scheduling service
16 and committed hourly scheduling service in the ACS Practices Forum.

17 *Q. How will BPA determine the signal that is provided for committed scheduling?*

18 *A.* Currently the signal BPA provides for Committed Intra-Hour Scheduling pilot
19 participants is based on a persistence schedule. At the start of the FY 2014–2015 rate
20 period, BPA expects to provide a persistence-based signal for both committed intra-hour
21 schedules and committed hourly schedules. BPA will identify the actual generation for
22 each plant at the minute between hr:29 and hr:30 and the minute between hr:59 and hr:60
23 and send that information to the wind plants. BPA is currently working with wind
24 generators to obtain more accurate, plant-specific information to improve forecast
25 performance. BPA expects to provide wind forecasts for at least 24 hours ahead to wind

1 plants that provide plant-specific data. Over time, if BPA and the VERBS customer
2 agree that the forecast performs consistently better than persistence scheduling, we expect
3 BPA will use the forecast instead of a persistence signal for the accuracy metric for
4 committed hourly scheduling. To develop the best possible forecast, BPA purchases
5 forecasts from two forecast vendors and also develops an in-house forecast. On an
6 ongoing basis, BPA looks back at the recent performance of these wind forecasts and
7 assesses which has performed best over the past few hours. It then computes a weighted
8 average “super forecast” that selects from the best-performing forecast at that time.

9 *Q. Are all VERBS customers required to participate in committed scheduling?*

10 A. No. VERBS customers may elect to take the uncommitted scheduling Base Service
11 option and establish their schedule for hourly or half hourly scheduling, based on their
12 own forecasts. We propose to use a 45/60 scheduling assumption to establish the
13 quantity of balancing reserve capacity required to support the uncommitted scheduling
14 Base Service option, and customers electing this option must accept any DSO 216
15 curtailment risk that may occur depending on their actual scheduling accuracy.

16 Under our proposal, customers that take Full Service will be required to commit
17 to either committed 30/60 scheduling or committed 30/30 scheduling. We explain the
18 rationale for this requirement below in section 5.2.

19 *Q. Why are you using a 45/60 scheduling accuracy assumption (that is, scheduling accuracy
20 that is consistent with 45-minute persistence for hourly schedules) for uncommitted
21 scheduling Base Service?*

22 A. We expect that the customers that elect uncommitted scheduling will have a balancing
23 reserve capacity requirement that exceeds the requirements associated with 30/60
24 committed scheduling. We expect this because current scheduling practices, with most
25 schedules being “uncommitted” to a particular scheduling accuracy, have indicated that

1 schedules are closer to 45/60 scheduling accuracy than 30/60 scheduling accuracy. It is
2 unclear how many (or which) customers may elect to take uncommitted scheduling Base
3 Service at this time. We must make an assumption in order to provide an indication of
4 the additional premium that would be charged for uncommitted scheduling. We will
5 revisit the balancing reserve capacity requirements for uncommitted scheduling Base
6 Service in future rate periods.

7 *Q. What benefits will customers receive from participating in committed scheduling?*

8 A. Customers that elect 30/60 committed scheduling will be exempt from Persistent
9 Deviation penalty charges and will pay a lower Base Service rate than uncommitted
10 scheduling Base Service. Such customers are also expected to accumulate less energy
11 imbalance over time and therefore will lower their generation imbalance costs.

12 Similarly, customers that elect to participate in 30/30 committed scheduling will
13 benefit, because intra-hour schedules require less balancing reserve capacity, and the
14 VERBS customer that commits to using them will pay a lower Base Service rate than
15 30/60 or uncommitted Base Service. 30/30 committed scheduling customers are also
16 expected to accumulate less energy imbalance over time, and therefore will lower their
17 generation imbalance costs. We are also proposing to exempt 30/30 committed
18 scheduling participants from the Persistent Deviation Penalty charge. Finally, we are
19 proposing to exempt VERBS customers that participate in the best available scheduling
20 practice (currently 30/30 committed scheduling) from Deviation Band 2 charges under
21 Generation Imbalance Service. See Jackson *et al.*, BP-14-E-BPA-28, section 4
22 (discussing the proposed changes to the rate design for Generation Imbalance Service).

1 Q. *Why is it necessary for a customer to “commit” to schedule on either an intra-hour or*
2 *hourly basis to receive a lower rate for VERBS?*

3 A. BPA cannot predict the actual level of capacity use for uncommitted schedules, and there
4 is no certainty that such schedules would meet a specific level of scheduling accuracy
5 over time. With committed scheduling, BPA and the customers are agreeing on a
6 specific scheduling practice, and BPA is tracking the accuracy of the schedules to ensure
7 that the expected scheduling accuracy is achieved. The lower rates for customers that
8 participate in committed scheduling are a direct consequence of their predictable use of
9 balancing reserve capacity under VERBS. It would be inequitable to apply a lower or
10 discounted rate to customers that do not commit to achieve a specific level of scheduling
11 accuracy, because there would be no predictable or consistent reduction in balancing
12 reserve capacity under VERBS.

13 Q. *When must customers elect to participate in a committed scheduling option?*

14 A. Consistent with BPA’s approach in during the FY 2012–2013 rate proceeding, VERBS
15 customers must submit their scheduling and service elections by April 1, 2013, to enable
16 BPA to complete the final rate studies.

17 Q. *Are you proposing to allow customers to change their committed scheduling election*
18 *mid-rate period?*

19 A. Yes; however, VERBS customers may only request a scheduling option that has a longer
20 scheduling period than their April 1st election. For example, a 30/30 committed
21 scheduling customer may request to move to 30/60 committed scheduling. Customers
22 must provide 90 days’ advance notice of the change, which would be implemented at the
23 start of the quarter. Jackson *et al.*, BP-14-E-BPA-28, section 6.1 (discussing the rate
24 treatment for mid-rate period changes to the Base Service election).

