

Oregon Citizens' Utility Board

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Public Utility Commission
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**RE: LC 81 In the Matter of AVISTA CORPORATION, dba AVISTA UTILITIES, 2023
Natural Gas Integrated Resource Plan. Oregon Citizens' Utility Board's Opening
Comments**

The Oregon Citizens' Utility Board (CUB) appreciates the opportunity to comment on Avista Utilities' (Avista or the Company) 2023 Integrated Resource Plan (IRP). This IRP comes amid a period of considerable policy and regulatory change, which has far-reaching implications for Avista's future operations. Avista's IRP— with its twenty-year planning horizon— is therefore an important document with which to assess the reasonableness of both the Company's near-term action items and long-term plans to comply with applicable policy mandates in a least cost, least risk manner.

CUB will focus much of its analysis on Avista's Climate Protection Program (CPP) compliance plan. CUB is concerned that the Company's CPP compliance plan is based on assumptions that are not reasonable. It is important to assess and address these assumptions now, because near and mid-term planning are significantly affected by the viability of the Company's long-term plan.

In these comments, CUB discusses the following:

- A. The Action Plan
- B. Looking Beyond the Action Plan
- C. Renewable Natural Gas
- D. Synthetic Methane
- E. Electrification
- F. Energy Efficiency and Demand Side Management
- G. Data Source Transparency
- H. Conclusion

A. The Action Plan

CUB found the Company's 2-4 year action plan to be generally reasonable, but we reserve the right to review issues addressed in other parties' comments before making a recommendation regarding potential Commission acknowledgement of any discrete items. The Company has no near-term plans to invest in high pressure distribution or city gate station capital work. To comply with the CPP in the near-term, Avista plans to essentially maximize community climate incentive (CCI) usage and achieve the remainder of its required emissions reductions using RNG purchase agreements.¹

Given the low and predictable cost of CCIs relative to renewable fuel options, CUB considers CCIs a very attractive least cost/least risk near-term CPP compliance option. However, given the cap on CCI usage as per the rules of the CPP, the Company must pursue other compliance measures as well to meet its emissions reductions targets. Over the 2-4 year planning horizon, the Company expects to rely on renewable natural gas (RNG) to fill that gap.

Gas companies have two options for procuring RNG: they can develop their own RNG projects or negotiate RNG procurement contracts with developers. As CUB discussed in its testimony for UG 462, utility RNG development projects are long-term investments that are expensive early on and risky because the per-unit cost to generate credits that count towards CPP compliance fluctuate with the production of a given production facility.² In addition, should the Company choose to pursue projects as a developer, those projects introduce additional risk and uncertainty because local distribution companies like Avista have limited experience in natural gas production. However, Avista has not indicated any plans to develop RNG projects in the near term. CUB will review the reasonableness of such projects if they are proposed in the future. The alternative, procuring RNG through purchase agreements with developers, allows the Company to adapt flexibly to changes in load and concurrent emissions-offset requirements. CUB supports the Company's current approach.

However, CUB is concerned that the Company's forecasts of RNG costs through purchase agreements are unreasonably low³ and skewed the results of their resource mix modeling. This affected near-term resource planning because it reduced the relative favorability of other resource options, such as energy efficiency and electrification. Not only does this have important implications for system costs and the rates paid by all customers if the lowest cost compliance mechanisms are not pursued, but it is an especially important concern for individual customers with gas appliances near the end of their useful lives. For instance, customers considering converting their old gas furnace to a high-efficiency electric heat pump are entitled to robust estimations of the future costs of staying on the gas system, which can inform their decision to remain on the gas system or not.

¹ Some demand side management (DSM) is also utilized, although its impact is small. See Figure 1.

² UG 462, *In the Matter of NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL, Renewable Gas Adjustment Mechanism - Dakota City*. Opening Testimony of William Gehrke on Behalf of Oregon Citizens' Utility Board.

³ See section "Renewable Natural Gas" for CUB's assessment of Avista's RNG modeling.

