BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

LC 72

In the Matter of AVISTA CORPORATION, dba AVISTA UTILITIES 2018 Integrated Resource Plan	Final Comments

Introduction

The following are the Public Utility Commission of Oregon (OPUC or Commission) Staff's Final Comments on the Avista Corporation's (Avista or Company) Natural Gas 2018 Integrated Resource Plan (IRP or Plan). These final comments are organized by topic area, as laid out in the Company's initial IRP filing. Staff's final comments are guided by the Commission's IRP guidelines.[1] These final comments follow our initial filing, a public presentation by Avista in December 2018, an update in the IRP Action Plan, and responses by the Company to Staff's initial comments.

As noted by Avista in its IRP and presentation to the Commission, overall growth in Oregon is lower than in the previous IRP and Avista is not planning any major investments in Oregon over the Action Plan time horizon.[2]

Lead up to Staff's Final Comments on 2018 IRP

Avista filed its 2018 IRP with the Commission on August 31, 2018. The Oregon Citizens' Utility Board (CUB) is currently the sole intervenor in this docket. A pre-hearing conference was held on October 11, 2018, for the purpose of convening stakeholders to set the schedule for the 2018 IRP. A schedule was agreed upon, and Avista gave an informational overview of its IRP at the October 23, 2018, Public Meeting in Salem, Oregon. On December 18, 2018, a workshop was held in Salem where Staff and the Company clarified several issues, including the need for the Company to file a 4-year Action Plan, and to address Staff concerns with respect to stochastic and demand modeling. On December 18, 2018, the Company filed its revised 4-year Action Plan, as agreed to at the meeting.

Summary of Staff's Opening Comments

Staff identified several areas for the Company to improve its IRP models, including commercial and residential customer growth models, and its use of Monte Carlo analysis for stochastic modeling purposes. In addition, Staff raised the concern that the Company's Action Plan as filed was not in compliance with IRP guidelines in that it was a 2-year and not a 4-year Action Plan. Staff also requested clarification on whether the Company was planning any capital investments within the 4-year Action Plan time frame.

Demand Forecasts

Staff's initial comments on Avista's 2018 IRP included twelve recommendations for the Company's demand forecasts.[3] These recommendations ranged from clarifications on modeling choices to suggestions on modeling weather. Staff's recommendations are intended to improve the accuracy of Avista's forecasts. Overall, Staff's criticisms are intended to improve the accuracy of future forecasts such that the risk of under/over planning for resources is lessened. Avista's reply comments were generally helpful and clarifying but a few responses did not fully address Staff's recommendations.

[1] *See In the Matter of Public Utility Commission of Oregon's Investigation into Integrated Resource Planning*, Docket UM 1056, Order Nos. 07-002 and 07-047.
[2] *See* LC 72 Avista 2018 IRP Initial Filing, Aug. 31, 2018, Chapter 9, pg.184; and, Avista presentation to the OPUC at the Public Meeting on Oct. 23, 2018.
[3] *See* LC 72 Avista 2018 IRP, Staff's Initial Comments, November 19, 2018, pg. 5.

Avista explained in reply comments that the Company's high and low customer and population forecasts are based on a study of historical population growth rates. Staff appreciates the Company's in-depth explanation and supporting equations.

Avista explained in reply comments that the use of the forecast from the firm IHS for Douglas, Klamath, and Union County is because of an agreement in a previous Avista rate case. This explanation is a helpful reference point, and Staff suggests the Company include a detailed explanation of the basis of such practices in future IRP filings.

Avista clarified that it uses a differencing term in its customer model forecast and it will be fully adopted by the next IRP.[4] Avista's reply comments also explained in greater detail the company's forecasting methodology.[5] In general, Avista agreed with Staff's recommendation that for future IRPs there would need to be improvements related to the modeling of weather, price elasticity, and customer forecasts. To this end, Commissioner Tawney raised the prospect of improving how weather is modeled in the 2020 IRP by engaging regional expertise in an effort to develop creative solutions to capturing recent weather trends during an era of rapid change.[6]

CUB also filed written comments and spoke at the December 18, 2018 Public Meeting on the impact of fuel switching policies on Avista's demand forecast. Specifically, CUB requested that Avista consider the possible impacts of regional policies that encourage fuel switching in its next IRP; specifically, how a "high" fuel switching scenario would impact the IRP overall. Avista responded in its reply comments that it is difficult to model such policy-driven scenarios. While Staff agrees this can be difficult, it would note that another natural gas company included such scenarios in its recently filed IRP.[7] Exploring the development and use of such scenarios at the technical advisory group (TAG) meetings leading up to the next IRP would be appropriate.

