

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-160228

REBUTTAL TESTIMONY OF

CLINT G. KALICH

REPRESENTING AVISTA CORPORATION

I. INTRODUCTION

1
2 **Q. Please state your name, the name of your employer, and your business**
3 **address.**

4 A. My name is Clint Kalich. I am employed by Avista Corporation at 1411 East
5 Mission Avenue, Spokane, Washington.

6 **Q. Have you filed direct testimony in this Case?**

7 A. Yes. My testimony covered the Company's use of the AURORA_{XMP} dispatch
8 model, or "Dispatch Model." I explained the key assumptions driving the Dispatch Model's
9 market forecast of electricity prices, including the variables of natural gas, Western
10 Interconnect loads and resources, and hydroelectric conditions. I also described how the
11 model dispatches its resources and contracts to maximize customer benefit and tracks their
12 values for use in pro forma calculations. Finally, I presented the modeling results provided to
13 Company witness Mr. Johnson for his power supply pro forma adjustment calculations.

14 **Q. What is the scope of your rebuttal testimony in this proceeding?**

15 A. My testimony will explain why adjustments made to the Dispatch Model
16 suggested by the Industrial Customers of Northwest Utilities ("ICNU") witness Mr. Mullins
17 are not reflective of current fundamental market conditions and are not feasible given hydro
18 license restrictions. This testimony will further counter ICNU's representation of the Dispatch
19 Models accuracy and address why creating a special Demand Response tariff is premature.

20 **Q. Are you sponsoring any additional exhibits?**

21 A. No.

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II. AURORA_{XMP} ADJUSTMENTS:

Q. Please describe the adjustments proposed by Mr. Mullins that you will be addressing?

A. Mr. Mullins suggests a reduction in power supply expense of \$671,000 by removing the Owned Hydro Variable O&M (\$267,000) and the Bidding Adder Assumption (\$404,000) as described in his response testimony.

Q. Do you agree with Mr. Mullins that Avista’s use of bidding adders is arbitrary and unnecessary?

A. No. Bidding adders are used by Avista to help AURORA_{XMP} reflect market fundamentals in creating a market price forecast. As part of modeling power costs, Avista is required to match AURORA_{XMP} market prices to the three month average of forward prices. There is nothing arbitrary about using this well-documented feature of AURORA_{XMP} to move prices to match forwards. Further, bidding adders are not used directly to match prices to forwards, but rather to influence the dispatch order of renewable resources (including hydro) to behave in a similar method as actual operations.

Q. What is a “bidding adder”?

1 A. A bidding adder is an adjustment to the variable cost of a generating unit in
2 order to change the dispatch order of the resource in the AURORA_{XMP} model.

3 **Q. What is the variable O&M adjustment to Avista’s Hydro Resources?**

4 A. The variable cost adjustment refers to the “Var Cost Mod1” variable in
5 AURORA_{XMP}’s resource table. This input is used to adjust the variable cost (or dispatch
6 price) of a generating unit in order to change the dispatch order of the resource.

7 **Q. Is there a difference between the variable O&M adjustment and bidding**
8 **adder adjustment?**

9 A. From a modeling perspective, no. Both adjustments were made to change the
10 dispatch order of the resource.

11 **Q. Why are these adjustments required in AURORA_{XMP}?**

12 A. Without these adjustments, the results of AURORA_{XMP} do not reflect actual
13 operating conditions of the Northwest power system; hydroelectric generation is spilled in
14 violation of multiple state and federal regulations, and resulting market prices are higher than
15 they otherwise would be.

16 Hydro resources generally do not have any direct variable operating or maintenance
17 costs (“O&M”). When a power cost model simulates operations it uses marginal fuel and
18 variable O&M costs to make dispatch decisions and therefore set the marginal market price.
19 However in the spring months, when hydro runoff is high and loads are low, the Northwest
20 power market may experience an oversupply of resources. In these events, without
21 adjustments to hydro’s dispatch price, the AURORA_{XMP} model will spill the hydro energy
22 given its zero cost. Further, this assumption does not allow the AURORA_{XMP} model to reflect
23 below-zero market prices as seen in our power markets. By including a negative bidding

1 adder or “Var Cost Mod1” adjustment, this effectively lowers the dispatch price of hydro
2 resources to prevent spilling its energy and, therefore, use the negative dispatch price of wind
3 facilities to set the market price.

