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June 22, 2021

Public Utility Commission Oregon
Attention: Filing Center
201 High Street SE, Suite 100
Salem, OR 97301-1088

Re: Docket No. LC 75 – Avista Utilities 2021 Natural Gas Integrated Resource Plan Response Comments

Avista Corporation, dba Avista Utilities (Avista and/or the Company), provides the following response comments filed by Commission Staff (Staff), the Citizens' Utility Board of Oregon (CUB), and Alliance of Western Energy Consumers (AWEC) in the investigation of the Company's 2021 Natural Gas Integrated Resource Plan (IRP). Avista appreciates the participation from Staff, CUB, and AWEC and their common goal of seeking the most reasonable natural gas resource plan for Avista's customers in Oregon.

Demand Forecasts

In the IRP, Avista utilized a new methodology for its weather planning standard for peak day by area (Staff Reply Comment Request 1). This methodology for calculating the 99 percent Probability Average Temperatures, described on page 30 of the IRP, begins with the coldest day for each calendar year by weather planning area. These weather planning areas include Roseburg, Oregon; Medford, Oregon; La Grande, Oregon; Klamath Falls, Oregon; and Spokane, Washington. The weather is considered normally distributed, meaning its distribution of random variables represents a symmetrical bell-shaped graph and is driven by the statistics unique to each weather planning area.



This data is placed in Excel at which point the “NORMINV” function is utilized. This function considers the average and standard deviation for the average coldest day, each year, over the most recent 30 years of weather history.

Community Climate Goals

A few communities within Avista’s territories have climate plans referencing or considering natural gas-related emissions in its Oregon service territory (Staff Reply Comment Request 2). These communities include Ashland, Oregon and Talent, Oregon. Since the late 1990s Avista has been actively engaged with Ashland and Talent as a partner in climate related goals through collaboration as well as dialogue with city councils, city administrators, climate action advisory committees, key customers, and community opinion leaders such as chambers of commerce. Partnership opportunities range from the purchase of Oregon Business Energy Tax Credits awarded to the City of Ashland for solar power installations to exploring innovative Energy Trust of Oregon (ETO) outreach in those communities.

In Ashland and Talent, homeowners, businesses, public agencies, and residential developers who all rely on natural gas for space heat, water heating, cooking, and process heat are expressing concern around future mandates to fuel switch from natural gas to electricity. Residents in these two communities are experiencing the highest cost of living, not just in Jackson County, but across the seven-county Southern Oregon region. Ashland’s median home price at \$510,000 and Talent’s at \$400,000 have exacerbated the local housing crisis and are preventing non-affluent, working-class families from achieving homeownership, forcing them to commute from longer distances, and impeding local employers such as the City of Ashland and Southern Oregon University from recruiting new employees to open professional positions.

Homeowners and residential tenants widely talk about their household budgets and anxieties relating to the cost of heating with electricity when compared to natural gas. Up-front costs of equipment for fuel switching are out of the realm of possibility for many as they struggle month-to-month to pay just for basic needs and utility bills. Homeowners who desire and can afford to offset carbon emissions associated with their household usage are expressing interest in



renewable natural gas options and carbon offsets, while others are actively purchasing carbon offsets now through online platforms.

Business owners and operators express many of the same concerns as homeowners about capital costs for space and water heat fuel switching, as well as annual utility costs. For instance, a local Ashland grocery store is purchasing carbon offsets associated with natural gas use through Bonneville Environmental Foundation and has said the costs of fuel switching will never be within their financial means, nor do they consider it a prudent expense. The local YMCA might need to raise as much as \$500,000 for fuel switching and could experience a 400 percent annual increase in utility costs. Other businesses express even greater concern about their need to use natural gas for process heat. In a recent conversation with a small micro-brewery, the owner said equipment conversion costs for fuel switching would be so excessive it would force him to close his business. Another brewery owner said he is unable to produce his product with electric heating elements. And finally, in 2019 the Oregon Legislature approved an emergency XI-Q bonding authorization of \$2.8 million to Southern Oregon University for the replacement of aging boilers. Therefore, the public university is indicating they will pursue non-fossil based natural gas and/or carbon offset opportunities rather than abandoned useful equipment.

Residential and commercial developers in these two communities continue to experience consumer preference for natural gas even among buyers of “Net-Zero Earth Advantage” certified homes. Builders and developers have explained to Avista that consumer preference starts with their buyers’ concern about month-to-month utility costs followed by their desire for the amenities of natural gas in kitchen appliances and living room fireplaces. While many Net-Zero Earth Advantage buyers express a desire to reduce their personal carbon footprints, they are looking to cost effectively pursue those personal goals through additional energy conservation measures, on-site solar, changing personal habits, and purchasing carbon offsets.

