



STATE OF WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

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March 14, 2016

Scott L. Morris
Chairman of the Board, President, and Chief Executive Officer
Avista Utilities
1411 East Mission
Post Office Box 3727
Spokane, Washington 99220

**Re: Avista Corporation d/b/a Avista Utilities
2015 Electric Integrated Resource Plan
Docket UE-143214**

Dear Mr. Morris:

The Washington Utilities and Transportation Commission (Commission) has reviewed the 2015 Electric Integrated Resource Plan (IRP) filed by Avista Corporation d/b/a Avista Utilities (Avista) on August 31, 2015, and finds that it meets the requirements of Revised Code of Washington 19.280.030 and Washington Administrative Code 480-100-238.

This acknowledgment does not signal pre-approval for ratemaking purposes of any course of action identified in the IRP. The Commission will review the prudence of the company's actions at the time of any future request to recover costs of resources in customer rates. The Commission will reach a prudence determination after giving due weight to the information, analyses, and strategies contained in the company's most recent IRP along with other relevant evidence.

Because an IRP cannot pinpoint precisely the future actions that will minimize a utility's cost and risks, we expect that the company will update regularly the assumptions that underlie the IRP and adjust its resource acquisition strategies accordingly.

While specific comments regarding its filed IRP are attached, the Commission provides Avista with the following guidance for its next IRP filing:

- Demand-Side Resource Potential – For the 2017 IRP, the Commission expects Avista to work toward reconciling its own demand-side resource potential (including both

energy efficiency potential and demand response potential) with that of the region as calculated by the Council.

- Conservation Potential Assessment – The Commission requests that the economic and achievable potentials be calculated within the IRP model itself, rather than within a third-party model.
- Colstrip Units 3 and 4 – For the 2017 IRP, the Commission requests that Avista:
 1. Incorporate new prospective carbon pricing policies into the expected case stochastic modeling. Avista may consult with its Advisory Group regarding assigning probabilities to these policies; and
 2. Work toward developing a more complete suite of potential costs to include in a revised, “high-cost” scenario.
- Storage Resources – For the 2017 IRP, the Commission requests that Avista continue to develop the modeling capability for storage by:
 1. Continuing to acquire the most up to date data related to the operational characteristics of specific storage technologies as well as the costs of purchasing and operating those technologies; and
 2. Exploring the potential for incorporating the costs and benefits of storage resources to Avista’s distribution system.
- Planning Reserve - For the 2017 IRP, the Commission requests that Avista
 1. Address the potential over-reliance on the regional capacity surplus for peak planning; and
 2. Work with regional stakeholders, including the Northwest Power and Conservation Council Staff, to publish information about Avista’s reserve requirements needs.

Consistent with the 2015 IRP and previous IRPs, the Commission expects that any regulatory deliberations or decisions on the economic viability of any specific course of action described within Avista’s next IRP will not be made within the context of the IRP.

Commission Staff will continue to provide additional input as Avista develops its next IRP. Avista should file its next electric IRP work plan on or before August 31, 2016, and its electric IRP on or before August 31, 2017.

Sincerely,



STEVEN V. KING

Executive Director and Secretary

Attachment

Attachment

Avista 2015 Integrated Resource Plan Docket UE-143214

Background

WAC 480-100-238 directs investor-owned energy utilities (IOUs) to develop an integrated resource plan (IRP) every two years, which identifies “the mix of energy supply resources and conservation that will meet current and future needs at the lowest reasonable cost to the utilities and its ratepayers.”¹ In preparing an IRP, utilities are required to consider changes and trends in energy markets, resource costs, state and federal regulatory requirements, and other shifts in the political and market landscape. The rule requires that IOUs conduct a comprehensive analysis of the costs and benefits, including risk mitigation benefits, of various approaches to meeting future resource needs using the best available information. The intent is for each regulated company to develop a strategic approach that fits its unique situation, while minimizing risks and costs for the company and its ratepayers.

In its 2015 Electric IRP, Avista Corporation d/b/a Avista Utilities (Avista or Company) described the evaluation of potential resource strategies for meeting resource need over the next 20 years. In doing so, Avista has complied with applicable statute and regulations. While the Company’s consideration of inputs, modeling, and analysis of results are generally well executed, the Commission provides additional guidance in these comments that will generate incremental improvement in Avista’s resource planning process.

In this document, we discuss the following items with respect to Avista’s 2015 Electric IRP:

1. Issues Identified in the Commission’s Acknowledgment of Avista’s 2013 IRP;
2. Avista’s 2015 Preferred Resource Strategy, and
3. Issues Requiring Additional Analysis.

1. Issues Identified in the Commission’s Acknowledgment of Avista’s 2013 IRP

In its letter acknowledging Avista’s 2013 IRP,² the Commission asked Avista for more analysis and discussion on several issues. A summary of the Commission’s requests and Avista’s responses to those requests is as follows:

¹ WAC 480-100-238(2)(a).