B. Looking Beyond the Action Plan

CUB has participated in a large number of gas utility IRPs. Normally, we focus on items in the action plan since most investments beyond the action plan will be revisited in future IRPs and can usually be considered placeholders. However, in this IRP, CUB believes it is necessary to emphasize the context beyond the action plan, particularly planning and assumptions regarding CPP compliance. Gas companies are having to examine entirely new resource options—a task that historically was much more significant to electric utilities than gas utilities—and although this necessitates dealing in uncertainty, that uncertainty must be properly accounted for in modeling. Acknowledging the uncertainty in writing is not adequate. This is an essential component of planning for a reliable and cost-effective energy transition.

CUB raised this issue in NW Natural’s (NWN) 2022 IRP and the Commission’s order in that proceeding validates our approach. The Commission declined to acknowledge NWN’s long-term analysis and a selection of preferred portfolio procurement of RNG, finding that NWN 1) did not adequately assess cost and risk, and 2) did not provide accurate assessments of relevant inputs, including any uncertainty around them.⁴ According to the Commission, “[u]ltimately, we lack sufficient confidence that the IRP produces a plan and preferred portfolio representing the best combination of cost and risk for utility customers.”⁵ Further, the Commission stated it was concerned that the utility was forcing selection of RNG instead of evaluating the cost and risk of alternative pathways to CPP compliance.⁶ The Commission also expressed concern about NWN’s assumptions about the cost and availability of decarbonized fuels.⁷

CUB shares similar concerns about Avista’s 2023 IRP. In the following sections, CUB examines the resource options Avista proposed to achieve CPP Compliance and assesses how reasonably they were modeled.

C. Renewable Natural Gas

In the Company’s Preferred Resource Strategy (PRS), RNG is the most significant CPP compliance resource well into the 2030’s, when it is gradually overtaken by synthetic methane (Figure 1).

⁴ LC 79, *In the Matter of NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL, 2022 Integrated Resource Plan*, Order No. 23-281, 8 (Aug. 2, 2023).