In 2017, the City of Ashland and the City of Talent adopted climate action plans to establish long-term goals relating to carbon reduction and environmental responsibility. While both plans propose to eliminate the use of fossil-based natural gas within their communities, neither of the city



councils have legislated new ordinances restricting the current use of natural gas or the installation of new natural gas service to residential or commercial structures. The City of Ashland has adopted an internal policy to limit the installation of natural gas appliances and equipment in municipal-owned buildings. Among Avista's twenty-eight other Oregon municipalities and five counties, elected and appointed officials in those jurisdictions are not considering or discussing restricting natural gas use at this time.

Avista and the City of Ashland continue to have an open dialogue about how to cost effectively balance the community's carbon reduction goals with consumer preference, affordability, the financial burdens of fuel switching as well as the need for process heat by many businesses. Avista and the City of Talent have temporarily postponed conversations as the community works on recovery from the near one-third loss of homes destroyed in the September 2020 Almeda Fire. In both cases, Avista will continue to support its service areas and communities with their specific goals and needs while considering any demand impacts in our planning activities.

Demand Side Management

Following the 2018 IRP, Avista and its TAC members were interested in leveraging the data between ETO in Oregon and its consultant in Idaho and Washington (Staff Reply Comment Request 3). Avista paired this interest along with the action item for a dynamic DSM model and determined the best course of action was for ETO to run any scenarios within ETO modeling software and provide the available output to Avista. Other notable differences between the forecasting agencies include measure costs, program exceptions, policy, and saturation by area. Also, the ETO utilizes the total resource cost test (TRC) for determining cost-effectiveness, as compared to Idaho and Washington where the Utility Cost Test (UCT) is used. Avista will continue to look for ways to leverage data between these two companies in the future. Finally, in response to CUB initial comments, Demand Response (DR) is an avenue Avista is looking to quantify in the 2023 IRP. Avista has confirmed with ETO that at this time they do not have the ability to provide this analysis, so a consultant will be needed to estimate the system DR.



Supply Side Resources

The expected value of the supply side resource cost risk can be described, in general, as the risk of the price of the natural gas commodity increasing (Staff Reply Comment Request 4). Any future price of natural gas or any commodity is unknown. Natural gas prices can vary based on overall market dynamics such as storage levels, production levels, demand, policy, transportation constraints, and other factors on which placing a value is uncertain. As a local distribution company, Avista has an obligation to provide the amount of natural gas necessary to meet demand throughout the year. To help mitigate this cost risk, Avista chooses to hedge a certain amount of its forecasted system average load by month. Cost risk varies by timeframe and supply location, each which is measured and managed individually within hedging windows through a value-at-risk measurement tool. Another tool used in Avista's procurement plan to measure cost risk is the Risk Responsive Hedge Tool (RRHT). The RRHT helps Avista look at the total market from a financial only perspective. Both tools are run daily, providing Avista a timely view of its position and understanding of its volumetric hedges through the Dynamic Window Hedges (DWH) and financial volatility from the RRHT. An example of this cost risk can be illustrated by the natural gas market volatility experienced regionally from the extreme weather events in other parts of the country that occurred on February 17, 2021, when the price of natural gas in the Rockies averaged over \$137 per MMBtu. Overall, the average daily cost for the Rockies was \$3.66 per MMBtu over this last winter (Nov. 1, 2020 – Mar. 31, 2021). The cost risk in this example is due to having to transact for high commodity quantities at extreme price levels, a premium of \$100 per MMBtu, during these volatile periods.

Carbon Reduction

Found within the 2021 IRP are outcomes to risks and uncertainties related to current emission estimates, including leakage in all transport and distribution phases (Staff Reply Comment Request 5). To do this, Avista modeled a set of sensitivities to understand risks around current emission estimates. This included estimating the full cycle emissions of natural gas – from production, to transportation, to distribution, to burner tip. Canada has tighter regulations around its natural gas industry and is where Avista purchases 90% of its natural gas supply from. A detailed study completed by Puget Sound Energy for its Tacoma LNG project shows less than 0.8% leakage in

total. Our expected case uses 0.78% emissions leakage from Canadian supply and 1.0% emissions from Rockies supply. The Rockies supply is an annual figure estimated by the Energy Information Administration and will show movement, either positive or negative, in emissions as time goes on. A separate sensitivity was modeled to measure the risk of higher emissions in the Rockies basin. Additionally, Avista also modeled risk in emission estimates through methane multiplier expectations, or the harm done to the environment from methane leakage. The current IPCC report utilizes a methane multiplier of 34. Avista chose to model a 20-year horizon for the length of time methane stays in the atmosphere as compared to the standard 100-year perspective. Although this 20-year method drastically increases the global warming potential of methane emissions, NOX emissions are not fully accounted for, nor does the 20-year method follow any scientific standard.

