UNITED STATES OF AMERICA
U.S. DEPARTMENT OF ENERGY
BEFORE THE
BONNEVILLE POWER ADMINISTRATION

2010 WHOLESALE POWER AND TRANSMISSION RATE ADJUSTMENT PROCEEDING	**BPA DOCKET BPA-10 WP-10**

REBUTTAL TESTIMONY OF THE PUBLIC UTILITY COMMISSION OF OREGON

WITNESSES:

DR. MARC HELLMAN and ROBERT CLARK

SUBJECTS:

REVIEW OF SECTION IV OF WP-10-E-AP-01

ANALYSIS OF THE 7(B)(2) TRIGGER CALCULATION

April 17, 2009 **WP-10-E-PU-04**

Section 1: Introduction and Purpose of Testimony

Q. Please state your names.

A. My name is Dr. Marc Hellman.

A. My name is Robert Clark.

Q. On whose behalf do you provide testimony?

A. The Public Utility Commission of Oregon "OPUC."

Q. Are you the same persons that offered direct testimony for the OPUC in this case?

A. Yes. The qualification statement for Dr. Marc Hellman is provided in WP-10-Q- PU-1.

A. The qualification statement for Robert Clark is provided in WP-10-Q-PU-2.

Q. What is the purpose of this testimony?

A. This testimony responds to direct testimony offered by the Association of Public Agency Customers ("APAC") in exhibit WP-10-E-AP-01.

Section 2: Analysis of WP-10-E-AP-01

Q. Please summarize your testimony.

A. We have several concerns regarding the analysis underlying APAC's recommended modifications to BPA's current method for calculating the 7(b)(2) trigger amount. (WP-10-E-AP-01, Section IV, "The Calculation of the 7(b)(2) Trigger Amount," pages 17 through 21, and exhibit WP-10-E-AP-09-E01.) Based on these concerns, we believe APAC's recommendations, as well as the findings on which they are based, should be given little weight.

Q. What does APAC recommend?

A. APAC recommends changing how BPA determines the rate test trigger for the 7(b)(2) rate test. APAC's recommendation is based on its findings as to which of three different methodologies produce the most accurate trigger amount of any year's raw trigger value. APAC recommends a rather straight-line like method using either (1) "internal cost"

inflation or (2) general U.S inflation. APAC presents its comparison of results for these two methods against results for what it calls the current BPA method.

Q. What is the first concern regarding APAC's analysis?

A. APAC's analysis appears to have an error in calculation, which results in an overstatement of the differences in the root mean square results for the three methods. Specifically, we suspect exhibit WP-10-E-AP-09-E01 shows root square deviations and not root mean square deviations. The simulation model provided to the OPUC pursuant to a data request sums squared deviations, and then, takes the square root of these sums. (WP-10-E-PU-05; AP-PU-1.) In other words, the "mean" in root mean square deviation is missing in the simulation model. Since the information was provided in response to our request for APAC's work papers supporting APAC testimony and exhibits, we believe the testimony and supporting exhibit have the same flaw.

Q. Does this omission have the effect of overstating the results of the analysis?

A. Yes. A properly calculated root mean square deviation analysis appears to show very little difference between the current 7(b)(2) methodology and APAC's recommended methodologies. In the simulation model (AP-PU-1), cells C64 through C66, sheet 1 tab, show the sum squared deviation amounts 41.0, 31.2, and 37.3 for the "Current BPA Method," "General Inflation Method," and "Internal Inflation Method," respectively. (WP-10-E-PU-05.) The next step in calculating root mean square deviation should be to divide the sum by the number of deviations summed (call it N). In this case N equals 30 (5 years times 6 iteration groups). This would yield mean square deviations of 1.37, 1.04, and 1.24 for the three methods, respectively. The final step would be to take the square root of these numbers, yielding the following root mean square deviations: 1.17, 1.02, and 1.11. These differences in deviations among the three methods would change net exchange benefits for the rate period by less than 2.5%, General Inflation Method versus "Current BPA Method," and less than 1.5%, Internal Inflation Method versus "Current BPA Method."

