

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

**In the Matter of Avista Corporation
2017 Electric Integrated Resource Plan**

DOCKET UE-161036

**COMMISSION STAFF COMMENTS REGARDING
ELECTRIC 2017 INTEGRATED RESOURCE PLAN UNDER
RCW 19.280 and WAC 480-100-238
(2017 ELECTRIC IRP)**

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Background

RCW 19.280.030 and WAC 480-100-238 direct investor-owned energy companies (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.

The IRP touches every aspect of the Company’s operations and provides essential public participation opportunities for stakeholders to assist in the development of an effective plan. This participatory process is the cornerstone of the utility’s planning and operations. The company submitted its work plan and held six technical advisory committee meetings (TAC) in Spokane, Washington throughout 2017. The TAC is a mix of over 100 invited external participants, including staff from the Idaho and Washington Commissions, customers, academics, environmental organizations, utilities, and other interested parties. Commission staff (staff) attended each of the TAC meetings and notes that public outreach efforts exceeded staff’s expectations.

On August 31, 2017, Avista Corporation d/b/a Avista Utilities (Avista or company) submitted its Electric IRP and describes the evaluation of potential resource strategies for meeting its resource need over the next 20 years. Avista’s consideration of inputs, modeling, and analysis of results were executed well. However, the company’s IRP fails to meet expectations regarding clarity, transparency and thoroughness in certain areas of its Plan. Despite some of these noted deficiencies, staff recommends the Commission acknowledge Avista’s 2017 IRP.

In the following sections, we highlight significant differences between Avista’s 2015 and 2017 IRP, provide an overview of the company’s preferred resource strategy (PRS) for the next 20 years, and provide specific comments and requests for improvement in certain areas for the next IRP.

Issues Identified in the Commission’s Acknowledgement of Avista’s 2015 IRP

In its letter acknowledging Avista’s 2015 IRP, the Commission asked Avista for more analysis and discussion on several issues.² A summary of the Commission’s requests and Avista’s responses to those requests includes the following four topics:

¹ WAC 480-90-238(2)(a).

² *Avista Corp.*, Docket UE-143214, Attachment to the Commission’s IRP Acknowledgment Letter (March 14, 2016).

1. Demand-Side Resource Potential

For the 2017 IRP, the Commission expected Avista to work toward reconciling its own demand-side resource potential (including both energy efficiency potential and DR potential) with that of the region, as calculated by the Northwest Power and Conservation Council (Council).

Demand Response (DR) Potential. Avista complied with the Commission’s 2015 request and reviewed DR potential the 2017 IRP Plan. Its assessment is different than the Council’s in two notable ways: it only considers winter peaking programs and *includes* standby generators. The Council’s assessment includes specific winter and summer programs and *excludes* standby generator programs. Avista’s analysis included only winter peak commercial and industrial (C&I) DR because the company’s winter peak is greater than summer peak. Further, Avista includes large industrial customer standby generation options, similar to the Portland General Electric programs, and proposes to use customer generators for limited hours for peak requirements, operating reserves, and potentially for voltage support on certain distribution feeders.³ The Council estimates 600 MW of DR for the region; using Avista’s 3.5 percent share of the region, this equates to 21 MW of DR.

Beginning in 2025, Avista includes a total of 44 MW of DR in its PRS for peak load reduction, comprised of 9 MW of winter C&I DR and 35 MW of standby generation. In the 2017 IRP, Avista’s PRS more than doubles the amount of DR the Council includes as cost effective in the Seventh Power Plan.

In September 2017, the company issued a request for proposal (RFP) for its 2019 IRP, including a new CPA and other demand-side, long-term resources. This RFP includes a study for potential electric DR programs in Washington/Idaho for 2019.