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

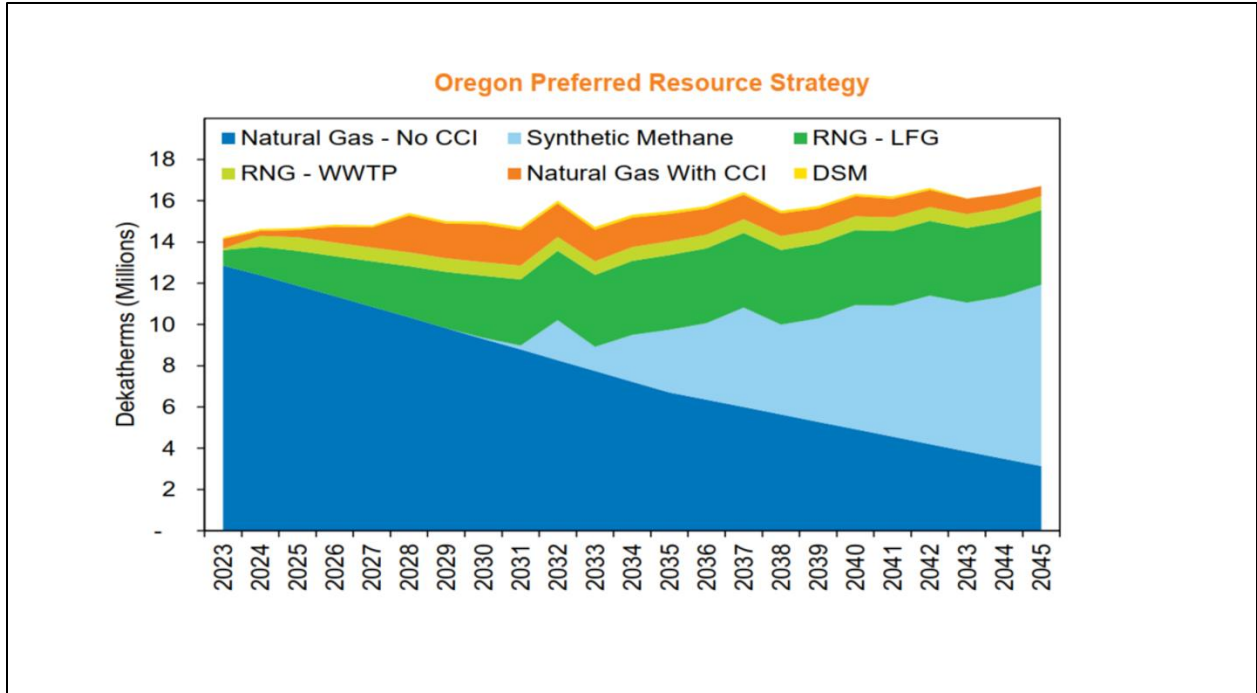


Figure 1. Avista’s Oregon Preferred Resource Strategy⁸

At present, RNG is realistically the only CPP compliance fuel that is commercially available and able to safely replace brown gas without increasing the Company’s emissions. This is the case not only for natural gas utilities in Oregon, but in other markets that are decarbonizing as well. The California market, driven by the Clean Fuels Program, is one such market that will increase competition for RNG. Notably, RNG comes from limited feedstocks, such as landfills, wastewater treatment plants, and dairy operations, and cannot be produced in limitless supply. Given the Company’s heavy reliance on RNG in the near-term and throughout the planning horizon, and the growing competition for this limited resource, CUB considers robust projections of RNG price and availability to be crucial components of Avista’s IRP.

Figure 2 shows the Company’s cost projections for RNG over the IRP planning horizon.

⁸ Figure 6.19 on p 6-24 of Avista’s 2023 IRP.