4 **Q. Why are wind facility dispatch prices negative?**

5 A. Avista makes similar adjustments to wind (and solar) facilities in
6 AURORA_{XMP} in the “Var Cost Mod1” variable to reflect production tax credits, renewable
7 energy credit values, or fixed PPA pricing. Absent these adjustments, energy from these
8 resources would be spilled, as with hydro, even though they operate in negative market price
9 conditions to capture production tax credits, renewable energy credit values, and fixed PPA
10 pricing.

11 **Q. Why do you not want hydro projects to spill in AURORA_{XMP}?**

12 A. Most hydro projects in the Northwest are obligated to use all water that is able
13 to pass through the powerhouse in an effort to lower Total Dissolved Gas (“TDG”). If hydro
14 projects spill excess water over the spillway hydro TDG will be created, potentially violating
15 water quality restrictions.

16 **Q. Why do you choose negative \$45/MWh for regional hydro bidding adder
17 and negative \$75/MWh for Avista hydro facilities?**

18 A. These values are selected to make hydro resources the last to dispatch off in
19 events of low load and/or high hydro conditions. These are the price levels required to
20 overcome production tax credits, REC values, and must-run PPA contracts. Avista lowered
21 the negative bidding adders to create a supply curve to account for the ability for some hydro
22 resources known to have some spill capability and to not allow the model to go to negative
23 \$45/MWh.

1 **Q. Without these adjustments can AURORA_{XMP} reflect negative prices and**
 2 **actual and expected market conditions, including the operation of hydro and other**
 3 **renewable resources during oversupply conditions?**

4 A. No.

5 **Q. Can you provide how many hours prices at the Mid-Columbia have gone**
 6 **negative?**

7 A. Yes. Avista records the real time price each hour for the Mid-Columbia hourly
 8 energy market. Table No. 1 below provides the number of hours prices recorded below zero
 9 since 2010.

10 **Table No. 1: Number of Negative Priced Hours at the Mid-Columbia**

Year	Hours
2010	132
2011	240
2012	569
2013	56
2014	223
2015	26
Year to date 2016	40

11
 12 **Q. What is the impact of not including Bidding Adders/Variable O&M**
 13 **Adjustments?**

14 A. By not including these adjustments to hydro resources, market prices will not
 15 reflect market conditions of negative price environments. Further, by not including Bidding
 16 Adders/Variable O&M adjustments the model assumes regional and Avista hydro resources
 17 can violate their water quality requirements by spilling additional water over its spillways,
 18 creating less energy than will be made in actual operations. While spilling could lower power

1 costs to the region and to Avista, policy makers have chosen otherwise for fish protection.
2 Not reflecting actual operating obligations will understate actual power production costs.

3 **Q. Can any of Avista's hydro resources spill to take advantage of negative**
4 **pricing?**

5 A. It depends. Avista has similar water quality requirements as the region with
6 respect to limiting the amount of TDG. Avista does have some flexibility to spill at Long
7 Lake and Noxon Rapids. At Long Lake spill is limited to 4,000 CFS, an amount typically
8 spilled even at full production in spring months. Noxon Rapids has the theoretical ability to
9 spill, but because much of the rest of our generation fleet is either off-line (natural gas, coal)
10 or operating in run-of-river mode (hydro), two or three units are required to operate to provide
11 ancillary services in high-flow conditions and we cannot do both at the same time. Avista's
12 real time desk typically begins spilling what water it can when prices fall below minus \$1.00
13 per MWh. The remaining owned hydro facilities either have spill restrictions or do not have
14 the TDG monitoring in place to know if water quality is at risk in the event of a spill.

