2010 Wholesale Power Rate Case Initial Proposal

REBUTTAL TESTIMONY

REBUTTAL FOR VARIABLE COST FOR GENERATION INPUT CAPACITY

April 2009

WP-10-E-BPA-44

This page intentionally left blank.

INDEX

REBUTTAL TESTIMONY of

JUERGEN M. BERMEJO and KATHERINE L. BEALE

Witnesses for Bonneville Power Administration

SUBJECT: REBUTTAL FOR VARIABLE COST FOR GENERATION INPUT CAPACITY

Page

Section 1: Introduction and Purpose of Testimony 1

Section 2: Rebuttal and Clarification of Proposed Variable Cost Methodology.....1

This page intentionally left blank.

REBUTTAL TESTIMONY of

JUERGEN M. BERMEJO and KATHERINE L. BEALE

SUBJECT: REBUTTAL FOR VARIABLE COST FOR GENERATION INPUT CAPACITY

Section 1: Introduction and Purpose of Testimony

Q. Please state your names and qualifications.

A. My name is Juergen M. Bermejo, and my qualifications are contained in WP-10-Q-BPA-05.

A. My name is Katherine L. Beale, and my qualifications are contained in WP-10-Q-BPA-04.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of this rebuttal testimony is to rebut specific aspects of parties' testimony regarding BPA's proposed variable cost methodology and to clarify some apparent misinterpretations of the variable cost methodology proposal.

Q. How is your testimony organized?

A. Section 1 is this introduction, and Section 2 is our rebuttal and clarification of certain issues raised by M-S-R Public Power Agency (MSR) and the Northwest Wind Group (NWG) regarding the variable cost methodology for generation input capacity.

Section 2: Rebuttal and Clarification of Proposed Variable Cost Methodology

Q. Did you review the direct testimony of MSR (WP-10-E-MS-04)?

A. Yes, we did.

Q. MSR stated that wind integration utilizes a non scarce resource, generation capacity within the hour. Arthur, WP-10-E-MS-04(E1), at 8. Load utilizes a scarce capacity,

energy storage. Id. Wind integration does not impact the amount of energy that BPA can generate. Id. Load does. Id. Do you agree?

A. No, we do not. The assertion that within-hour capacity is non-scarce is overly broad and is inaccurate in that it does not specify the type of capacity. While it is true that within-hour *inc* capacity is slightly less scarce than within-hour *dec* capacity, if judged by comparing the associated costs, Generation Inputs Study (Study), WP-10-E-BPA-08, Table 4.8, it is an over-generalization to imply that within-hour capacity is freely available. In fact, actions must be taken operationally to ensure the sufficient availability of both *inc* and *dec* capability. If the *inc* and/or *dec* capacity was freely available, no operational action would be required. *See* the discussion of Stand Ready Cost in the Study, WP-10-E-BPA-08, section 4.3, for details regarding the actions taken on the Federal Columbia River Power System (FCRPS) to ensure the availability of sufficient *inc* and *dec* capability. Note that Stand Ready Costs are realized only when action must be taken to make capacity available. When capacity is available due to a surplus of spinning and/or non-spinning capability, no variable charges are levied. Assuming *arguendo* that within-hour capacity was freely available – that is, no Stand Ready Costs would exist under any circumstance – Deployment Costs still would be incurred as the FCRPS responds to errors within the BPA Balancing Authority Area (BAA). *See* the discussion of Deployment Costs in the Study, WP-10-E-BPA-08, section 4.4.

Additionally, MSR's implication, Arthur, WP-10-E-MS-04(E1), at 7, that within-hour capacity used for wind integration is unique and different from capacity used for balancing within-hour loads is false. The FCRPS responds to unscheduled movements on the system regardless of source. That is, whether the unscheduled movement is due to a wind over/under generation situation or a load over/under run, the FCRPS balances the sum of the instantaneous deviations in supply and demand. Likewise, the impact to the FCRPS of making within-hour capacity available is the same

whether used for wind or load. As with setting up the FCRPS with the capability to respond, actually responding to within-hour movements has the same impact whether the source of movement is from wind or load. *See* the discussion on The Control Error Signal Distribution in the Study, WP-10-E-BPA-08, section 4.2.2.

To the extent that wind and load have offsetting balancing requirements, both benefit from "pooling" these requirements so that the system responds to the net signal. If the capacity used were distinct for wind and for loads, this pooling benefit of reduced total requirements for balancing could not occur.

Finally, energy production, efficiency losses aside, does not change whether reserves are carried for wind or load, or not carried at all. Only the timing of energy production is affected, as noted in the discussion on Stand Ready Costs in the Study, WP-10-E-BPA-08, section 4.3.