1 Our primary concern with allowing customers to change their initial Base Service
2 scheduling election to a shorter committed scheduling period mid-rate period is cost
3 recovery. We expect that customers that changed to the shorter committed scheduling
4 period mid-rate period would want the benefits of the lower rates associated with that
5 election. This can create cost recovery risk, since BPA may not recover its costs for
6 balancing reserve capacity that was already committed, or purchased, to support the
7 customer's initial Base Service scheduling election. Nevertheless, we encourage
8 interested rate case parties to discuss in their direct cases whether customers should have
9 the option to make a mid-rate period change to their initial Base Service election to
10 commit to a shorter scheduling period and, if so, provide possible solutions to our cost
11 recovery concerns.

12 *Q. Why are you not proposing a committed scheduling option for 15-minute scheduling?*

13 A. As mentioned in section 4 above, it is unclear at this time whether the region will adopt
14 15-minute scheduling or propose an alternative to the Commission. However, if the
15 region unequivocally adopts 15-minute scheduling and the rate case parties support a 15-
16 minute committed scheduling option in this rate proceeding, we may consider a
17 committed 15-minute scheduling option in the Final Proposal. As noted above, we have
18 included information pertaining to a 15-minute committed scheduling option in
19 Documentation in Tables 2.27 and 2.28.

20 *Q. What level of quality of service are you proposing for VERBS Base Service?*

21 A. After calculating the net (pooled) imbalance requirements of wind, load, and dispatchable
22 resources, we propose to establish a capacity requirement for Base Service that covers
23 99.5 percent of the total *inc* and *dec* requirements of all hours included in the study.
24 Puyleart *et al.*, BP-14-E-BPA-22 (discussing the study for 99.5 percent quality level of
25 service).

1 Q. *Why are you proposing Base Service at a 99.5 percent quality level of service?*

2 A. BPA pools its balancing reserve capacity for use by load, variable energy resources, and
3 dispatchable energy resources within the BPA balancing authority area. BPA's method
4 utilizes a common standard for holding reserves that applies to all uses. BPA has used
5 the 99.5 percent level of service since the WP-10 rate case as the common standard to
6 measure the necessary quantity of reserves.

7 Since adopting the 99.5 percent level of service, BPA has consistently met NERC
8 and WECC balancing standards. Thus, we are proposing to maintain the 99.5 percent
9 quality level of service for VERBS Base Service for the FY 2014–2015 rate period. It
10 would be inconsistent with good utility practice for BPA to hold less than the
11 99.5 percent level of service without an adequate substitute reserve capacity (*e.g.*,
12 additional curtailments) because of the risk of non-compliance. We encourage the rate
13 case parties to address our proposed quality level of service in their direct cases.

14 Q. *Has BPA made exceptions to the 99.5 percent level of service requirement?*

15 A. Yes. BPA does not plan to purchase *dec* reserve capacity to maintain the 99.5 percent
16 level of service for Base Service when the FCRPS is unavailable due to hydro system
17 conditions or when BPA determines that the FCRPS capability to provide balancing
18 reserve capacity on a planned basis is insufficient to provide 99.5 percent of the *dec*
19 reserve capacity requirement.

20 Q. *Why does BPA not plan to purchase dec balancing reserve capacity to maintain Base
21 Service of 99.5 percent during those times when dec balancing reserve capacity is
22 unavailable from the FCRPS?*

23 A. Most parties in the region have not expressed great concern about DSO 216 limits that
24 require feathering of the output of wind plants to scheduled amounts during
25 overgeneration events that exhaust the total *dec* balancing reserve capacity made

1 available in the BPA balancing authority area for wind, load, and other generation.
2 DSO 216 implementation for overgeneration events effectively causes the wind plant to
3 self-supply decremental reserve capacity. As a result, for the BP-14 rate period, we are
4 proposing not to purchase non-Federal decremental balancing reserve capacity, in
5 addition to any amounts of *dec* balancing reserve capacity that can be provided by the
6 FCRPS, to provide Base Service.

7 *Q. Please explain how the quality level of service for VERBS relates to the concerns*
8 *regarding the ability of the FCRPS to provide enough balancing reserve capacity to*
9 *support the balancing needs of the wind fleet in BPA's balancing authority area.*

10 *A.* The scheduling options selected by VERBS customers will affect the percent of total
11 balancing reserve capacity that can be provided from the forecast availability of FCRPS
12 reserves. BPA is establishing formula purchases charges, as described in Jackson *et al.*,
13 BP-14-E-BPA-28, to ensure that it is able to recover the costs of purchasing generation
14 inputs to cover the remaining reserve capacity requirement for Base Service and any
15 balancing reserve capacity requirements for Supplemental Service or Full Service. If
16 more VERBS customers elect committed scheduling Base Service (*e.g.*, committed 30/30
17 scheduling or 30/60 scheduling), the FCRPS will cover a higher percentage of the total
18 VERBS capacity requirement. Conversely, if VERBS customers elect uncommitted
19 scheduling, the available FCRPS supply will cover a smaller portion of the total need.

20 *Q. How does the decision regarding the quality level of service impact the VERBS rate?*

21 *A.* The combination of VERBS customer choices regarding quality of service and type of
22 service (committed or uncommitted scheduling) will affect the percentage of the total
23 VERBS service need that can be provided from the FCRPS. The VERBS rate will be
24 higher or lower depending on whether the average cost of balancing reserve capacity that

1 BPA must purchase is higher or lower than the cost of the planned FCRPS-sourced
2 balancing reserve capacity.

3 *Q. How does the decision regarding the quality level of service impact the operation of*
4 *DSO 216?*

5 A. Under our concept for Full Service, if we are successful at purchasing the necessary
6 reserves for the service, we expect VERBS Full Service customers to be unaffected by
7 wind-only curtailments under DSO 216.