Regarding elasticity assumptions, while the price-muting effects of rate cases can reduce the effect of price signals in the short term, long term price elasticity is likely to be higher. Customers are likely to shift their natural gas use to a greater degree in response to sustained price changes in the long term over the IRP planning horizon. Staff suggests the Company assume greater elasticity in the next IRP to represent this greater price elasticity of demand in the longer term.

Updates to several types of analyses that impact the demand forecasts used by Avista in its IRP are still on-going and will need to be completed by the next IRP. These include:

1. Analysis of the use of economic drivers for the industrial forecast.
2. Penetration rate of new homes with natural gas service.
3. How to best develop and use low-carbon policy scenarios in the IRP.

While Staff is satisfied with the Company's compliance with IRP guidelines for the present IRP – insofar as any changes to the model would not, by the Company's statement, require them to make any capital investments – Staff does note that the population growth forecast methodology used by the Company should be further evaluated by Staff and stakeholders

[4] See LC 72 Avista 2018 IRP, Avista Response Comments at 1-2 (December 10, 2018), and as discussed in the December 18, 2018 public meeting.
[5] LC 72 Avista 2018 IRP, Avista Response Comments at 1-4 (December 10, 2018).
[6] *See* OPUC December 18, 2018 public meeting video archive, at the ~ 1:26:00 time point, for her comments on this matter, https://oregonpuc.granicus.com/MediaPlayer.php?view_id=1&clip_id=351&meta_id=17707.
[7] *See In the Matter of Northwest Natural Gas Company dba NW Natural's 2018 Integrated Resource Plan*, Docket LC 71, filed August 24, 2018, specifically IRP base case Sensitivity #9 titled, "New Direct Use Gas Customer Moratorium in 2025" described on pages 33 and 254.

before being relied upon in rate cases or future IRPs. Further, Avista's model will continue to couple residential and commercial growth, and not directly account for how the adoption of energy efficiency (EE), new technologies and fuel switching vary over time. Staff makes note of this for both the Company and the Commission, should this demand model be relied upon outside of the present IRP filing. More importantly for the IRP process, Staff recommends Avista continue to work with stakeholders to refine its demand forecasting model and include analysis in its next IRP of the forecasted demand impacts of potential fuel switching away from natural gas.

Finally, Staff continues to believe that a statistical capacity planning standard will provide a consistent basis for planning a highly reliable system. Staff looks forward to continuing discussions with the Company on this topic.

Staff Recommendations

- Avista continue to pursue improvements to its demand and growth models for its next IRP, including:
    - the incorporation of economic drivers for the industrial forecast;
    - the penetration rate of new homes with gas service;
    - improvements to long-run price elasticity;
    - engagements with regional experts to find creative solutions for weather forecasting in the IRP during this time of rapid change;
    - the development and use of low-carbon policy, also known as fuel-switching, scenarios in the IRP.
- Staff recommends that the Company report in its first IRP update on how it is addressing these recommended improvements for its customer growth forecast models.

Energy Efficiency and Demand Side Resources

Staff's initial comments on EE and demand side resources generally focused on peak day factor calculations and the methodology used to select the final program savings potential. Avista has stated that the Company will work through the TAC to consider additional peak day factors by the next IRP. Additionally, Staff was satisfied with Avista's response regarding the cost-effective, achievable potential through 2037 for energy efficiency.

Staff Recommendation

- Work with the Avista TAC to consider additional peak day factors by the next IRP.

Supply Side Resources

In its opening Comments, Staff made the following recommendations:

- Staff recommends that the Company include its proposed pipeline projects in the Action Plan.
- Staff continues to investigate Avista's supply side resource planning and recommends that Avista provide Staff and stakeholders with updates regarding its discussions and analysis regarding possible regional pipeline projects that may move forward as part of future IRP processes.

