

**AVISTA CORP.  
RESPONSE TO REQUEST FOR INFORMATION**

JURISDICTION:	WASHINGTON	DATE PREPARED:	09/11/2017
CASE NO:	UE-170485 & UG-170486	WITNESS:	Clint Kalich
REQUESTER:	UTC Staff - Gomez	RESPONDER:	James Gall
TYPE:	Data Request	DEPT:	Energy Resources
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**REQUEST:**

Referring to the values in the Resource Table in the AURORA model project file used in this case and the AURORA project files from the last two General Rate Cases, please explain:

- a. How the changes in values in Table 3 below were calculated for each General Rate Case (For example, Noxon Rapids 1-5). Describe the procedure or process Avista uses to arrive at these numeric values. Provide all analysis, workpapers, formulae and any other materials and documents which Avista relied on to calculate these values.
- b. Explain how Avista arrived at -\$10 MWh variable cost modifier for Kettle Falls. Describe the procedure or process Avista uses to arrive at this numeric value. Provide all analysis, workpapers, formulae and any other materials and documents which Avista relied on to calculate this value.
- c. On pages 9:14-10:16 of Mr. Kalich's supplemental testimony Exh. CGK-3T, he refers to "Bidding Adders" but also uses the term "Bidding Factors".

AURORA defines a Bidding Adder as:

"The Bidding Adder Column allows the user to specify a bidding adder, which will be added to the total resource variable cost to get the dispatch cost of the resource. This simulates bidding at prices that are greater than the cost of a resource."<sup>1</sup> **Dispatch Cost = Variable Cost + Bidding Adder**

AURORA defines a Bidding Factor as:

"The Bidding Factor column allows the user to specify a bidding factor, which will be added to one and multiplied by the total resource variable cost to get the dispatch cost for the resource. This simulates bidding at prices that are greater than the cost of the resource."<sup>2</sup> **Dispatch Cost = Incremental Cost (Variable Operating & Maintenance (VOM), fuel and emissions costs) \* (1 + Bidding Factor)**

In light of the definitions provided, explain why Mr. Kalich uses the terms Bidding Adders and Bidding Factors interchangeably in his testimony.

- d. Explain why Demand-Side Curtailment was assigned a Variable O&M value of \$500 MWh in AURORA in this case and \$0.00 in UE-150204. Describe the procedure or process Avista uses to arrive at these numeric values. Provide all analysis, workpapers, formulae and any other materials and documents which Avista relied on to calculate these values.
- e. Referring to the values in Table 3 below, identify the values Mr. Kalich refers to as "bidding adders" in his testimony<sup>2</sup> for resources in UE-160228 and UE-150204 with both a Var Cost 1

<sup>1</sup> Avista uses negative dollar values.

<sup>2</sup> Kalich, Exhibit CGK-3T, Page 12:11 through 14:15.

value and a Bidding Adder. Explain the presence of two values for both Avista owned and contracted hydro generation.<sup>3</sup>

- f. Mr. Kalich's testimony states, "Resource dispatch margins, previously called bidding factors, add a premium to the dispatch margin a generation resource requires before it will dispatch. Unless a separate bidding factor is specified for an individual resource, the dispatch margin is applied globally to all resources AURORA<sub>XMP</sub> commits and dispatches."<sup>4</sup> Given this statement and the lack of values present in the "Bidding Factor" fields in the resource tables in this and the last two general rate cases, identify which resources Mr. Kalich is referring to that receive a seasonal resource dispatch margin.
- g. Referring to seasonal resource dispatch margin percentages contained in Table No. 2 of Mr. Kalich's supplemental direct testimony, describe the procedure or process Avista uses to arrive at these numeric values. Provide all analysis, workpapers, formulae and any other materials and documents which Avista relied on to calculate these values.
- h. Referring to seasonal resource dispatch margin percentages contained in Table No. 2 of Mr. Kalich's supplemental direct testimony, explain why a percentage value of 5 percent is included in the "Resource dispatch margin (%)" field in the Dispatch Setting parameters in the AURORA project file in UE-150204 and in the current case the field is populated by table. Also explain why the "Remove penalty adders from pricing" setting is on in this case and not in UE-150204.