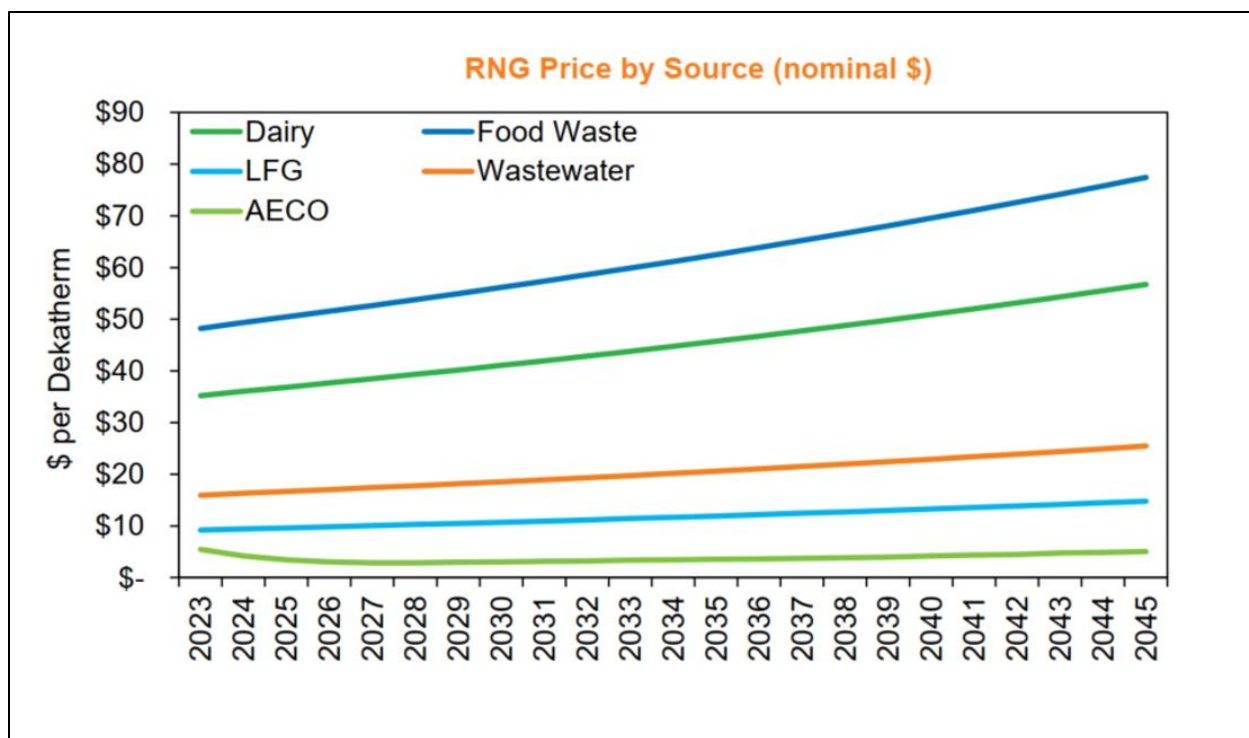


Figure 2. RNG Price by Source (nominal \$)⁹

The Company’s projected RNG costs—which do not increase over the planning horizon beyond inflation despite growing competition for a finite resource—are ~\$15/Dth for wastewater RNG and ~\$10/Dth for landfill gas (LFG) RNG in the near-term, with leveled costs of \$19/Dth and \$11/Dth.¹⁰ The Company’s estimates come from a report produced by Black and Veatch in 2018. Conversely, a 2022 report by S&P Global, which Staff relied on in their final comments on NWN’s 2022 IRP,¹¹ found:

Transportation RNG— which is typically priced around the value of conventional gas, plus D3 RIN credits— is currently marketable between \$30-\$35/MMBtu, while RNG sold to utilities, manufacturers and other end users in the voluntary market is marketable between \$20-\$25/MMBtu... Kinder Morgan’s Holsapple told S&P Global.¹²

Note that 1 Dth (dekatherm) is equal to 1 MMBtu, so the Company’s and S&P Global’s cost estimates are directly comparable without any conversions. The S&P Global report also states that producers are expecting prices for RNG around \$20/MMBtu for long-term projects.¹³

⁹ Figure 4.12 on p 4-23 of Avista’s 2023 IRP.

¹⁰ See Avista 2023 IRP Appendix

¹¹ See LC 79, *In the Matter of NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL, 2022 Integrated Resource Plan*. Staff’s Final Comments.

¹² <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/121622-rng-industry-expects-us-voluntary-customers-to-spur-demand-after-early-transport-boom>

¹³ *Id.*

The Company's RNG cost estimates are about *half or less* what S&P Global found, and even undercut the levelized cost of RNG developed by a utility and sold at the cost of production. This discrepancy cannot be overstated. The Company's RNG cost projections are unreasonably low.

This has several ramifications. First, the Company's PRS underestimates the cost to customers of this compliance path. Second, using an unreasonably low cost for RNG in resource mix modeling undercuts other resources options, such as efficiency measures and electrification, and causes them to be underrepresented. Third, these unrealistic assumptions present an unrealistic future that enables business as usual for the gas company. This undermines reasonable planning which must prepare for the likely impacts to customers of the energy transition that the market is likely to drive. This includes protecting low-income customers, who could become the last customers left on the gas system and stuck with system costs intended for a larger customer base if they cannot afford the upfront costs of fuel-switching technologies.

D. Synthetic Methane

CUB is very concerned by Avista's modeling of the future cost and availability of synthetic methane. Renewable synthetic methane is not currently produced at commercial scale. It appears that significant technological barriers and market transformations, which CUB discusses below, have yet to be overcome before meaningful quantities of renewable synthetic methane could be available to Avista. Despite this, just six years from now Avista's PRS appears to exclusively rely on increasing amounts of synthetic methane to meet growing emissions reduction requirements and new demand (see Figure 1 above).

Information about the future cost and commercial viability of renewable synthetic methane is sparse, seemingly because the fuel is a long way from being commercially viable. This forces cost forecasting to enter a highly uncertain realm with many moving parts.

Synthetic methane requires hydrogen as a feedstock. Currently, electrolysis, which has a production energy efficiency of only 52%, is the forerunning method for renewable hydrogen production.¹⁴ It is an energy-intensive process that is still confronting challenges to manifest itself economically.¹⁵ Other more efficient methods for producing hydrogen are being explored but still face substantial technological and market transformation hurdles.¹⁶

In addition to renewable hydrogen, synthetic methane also requires sourced carbon dioxide. The infrastructure to capture carbon, especially for the purpose of producing synthetic methane, has yet to be built.