² *Avista Corp.*, Docket UE-121421, Attachment to the Commission’s IRP Acknowledgment Letter (March 28, 2014).

1. *Further justification for the “preferred” level of portfolio risk.*

In the 2015 IRP, Avista quantified the tradeoff of risk and cost along the “efficient frontier” in order to identify areas of the efficiency curve where increased cost may justify a relatively large decrease in risk. Avista provided additional quantitative analysis demonstrating that further movement along the efficiency curve (i.e., higher cost, lower risk) would cause a disproportionately large increase in portfolio cost with a relatively small decrease in portfolio risk,³ thus justifying the level of risk associated with Avista’s Preferred Resource Strategy.

2. *Further justification for Avista’s choice of basic planning margin.*

In the 2015 IRP, Avista provided a much improved description of its evaluation of an appropriate planning margin.⁴ This description contained information on the basic reserve margin for Avista’s specific system, Western Electricity Coordinating Council (WECC)-defined requirements for operating reserves, and within-hour planning for load regulation reserves. The description also includes market-reliance assumptions for specific reserve margin requirements, as evaluated through a 5 percent loss-of-load probability study.

3. *Selecting conservation resources within the IRP’s resource optimization model, rather than just hard coding according to the conservation potential assessment (CPA) output.*

Within the resource optimization model used for the 2015 IRP, Avista has developed the capability to evaluate the cost-effectiveness of individual conservation measures.⁵ Therefore, Avista can now calculate its conservation potential through its resource selection model. This is the Commission’s preferred method for identifying achievable conservation potential.

4. *A non-zero cost of carbon.*

In its stochastic analysis, Avista included a 10 percent probability of rules being enacted in Washington State that would place an effective price on carbon in Washington. In doing so, Avista has complied with the Commission’s request that the company include a non-zero cost of carbon in its expected case. The Commission is pleased with the stochastic approach to modeling a prospective cost of carbon, which enables a probabilistic approach

³ See pages 11-17 to 11-19 of Avista’s 2015 IRP.

⁴ See Chapter 6, *Long-Term Position*, of Avista’s 2015 IRP.

⁵ See pages 5-6 and 5-7 of Avista’s 2015 IRP.

to incorporating a range of prospective carbon policies into the expected case analysis. The Commission notes, however, that the carbon policy landscape is continuously evolving and so Avista will need to reassess the probabilities associated with the various prospective policies for the 2017 IRP.

5. *Cost effectiveness of continued operation of Colstrip units 3 and 4.*

Avista attempted to analyze a worst-case scenario by evaluating the economics of continued operation of units 3 and 4 under a “high-cost” assumption (i.e., significant environmental restrictions and remediation costs).⁶ Although Avista complied with the language of the previous acknowledgment, the Commission is not convinced the scenario fully captures all possible costs or prospective policy risks and so requires reanalysis, as described in Section 3 below. Among other considerations, we ask that the Company model specific scenarios on carbon pricing that are being considered actively in Washington state now, which could also directly impact the cost-effectiveness of these units.

6. *Modeling storage resources within the IRP.*

Avista has developed a framework for evaluating energy storage resources within its resource optimization model.⁷ For this IRP, Avista was able to evaluate the impacts to power costs of a generic storage resource. Avista has made considerable progress in development of a useful economic model for the evaluation of the multiple attributes of storage resources. As discussed further in Section 3 below, the Commission requests further analysis of this issue.

In responding appropriately to each of these issues, Avista has complied with the Commission’s requests as identified in the 2013 IRP acknowledgment letter. Avista has clearly made an effort to address the Commission’s concerns and, as a result of this effort, Avista has greatly improved its resource modeling process.

2. Avista’s 2015 Preferred Resource Strategy

Over the 20-year planning horizon, Avista’s preferred resource strategy consists of investments in energy efficiency, simple-cycle and combined-cycle gas turbines, and upgrades to the Company’s

⁶ See pages 12-7 and 12-8 of Avista’s 2015 IRP.

⁷ See pages 9-16 to 9-18 of Avista’s 2015 IRP.

existing generation resources. Avista’s 2015 preferred resource strategy (PRS) acquisition schedule, as well as the PRS from the 2013 IRP, is shown below in Table 1.

Table 1. Avista’s resource plan for the previous (2013) and current (2015) IRPs.