15 **Q. What is the impact if two Noxon Rapids units are allowed to spill?**

16 A. Reflecting some spill ability at Noxon to reflect two units not spilling at Noxon
17 will lower power supply expenses. Avista conducted an 80 water year simulation allowing
18 two Noxon units to spill during negative price conditions. The simulation lowers system
19 power costs by \$202,700 system (\$132,263 Washington share).

20 **Q. Does Avista propose including this adjustment in the November 2016**
21 **power supply update?**

1 A. Yes. Upon review of the argument made by Mr. Mullins on behalf of ICNU,
2 Avista believes it is reasonable to assume that two Noxon units might spill during negative
3 price environments.

4 **Q. Do you have a different take on the fact that market prices modeled by**
5 **Mr. Mullins are nearly identical to the case, a mere 0.13% difference?**

6 A. Mr. Mullins' own results, in my view, demonstrate that removing the bidding
7 adders for hydro does not have a material impact on the AURORA_{XMP} run itself. As my
8 rebuttal testimony explains, negative prices are a necessary element to ensure that regional
9 generation resources reflect their legal and physical obligations. Removing the negative
10 prices prevents resources from operating correctly. Negative pricing is a key element that
11 more accurately models the power supply system in AURORA_{XMP}.

12 **Q. In addition to the adjustments related to power supply costs, are there**
13 **other issues with Mr. Mullins' response testimony that further illustrate why his analysis**
14 **should be rejected?**

15 A. Yes. Mr. Mullins performed his analysis using a single water year, rather than
16 the full 80-year study. The 80-year water record is used in rate filings to take into account the
17 asymmetrical market prices that occur with varying hydroelectric generation water conditions.
18 For example, if you choose a single water year with energy close to average, it will not
19 represent the cost if all 80 years were studied. The average cost used in this rate proceeding
20 for variable fuel costs and system balancing market transactions is \$57,506,000. If 1938 were
21 used instead of the full 80-year record, as Mr. Mullins did for his work, power costs would be
22 \$11,036,000 higher than what Avista included in this case (\$68,542,000 vs. \$57,506,000). A
23 simple averaging of market prices is not a substitute for evaluating the overall performance of

1 AURORA_{XMP} across the full hydro record. Avista models the entire 80-year water record and
2 ensures the overall market conditions reflect forward prices on average and fundamental
3 market operations. Water year 1938 is not a substitute, since its water conditions are median,
4 as stated by Mr. Mullins.¹ A median water year is not adequate evidence to discount the
5 significant 80-year record modeled by Avista.

6 Furthermore, the use of the 80-year water record, which captures the asymmetrical
7 nature of wholesale market conditions, is consistent with the design of the Energy Recovery
8 Mechanism (ERM). The ERM has asymmetrical sharing bands depending on whether actual
9 power supply costs are higher (50%/50% customer/utility) or lower (75%/25%
10 customer/utility) than authorized.

11
12 **III. ACCURACY OF AURORA_{XMP}:**

13 **Q. Do you agree with Mr. Mullins, at page 45 to his response testimony**
14 **beginning at line 2, that “the AURORA_{XMP} model probably tends to overstate power**
15 **costs?”**

16 A. No. Mr. Mullins makes this allegation without supporting evidence. The
17 argument used to justify his position represents a gross misunderstanding of what
18 AURORA_{XMP} is used for, and how utilities interact in the marketplace to manage their power
19 supply portfolio.

20 Power supply proforma costs are based on average water conditions, forward natural
21 gas and electric prices, load forecasts, generation availability forecasts, and many other market

¹ Exhibit No. ____ (BGM-1T), p. 46, ln. 6.

1 assumptions. Together these assumptions represent “normalized” conditions; the basis for
2 power supply cost ratemaking. The biggest driver of variances from normalized costs are
3 hydro conditions and natural gas prices, items that can vary significantly year to year.

4 As explained in my direct testimony, beginning at line 19 of page 3, not only has the
5 Commission supported Company use of AURORA_{XMP} since 2002 in each of its rate case
6 filings, the software is used for Commission Basis Reports, Integrated Resource Planning
7 Analyses and RFPs. AURORA_{XMP} is used by many utilities for setting power supply
8 expenses, including the Bonneville Power Administration, Idaho Power, Portland General
9 Electric, PacifiCorp, Seattle City Light, and Grant County PUD. The Northwest Power and
10 Conservation Council uses the software for its power plans.