Conservation Potential. In the 2017 IRP, the company’s method for determining conservation potential is generally consistent with the Council’s method. Specifically, Avista’s Conservation Potential Assessment (CPA) utilized an end-use model to account for items such as measure life, lost opportunities and measure growth. Further, the company’s Preferred Resource Strategy Linear Programming Model (PRiSM) selects energy efficiency as a resource, where the value of conservation measures includes the energy value, the Council’s ten percent Power Act adder, and the value of loss savings.⁴

In the 2015 IRP acknowledgement letter, the Commission requested that the economic and achievable potentials be calculated *within the IRP model itself*, rather than within the third-party

³ Avista’s 2017 Electric IRP at Page 5-12; Avista estimates approximately 40 MW standby generation resources are available during peak load events for utility use over 20-year acquisition period. The company assumes a standby generation program would cost \$50 per kW in upfront investments, and \$10 to \$15 per kW-year in O&M costs.

⁴ The Power Act adder refers to one aspect of federal law enacted in 1980 along with the creation of the Council. The Council includes the 10 percent adder to deferred capacity, given Avista’s new conservation methodology using this 10 percent adder would not allow Avista’s PRiSM model to solve, as it would be non-linear. Avista compared its conservation method to the older method that calculates conservation outside PRiSM with the 10 percent adder in the 2015 IRP and both methods produced similar results.

model. In response, Avista made this change and compared individual energy efficiency resources directly within the PRiSM model itself.⁵ The result of the CPA modeling process produced a two-year achievable potential of 69,899 MWh and a ten-year potential of 368,181 MWh. However, WAC 480-109-100(3)(b) requires the conservation biennial target to be no lower than a pro rata share of the utility's ten-year conservation potential. Consequently, the pro rata share of the ten year conservation potential, totaling 73,636 MWh will be used as the starting point for biennial conservation target-making purposes. The company's behavioral program savings,⁶ NEEA savings, distribution and street light efficiency savings, and the decoupling commitment will also be added to comprise the company's total biennial conservation plan target, as identified in the company's 2018-2019 Biennial Conservation Plan.⁷

Staff continues to have concerns that Avista is excluding some conservation measures from the CPA prior to determining their technical potential, and has failed to provide its rationale for excluding any such measures. This is further discussed below in the Areas for Further Analysis section.

2. Colstrip Units 3 and 4

In the 2015 IRP acknowledgement letter, the Commission requested that Avista:

- Incorporate new prospective carbon pricing policies into the expected case stochastic modeling.
- Work toward developing a more complete suite of potential costs to include in a "high-cost" scenario.

The 2017 IRP includes two scenarios with Colstrip retiring in 2030 and 2035. The company accomplished the first request by changing the IRP modeling tool to force emission reductions and estimated a carbon price consistent with the current policy discussion.⁸ Further, the company developed a scenario that forecasted higher than expected compliance costs to retain Colstrip. The implied carbon cost of shutting down the plant between 2024 and 2037 by selecting the new resource strategy is an additional \$12.21 per metric ton using the change in cost and the change in Avista's direct emissions from this scenario. This, with the pricing included in the market analysis, totals \$23.88 per metric ton.⁹ Most notably, shutting down the plant as compared to the High Colstrip Cost scenario would save customers 0.35 percent over running the plant for the remainder of the IRP study period. However, early retirement exposes customers to more volatile

⁵ Pages 5-2 to 5-6 of Avista's 2017 IRP.

⁶ Avista's 2017 CPA does not provide a potential assessment for behavioral program or distribution or street light savings, as they are outside the scope of the CPA.

⁷ Avista's 2018-19 Biennial Conservation Plan will be reviewed at the December 14, 2017 Open Meeting.

⁸ Page 10-11 of Avista's 2017 IRP.

⁹ Page 12-6 of Avista's 2017 IRP: This high cost Colstrip scenario includes that the State of Montana will reduce carbon emissions following the Clean Power Plan's "mass-based with new sources levels," but delayed until 2024. The average shadow price of the stochastic studies is \$11.67 per metric ton between 2024 and 2037. \$6.47 in 2024 and \$26.89 in 2037. The 95th percentile price in in 2024 is \$16.94 per metric ton and \$60.16 in 2037.

power supply costs. Early retirement also reduces emissions if natural gas-fired peakers replace Colstrip, but the wholesale market would need to serve some customer energy needs.