Finally, the renewable hydrogen and captured carbon must either be produced at the same site or transported to each other and synthesized to produce synthetic methane. The Sabatier process, the best understood and closest to commercially available synthesis method, will also require renewable energy.¹⁷ The Sabatier process is highly exothermic and requires sensitive temperature

¹⁴ <https://www.sciencedirect.com/science/article/abs/pii/S0016236122001867>

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ <https://www.frontiersin.org/articles/10.3389/fenrg.2020.570112/full#h7>

moderating equipment to achieve synthesis efficiency.¹⁸ New synthesis processes are being explored but still face significant technological and production barriers before they are ready to be commercially piloted or built out.¹⁹

Despite these very formidable barriers to commercial viability, Avista's cost projections of synthetic methane do not appear to factor discounts or other means of accounting for the high risk that synthetic methane will fail to materialize. Rather, Avista's cost estimation is simply the sum of projected costs for green hydrogen and captured carbon. Avista states on page 4-25 of its IRP,

Carbon capture costs are estimated between \$94 and \$414 per MTCO₂e depending on source and technology. Green hydrogen costs are discussed above and provide the energy portion of synthetic methane. Synthetic methane is a combination of green hydrogen and carbon capture costs per dekatherm.

CUB argues the Commission should not consider these estimated costs, and any modeling relying on this data, as there is no supporting evidence to validate this methodology. The Company's price estimate almost certainly grossly underestimates the cost of synthetic methane. While Avista discusses the inherent uncertainty of projecting future fuel costs, this does not justify their approach. That there is no established method or robust source projecting synthetic methane costs yet is evidence itself that expecting to use using synthetic methane six years from now is unreasonable. Underestimating the cost of synthetic methane, and granting this resource option significant favorability, has the same ramifications as underestimating the cost of RNG, which CUB discussed in the 'Renewable Natural Gas' section of these comments.

E. Electrification

CUB recognizes electrification of natural gas load as a means to comply with the CPP and believes accurately modeling this pathway is paramount to efficiently and cost-effectively meeting Oregon's ambitious clean energy goals. Nevertheless, we understand that this is an emergent challenge and requires changes in our approach to resource planning that have yet to be hashed out in IRP guidelines and expectations.

For the 2022/ 2023 round of Oregon gas company IRPs, CUB was excited to see that Avista's resource modeling included electrification as a resource option. In Washington, Avista is a dual-fuel utility and CUB was hopeful that Avista was better-positioned to understand and model fuel conversion than single-fuel gas utilities. However, after carefully reviewing Avista's IRP, CUB is not satisfied that electrification was fairly considered as a resource option.

Across Avista's resource scenarios, electrification was chosen very rarely and not at all in the PRS. Still, CUB is not convinced that this result accurately reflects electrification's viability as a least cost/ least risk option for several reasons. First and foremost, CUB found that the Company's projections for the cost and availability of alternative fuels, including RNG and synthetic methane, were unreasonable. By baking in unreasonably favorable assumptions for

¹⁸ *Id.*

¹⁹ *Id.*

these fuels in its modeling, Avista made electrification significantly less likely to be selected throughout its resource scenarios. At minimum, if the Company models significant use of a fuel as uncertain as synthetic methane, it should include a no synthetic methane scenario. This would likely force electrification to be selected since RNG's availability is limited by finite feedstocks. CUB is concerned that Avista is, like NWN, forcing selection of RNG and synthetic methane instead of evaluating the cost and risk of alternative pathways to CPP compliance.

Furthermore, while tax credits from the Inflation Reduction Act (IRA) for RNG, green hydrogen, and carbon capture were integrated in Avista's modeling, increasing the favorability of RNG and synthetic methane across all scenarios, the Company did not provide comparable IRA incentives for electrification technologies. While CUB understands that the IRA incentives for high efficiency electric appliances will flow through state programs, complicating the estimation of likely cost savings, baking in federal incentives for some resource options but not another makes for an unfair comparison.