11 **Q. Do you agree with Mr. Mullins, beginning at line 3 on page 54 of his**
12 **response testimony, that Avista’s AURORA_{XMP} modeling is “results driven” and**
13 **“eliminates the need to use a model?”**

14 A. No. Mr. Mullins is focusing on only one aspect of the AURORA_{XMP} modeling,
15 defining overall wholesale market prices. In fact AURORA_{XMP} does many things. It tracks
16 fuel consumption, forced outages, generation levels, market reserves, portfolio values,
17 wholesale contracts, and more. These all play into the overall value of our portfolio. To say
18 AURORA_{XMP} is only used to determine market prices is a gross simplification.

19 **Q. Does Avista bias its power costs to be higher than expected costs?**

20 A. No, Avista uses forward natural gas prices and 80-year hydro conditions along
21 with five-year averages for resource/contract availability. It uses five-year averages of
22 historical forced outages at its thermal plant. Further, we ensure our AURORA_{XMP}-

1 determined market prices are in line with forward market prices so as to not bias the value of
2 Avista's energy position.

3 **Q. Why are short term market transactions different in AURORA_{XMP} than**
4 **actuals?**

5 A. Short-term actual transactions need to be compared to AURORA_{XMP}
6 transactions on a net basis. This is because AURORA_{XMP} only transacts the purchase or sale
7 of power one time for each hour. In actual operations, power for a future period or periods
8 may be purchased and sold multiple times as changes occur in the market, and as expected
9 hydroelectric generation varies as we approach the month/day/hour of actual operations. This
10 is a practice common in the utility industry, as well as other commodity-based businesses, in
11 their effort to prudently manage costs and risk.

12
13 **IV. DEMAND RESPONSE:**

14 **Q. ICNU witness Mr. Stephens proposed a demand response program in**
15 **Exhibit No. (RRS-10). Please explain why Avista has not offered a demand response**
16 **tariff at this time?**

17 A. Demand response, if properly designed, can be a cost effective method to
18 reliably meet customer needs for energy (and capacity). Currently Avista has enough capacity
19 resources to meet its customer needs as described in its 2015 IRP. In the 2015 IRP, Avista
20 expects its first capacity shortfall in January 2021 after acquiring all cost effective
21 conservation opportunities.

22 **Q. Is there value to customers in acquiring this resource ahead of need?**

1 A. As proposed by ICNU, there would be no additional value to Avista customers.
2 First, this opportunity would not allow for any additional capacity sales due to ICNU's one
3 hour notice requirement for curtailment. Second, the energy savings to curtail 100 hours of
4 customer load, as proposed by Mr. Stephens, would be priced at the same value Avista would
5 acquire the energy at on the wholesale market. In short, the capacity offered by ICNU is for
6 a limited number of hours, is for a limited duration when called upon, has significant
7 limitations on when it can be called upon, and, therefore, has little value to Avista and its other
8 customers.

9 **Q. Is there a long term benefit of this program?**

10 A. Yes, if a long term contract was available with modifications to the operations
11 of the curtailment, Avista customers may see value by deferring a simple cycle combustion
12 turbine or other capacity resource acquisition at a cost below its avoided cost.

13 **Q. How should demand response like this proposal be acquired?**

14 A. Typically new long-term resources are acquired using a competitive bidding
15 process unless a compelling benefit to customers is available. Avista plans to release a
16 Request for Proposal (RFP) to meet its future capacity deficit at least three years prior to the
17 resource need (per the 2015 IRP, the RFP would be released in 2018 for the 2021 deficit).
18 The RFP would allow both supply and demand side opportunities to compete for the best price
19 for Avista customers, and Avista would invite ICNU members to submit demand response
20 offerings at that time.

21 **Q. Does this conclude your rebuttal testimony?**

22 A. Yes.