The Company clarified at the December 18, 2018 hearing and in its revised Action Plan that it does not anticipate any pipeline projects. The Company also agreed to update Staff and stakeholders as necessary on future plans.

Based on the Company's revised Action Plan, Staff is satisfied that there are no outstanding issues related to supply side resources for this IRP.

Staff Recommendation

- The Company update Staff and stakeholders in the future regarding possible pipeline projects.

Policy Considerations

Staff had no initial recommendations related to the Company's policy consideration analysis. However, based on the comments filed by CUB, Staff has two policy-based recommendations for the next IRP:

1. Develop and use a low-carbon policy scenarios, also known as fuel-switching, by the IRP (captured above in the Demand Forecast section).
2. Include a section in the next IRP that explores large-scale supply interruptions, like the October 2018 Enbridge incident, and the role of Avista's storage resources.

Staff Recommendation

- Include a section in the next IRP that explores large-scale supply interruptions, like the October 2018 Enbridge incident, and the role of Avista's storage resources.

Integrated Resource Portfolio, Modeling Assumptions.

In its opening comments, Staff had the following recommendation:

- Staff recommends that the Company work with Staff to develop a shared understanding of best practices and definitions for developing forward curves for forthcoming IRPs.

The IRP portfolio was addressed by the Company in its reply comments as well as at the December 18, 2018 hearing. The Company described how it uses input from TAC meetings to develop portfolio cases based on weather, coefficients, pricing, and demand. Essentially, the Company states that its analysis is based on the consensus reached at TAC meetings, but acknowledged that improvements to its analysis could be implemented with Staff and stakeholder input.

For purposes of the present IRP, Staff is satisfied that the Company's portfolio analysis is within the realm of that which has been previously accepted by this Commission. However, Staff recommends that the Company hold a TAC meeting before its first IRP update for the purposes of opening discussion with Staff and stakeholders to develop a shared understanding of forward pricing curve techniques. The development of standard data sources and model assumptions will be critical for the generation of reproducible models.

Staff Recommendation

- Dedicate a TAC meeting, prior to the IRP update, to working with Staff and stakeholders to develop a shared understanding of forward pricing curve modeling techniques.

Stochastic Analysis

In its opening comments, Staff commended the Company on its modeling treatment whereby it models existing resources (which the Company owns or contracts at present), and existing and expected future resources separately. This allows the Company to do a scenario-based analysis that includes, but does not rely on, the likelihood of future resources being economically or otherwise viable. Staff did however, point out the serious issues with the Company's use of Monte Carlo analysis for stochastic analysis. Staff made the following specific recommendations:

- Staff reiterates its recommendations made in the Demand Side and Supply Side sections with respect to data sources and modeling of weather, population, and related parameters;
- Staff recommends that in its next IRP, the Company develop an alternative stochastic approach to Monte Carlo analysis;
- Staff recommends a Commission Workshop be held after the 2018 IRP but before 2020, to collaboratively evaluate alternate stochastic modeling approaches; and
- Staff recommends that the Company carefully explain its assumptions and data sources in the body of its current IRP, and update the document accordingly.

The issues related to Monte Carlo stochastic modeling were discussed in detail by Staff and the Company at the December 18 meeting, as well as informally over email and telephone. Staff points out that while the Monte Carlo analysis has been a standard stochastic planning tool used by industry in IRP analysis, the Commission (as well as the Company) have recognized the need to develop more reliable stochastic modeling tools. The Company has agreed to hold a TAC meeting for the purposes of identifying a scientifically valid stochastic modeling approach to implement in future IRPs.

Staff Recommendation

- Staff recommends that the Company hold a TAC meeting prior to its first IRP update to identify a scientifically accurate and reliable stochastic modeling approach to replace the 200-draw Monte Carlo technique.

Distribution Planning

Staff made the following specific recommendations in its Opening Comments:

- Staff recommends that the Company include its specific distribution plan upgrades in its Action Plan.
- The Company must model and explicitly state which distribution plan upgrades it anticipates between the present and 2022 (i.e., Sutherlin and Klamath Falls), such that a 4-year rather than 2-year Action Plan horizon is reported.