Q. What is your second concern regarding APAC's analysis?

A. The APAC analysis makes an apples-to-oranges comparison. The formula for comparing alternative methods within APAC's simulation model includes an initial benchmark set of BPA's 7(b)(2) model raw triggers. This initial benchmark set is based on data for the first five years of the analysis. The comparison, however, resets the five year study period for calculating method results for each subsequent year while restricting raw trigger results to the initial study period. In other words, each of the raw triggers for years 1 through 5 are compared against method values calculated on their respective five year average. So for example, take RT3, which denotes year three raw trigger value. The comparison that is made to RT3 is the average of the five years of triggers assuming year 3 as the starting year of the new five-year period. With inflation and other factors subsumed in the analysis, there is no reason to suspect that the initial raw trigger for 2014 would be higher, lower, or the same as what is obtained with a new five-year analysis with starting year of 2014, given that the base information is different between the two sets of analysis. In other words, this apples-to-oranges analysis is not meaningful.

Q. Do you believe that APAC's analysis and recommendations appropriately capture the intent of using a 5-year rate period to conduct the 7(b)(2) rate test?

A. No. The 7(b)(2) rate test places value on smoothing year-to-year disturbances through the use of a multi-year study period. The 7(b)(2) test smoothing does not appear to be designed to provide optimality in forecasting, but rather to moderate the size of rate changes from year-to-year. APAC's recommended modification to the 7(b)(2) rate test would increase the weight given to the rate period raw trigger with it acting as the benchmark for assessing the forecast accuracy of subsequent year trigger values. Although we are not attorneys, we believe that establishing each year as the benchmark is inconsistent with the averaging concept embodied by the 7(b)(2) rate test.

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Q. What is the third concern regarding APAC's analysis?

A. The benchmark used by the simulation model to calculate "error" (deviation) is not adjusted for the time value of money but is just the raw difference between the unbifurcated rate and the 7(b)(2) PF preference rate.

Q. If APAC's simulation model were changed to reflect: (1) BPA's actual current method; (2) a discounted benchmark for calculating deviations; and (3) the root mean square deviation, what might the simulation model indicate?

A. It is not clear the internal inflation method recommended by APAC is more accurate than BPA's current method, and in fact, may be less accurate. Moreover, the differences between the three methods would still seem rather insignificant. We changed the simulation model averaging formula for "Current BPA Method" to reflect a constant five year period, namely years 2010 through 2014, inclusively. We believe this is more consistent with BPA's actual method, which fixes the five years for calculating average instead of advancing it to a new five year period with each year of the initial study period as is done in the APAC simulation model. We also changed the benchmark for calculating deviation from its initial raw form to one adjusted for the Compounded BPA Discount values showing in row 18 of the simulation model. (WP-10-E-PU-05.) No other changes were made to the simulation model. The simulation model was then run one hundred times, and the iterations recorded in samplofruns tab. (WP-10-E-PU-05). The root mean square deviations resulting from this process were 1.34 for the true current BPA method, 1.27 for the "General Inflation Method", and 1.37 for the "Internal Inflation Method."

Q. Do you have any other concerns regarding APAC's analysis?

A. Yes. The simulation model introduces a "chicken and egg" problem with regard to the "Internal Inflation Method." The internal inflation trend should be consistent with the random simulation of average system costs and BPA costs. However, the simulation model holds the internal inflation trend constant (in a straight-line increase with inflation)

regardless of average system costs and BPA costs. Additionally, we suspect that raw triggers do not necessarily follow a straight line or increase with general inflation as the simulation model implies. For example, RAM2009F used by BPA for its December 3, 2008 workshop, projected raw rate differences (Delta) between unbifurcated rate and 7(b)(2) PF rate with more of a polynomial form than a straight line form as measured by R^2. In this incidence, the delta actually decreased between the years 2007 through 2011, and yet there was general inflation as measured by the GDP price deflator forecast. Historically, BPA rates adjusted for inflation have gone through multi-year periods in which they have increased relative to general inflation as well as multi-year periods in which they have decreased relative to general inflation (graph of inflation adjusted BPA historical rates available on BPA website).

Q. Does this conclude your testimony?

A. Yes.