Avista has closely followed and participated in Oregon's Climate Protection Program (CPP) workshops and rule-making process to remain engaged with Executive Order 20-04 activities. However, the amount of information publicly available through the process, or through data requests, does not provide enough detail to accurately model or compare "offset" costs against the levelized cost of emission reduction strategies (Staff Reply Comment Request 6). Until such time when the process and necessary data can be obtained, it will be difficult to model and will contain too many assumptions. Avista will continue its involvement in the process, and when more information is known, will accurately reflect that data in its GHG emission reduction strategy.

Avista is open to a stakeholder workshop around carbon reduction (Staff Reply Comment Request 7). Some alternate avenues to consider would include utilizing the Natural Gas Fact-Finding workshops being held by Staff to help address this question. Also, Avista's next IRP, which is slated to begin in November 2021, could provide a formal forum to discuss this issue with all TAC members. Avista will defer to Staff to determine necessary timing.

In response to AWEC's opening comments around the existing barriers in developing renewable natural gas projects, even with SB 98, RNG project development faces rate recovery uncertainty. The costs for developing projects will exceed the costs for conventional natural gas and should therefore be compared with other carbon-reducing forms of energy, rather than to conventional



natural gas. Additionally, there are a finite number of potential RNG projects within the boundaries of the State of Oregon and competition for RNG exists with the California transportation market. This can potentially cause an issue for potential RNG development partners if project acknowledgement and/or approval from the Commission is delayed. Also, favorable tax treatment, subsidies, and incentives for developing RNG, other biofuels, and/or hydrogen fuels that could aid in driving costs down do not yet exist but should be considered and championed.

Integrated Resource Portfolio Analysis

In meeting with Staff following the 2018 IRP, the primary action item surrounded additional Monte Carlo draws to measure risk (Staff Reply Comment Request 11). In prior IRP's, Avista had used between 200 and 500, 20-year future draws. Getting the modeling software to run appropriately and accurately took an extended amount of time and effort. This included the purchasing of high-performance machines to handle the processing and file sizes needed to produce such draws. It also included creating scripts to run SQL and managing the database size in SQL Express. In spite of aging planning software, Avista worked diligently to get this software up and running in order to handle the requested 1,000 draws for each scenario in the 2021 IRP.

As described in the Company's Technical Advisory Committee (TAC) Meeting #3 held in development of this IRP, Avista performed a number of sensitivities around extreme supply interruptions (Staff Reply Comment Request 13). On page 103 of the Appendix of the Avista IRP, a list of these sensitivities is described, along with Table 2.5 and Figure 2.12, where the results can be viewed. In these sensitivities, Avista looked at separate supply basins, transportation pipelines and storage being interrupted or unavailable between 50% and 100%. In all 12 sensitivities, an unserved demand occurred within five years of the forecast, showing any supply interruption brings with it the possibility for unserved demand. In observing these sensitivity findings, and due to the limited assets in the Northwest, there is clearly a risk in any supply interruption. Avista will further explore supply interruptions and describe potential outcomes to these events in addition to ways to show weakness in the system during these black swan events.



CUB’s request that the Company model an electrification scenario that results in “no growth” on Avista’s natural gas system has been noted and will be discussed with the TAC as a potential scenario in the 2023 IRP. Avista’s IRP is intended to provide a means to serve expected demand through resources attainable by the Company, in order to plan for its future. Heating and fuel choices such as wood, propane, diesel generators, electricity and geothermal may provide customers an alternative to natural gas. In these cases, forecasting customer growth through the IRP process will represent natural gas customers Avista expects on its system in consideration of these other choices. A regional study addressing alternatives to each type of energy source would be needed, and it would provide a more holistic view, as electrification represents only a single pathway. Additional discussion of electrification is addressed below in the Alternate Scenarios, Portfolios and Stochastic Analysis section.