Year(s)	PRS – 2013 IRP	PRS – 2015 IRP
<u>Generation</u>		
2017		
2018		
2019	83 MW (Simple Cycle CT)	
2020		96 MW (Simple Cycle CT)
2021		
2022		
2023	83 MW (Simple Cycle CT)	
2024		
2025	270 MW (Combined Cycle	38 MW (Thermal Upgrades)
2026	CT)	286 MW (Combined Cycle CT)
2027	83 MW (Simple Cycle CT)	96 MW (Simple Cycle CT)
2028	6 MW (Thermal Upgrade)	
2029		
2030		
2031		
2032	50 MW (Simple Cycle CT)	
2033		3 MW (Thermal Upgrades)
2034		47 MW (Simple Cycle CT)
TOTAL	581 MW	571 MW
<u>Demand Side</u>		
20 years	221 MW (Energy Efficiency)	193 MW (Energy Efficiency)
2022-2027	19 MW (Demand Response)	0 MW (Demand Response)
TOTAL	240 MW	193 MW

For this IRP, Avista’s preferred resource strategy looks slightly different than that of the 2013 IRP. Most notably, due to a lower load growth forecast and Avista’s acquisition of new hydro-

power contracts,⁸ Avista's near-term resource needs have been diminished. Avista currently projects its peak winter load to grow 0.74 percent per year (down from 0.84 percent per year in the 2013 IRP) while it expects its annual load to grow at 0.6 percent per year (down from 1.0 percent per year in the 2013 IRP).

Avista has pushed back its expected acquisition of a natural gas peaking unit by one year (from 2019 to 2020) and has removed another peaking unit from its expected resource needs altogether (an 83 MW unit in 2023). Avista now expects to meet some of its capacity need by investing in upgrades to its thermal fleet.⁹ The largest generation investment in this IRP is a 286 MW combined cycle gas turbine in 2026, planned largely as a replacement for the Lancaster Power Purchase agreement which expires in October of 2026.

However, the reduction in demand response and energy efficiency potential is concerning to the Commission. Although we acknowledge that lower projected natural gas prices produce a relatively lower avoided cost across the planning horizon, recent analysis by the Northwest Power and Conservation Council (Council) suggests that northwest utilities can meet projected load growth almost entirely with with energy efficiency¹⁰ while demand response is most likely to be the least-cost solution for providing new peaking capacity.¹¹ For the 2017 IRP, the Commission expects Avista to work toward reconciling its own demand-side resource potential with that of the region as calculated by the Council.

3. Issues Requiring Additional Analysis

Conservation Potential Assessment (CPA)

For the 2015 IRP, Avista retained Applied Energy Group (AEG, formerly EnerNoc) to conduct the CPA. The CPA identifies the 20-year potential for energy efficiency and provides data on conservation resources specific to Avista's service territory. The conservation potential considers

⁸ See Table 4.3 of Avista's 2015 IRP, page 4-8. Avista has contracted for a 5 percent share of both Rocky Reach and Rock Island dams for the period January 2016 through December 2020, for a combined on-peak capacity increase of 78.2 MW.

⁹ The specific projects are confidential, though all are upgrades to natural gas facilities.

¹⁰ Northwest Power and Conservation Council, Draft 7th Power Plan at 1-2.

¹¹ *Id.* at 1-6.

the impacts of existing programs, the anticipated effect of known building codes and standards, technology developments and innovation, changes to the economic influences, and energy prices.

For Avista's 2015 CPA, AEG was responsible for determining the technical, economic, and achievable conservation potentials.¹² However, the Commission prefers that the economic and achievable potentials be calculated within the IRP model itself, rather than within a third-party model. In this way, conservation resources compete directly against supply side resources in the IRP.

In the 2015 IRP, Avista made the first step toward calculating its conservation potential in this way. As a cross-check to the third-party CPA, Avista performed the economic screen of conservation measures within the IRP model. Thus, it appears that Avista is well positioned to begin performing the CPA within the IRP model. A third-party consultant should be used for identification of the Company's technical potential, for gathering measure-specific details such as relevant ramp rates, measure price and availability, and for providing additional technical information necessary for Avista to perform the CPA within the Company's IRP model.

Additionally, Avista should explore creating a constraint within the IRP model that forces the minimum conservation selection to comply with Washington law and Commission rules set forth in WAC 480-109.¹³ For the 2015 CPA, the analysis produced a 2-year achievable potential that fell far below the threshold minimum as required by law. At a minimum, the two-year conservation potential should be the linear, pro rata share of the 10-year potential.

Colstrip Units 3 and 4

Avista owns a 15 percent share of Colstrip Units 3 and 4. In its acknowledgment letter to Avista's 2013 IRP, the Commission requested that Avista continue to evaluate scenarios related to the continued operation of units 3 and 4.¹⁴ In the 2015 IRP, Avista produced additional analysis of the

¹² The "technical" potential refers to the total conservation potential without regard to cost or customer uptake limitations. The "economic" potential refers to the technical potential after application of a cost-effectiveness economic screen. The "achievable" potential refers to the cost-effective potential after consideration of customer uptake limitations, often referred to as "ramp rates."