3. Storage Resources

In the 2015 IRP acknowledgement letter, the Commission requested that the company continue to acquire the most up to date data related to the operational characteristics of specific storage technologies. The 2017 selected energy storage appears for the first time in the plan as part of the company's PRS. Energy storage costs are significantly lower than the last IRP which for the first time makes the technology operationally attractive in meeting energy needs in the 20-year timeframe of the 2017 IRP. It is important to note that the company uses the study completed for the 2015 IRP to determine the potential financial value storage brings to Avista's power supply costs, including storage power supply value and value stream.¹⁰ As described in staff's recommendations, staff encourages the company to update its legacy studies, as applicable.

4. Planning Reserve Requirements

In the 2015 IRP acknowledgement letter, the Commission requested that the company address an over-reliance on regional capacity surplus to meet the planning reserve margin. For the 2017 IRP, the company responded by stating that they intend to meet margin requirements with company-owned resources and power purchase agreements. That is, Avista does not plan to use short-term market purchases to meet the 14 and 7 percent planning margin requirements.¹¹

The Commission also requested that the company work with regional stakeholders, including the Northwest Power and Conservation Council Staff, to publish information about Avista's reserve requirement needs. The company addresses this request by including operating reserves as part of its planning criteria; these operating reserves are not included in the 14 percent winter or the 7 percent summer planning margin calculations.¹²

For the 2018 winter peak hour estimated load, the operating reserves add up to 122 MW.¹³ An additional 16 MW of capacity is for "within hour" requirements, such as load following or regulation. Regulation is typically met with Avista's hydroelectric facilities. The company notes, on occasion, that it contracts to sell reserves to other control areas under short-term agreements, but Avista claims this information is proprietary. Staff is satisfied with the company's cooperation with regional stakeholders but has additional suggestions for further analysis for the next IRP.

¹⁰ Page 9-17 of Avista's 2017 IRP.

¹¹ Page 6-4 to 6-6 of Avista's 2017 IRP.

¹² Northwest Power and Conservation Council's Seventh Power Plan, Chapter 4, Page 7, REG-4.

¹³ Avista holds operating reserves for the entire control area, including non-Avista generation and loads. The company typically holds 20 MW for both increases and decreases during normal operating conditions (non-peak event), but may vary depending on wind forecasts.

Avista’s 2017 Preferred Resource Strategy (2018 – 2037)

Avista projects its Washington/Idaho demand to grow just .47 percent annually between 2018 and 2037, due to declining retail sales and residential user per customer forecasts. Peak load growth is lower at 0.42 percent in the winter and 0.46 percent in the summer. This is a reduction in peak load growth as compared with previous IRPs.¹⁴

Table 1. Avista's resource plan for the previous (2015) and current (2017) IRP

Year(s)	PRS-2015 IRP	PRS-2017 IRP
<u>Generation</u>		
2018		15 MW (Solar)
2019		
2020	102 MW (Simple Cycle CT)	
2021		
2022		
2023		
2024		
2025	38 MW (Thermal Upgrades)	
2026	306 MW (Combined Cycle CT)	204 MW (Simple Cycle CT)
2027	102 MW (Simple Cycle CT)	
2028		34 MW (Thermal Upgrades)
2029		5 MW (Storage)
2030		102 MW (Simple Cycle CT)
2031		
2032		
2033	3 MW (Thermal Upgrades)	
2034	47 MW (Simple Cycle CT)	47 MW (Simple Cycle CT)
2035		
2036		
2037		
Total	597 MW	392 MW
<u>Demand Side</u>		
20 years	193 MW (Energy Efficiency)	203 MW (Energy Efficiency)
2025-2037		44 MW (Demand Response)
2025-2037	<1 MW (Distribution Efficiency)	<1 MW (Distribution Efficiency)
Total	193 MW	247 MW

¹⁴ Avista’s 2015 IRP (Docket UE-143214): Avista’s Expected Case energy forecast grows 0.6 percent per year, replacing the 1.0 percent annual growth rate in the 2013 IRP. Peak load was projected at 0.74% for winter and 0.85% in summer.

As a result of this demand forecast over the 20-year planning horizon, Avista's PRS includes a mix of solar, DR, energy efficiency, storage, upgrades to existing assets, and new natural gas-fired generation. In April 2017, the company began developing its Solar Select program. Avista is acquiring a 15 MW utility-scale solar facility for commercial and industrial customers voluntarily choosing solar for their power supply mix.