Natural Gas Price Forecasts

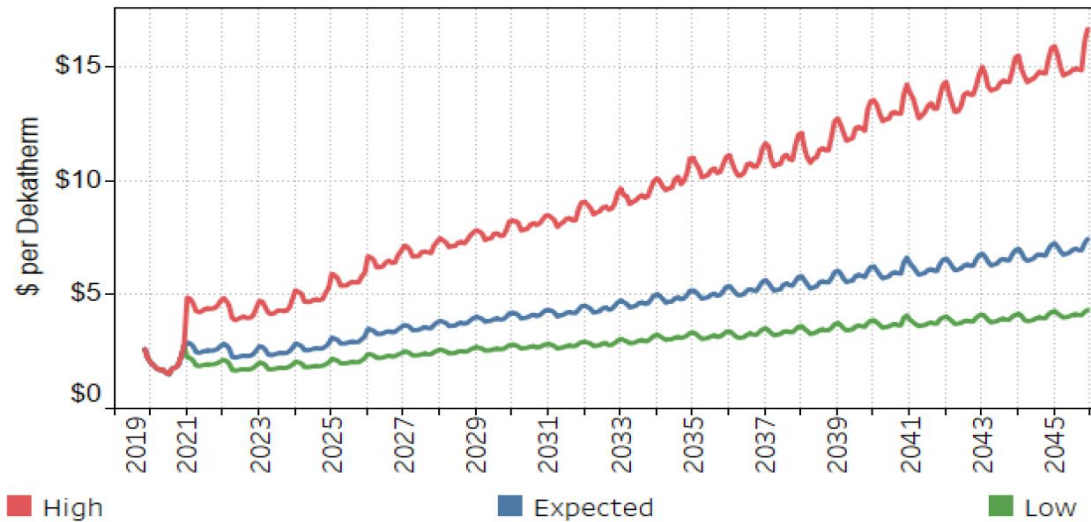
The modeling techniques for the expected price curve can be viewed beginning on page 117 of the IRP (Staff Reply Comment Request 8). Specifically, Avista combined four separate forward price curve expectations. These price curves included the forward price at Henry Hub on June 30, 2020, the Annual Energy 2020 Long Term outlook from the EIA, and two respected industry consultants under contract with Avista. In the near term, the forward price is weighted most heavily as it has the most recent and transactable market knowledge, reducing its weighting in the price curve until year six where it is an even split between the three fundamental outlooks.

Years	Price Blend Methodology
2021 & 2022	forward price only
2023	forward price / 25% average consultant forecasts
2024	50% forward price / 50% average consultant forecasts
2025	25% forward price / 75% average consultant forecasts
2026 - 2040	100% average consultant forecasts

To accommodate for the likelihood that the expected prices at Henry Hub do not perfectly reflect future natural gas prices and to help measure price risk in resource planning, a stochastic analysis of 1,000 possible futures were modeled based on the expected price forecast. Each future contains



unique monthly price movements throughout the twenty-year forecasting horizon. With the assistance of the TAC, Avista selected the 95th and 25th highest prices in each month from the stochastic results to determine high and low-price curves, respectively. All prices in Appendix 6.1 can be viewed in Figure 6.5 below.



Carbon prices continue to be a consideration in the Avista IRP. CUB has requested for Avista to consider alternative measurements to carbon risk other than a \$0 price adder for Idaho in future IRP analysis. Sensitivities conducted show the overall risk of carbon prices in this document. In future IRP’s Avista will continue to consider state and federal policy in addition to current legislative bills in determination of a price signal for carbon. Without these price signals or directed policy, attributing a carbon tax is subjective and not in alignment with a quantitative analysis to consider future resources.

Alternate Scenarios, Portfolios and Stochastic Analysis

The costs reflected in the Levelized Cost of Renewable Resources, Table 4, include both current and estimated future costs based on advances in technology or other variables like depreciation, O&M, property taxes and variables where Avista can quantify a value (Staff Reply Comment Request 9).

Levelized costs describes an amount of expense based on capital costs, number of years and inflation (Staff Reply Comment Request 10). The levelized costs included are from year one of



this study and include all 20 years. Year two would have a separate leveled cost based on assumptions of technology improvements, energy costs for electricity to produce hydrogen, Operations and Maintenance costs, and other full cost components to estimate future costs. This is important as it provides the model the ability to account for increasing or decreasing leveled costs by year in the model.

Electrification is increasingly becoming an area of interest as a natural gas resource option. Some of the inputs needed to accurately perform an electrification analysis include resource costs, appliance efficiency, and resource options (Staff Reply Comment Request 12). Specifically, each electric supplier in Oregon needs to assess resource options and the associated costs. This study would **MUST** include the electric supplier assessing its ability to deliver resource options for increased load and to conduct analyses to determine if additional transmission is needed, regardless of generation location to meet reliability requirements. Also, the electric supplier **MUST** assess current distribution feeders remaining capacity, its ability to split current feeders, and the right-of-way available to add substations and lines. From the energy efficiency side of the analysis, an assessment of current home and business technology, and what makes the most sense to convert to, should take place. This would lead to pairing forced air furnaces with a central heat pump or options that will work with the current system. A similar analysis would need to be done for water heaters, clothes dryers, and fireplaces. Next, an efficiency curve for each appliance, applied to normal temperatures for energy calculations and extreme temperatures for peak analysis, is needed to associate energy and operating conditions. Next, having the demand for natural gas by hour would be needed to understand when electric resources are required. Finally, the conversion costs to homeowners are needed, but will vary by building type and age of the electric panels and outlets. One recent study done by the City of San Francisco, California estimates costs to a single residential homeowner at between \$14,363 to \$34,790.¹