8 *Q. Why is DSO 216 a necessary reliability tool to manage Base Service?*

9 A. BPA must limit actual balancing reserve capacity usage to the amounts of reserve
10 capacity provided by the FCRPS and any non-Federal generation input providers. It
11 would be unreasonable to expect a transmission provider to provide unlimited service.
12 The FCRPS is subject to various operating and statutory constraints that accomplish
13 many public purposes, and BPA needs to be able to plan operations of the complex
14 interconnected system of dams and reservoirs that make up the FCRPS. Hence, BPA
15 must have the ability to maintain system reliability when demands on the services it
16 provides are inconsistent with the forecast quantities and uses of balancing reserve
17 capacity made available.

18 *Q. What options will customers that choose to take Base Service have to mitigate their*
19 *exposure to DSO 216?*

20 A. Customers that take Base Service can mitigate their exposure to DSO 216 by maintaining
21 awareness of their schedule error at all times and correcting schedule errors as quickly as
22 possible. In addition, customers may purchase Supplemental Service to reduce their
23 exposure to DSO 216 curtailments or take Full Service. Jackson *et al.*, BP-14-E-BPA-28,
24 section 6.2.

1 Q. *Are you proposing any rate flexibility to increase the quality level of service from*
2 *99.5 percent mid-rate period? Please explain.*

3 A. Yes. VERBS customers may decide at any time during the rate period to purchase
4 Supplemental Service. *Id.* In addition, if because of a legal challenge to DSO 216 BPA
5 is prevented from implementing DSO 216 or is required to amend it materially, we
6 propose to require that VERBS Base Service customers take Full Service and pay the
7 total Full Service charge. Jackson *et al.*, BP-14-E-BPA-28, section 6.

8 Q. *How do you apply the principle of cost causation to price Base Service?*

9 A. We apply the principle of cost causation to price VERBS by (1) identifying the uses of
10 the FCRPS to provide the service and (2) assigning the service its proportionate share of
11 the embedded costs of the FCRPS and the estimated variable costs associated with
12 provision of balancing reserve capacity. In addition, we propose formula purchases
13 charges (described in Jackson *et al.*, BP-14-E-BPA-28, and Study section 10) to assign
14 the cost of purchasing non-Federal generation inputs for balancing reserve capacity-based
15 service.

16 Q. *How is the price for Base Service related to the quality level of service that a customer*
17 *will receive from BPA?*

18 A. The cost of VERBS is directly related to the amount of balancing reserve capacity
19 required, so small increases in the level of service at the tails of the distribution have an
20 associated ever-increasing and non-linear effect on the costs of the service. If customers
21 request a higher quality of service, incremental amounts of balancing reserve capacity
22 will be necessary to meet the customers' requests. Any addition of balancing reserve
23 capacity will increase the price of VERBS for any customer requesting it. For the BP-14
24 rates, we are proposing two options for customers to obtain a higher quality level of

1 service: Full Service or Supplemental Service (see below for more detailed descriptions
2 of these alternatives). Jackson *et al.*, BP-14-E-BPA-28.

3 *Q. Why is the tradeoff between quality of service and price important for the continued*
4 *integration of variable energy resources?*

5 A. VERBS customers have unique needs regarding the quality of service they receive and
6 the amount of cost they can bear. As each customer makes a choice among the levels of
7 service BPA offers, it is better able to optimize its costs and benefits. In both the WP-10
8 and BP-12 rate cases, BPA gave customers a choice between a lower quality of service at
9 a lower price (that is, a lower rate but a higher exposure to DSO 216 feathering and
10 curtailment events), or a higher quality of service at a higher cost (that is, a higher rate
11 and a lower exposure to DSO 216 feathering and curtailment events). In this rate
12 proceeding, we are proposing to give customers the option to increase their quality level
13 of service above the 99.5 percent confidence interval (through either Full Service or
14 Supplemental Service), as well as the ability to lower their overall cost exposure for
15 VERBS through participation in committed scheduling.

16 With the continued increase of variable energy resources in the BPA balancing
17 authority area, it is essential that BPA and its customers develop a number of different
18 alternatives for the provision of balancing reserve capacity services. BPA remains
19 committed to exploring choices it can offer customers in the provision of balancing
20 reserve capacity services consistent with its statutory obligations and preserving the
21 reliability of the FCRPS.

1 **Section 5.2: VERBS Full Service**

2 *Q. Please describe your conceptual framework for VERBS “Full Service.”*

3 A. We expect VERBS Full Service to be a service option that provides a quality of service
4 designed to eliminate the use of DSO 216 wind-only curtailments of transmission
5 schedules when BPA has successfully purchased sufficient balancing reserve capacity to
6 meet the expected reserve requirement. Under Full Service, we expect that BPA will
7 attempt to purchase sufficient balancing reserve capacity to balance statistically
8 infrequent schedule errors, where actual generation of a wind plant that purchases Full
9 Service is less than its scheduled generation.

10 *Q. Why are you proposing a VERBS “Full Service” rate option in addition to the Base
11 Service rate options?*

12 A. Some VERBS customers have expressed concern that other balancing authorities are
13 unwilling to purchase the output of their wind projects because they are subject to
14 DSO 216 curtailments of their transmission schedules. Other market participants have
15 suggested that the output of wind plants subject to DSO 216 should have an energy tag
16 other than a “firm” energy tag. The owners of wind output have also expressed the
17 concern that an “other than firm” energy tag will lower the value of their energy in the
18 wholesale market. As a result, we are proposing a Full Service option to meet the needs
19 of customers that want to manage their statistically infrequent schedule errors (*i.e.*, low
20 probability differences between actual generation and scheduled generation) by having
21 BPA attempt to purchase additional balancing reserve capacity to support the
22 deliverability of their schedules. In contrast, customers that do not take Full Service (or
23 purchase Supplemental Service) will likely pay a lower rate for balancing service, but
24 must accept the possibility of transmission e-Tag curtailments when significant wind
25 schedule errors from the wind fleet exhaust the total balancing reserve capacity available

1 to balance load and other resources. See also Jackson *et al.*, BP-14-E-BPA-28, section 6
2 (discussing the exceptions to Base Service rates and the applicability of the total Full
3 Service rate).