Avista does not have a capacity need until 2025 when it first selects DR. The deficit that occurs in 2026 is due to the end of Avista's Lancaster Facility power purchase agreement. Energy efficiency offsets 53.3 percent of projected load growth through the 20-year IRP timeframe. In comparison to Avista's 2015 IRP, the company's near term resource needs have *diminished* as compared with Avista's 2017 PRS acquisition schedule, as shown in Table 1, above.

Areas for Further Analysis in Future IRPs

Although Avista should be commended for its efforts to provide a thorough analysis and addressing the Commission's concerns, there is room for improvement. The following section explains the topics and issues on which staff would like further analysis.

Carbon Price Modeling. Avista's IRP includes three stochastic studies—the Expected Case, a case with the social cost of carbon, and a benchmarking case excluding a cost of carbon. Since the 2015 IRP, changes in the approach to greenhouse gas emissions regulation and supporting programs, include:

- The EPA proposed actions to regulate greenhouse gas emissions under the Clean Air Act (CAA) through the proposed Clean Power Plan (CPP) were stayed by the U.S. Supreme Court on February 9, 2016;
- The President signaled a shift in federal priorities through Executive Orders as well as proposed budgets.
- EPA plans to reevaluate the CPP and submit a new CPP proposal to the Office of Management and Budget;
- California failed to pass an extension to its cap-and-trade program beyond 2020, but did raise its RPS to 50 percent and expanded energy storage requirements;
- Oregon reducing greenhouse gas emissions by 30 percent of 2015 levels by 2025; and
- The State of Washington implemented the Clean Air Rule.

In the 2017 IRP, Avista's model *produces* emission prices rather than a direct input, as compared with its 2015 IRP. That is, with this new constraint, the model produces a "shadow price" for the plants with emission constraints. The resulting shadow prices affect the dispatch of plants in each area, with reduction goals similar to models with a carbon price. For Washington, the prices are near zero (depending on water year) until the early 2020s and remain below \$5 per metric ton until 2030.

Staff finds that Washington's investor-owned utilities have inconsistent methods of modeling carbon prices in their IRPs, even though the same state and federal regulatory policies apply. In future IRPs, Avista should model specific Clean Air Rule impacts as well as consider the costs and risks of additional environmental regulation, including a possible carbon tax (\$/ton of CO₂).

In addition, Staff recommends that the company model a variety of potential carbon prices, including zero dollars and a social cost of carbon.

Demand Response and Advance Metering Infrastructure (AMI) Project. The 2017 IRP does not appear to consider the adoption of the company’s Advance Metering Infrastructure (AMI) technology in its energy efficiency or DR modeling. The company claims its AMI platform for future service options can include time-of-use and capacity-based pricing.¹⁵ However, Avista does not discuss these potential benefits in its 2017 IRP—in particular the increased DR capabilities. Staff encourages Avista to expand its load management and DR analysis in its 2019 IRP. Further, Staff expects that the study results for potential electric DR programs in Washington/Idaho for 2019 will be included in planning analysis related to impending AMI infrastructure investments.

Conservation Potential and Investment. As compared with other utilities, the company’s expenditures on conservation appear to be increasing, but its conservation measures are not.¹⁶ Although staff understands that Avista’s avoided costs – which are used to set targets for future conservation acquisitions and new resource alternatives – have declined, the company should ensure the entity performing the CPA evaluates and includes the following information:

1. All conservation measures excluded from the CPA, including those excluded prior to technical potential determination.
2. The rationale for excluding any measure.
3. A description, and source, of Unit Energy Savings (UES) data for each measure included in the CPA.
4. An explanation for any differences in economic and achievable potential savings and how the company is working towards an achievable target of 85 percent of economic potential savings.