¹³ WAC 480-109-100(3)(b) states that the biennial target "must be no lower than a pro rata share of the utility's ten-year conservation potential." WAC 480-109-050(19) defines "pro rata" as "the calculation dividing the utility's projected ten-year conservation potential into five equal proportions to establish the minimum biennial conservation target."

¹⁴ Commission acknowledgment of Avista's 2013 IRP, Docket UE-121421, Page 2.

economics of continuing operations at Colstrip Units 3 and 4. Most notably, Avista devoted an entire scenario to modeling what it labeled a “high-cost” Colstrip case. The results of this analysis indicated that continued operation of Units 3 and 4 remains economic.

For the following reasons the Commission remains unconvinced that Units 3 and 4 would remain economic under all scenarios. First, the U.S. Environmental Protection Agency’s (EPA’s) rules for Clean Power Plan compliance were not finalized at the time Avista performed its IRP modeling runs.¹⁵ Although the Supreme Court has issued a stay on the EPA’s rule, the litigation on the substance of the rule is proceeding on an expedited basis before the U.S. District Court of Appeals. Although there may be a delay of a year or two in the implementation of this rule, we believe it is more likely than not that some type of federal rule from the EPA on greenhouse gas reductions on existing powerplants will occur in the relatively near future.

Second, prospective carbon pricing policies in Washington State, including a state rule establishing carbon limits and an initiative for a carbon tax, are more likely, and potentially more costly, than what Avista assumed in its 2015 IRP. These carbon policies would very likely impact the cost of continued operation of Units 3 and 4. Additionally, natural gas prices have continued to decline putting into question coal-fired generation’s economic advantage over natural gas generation. Further, Avista could not estimate some of the potential costs of continued operation of the units and did not include them in the “high cost” analysis. Clearly, there is additional analysis that needs to occur before the continued operation of Colstrip units 3 and 4 can be shown to be economic.

For the 2017 IRP, the Commission requests that Avista:

1. Incorporate new prospective carbon pricing policies into the expected case stochastic modeling. Avista may consult with its Advisory Group regarding assigning probabilities to these policies; and
2. Work toward developing a more complete suite of potential costs to include in a revised, “high-cost” scenario.

¹⁵ While the effective date of the Clean Power Plan is currently in question, the EPA did issue its final rule after Avista performed modelling for and filed its 2015 IRP.

Storage Resources

Avista has created the analytical framework for valuing the economics of storage resources in the IRP. Avista's IRP modeling is unique in that it can simultaneously optimize both hydro power and thermal resources. Such modeling capability lends itself well to fully evaluating the costs and benefits of storage to Avista's system. Avista did an exceptional job of developing a framework for modeling storage resources in an integrated hydro-thermal system. In the 2015 IRP, Avista modeled the cost and operational impact of a generic storage resource on its system. In its next IRP, the Commission requests that Avista model the costs and operational impact of specific storage technologies.

For the 2017 IRP, the Commission requests that Avista continue to develop the modeling capability for storage by:

1. Continuing to acquire the most up to date data related to the operational characteristics of specific storage technologies as well as the costs of purchasing and operating those technologies; and
2. Exploring the potential for incorporating the costs and benefits of storage resources to Avista's distribution system.

Planning reserve margin

Avista's description of its analysis of planning reserve margin is much more accessible than in the previous IRP. However, the 2015 IRP still fails to sufficiently address one important issue: Specifically, it does not address the risk of reliance on front office transactions (FOTs) to meet its specified planning reserve margin. Although Avista does not rely on FOTs to meet expected peak day load obligation, the Company's almost complete reliance on FOTs for its planning reserve indicates that if there is an event on Avista's system (such as a generator failure), Avista assumes there will be sufficient capacity available on the market. There is risk associated with that assumption.

It appears to the Commission in reviewing the IRPs filed by all three Washington IOUs that all three companies' plans almost exclusively rely on FOTs for meeting planning reserve margin for peak planning. Further, Pacific Power and Puget Sound Energy both rely on FOTs for meeting capacity needs (let alone the reserve margin) for peak planning. The Commission is not convinced that a regional capacity surplus will continue to provide capacity to all utilities with load

obligations above their generation capacity. There appears to be risk to over-reliance on a shrinking regional capacity surplus, and the Commission expects all electric IOUs in Washington to address this issue in their respective next IRPs.

Reserve requirements

The draft Northwest Power Plan recommends IRPs include an estimate of the utility's operating reserve requirement, including which plants should be assigned in power system models to provide these reserves.¹⁶ The Commission requests that Avista work with regional stakeholders, including the Northwest Power and Conservation Council Staff, to publish information about Avista's reserve requirements needs in the next IRP.

¹⁶ Draft 7th Northwest Power Plan, page 4-7.