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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF AVISTA CORPORATION'S 2015 ELECTRIC INTEGRATED RESOURCE PLAN.	)	**CASE NO. AVU-E-15-08**
	)	**COMMENTS OF THE COMMISSION STAFF**

The Staff of the Idaho Public Utilities Commission provides these following comments to Avista Corporation's 2015 Electric Integrated Resource Plan.

BACKGROUND

On August 31, 2015, Avista Corporation dba Avista Utilities (Avista) filed its 2015 Electric Integrated Resource Plan (IRP) with the Idaho Public Utilities Commission pursuant to requirements outlined in Commission Order No. 22299, and as later adapted in Order Nos. 24729 and 25260. This is Avista's thirteenth filing of its biennial IRP.

Avista's 2015 IRP provides guidance regarding its resource strategy over the next two years and insight to preferred resource procurements through 2035. The plan is supported by various sections developed to describe the Company's basis for current and forecasted loads, generation resources, energy efficiency, environmental policy, system transmission and distribution, resource options, market analysis, and Avista's preferred resource strategy. Avista further provided updates to items identified as part of the previous IRP Action Plan, and subsequently provided a new list of action items to be addressed in its next IRP.

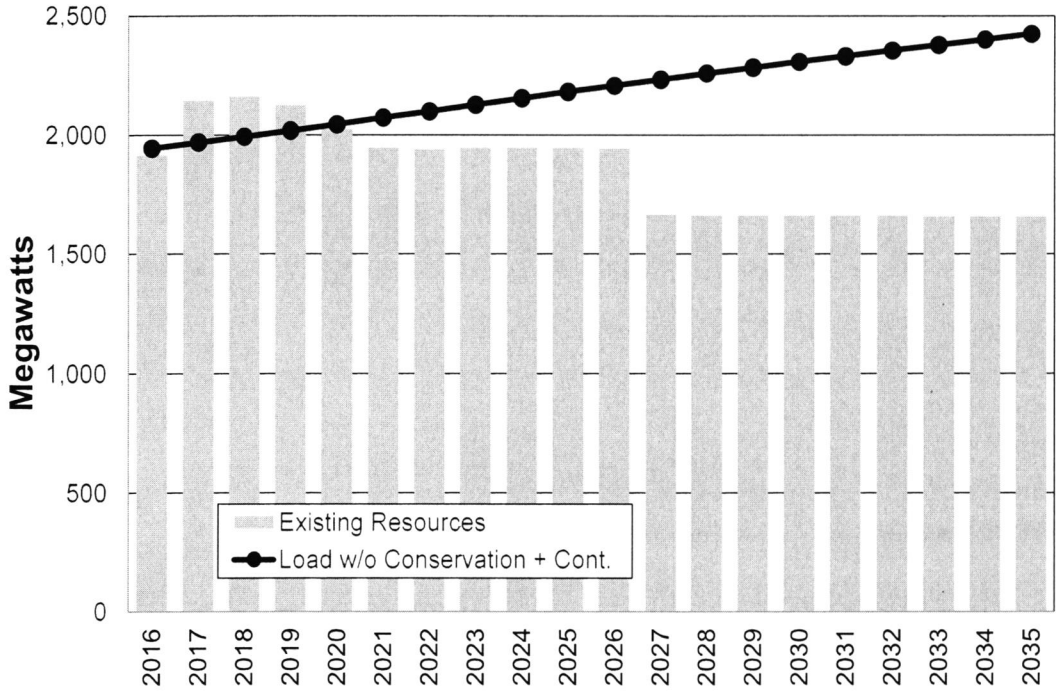
STAFF REVIEW

Load and Resource Balance

Avista expects its highest peak load to occur in extreme cold winter weather conditions. For Avista, a winter single peak hour load is more concerning than a three-day sustained 18-hour peak load. Overall, Avista's hydroelectric system can sustain generation levels in winter months for longer than it can in summer months due to higher inflow availability.

Avista explains that its peak-load planning methodology includes operating reserves, regulation, load following, wind integration, and a 14 percent margin over the winter-peak load. Based on its approach, Avista reports it can use existing supply resources in conjunction with energy conservation, and market purchases to meet peak-load requirements through 2020.

Figure 6.6: Winter 1 Hour Capacity Load and Resources



The graph above, referenced from Avista's 2015 IRP, illustrates the yearly long-term growth trend to the 1-hour winter peak load, when compared to existing resources. The first long-term winter peak capacity deficit occurs in year 2021.

However, the Company also notes that a short-term capacity need exists in the winter of 2015/2016. Avista states that it has acquired resources through short-term market purchases to

offset this shortfall. It further expects current near-term summer supply resources to exceed demand requirements.

Load Forecast

Avista evaluated a number of variables and scenarios to develop its Expected Case load forecast using recent enhancements to forecasting models and processes. The Company developed a five-year load forecasting model on an ongoing yearly operational basis. This five-year load forecast is based on past service area usage, population growth, economic conditions, and weather; with each component contributing to the model. The Company used this analysis to forecast growth in individual rate schedules and develop an overall trend for a near term five-year forecast.