## RESPONSE:

- a) Avista uses "Var Cost Mod" and "Bidding Adders" to change the dispatch order of hydro projects and renewable resources to properly model the power system. To change the dispatch order, a model user must take into account where the resource is in the stack, and desired effect to the unit to market prices if it is the "marginal unit". For Avista resources that cannot dispatch off, whether they are PURPA resource or must run hydro resource, these were given the lowest price as compared to other market resources, -\$75. Noxon 1 & 2 were given a value of \$-1, as Avista will spill hydro when the market prices are below \$1/MWh on two units. Other non-Avista hydro resources are assigned a range in negative prices to create a curve of negative prices so that prices do not go directly to -\$50/MWh. Avista did not create any analysis to estimate these prices, these values are direct input used to affect overall plant dispatch.
- b) Kettle Falls includes a -\$10/MWh variable cost. This charge is to estimate the value of REC's. This plant is used for both I-937 compliance, and for selling REC's into the state of California. Due to the value of REC's, Avista will dispatch the plant when market prices are below the actual marginal cost of the plant. To model this effect, \$10/MWh is reduced from the dispatch cost of the plant to represent this adjustment. Without this adjustment the plant would under dispatch relative to its value, thereby overstating its costs in this case.
- c) Bidding adders and bidding factors are discussed differently throughout the text with two exceptions. Beginning on page 9:14, the headline "Bidding Adders", but first discussed bidding factors. The headline was not meant to be related to the AURORA "bidding adder" column, but rather adders to the dispatch price from bidding. On page 9:21, there could also be confusion as

<sup>3</sup> Exhibit CGK-3T, page 12:21 through 13:3 states, "[t]he typical bidding adder for hydro projects is negative \$50 per MWh. Avista hydro resources are given a lower bidding adder of negative \$75 per MWh to ensure these resources do not dispatch down, with an exception to Noxon Rapids described later in my testimony."

<sup>4</sup> Exhibit CGK-3T, page 10:7-16.

the sentence says “Therefore bidding adders are one tool” This would be better described as changes to resource’s bidding cost is one tool.

- d) The Demand-Side Curtailment resource in the model is used when there is no resources to serve load in a given area. These resources are added so that the model can solve each hour and the price used is a high price for unserved energy. The Curtailment resources are typically modeled as a function of the natural gas price at Henry Hub. For example, “Demand Side Curtailment Area CCLI 80” has a heat rate of 40,000 and a capacity of 400 MW. If the natural gas price is \$2 then the price of power for this resource to dispatch is \$80/MWh, this is too low of a price in an unserved energy regional position. Therefore \$500 is added to the VOM so that these resources are not dispatched over “real” resources when natural gas prices are low and loads are high. The choice of \$500/MWh in the VOM is priced high enough so the resource doesn’t dispatch prior to other “real” plants. A user may use other values or place values in VAR Cost Mod1 or other locations in the model to get the desired output. This adjustment has no material impact on this case as it only impacts electric market prices that are true up to forwards in a few circumstances, if any, in the case.

In past cases the Company might not have included a high VOM price, primarily because it is immaterial to the analysis, since this resource is not used during the study. The assumption becomes more relevant in long-term studies like an IRP where regional resources are inadequate to serve loads long into the future. Because Avista uses essentially the same model for long-term planning and rate filings, some data, such as this VOM value, remain in the model but have no material impact on the case.

- e) The current filing does not have both a Var Cost Mod1 and Bidding adder. The previous case did have both adders as when the case was prepared -\$50 was included for all hydro projects and an additional -\$75 was included for Avista’s projects in Var Cost Mod1. The extra value was to reflect additional value on top of regional resources so the units would not turn off per our license obligation. In this case, rather than having both values, it was simpler to include a single higher value in the bidding adder.
- f) Per the AURORA help menu, “The resource dispatch margin is applied to all resources in the system that do not have bidding already specified”.
- g) The Company staff estimates these values by running the model with a 5 percent margin. Then the Company compares the resultant monthly on and off peak electric prices to forwards. If the price is materially different, the dispatch margin by month is changed and the model is run again to determine if the change was adequate to match model prices to forward prices. If forward prices cannot be replicated in the model by changing dispatch margin between 0 and 10 percent, then other modeling assumptions are used (as described in testimony). This is an iterative process and the Company does not retain the iterative studies.
- h) Regarding dispatch shapes, between EU-150204 and this filing, Epis (the AURORA vendor) changed how dispatch margin is displayed in the user interface. Prior to this case a single value with a referred shape had to be used. Now we can refer to a shape of values in the run setup with a single reference.

Regarding remove penalty adders from pricing; Avista chose not to include this feature in the case, as it changes market prices in a way not tied to the cost of the region’s marginal-cost unit. *Removing this feature removes the non-commitment penalty on uncommitted resources as well as*

*the “Min gen back down penalty” on committed or must run resources*<sup>5</sup>. Unlike in the previous case, this feature was not necessary to make modeled prices similar to forward prices for this case.

<sup>5</sup> From AURORA help menu