4 *Q. Why is it necessary for Full Service customers to participate in committed scheduling?*

5 A. Under committed scheduling, customers agree to schedule their wind plants to either
6 meet or beat a known scheduling signal provided by BPA to the customer each hour. Use
7 of a known scheduling signal allows BPA to use power production forecasts to estimate
8 the potential variation of the actual output of wind generation from its scheduled output.
9 We expect that BPA will use the forecasts of wind energy and volatility to determine, on
10 a short-term basis, whether to purchase additional resources to provide the capacity
11 difference between Base Service and Full Service. Absent a commitment to a known
12 schedule, however, BPA would have limited information, before the close of each hour of
13 the scheduling window, to determine the appropriate amount of balancing reserve
14 capacity it must purchase to eliminate the customer's total schedule error. Without
15 committed scheduling for Full Service, BPA would not be able to base its purchases of
16 balancing reserve capacity on a power production forecast. Instead, before the close of
17 the scheduling window, BPA would need to purchase enough balancing reserve capacity
18 to provide energy for the estimated error, which in extreme circumstances could be up to
19 the customer's total installed capacity. BPA would not know ahead of time whether the
20 customer will schedule up to its nameplate capacity during a schedule period. Given the
21 geographical concentration of wind plants in the BPA balancing authority area, if
22 individual plants submit generation schedules in anticipation of a wind ramp that does not
23 actually occur until an hour or two later, the cumulative schedule error for multiple plants
24 would exacerbate the total schedule error in the BPA balancing authority area and
25 increase demand on the total balancing reserve capacity available in BPA's balancing

1 authority area. Conversely, use of a committed scheduling paradigm gives BPA and the
2 customer greater certainty with respect to schedule accuracy and the customer's
3 balancing reserve capacity need.

4 *Q. What is your conceptual framework for the scheduling signal for committed scheduling?*

5 A. As noted above, the details for committed scheduling will be developed in the ACS
6 Practices Forum. However, conceptually, we expect the signal will be based on a
7 persistence value set 30 minutes ahead of the scheduling interval. We also expect that
8 BPA will acquire vendor forecasts and will use an algorithm to select, for each hour and
9 each plant, the best-performing forecast (the "Super forecast"). BPA would then provide
10 those forecasts to wind plants that have provided plant-specific data, to help them predict
11 their generation for several hours into the future. BPA will compare the results of that
12 forecasting method to the accuracy of persistence scheduling. When BPA finds that the
13 combined forecast performs better than persistence for scheduling accuracy, BPA would
14 consult with the wind generator and consider basing the signal on the forecast rather than
15 persistence. We expect that BPA will use persistence scheduling until the forecast
16 developed for that individual plant is producing more accurate predictions of actual plant
17 output.

18 *Q. Will a customer be able to elect into or out of Full Service within the rate period?*

19 A. Yes. We propose that BPA would establish business practices to allow customers to
20 request Full Service for a specified minimum three-month period with notice to begin
21 Full Service and notice to leave Full Service. We expect Full Service would begin on the
22 first day of the month. The notice periods will define the maximum length of a purchase
23 that BPA would attempt to make to provide the service and provide BPA with certainty
24 in planning for purchases made on a shorter term.

1 Q. *What are the differences between Base Service and Full Service?*

2 A. Base Service (under 30/30 committed scheduling, 30/60 committed scheduling, and
3 uncommitted scheduling elections) limits the cost of providing VERBS by providing
4 service that meets the total balancing reserve capacity needs of the BPA balancing
5 authority area during 99.5 percent of the forecast hourly operations. Under Base Service,
6 DSO 216 limitations will be implemented as a transmission curtailment to manage wind
7 events where actual generation is less than scheduled amounts of generation and the total
8 amount of balancing reserve capacity available for load, wind, and other resources in the
9 BPA balancing authority area is exhausted. BPA will also require wind plants to feather
10 their generation output in hours of operation in which actual wind generation exceeds
11 scheduled wind generation and the total amount of balancing reserve capacity is
12 exhausted. The frequency of these transmission curtailments is expected to be about
13 0.25 percent each on a forecast basis and slightly more for feathering events when the
14 forecasted need for *dec* balancing reserve capacity at 99.5 percent exceeds 1100 MW.
15 The actual number of events will vary based on how consistent the distribution of wind
16 schedule error is with the historical distribution that was studied. Under our concept for
17 Full Service, BPA would attempt to purchase additional balancing reserve capacity to
18 eliminate BPA's application of wind-only transmission curtailments to the Full Service
19 customer. Under Full Service, BPA also would continue to require wind plants to feather
20 their generation output during hours of operation in which their actual wind generation
21 significantly exceeds scheduled wind generation (again, the expected frequency is
22 slightly more than 0.25 percent of the time).

23 Q. *What benefit will the customer receive by taking Full Service?*

24 A. Under our concept for Full Service, we expect Full Service customers not to be subject to
25 wind-only transmission curtailments under DSO 216 when BPA has successfully

1 purchased sufficient balancing reserve capacity to meet the expected reserve requirement.
2 We expect this higher standard of service would help address concerns of other balancing
3 authorities regarding transmission curtailments of wind output sourced from the BPA
4 balancing authority area and the concerns of wind owners that their hourly amounts of
5 energy receive a lower price in the market. We acknowledge that there may be market
6 transparency differences between the Base Service and Full Service.