Results from this analysis show the 2015 Expected Case energy forecast grows at a yearly average of 0.6 percent, rather than the previous average of 1.0 percent annual growth rate stated in the 2013 IRP. This lower growth rate results in a reduced requirement of 109 aMW by the end of 2035.

Avista also forecasts peak hour load growth to determine need for additional generation capacity. The Company's analysis is based on seasonal conditions and extreme daily temperatures. The analysis shows that average peak load growth is 0.74 percent in the winter season and 0.85 percent in the summer, which in each case is higher than forecasted energy growth. Avista believes the historical extreme weather events provide a sound basis for peak load modeling. The Company projects a 237 MW increase in winter peak load growth and a 254 MW increase in summer peak load growth by 2035.

Staff believes that the load forecasts prepared by Avista for its 2015 IRP and utilized in the Preferred Resource Strategy are appropriate and reasonable.

The following table summarizing the load forecast, details the yearly forecasted average annual, winter peak, and summer peak load growth through 2035:

Table 3.7: Energy and Peak Forecasts

Year	Energy (aMW)	Winter Peak (MW)	Summer Peak (MW)
2016	1,074	1,718	1,582
2017	1,084	1,731	1,596
2018	1,091	1,744	1,610
2019	1,097	1,756	1,623
2020	1,099	1,768	1,635
2021	1,102	1,780	1,648
2022	1,105	1,792	1,661
2023	1,110	1,804	1,674
2024	1,115	1,816	1,686
2025	1,120	1,828	1,699
2026	1,125	1,840	1,713
2027	1,131	1,853	1,726
2028	1,137	1,865	1,739
2029	1,143	1,878	1,753
2030	1,150	1,891	1,766
2031	1,156	1,903	1,780
2032	1,163	1,916	1,794
2033	1,169	1,929	1,808
2034	1,176	1,942	1,822
2035	1,183	1,955	1,836

Supply-side Resources

Avista's current portfolio of supply-side resources includes Company-owned assets totaling 1807 MW of nameplate capacity, and power purchase agreements (PPA) of approximately 477 aMW, along with other smaller contracts. Within Company-owned assets, hydroelectric facilities make up over half of Avista's resources at 972 MW of nameplate capacity, while thermal generation makes up the rest at 845 MW. The largest supply resource tied to a PPA is the Lancaster combined cycle combustion turbine power plant which provides 215 aMW of power. Smaller PPA's are in place with a number of regional Public Utility Districts (PUD) for output tied to their Mid-Columbia hydroelectric projects. The Palouse Wind farm and other PURPA facilities also contribute to the supply-side resources. As of year-end

2014, a total of 1.8 MW of installed capacity from 208 net-metering customers was provided to the Company's system.

Based on its analysis, Avista expects all Company-owned thermal resources to operate through the end of the twenty year, 2015 IRP time horizon. But Staff believes the EPA's final rule for the Clean Power Plan, issued August 3, 2015, may affect the Colstrip scenarios for Units 3 and 4. Staff thus recommends that Avista consider further analysis to understand how the EPA's final rule may impact the operating permit, emissions compliance requirements, operating life, and power supply costs for the Colstrip plant.

Demand Side Management (DSM)

Avista used two approaches in its 2015 IRP to measure the 20-year potential for energy efficiency savings. Both approaches rely on the results of a Conservation Potential Assessment (CPA) that assesses energy efficiency potential and characterizes it as technical, economic, or achievable potential.[1] The first method, which has been used in past IRP's, incorporates the CPA results to include all individual energy efficiency options that are commercially available and achievable based on cost-effectiveness, customer acceptance and other factors. The second method, which is new to the 2015 IRP, allows individual energy efficiency options identified in the CPA to compete against supply side resources using the PRiSM model.

In this IRP, Avista selected resources based on the first method, which uses the achievable potential identified in the CPA, resulting in 3.9 aMW (34,106 MWh) of energy savings in 2016, increasing to a cumulative savings of 124.5 aMW (1,088,768 MWh) through 2035. The CPA followed the conventions outlined in the National Action Plan for Energy Efficiency Guide for Conducting Potential Studies. Staff believes the methodology used to determine the potential savings results in a reasonable estimate of energy efficiency savings.

[1] "Technical potential" is the theoretical upper limit and assumes all customers replace equipment with the most efficient option available regardless of cost-effectiveness. "Economic potential" incorporates cost-effective measures under the Total Resource Cost test. "Achievable potential" is the theoretical lower limit and applies ramp rates to establish an acquisition savings target that is perceived to be more realistic.