Distribution System Upgrade Planning. In its 2017 IRP, Avista lists its distribution efficiency potential as “<1 MW” winter peak reduction (MW) and energy (aMW).¹⁷ In the Commission’s policy on energy storage, it is noted that the growth of distributed energy resources increasingly affects distribution grid operations. As such, staff expects utilities to apply these same principles to evaluate distribution system projects on a more granular basis. Specifically, any analysis of a distribution system upgrade should include analyses of storage options that capture all of the locational benefits associated with the site in question. Avista states that its proprietary Avista Decision Support System (ADSS) tool is capable of capturing sub-hourly benefits. Staff

¹⁵ UE-170327.

¹⁶ UE-170174. Revises Tariff WN U-28, Schedule 91, reflecting changes to electric rates under the conservation rider mechanism from 2016 actual and 2017 budget expenditures. The estimated annual revenue change associated with this filing is an increase of 4.9 million (0.9 percent). A residential customer using approximately 1,000 kWh per month will see a bill increase of \$0.79 per month.

¹⁷ Page 11-7 of Avista’s 2017 IRP.

encourages Avista's use of sub-hourly models in the core IRP development process to identify distribution system enhancements in its next IRP.

The Commission is considering how it should modify its IRP rules for investor-owned natural gas and electric utilities in Docket U-161024, and is seeking comment on ways to improve the transparency of evaluating cost-effective transmission and distribution infrastructure reported in electric IRPs. Staff looks forward to Avista's participation on this topic.

Estimating the Economically Optimal Reserve Margin. For the 2017 IRP, Avista's peak planning methodology includes operating reserves, regulation, load following, wind integration, a 14 percent planning margin over winter-peak load levels, and a 7 percent planning margin over summer-peak load levels. The company's total requirement for planning margin and other reserves equates to a 22.6 percent planning margin.

By contrast, in the company's 2013 IRP, Avista found a 30 percent planning margin (in addition to operating reserves) would be required to meet the 5 percent loss of load probability study without connecting to the wholesale market. This higher planning margin was due to Avista's large resources as compared to its load. In its 2015 IRP, Avista studied planning margins used by transmission organizations and utilities across the country.

In its 2017 IRP, Avista indicates that it does not plan to use short-term market purchases to meet the 14 and 7 percent planning margin requirements. In the 2019 IRP, Staff urges Avista to continue to analyze planning margins using its loss of load model to validate and update its requirements. The company should also evaluate an economically optimal reserve margin as well as reliability-based reserve margin targets, testing higher and lower margins with base case and sensitivity cases.

Update Legacy Studies. For the 2017 IRP, Storage and Natural Gas-Fired Facility ancillary service valuation utilized analysis from the 2015 IRP cycle. For future IRPs, citations of legacy analysis should be accompanied by a rationale for why the study does not need to be updated.

Public Comments

On October 4, 2017, the Commission issued a notice of opportunity to file written comments. All comments were required to be submitted to the Commission by October 27, 2017. A total of 12 submittals were received; however, one submittal consisted of a petition sent to Scott Morris of Avista, including 57 signatures.

Each of the submittals can be categorized into one of two positions. The submittals were either pro-economic or pro-clean energy. One commenter voiced concern that customers want low cost and reliable power sources. The other eleven submittals were for pro-clean energy, primarily focused on Avista's interest in Colstrip Units 3 & 4 and reducing electricity from coal-fueled generation.

Many requested Avista divest from Colstrip Units 3 & 4 by 2025, including suggesting the company not sign any new coal supply contracts with Westmoreland Coal Company. The

commenters would like to compel the Commission to be proactive in reducing coal-fueled generation in Avista’s energy production mix, reduce greenhouse gas emissions, and also recommend greater investment in renewable energy. Notably, one commenter urged the Commission to *not* “approve” of Avista’s 2017 IRP.¹⁸

Conclusion

Staff has reviewed public comments provided by stakeholders, has attended the Avista’s IRP technical advisory committee (TAC) meetings throughout 2017, and has thoroughly reviewed the company’s IRP. Staff finds that Avista’s 2017 Electric IRP meets the requirements of the rule and recommends that the Commission acknowledge it, with the caveat that the issues identified for further analysis in this memo are to be addressed by the Company’s 2019 IRP.

¹⁸ Docket UE-161036; comment submitted by Lisa Christian (October 27, 2017).