7 *Q. Will BPA decide the e-Tag or other market transparency difference between the Full*
8 *Service and the Base Service in this rate case?*

9 A. No. The market transparency and e-Tag requirements that apply to wind generation are
10 not rate case issues.

11 *Q. If not in the rate proceeding, what forum or process does BPA expect to use to address*
12 *this issue?*

13 A. BPA expects to discuss the requirements for using G-F (firm) product codes in the ACS
14 Practices Forum. We recognize that use of product codes is also a broader regional issue,
15 but we expect that BPA will ultimately need to decide whether and how to differentiate
16 G-F from other-than-G-F energy products.

17 *Q. How much additional balancing reserve capacity will be needed for BPA to provide Full*
18 *Service?*

19 A. Based on customer feedback in rate case workshops, we expect some customers will not
20 elect to take Full Service for the entire rate period. As a result, the amount of balancing
21 reserve capacity that BPA may need to purchase during the rate period will likely be
22 lower at the start of the rate period, but will ultimately depend on how many customers
23 elect to take Full Service instead of Base Service and the capacity requirements that are
24 associated with those customers. The amount of balancing reserve capacity needed to
25 support Full Service will also depend on regional expectations for the quality level of

1 service provided by Full Service. We expect that BPA will address this issue in the ACS
2 Practices Forum.

3 *Q. How do you propose to allocate costs associated with incremental purchases of*
4 *balancing reserve capacity to provide Full Service?*

5 A. As discussed further in Klippstein *et al.*, BP-14-E-BPA-24, and Jackson *et al.*, BP-14-E-
6 BPA-28, we propose to allocate the costs associated with incremental purchases of
7 balancing reserve capacity to provide Full Service to the customers requesting that
8 service under a formula purchases charge.

9 *Q. Based on your proposal, what would happen to a customer's transmission schedule for*
10 *Full Service if, despite reasonable efforts, BPA is unable to purchase additional amounts*
11 *of balancing reserve capacity from third parties to meet the balancing reserve capacity*
12 *needs of Full Service customers based on a power production forecast?*

13 A. BPA expects to establish business practices for establishing e-Tag and transparency
14 requirements for wind generation based on the purchase of Base Service and Full Service.
15 Such business practices will also establish the tagging and transparency requirements for
16 Full Service when BPA is unable to purchase all of the additional amounts of balancing
17 reserve capacity to avoid wind-only transmission curtailments. Depending on how much
18 of the Full Service level of capacity BPA is able to purchase, we would expect that a
19 portion of the output of a wind project purchasing Full Service would need to be tagged
20 similar to Base Service and be subject to curtailment during hours when BPA is unable to
21 purchase all of the additional amounts of balancing reserve capacity. These important
22 and timely issues are subject to further review and dialogue with customers.

1 Q. *Based on the conceptual framework for a Full Service product, what do you expect to*
2 *happen to a Full Service customer's transmission schedule if within a scheduling period*
3 *BPA has insufficient balancing reserve capacity to meet the balancing needs of the BPA*
4 *balancing authority area?*

5 A. Conceptually, if BPA exhausts its balancing reserve capacity so actual generation is less
6 than the loads of the balancing authority and the scheduled amount of exports from the
7 balancing authority and BPA has curtailed the transmission schedules subject to wind-
8 only curtailments under DSO 216 to their actual generation output, we would expect BPA
9 to request all parties exporting generation from the balancing authority area to curtail
10 their schedules to match their actual generation.

11 Q. *Why would it be appropriate for BPA to curtail all generator transmission schedules to*
12 *mitigate a balancing reserve capacity insufficiency for Full Service customers that occurs*
13 *within a scheduling period?*

14 A. BPA would have to curtail all generator schedules for underperforming generators (that
15 is, the generator's actual output is less than the scheduled output) in order to prevent
16 over-deploying balancing reserve capacity. When a generator is not meeting its schedule,
17 BPA has a responsibility to the rest of the entities in the balancing authority area as well
18 as the Western Interconnection to take action on the generators not meeting their
19 obligation before taking action on other entities.

20 Q. *Why are you sharing a conceptual framework for Full Service in this rate proceeding if*
21 *the terms for Full Service are not rate case issues?*

22 A. We are sharing our conceptual framework for Full Service to help expedite the
23 development of a Full Service product in the ACS Practices Forum. Moreover, we have
24 identified the critical non-rate elements of Full Service in an attempt to help separate
25 these issues from those concerning cost recovery and rates in this rate proceeding. We

1 intend to work with BPA’s customers to evaluate our concept for Full Service and to
2 obtain feedback in the ACS Practice Forum.

3
4 **Section 5.3: VERBS Supplemental Service**

5 *Q. What is Supplemental Service?*

6 A. Supplemental Service is an optional service under the VERBS rate. Customers taking
7 VERBS Supplemental Service would purchase balancing reserve capacity, or have BPA
8 purchase on their behalf, to decrease the number of curtailments a particular variable
9 energy resource would face under DSO 216. See Jackson *et al.*, BP-14-E-BPA-28,
10 section 6.2.

11 *Q. What is your proposal for Supplemental Service?*

12 A. We propose the following:

- 13 ● BPA will offer VERBS Supplemental Service during the FY 2014–2015 rate period
14 to allow customers to purchase or self-supply *inc* or *dec* balancing reserve capacity to
15 limit DSO 216 curtailments for a variable energy resource designated by the
16 customer.
- 17 ● BPA will establish a formula rate in the rate proceeding that collects the full cost of
18 any purchases of supplemental balancing reserve capacity that BPA makes for
19 participating customers.
- 20 ● Outside of the rate proceeding, BPA will develop a business practice that will outline
21 the implementation details for customer self-supply of supplemental reserves and
22 BPA purchase of supplemental reserves.