Avista did include a low conversion cost scenario for electrification— which might reasonably estimate how IRA incentives will impact electrification— but in this single scenario the cost estimates for RNG and synthetic methane were still unreasonably low, presenting unfair competition for electrification. The low conversion cost scenario for electrification might only partially level a playing field that was already tilted by selectively applying IRA incentives to RNG and synthetic methane, and not electrification.

F. Energy Efficiency and Demand Side Management

Regarding energy efficiency and other demand side management (DSM) efforts, CUB looks forward to seeing continuing development of these long-term solutions for customers. CUB appreciates the examination of the potential of demand response for Avista's system conducted by the Applied Energy Group (AEG) and presented by Avista at the Technical Advisory Committee in September 2022. CUB is also appreciative that Avista conducted a low-income needs assessment to better understand the needs of its customers with low incomes. We believe this is a useful step in helping to identify customers who would benefit the most from energy assistance programs.

We look forward to investigating ways all utilities can maximize efforts and resources into increasing energy efficiency and demand response opportunities for its customers to have long-term cost savings benefits. Both energy efficiency and demand response provide valuable CPP compliance benefits by lowering overall system emissions, and they do so without putting upward pressure on the rates of remaining customers. CUB hopes that future modeling will set a level playing field for all resource options so that the full potential benefits of energy efficiency and demand response can be fully understood.

G. Data Source Citations and Transparency

The previous sections focused on CUB's concerns with Avista's alternative fuel input assumptions and modeling. Unfortunately, our assessment of the Company's work was hampered by a consistent lack of usable data source citations. The sources for crucial inputs

regarding the future price and availability of RNG, hydrogen, sequestered carbon, and synthetic methane were all were difficult or impossible to find using the citations provided. For instance, we could not find the sources for the following citations on page 4-25: “Science Direct, Science Daily”. CUB hopes that in future resource planning publications the Company will make its data sources transparent and readily accessible and asks that the Company address this concern in its subsequent comments.

In addition, we recommend that Avista include hyperlinks in its Table of Contents, Table of Figures, Table of Tables. This would be incredibly helpful in navigating this and future IRPs.

H. Conclusion

For now, CUB believes that while Avista’s near-term plan to maximize CCI usage and procure RNG through contracts with developers could be the least cost and least risk options, we are not convinced that RNG is superior to efficiency measures or beneficial electrification based on Avista’s modeling.

CUB is prepared to recommend non-acknowledgement of Avista’s long-term CPP compliance plan but reserves the right to address concerns by other parties in this proceeding first. Assumptions made by the Company about the cost and availability of RNG and synthetic methane are unreasonable to say the least, which significantly undermines the results of the Company’s CPP compliance modeling. RNG and synthetic methane were granted incredibly favorable and poorly supported assumptions by the Company. Conversely, electrification was modeled conservatively. CUB is concerned that Avista’s vested interest in retaining gas customers, which they would lose to electric utilities that operate in their Oregon gas territories, affected their resource modeling. This poses dire consequences for the Company’s Oregon gas customers who should not be subjected to expensive investments in the gas system if it cannot be used to cost-effectively meet Oregon’s CPP emissions reductions goals. Furthermore, planning for an equitable future relies on robust resource modeling. To obviate a deeply inequitable outcome— wherein only those customers who cannot afford to quickly convert their gas appliances are left on the gas system with ongoing system costs intended for a much larger customer base— stakeholders must adapt their approach to integrated resource planning now.

CUB sees Avista’s IRP as a clear indication that more robust standards for estimating new fuel costs and availability are needed for gas IRPs, in addition to other changes in utility resource planning to accommodate holistic, cross-utility resource planning, as well as robust analysis of energy efficiency, demand-side management, and electrification services. These changes are necessary adaptations as we work to meet clean energy goals equitably and affordably. Like the Commission found for NWN,²⁰ Avista must provide a long-term plan that adequately assesses cost and risk and includes reasonable and accurate inputs for its preferred portfolio, including a realistic understanding of the uncertainty around those inputs.

²⁰ LC 79, , *In the Matter of NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL, 2022 Integrated Resource Plan*, Order No. 23-281 at 8.

Respectfully submitted,

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