- Staff requests that in its reply comments, Avista provide information and analysis on whether this assumption matches the actual operations in prior years. Specifically, were all compressor and regulator stations always operational and at full capacity? What proportion of the time were compressors or regulators not operated at full capacity, or non-operational?

Avista adequately addressed the first two concerns above in the Company's IR replies, its filed reply comments, and at the December 18, 2018 public meeting. Avista states clearly in each instance that in its 4-year Action Plan, no specific distribution plan upgrades are anticipated, and that no gate station upgrades are planned in Oregon for the next four years.

Staff notes that Avista replies that it assumes that all regulators are operating and at full capacity, and that it is does not have any compressors in its distribution system. Staff notes that the Company did not reply as to whether the assumption that the regulators are always operational and at full capacity matches actual operations. If the regulators are not typically all operational and at capacity, but modeled as such, Staff is concerned that actual distribution system operation not matching the model assumptions could lead to discontinuities in distribution planning.

Staff Recommendation

- Staff recommends that the Company clarify whether its regulators historically are fully operational and at capacity at all times, and if not, Staff recommends that the Company re-evaluate the use of the assumption that they are in its distribution planning.

Action Plan

In its Opening Comments, Staff made the following recommendation:

- Avista must file a 4-year Action Plan for this IRP by extending its 2019-2020 Action Plan through 2022, which includes a pipeline of proposed projects in Oregon.

On December 18, 2018, the Company re-filed the 2018 IRP Action Plan with a 4-year time horizon, as required for compliance with Commission IRP guidelines.

Upon reviewing the Action Plan and the Company's responses to Staff's comments and questions, Staff notes that no specific capital investments or upgrades are anticipated by the Company in the 4-year Action Plan term. Staff is also satisfied that, despite improvements which must be made in future IRP models, the supply and demand side forecasts, when taken in the context of known factors, Oregon's gas service and distribution needs will be met by the Company during the Action Plan period.

Staff Recommendation

- Staff recommends that in future IRPs, the Company file a 4-year Action Plan.

Summary of All Staff Recommendations

- Avista continue to pursue improvements to its demand and growth models for its next IRP, including:
    - the incorporation of economic drivers for the industrial forecast;
    - the penetration rate of new homes with gas service;
    - improvements to long-run price elasticity;
    - engagements with regional experts to find creative solutions for weather forecasting in the IRP during this time of rapid change;
    - the development and use of low-carbon policy, also known as fuel-switching, scenarios in the IRP.
- Staff recommends that the Company report in its first IRP update on how it is addressing these recommended improvements for its customer growth forecast models.
- Work with the Avista TAC to consider additional peak day factors by the next IRP.
- The Company update Staff and stakeholders in the future regarding possible pipeline projects.
- Include a section in the next IRP that explores large-scale supply interruptions, like the October 2018 Embridge incident, and the role of Avista's storage resources.
- Dedicate a TAC meeting, prior to the IRP update, to working with Staff and stakeholders to develop a shared understanding of forward pricing curve modeling techniques.
- Staff recommends that the Company hold a TAC meeting prior to its first IRP update to identify a scientifically accurate and reliable stochastic modeling approach to replace the 200-draw Monte Carlo technique.
- Staff recommends that the Company clarify whether its regulators historically are fully operational and at capacity at all times, and if not, Staff recommends that the Company re-evaluate the use of the assumption that they are in its distribution planning.
- Staff recommends that in future IRPs, the Company file a 4-year Action Plan.

Conclusion

Avista's 2018 IRP provides a well-balanced analysis, and an adequate assessment of least-cost-least-risk planning.

Although Staff has raised concerns regarding aspects of Avista's modeling, Staff would like to commend Avista on its overall approach with respect to the deterministic modeling of future scenarios. Staff notes that many of its suggestions for improvements related to the Company's modeling (as specified in Staff's Comments) are not unique to Avista, but have also been reflected in Staff's comments in other recent natural gas distribution company IRPs. Future improvements to modeling and IRP scenarios, should address many concerns raised by Staff, CUB, and the Commission.

This concludes Staff's comments.

Dated at Salem, Oregon, this 4th day of February, 2019.

JP Batmale
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Energy Resources and Planning Division