23 *Q. Why are you proposing to offer Supplemental Service?*

24 A. Some customers have indicated a desire for an option to elect a higher level of service
25 than what is available under the proposed Base Service, and on a shorter notice time-

1 frame than available under our concept for Full Service. Some customers have also
2 indicated a concern regarding the impacts of curtailments for wind being exported from
3 the BPA balancing authority area when BPA has exhausted all of the balancing reserve
4 capacity it is holding for an hour. These customers have indicated that they are interested
5 in the option of purchasing a higher quality of service, but they are concerned that
6 purchasing Full Service may be too expensive or not provide the certainty they need.
7 VERBS Supplemental Service allows customers purchasing this service to reduce or
8 eliminate the potential for DSO 216 curtailments of transmission schedules from their
9 variable energy resources on the time frames of their choosing.

10 *Q. Will all of the details of the proposed VERBS Supplemental Service, including the*
11 *requirements and operating protocols, be addressed in the BP-14 rate case?*

12 *A.* No. The primary issue to resolve in the rate proceeding is recovery of the costs
13 associated with Supplemental Service. Issues that are commercial or operational in
14 nature will be addressed outside of the rate case. BPA is currently working on an internal
15 project called Enhanced Supplemental Service to address many of the concerns expressed
16 by customers about BPA's initial Supplemental Service business practice. BPA will
17 modify its business practice in the ACS Practices Forum. This business practice will
18 outline the requirements for resources to be used for supplemental reserves, a mechanism
19 for BPA to secure products and to define how they will be dispatched by BPA, a
20 mechanism for customers to self-supply supplemental reserves, and other implementation
21 details. As with all business practices, this will be posted for public comment in order to
22 solicit the best ideas in the region for purchasing and supplying supplemental reserves.

1 **Section 5.4: Impact of Self-Supply**

2 *Q. Please describe the current Customer-Supplied Generation Imbalance (CSGI) Pilot.*

3 A. The current CSGI pilot is a business practice that allows VERBS wind customers to self-
4 supply the imbalance component of their VERBS balancing reserve capacity
5 requirement. As part of this pilot, CSGI participants purchase only the regulating and
6 following components of VERBS from BPA.

7 *Q. When and how will BPA evaluate the success of the CSGI Pilot?*

8 A. BPA is currently evaluating the success of the pilot and expects to complete the
9 evaluation by January 1, 2013. As part of the evaluation, BPA will assess CSGI
10 performance relative to the parameters established in the CSGI Pilot business practice.
11 BPA may propose some modification of the performance requirements if the evaluation
12 suggests changes are needed.

13 *Q. Is BPA anticipating that some variable energy resources will self-supply a portion of
14 their balancing reserve capacity during the rate period?*

15 A. Yes.

16 *Q. What assumptions regarding self-supply are reflected in the Initial Proposal?*

17 A. We forecast that 1,428 MW nameplate of wind will self-supply the imbalance component
18 at the start of the rate period and that 1,538 MW will self-supply by the end of the rate
19 period. The average self-supply nameplate quantity for the rate period is forecast at
20 1,505 MW. Study section 2.7.4; Documentation Table 2.17.

21 *Q. What is the basis for this assumption?*

22 A. The CSGI pilot has been in effect for more than two years, and BPA has not received
23 indication from the current CSGI participant that it does not plan to continue as a
24 participant. We have not received any indication from other VERBS customers that they
25 intend to self-supply for the FY 2014–2015 rate period.

1 Q. How will you determine the amount of self-supply for the forecast in the Final Proposal
2 studies?

3 A. We will base our assumption for Final Proposal studies on customers' VERBS Balancing
4 Service elections for the rate period. These elections are due on April 1, 2013.

5 Q. What will variable energy resources indicate when they file balancing service elections
6 on April 1, 2013?

7 A. Variable energy resources will indicate whether they will self-supply one or more
8 components of VERBS Base Service. Customers that elect to take all VERBS
9 components from BPA will indicate their preferred VERBS scheduling performance
10 option. As described in section 5.1 above, the choices for scheduling performance are
11 30/30 committed intra-hour scheduling, 30/60 committed hourly scheduling, or
12 uncommitted hourly scheduling.

13 Q. What service options will customers have after April 1st?

14 A. Customers that advance an expected post-FY 2015 interconnection into the rate period
15 will need to elect a scheduling option for Base Service (for example, 30/30 committed
16 scheduling, 30/60 committed scheduling, or uncommitted scheduling). Customers may
17 also elect Full Service for specified periods if they have also elected either 30/30
18 committed scheduling or 30/60 committed scheduling. See also Jackson *et al.*, BP-14-E-
19 BPA-28, section 6 (discussing the Full Service exception under Base Service rates).
20 Although we do not expect any customer will discontinue its effort to self-supply during
21 the rate period, customers that can no longer self-supply during the rate period will need
22 to elect a Base Service scheduling option. See also *id.* section 6.1 (discussing Formula
23 Purchases Charges that may apply to a customer).

24 We are not proposing to allow customers to change their base service election to a
25 shorter scheduling period than the customer's initial April 1st election. This is because of

1 the potential cost-shift risk that results from the reduced balancing reserve capacity
2 requirement for the shorter scheduling period relative to BPA's planned balancing
3 reserve capacity commitment for the initially elected service. As noted earlier, however,
4 we encourage interested parties to address this issue in their direct cases.
5

6 **Section 6: Cost Allocation for Balancing Reserve Capacity-Based Ancillary and Control**
7 **Area Services**

8 *Q. What is BPA's pricing principle for setting power and transmission rates?*

9 A. BPA sets rates based on cost causation and equitable allocation of costs.

10 *Q. Why is the principle of cost causation important for equitable rates?*

11 A. Setting rates consistent with cost causation means that BPA's rate design takes into
12 account the cause of a particular cost so that revenue recovery of that cost comes from the
13 product, service, or customer(s) that caused that cost to be incurred. This principle
14 supports equitable allocation of costs, and thus equitable rates, since the amount a
15 customer pays BPA accurately reflects BPA's cost of providing the service. Applying
16 the principle of cost causation to BPA's rate design also results in equitable rates when
17 the principle is applied consistently to comparable products, services, or customers.