Q. Do you agree with MSR's argument that in the absence of empirical documentation it is difficult to conclude that BPA has experienced actual lost revenues from the within-the-hour integration of wind, and any actual energy impacts are covered by the Generation Imbalance Charge? Arthur, WP-10-E-MS-04(E1), at 10.

A. No. For purposes of determining the future cost of carrying and deploying reserves, we built the Generation and Reserves Dispatch (GARD) model. The GARD model uses actual plant data and unit performance data combined with Hydro Simulation model (HYDSIM) output so the impacts of future reserve levels can be evaluated. The rapid increase in wind generation within the BPA BAA combining with the unprecedented magnitude of the forecasted reserve requirement renders any historical perspective less relevant.

Generation Imbalance covers only the cost of energy used to provide generation imbalance. Looking to the FY 2010-2011 rate period, where the reserve need is both higher and bi-directional (that is, consisting of both *inc*s and *dec*s), the resultant required

changes in Federal resource operations along with large within-hour deviations from schedules result in significant costs. The Generation Imbalance charge does not cover the costs of setting up the FRCPS to be standing ready and capable of providing reserves and the efficiency loss of actually providing the reserve. Specifically, when actually providing reserves, the variable cost calculation charges for only the lost efficiency of the FCRPS, not the energy used to meet the reserve need.

Q. *Did you review the direct testimony of NWG (WP-10-E-NG-01)?*

A. Yes, we did.

Q. *Do you agree with NWG's contention that the costs that BPA describes as "variable" costs are primarily the opportunity costs associated with BPA setting aside generating capacity to provide within-hour reserves? Dragoon, WP-10-E-NG-01, at 24.*

A. No, we do not. The variable costs are related to lost efficiency through altered timing and placement of energy and through altered unit dispatch. Opportunity cost would be based on the next-best alternative market for the capacity rather than on actual system operations. *See* Mainzer *et al.*, WP-10-E-BPA-41, for a fuller discussion of variable costs versus opportunity cost.

Q. *Based on your variable cost study, WP-10-E-BPA-08, section 4, are there specific costs imposed on the system when providing* both inc *and* dec *reserves for within-hour balancing services?*

A. Yes. The specific costs are generally considered in two categories: Stand Ready and Deployment. The Stand Ready Costs are those costs realized when setting up the FCRPS to ensure that sufficient within-hour capability exists. These costs include Energy Shift, Efficiency Loss, and Base Cycle Loss. Additionally, costs are realized when the FCRPS actually responds to the reserve need. These Deployment costs include Response Loss, Incremental Cycling Loss, Incremental Efficiency Spill, and Incremental Efficiency Loss. *See* Study, WP-10-E-BPA-08, sections 4.3 and 4.4.

Q. Does the embedded cost described in the Study, WP-10-E-BPA-08, section 3, account for any of these variable costs?

A. No, it does not.

Q. NWG argues that Deployment Costs are incurred when BPA deploys within-hour reserves to provide imbalance for wind generators, and BPA already recovers its energy costs under its Generation Imbalance charge. Therefore, BPA, in effect, recovers the energy cost of within-hour reserves used for imbalance twice. Dragoon, WP-10-E-NG-01, at 25. Do you agree with this characterization of Deployment Cost?

A. No, we do not. As discussed earlier, the energy charges associated with Generation Imbalance are distinct and separate from the charges associated with deploying the FCRPS to meet a reserve need in real time. The distinction between energy used to meet an imbalance and the efficiency losses incurred during reserve deployment may better be understood with an analogy. If one schedules to travel by car a distance of 100 miles, one may optimize efficiency by setting aside enough time to travel at an efficient rate yielding 30 mpg. The fuel consumed is 3.33 gallons. However, if one is asked to make an unplanned trip of the same distance in a shorter amount of time, a faster rate of travel is required. Now, over the same 100 miles, one is getting 29 mpg. The fuel consumption is 3.44 gallons. The energy charge associated with Generation Imbalance is analogous to the 3.33 gallons to go the distance if scheduled, and the Deployment Cost is analogous to the +0.11 gallons for additional fuel used when traveling in a less-efficient manner.

Q. Do you agree with NWG's assertion that a portion of the costs in BPA's Variable Cost Pricing Methodology – the Deployment Costs – are essentially an energy charge, and, to the extent used to provide imbalance energy service, are duplicative of the Generation Imbalance Service charge? Dragoon, WP-10-E-NG-01, at 27.

A. No, we do not. As previously noted, the Deployment Costs are distinct from the energy associated with Generation Imbalance, because they represent efficiency loss as distinct

from energy used. The Deployment Costs and Generation Imbalance costs are not duplicative; they are additive.

Q. Does this conclude your testimony?

A. Yes.