Distribution

Avista's data collection process allows natural gas controllers, operators, and engineers efficient

¹ Budget and Legislative Analyst's Office, City and County of San Francisco Board of Supervisors (2021). "Decarbonizing Residential Buildings by Eliminating Natural Gas Usage".



access to current and historical temperature, natural gas flow, and pressure data (Staff Reply Comment Request 14). By gathering such data remotely through electronic instrumentation, Avista does not have to deploy service personnel and vehicles to manually collect data. Electronic retrieval also prevents untimely delays and costs of inter-company mail delivery, as incurred when data was collected on weekly/monthly paper charts. Avista periodically reviews all data collection points and may add new points to areas of interest discovered by load studies. Currently there are no plans to add new data collection points for low pressure monitoring. Additionally, Avista will remove data collection points from a low-pressure area after improvements are confirmed from reinforcements.

Avista periodically reviews natural gas flows at the city gate stations including the Klamath Falls and Sutherlin projects (Staff Reply Comment Request 15). Although typical operating natural gas flows at both Klamath and Sutherlin do not exceed the physical capacity of each city gate station, Avista needs to be aware and prepared for potential flows at design conditions experienced during peak cold weather events. During Avista's last review, the Klamath Falls city gate station's peak flow is predicted to be at 93% of the physical capacity of the city gate station. The Sutherlin city gate station's peak flow is predicted to be at 112% of the physical capacity of the city gate station. As these stations approach, and now exceed, 100% capacity, Avista will continue to monitor customer usage (both increases and decreases) at each city gate in anticipation of a rebuild to increase capacity for our firm customer base.

AWEC noted that Avista has indicated that there will be reduced Oregon distribution plant investments over the next four-year time frame, with certain exceptions, and would like to understand if this means Avista will be reducing the frequency of Oregon rate case filings. To clarify, Avista did not include any significant plant investments in the IRP. This is not to say that the Company will not be making any distribution plant investments. In the future the Company will explore a dollar threshold for which projects are included in the IRP or not. In terms of the frequency of rate case filings, there are many factors that impact the Company's need to file a rate case. At this time the Company is unable to predict the future frequency of rate case filings due to the many unknown future variables that impact the need to file a rate case.



Action Items

The action plan for the distribution section covers four years of estimated major projects and is noted in the distribution action item (Staff Reply Comment Request 16). Other action items are intended to be met or guide the upcoming IRP. If any specific Oregon action item is added to the IRP, in the future, a four-year action plan will be noted if this is the intent of the request. ETO funding statements will be included in each IRP as filed.

Future IRP Recommendations

Avista is open to the actions and future IRP recommendations in Staff's initial comments, with input provided to consider prior to final comments.

- Staff Future IRP Recommendation 1: Avista will discuss this topic at a future TAC meeting. Depending on the prior five years of actual data and the forecasted use, along with TAC input, a coefficient will be chosen based on available data.
- Staff Future IRP Recommendation 2: In future IRPs, ETO will provide a comparison between the current CPA and the last CPA, including a narrative explanation of major changes in the potential.
- Staff Future IRP Recommendation 3: Avista will include a discussion about long-term natural gas transport strategies in a 2023 TAC meeting.
- Staff Future IRP Recommendation 4: Avista will consider incremental carbon risk in its future resource planning, after accounting for Oregon's CPP.
- Staff Future IRP Recommendation 5: Avista will provide an update on the Company's RNG project pipeline as part of the next IRP Update.



Conclusion

In the path of a transparent process and meeting stakeholder expectations, Avista works with the TAC as a sounding board and major contributor to its IRP document. The Company looks forward to continuing the work with the TAC and its members in future IRP meetings and encourage all participants to offer their feedback as the IRP is being developed. Avista also welcomes more analysis and TAC member input surrounding all considerations in the 2023 IRP.

Please contact Tom Pardee with any questions regarding these comments at 509-495-2159 or tom.pardee@avistacorp.com.

Sincerely,

/s/ Shawn Bonfield

Shawn Bonfield
Sr. Manager Regulatory Policy & Strategy