18 *Q. How do you apply the principle of cost causation to price VERBS?*

19 A. We have applied the principle of cost causation to the rate design of balancing services in
20 two primary ways. The first is to set different balancing service rates based on
21 operational characteristics and elected scheduling practices, which have an impact on the
22 amount of balancing reserve capacity BPA must hold to balance the system. Second, we
23 created a methodology to determine the balancing services that cause the need, and thus
24 the cost, to purchase balancing reserve capacity. This cost causation methodology is

1 applied consistently across BPA's three categories of balancing users: load, dispatchable
2 energy resources, and variable energy resources.

3 *Q. How much balancing reserve capacity from the FCRPS are you proposing that BPA*
4 *supply for balancing reserve capacity-based Ancillary and Control Area Services and*
5 *Load Following Reserve over the FY 2014–2015 rate period?*

6 *A.* We propose that BPA supply up to 900 MW of *inc* and up to 1100 MW of *dec* balancing
7 reserve capacity for balancing reserve capacity-based Ancillary and Control Area
8 Services and Load Following Reserve on average over the rate period. Kerns *et al.*,
9 BP-14-E-BPA-23, section 4. Depending on customers' service elections, BPA will
10 purchase additional balancing reserve capacity up to the total *inc* reserves required to
11 meet their service needs. We do not propose that BPA purchase additional *dec* reserves
12 beyond what the FCRPS can provide.

13 *Q. Did you consider such limitations when forecasting the balancing reserve capacity*
14 *requirement for VERBS?*

15 *A.* Yes. Based on input from customers in rate case workshops and the results of a BPA
16 pilot project that sought to purchase *dec* balancing reserve capacity, we are proposing that
17 BPA not purchase non-Federal *dec* balancing reserve capacity when BPA's forecast need
18 for *dec* balancing reserve capacity exceeds the 1100 MW of *dec* balancing reserve
19 capacity that can be supplied by the FCRPS. We expect that the need for *dec* balancing
20 reserve capacity to maintain a 99.5 percent quality of service will exceed FCRPS
21 capability in December 2014. This date can change depending on when additional wind
22 plants interconnect in the BPA balancing authority area and on the megawatt amount of
23 wind plants that elect to participate in the committed intra-hour scheduling product.

1 Q. Why did BPA choose not to purchase non-Federal *dec* balancing capacity in the *dec*
2 *acquisition pilot*?

3 A. BPA issued a Request for Proposal (RFP) to purchase up to 300 MW of non-Federal *dec*
4 balancing reserve capacity. The responses BPA received under the RFP offered non-
5 Federal *dec* balancing reserve capacity at roughly five to six times the cost of *dec*
6 balancing reserve capacity supplied by the Federal system. BPA asked customers if they
7 thought the value of reducing the number of instances where BPA was required to limit
8 the overgeneration of wind plants through use of DSO 216 justified the additional
9 expense. Our understanding is that most customers did not believe the additional expense
10 would be justified.

11 Q. Did you consider the interests of customers that thought the expense of additional *dec*
12 balancing reserve capacity is justified?

13 A. Yes. As described above, we propose a modification of its Supplemental Service to
14 include the purchase of *dec* balancing reserve capacity. Any customer that wishes to
15 reduce the instances when its overgeneration is reduced under DSO 216 can purchase on
16 its own or request BPA to purchase *dec* balancing reserve capacity through Supplemental
17 Service.

18 Q. If BPA is capable of providing additional (more than the planned amount) balancing
19 reserve capacity from the FCRPS within the rate period, will BPA first utilize Federal
20 balancing reserve capacity before making purchases of non-Federal balancing reserve
21 capacity?

22 A. Not necessarily. BPA maintains discretion as to how much (if any) additional FCRPS
23 balancing reserve capacity to offer on a short-term basis. This is not a rate case issue.
24 BPA's business practice for selecting and prioritizing offers will be discussed in the ACS

1 Practices Forum. Any offer from the FCRPS will be evaluated at the same time and on
2 the same basis as other offers.

3 *Q. If BPA is unable to provide inc balancing reserve capacity from the FCRPS to balance*
4 *variable energy resources, does BPA expect to contract for non-Federal sources of inc*
5 *balancing reserve capacity to provide balancing services?*

6 A. Yes. BPA plans to purchase amounts of non-Federal *inc* balancing reserve capacity to
7 maintain the 99.5 percent level of service on a planning basis. Study section 10. We are
8 proposing four different types of balancing reserve capacity purchases. Study sections 3
9 and 10.

10 *Q. If BPA is unable to provide the forecast quantity of Federal balancing reserve capacity to*
11 *provide VERBS during the rate period, do you propose to provide a credit to VERBS*
12 *customers?*

13 A. Yes. As explained in Jackson *et al.*, BP-14-E-BPA-28, section 6.4, the rate credit will be
14 calculated monthly and is equal to the ratio of hourly unavailable *inc* and *dec* balancing
15 capacity from the FCRPS due to reductions caused by hydro system limitations to the
16 planned hourly average capacity that was expected to be available from the FCRPS. For
17 example, if the monthly planned average *inc* and *dec* balancing reserve capacity is
18 reduced by 25 percent from planned levels for each hour of the month, the credit for the
19 month would be 25 percent of the VERBS charge. The credit is for hydro system-related
20 reductions in available capacity. The credit applies to VERBS customers taking all three
21 components of VERBS from BPA, so CSGI Participants and VERBS Solar would not see
22 a credit. Those customers do not see a real reduction in the Regulation and Following
23 that BPA provides when overall reserves are reduced. Power customers will see a
24 reduction in VERBS revenues from the rate credit.

1 Q. *Why are you proposing to provide a credit for the VERBS rate only for hydro-related*
2 *reductions in Federal balancing reserve capacity?*

3 A. We believe our proposal to provide a credit for hydro-related reductions in Federal
4 balancing reserve capacity is consistent with the Commission's guidance regarding the
5 impact of weather-related events on balancing reserve capacity-based services. In Order
6 No. 764, the Commission states that weather-related events "should be included in the
7 data set so that the quantity and costs of such reserves are more reflective of actual
8 system operations." Order No. 764, P 321. Our proposal ensures that VERBS customers
9 do not bear the costs associated with Federal balancing reserve capacity that BPA cannot
10 provide because of hydro system limitations. Commission policy and industry practice
11 do not support the provision of rate credits for interruptions to any other service. On rare
12 occasions there may be transmission-related reasons for limiting balancing reserve
13 capacity, and if such an event were to occur it would not be reasonable to have power
14 customers pay the credit back on the VERBS rate.

15 Q. *Why does the rate credit not apply to the DERBS rate?*

16 A. The rate design used for DERBS is different from that used for VERBS. Specifically, the
17 billing factor for DERBS is measured on actual use, while the billing factor for VERBS is
18 measured on nameplate. Study section 10.

19 Q. *Do you propose that BPA attempt to make non-Federal purchases during the times when*
20 *BPA is unable to provide the forecast quantity of Federal balancing reserve?*

21 A. Yes. We are proposing that BPA attempt to maintain the 99.5 percent level of service
22 through the purchase of non-Federal balancing reserve capacity. These purchases would
23 replace the planned-for but unavailable FCRPS-sourced balancing reserve capacity.
24 These purchases are defined as Type 2 purchases and are discussed in greater detail in
25 Study section 3.5.4.

1 While this is our proposal, we acknowledge that more discussion is needed with
2 customers to determine if they want BPA to attempt to make these purchases to maintain
3 the 99.5 percent level of service. We are aware that some customers may prefer that BPA
4 not attempt to make these purchases and instead temporarily lower the quality level of
5 Base Service until the FCRPS can provide the rate case forecast amount of balancing
6 reserve capacity. We encourage interested rate case parties to discuss this issue in their
7 direct cases.

8 *Q. How do you propose to address the timing, quantity, and cost of balancing reserve*
9 *capacity purchases?*

10 *A.* We will have discussions in the ACS Practices Forum about these topics and will develop
11 business practices where needed.

12
13 **Section 7: Definition of Incremental Cost for Imbalance Energy**

14 *Q. Are you proposing any changes to the rates for Generator or Energy Imbalance*
15 *Services?*

16 *A.* Yes. We are proposing to change the calculation of BPA's incremental cost for both
17 Energy and Generator Imbalance Services from an hourly market index to a weighted
18 average cost of energy deployed.

19 *Q. Why are you proposing to change the calculation of its incremental cost for Energy and*
20 *Generation Imbalance Services from an hourly market index to a weighted average cost*
21 *of energy deployed?*

22 *A.* There are times when the hourly market index price may be lower than the expected
23 operating costs of a non-Federal resource. As a result, some resources may be reluctant
24 to sell a balancing reserve capacity product to BPA because they may be compensated for
25 capacity but not fully compensated for any energy that is deployed. To increase the

1 likelihood that non-Federal generators will offer to sell to BPA reserve capacity for
2 imbalance services, we are proposing to compensate those generators for energy that is
3 deployed from those resources, in addition to their costs of the reserve capacity. We
4 propose to pay the non-Federal generator's offer price of generation deployed for
5 imbalance energy, and then average that cost with the hourly index price for energy
6 deployed from Federal resources to calculate BPA's incremental cost of imbalance
7 energy.

8 *Q. Are you proposed definition of incremental cost consistent with your cost allocation*
9 *methodology for non-Federal purchases of balancing reserve capacity? Please explain.*

10 A. Yes. First, the cost allocation methodology is a rate construct and does not change how
11 BPA operates the system. The cost allocation methodology identifies which users of
12 balancing reserve capacity caused the need to purchase balancing reserve capacity and
13 allocates the costs to those users. The methodology is not used to identify operational
14 access to a particular source of balancing reserve capacity; nor does it require that
15 operators deploy available balancing reserve capacity in a particular order or that they
16 match available balancing reserve capacity to a particular schedule error. Second, the
17 cost allocation methodology determines cost causation associated with the need to
18 purchase and hold capacity; it does not determine cost causation associated with the
19 deployment of that capacity in a particular hour.

20 *Q. How is the proposed definition consistent with the principle of cost causation?*

21 A. The cost of deployment during an operational hour is caused by customers with schedule
22 error during that hour. Our proposal is to allocate the deployment costs incurred during
23 an hour proportionally to a customer's error in the same hour.

1 Q. *How will the proposed definition of incremental cost for Energy and Generation*
2 *Imbalance Service apply to negative deviations (actual generation greater than*
3 *scheduled) where acquisitions of dec capacity from non-Federal resources are deployed?*

4 A. BPA does not plan on purchasing *dec* capacity to replace unavailable Federal resources,
5 but it is possible that customers taking supplemental service could purchase *dec* capacity
6 for deployment by BPA. Deploying *dec* capacity for a resource directly offsets a like
7 amount of positive deviation (overgeneration relative to the schedule) for the resource
8 that purchased the *dec* capacity. We assume that there will be no incremental costs
9 relative to the hourly market index for non-Federal deployment of *dec* capacity, so we are
10 proposing not to adjust the incremental costs for negative deviations for deployment of
11 those resources.

12 Q. *How would BPA ensure that the cost of non-Federal energy that is included in BPA's*
13 *proposed calculation of incremental cost is reasonable?*

14 A. In the ACS Practices Forum, we expect BPA to explore the possibility of requiring
15 independent audits, price caps, or any other parameters that will help to ensure that the
16 costs of non-Federal energy that is deployed for imbalance energy are reasonable.

17 Q. *Does this conclude your testimony?*

18 A. Yes.

19

20

21