Modeling Energy Efficiency Concurrently with Supply Side Resources

The Company tested the second methodology to identify its efficiency targets in the 2015 IRP. The method includes roughly 2,500 energy efficient options identified as technically achievable in the CPA, and incorporates the measures into Avista's PRiSM model. This allows the efficiency options to compete with supply side resources on the basis of cost within the model constraints. By incorporating energy efficiency measures directly into the PRiSM model, cumulative conservation potential in 2035 is slightly higher at 124.9 aMW when compared to only using the CPA result of 124.5 aMW. By comparison, the 2013 IRP calculated 156 aMW of cumulative energy efficiency savings through 2033.

Avista explains that its future IRP will put greater emphasis on the PRiSM model results for conservation selection, because the CPA must be re-analyzed by the third party each time new resources are selected. According to the Company, the third-party re-analysis is avoided in the PRiSM model because the conservation measures selected change with differing resource strategies. Thus, any changes to the supply side resource selection will simultaneously change the energy efficiency resources. Staff agrees with the rationale behind modeling demand-side resources simultaneously with supply-side resources because it provides more equal treatment of both resource types. It recognizes that the values of demand-side resources are not static, but fluctuate based on alternate resources and scenarios.

Demand Response (DR)

Avista contracted a third party to perform a Demand Response Potential Study to determine the opportunity for commercial and industrial DR programs by producing estimates of the magnitude, timing, and costs of DR resources likely available to the Company for meeting winter peak loads. The results of the study showed higher levelized costs than in the 2013 plan, which included 20 MW of demand reduction from 2022 to 2027. Consequently, Avista did not include demand response in the 2015 IRP. Avista states that to make demand response cost effective, the costs must fall to $117 per kW-year levelized between 2023 and 2035; a 46 percent reduction. Staff reviewed the DR Potential Study and the IRP but could not find data to support the $117 per kW-year cost-effective pricing for demand response. Staff also could not confirm the required cost reduction of 46 percent.

According to the DR Potential Study, the firm curtailment program currently has a levelized cost of $118.59 per kW-year; a mere 1.25 percent higher than the stated cost-effective pricing of $117 per kW-year. The program also has the largest achievable potential of all DR programs at a levelized 17.5 MW in 2020. Given the program has large achievable potential and is nearly cost-effective, Staff believes the feasibility of implementing the firm curtailment program should continue to be investigated in more depth throughout the 2017 IRP process.

Environmental Policy Considerations

Environmental issues continue to be an important consideration in integrated resource planning by electric utilities due to the added constraints imposed on new resource selection, as well as the higher compliance costs required for existing generation. Avista notes that regulation of greenhouse gases, specifically carbon emissions, are in various stages of development and implementation throughout the country. Some states have legislation in place for active cap and trade programs, emissions performance standards, renewable portfolio standards, or varying combinations of each. This diverse regulation complicates development of electric generation resources.

The Environmental Protection Agency (EPA) issued a proposed rule under Section III (d) of the Clean Power Plan (CPP) in June 2014, which aimed to reduce greenhouse gas emissions from existing fossil fuel electric generating plants. This proposed rule included all active regulations that affected generation for the Western Interconnect, including a $12 per metric ton carbon cost that escalates over time. The proposed rule utilized state-by-state emission rate targets and Avista's 2015 IRP addresses emissions compliance based on the proposed rule. However, the EPA has since issued its final CPP rule. Avista indicates it will need to further analyze the EPA's final CPP rule and resulting state implementation plans later in the 2017 IRP.

Avista predicts that western regional carbon emissions will likely fall from historic levels over the IRP timeframe, while the Company's emissions show a modest increase. Avista believes it will continue to operate its coal and natural gas-fired power plants over the IRP timeframe. However, Avista also expects to add new gas-fired peaking resources after 2019 to meet peak load growth thereby, slightly increasing its overall emissions.

The 2015 IRP describes Avista's plans for complying with the State of Washington's Energy Independence Act (EIA). The Company explains that Washington's EIA requires the

Company to meet 3 percent of retail load from qualified renewable resources by 2012, 9 percent by 2015, and 15 percent by 2020. The EIA also requires Avista to acquire all cost-effective conservation and energy efficiency measures. The Company states that it will satisfy its EIA obligations through the IRP timeframe by combining qualifying hydroelectric upgrades, the Palouse Wind project, Kettle Falls Generating Station output, and renewable energy certificate purchases.

Transmission and Distribution Planning

Avista's 2015 IRP describes the Company's active commitment to regional transmission planning as well as the benefit of making transmission and distribution system upgrades.

Avista coordinates its transmission planning activities, upgrades, and system operations on a continuing basis with neighboring system operators, with regional reliability organizations and regulatory authorities. These groups include the Western Electricity Coordinating Council, Peak Reliability, Northwest Power Pool, ColumbiaGrid, and the Northern Tier Transmission Group. Staff supports Avista's regional transmission cooperation and believes future IRPs should further address emerging opportunities.

Avista develops a transmission system report annually that specifically assesses its system limitations and then builds on prior plans to make beneficial upgrades. This ongoing process identifies projects needed to alleviate future reliability concerns and load service uncertainty. Likewise, Avista continues to promote supply-side efficiency by improving its distribution system through cost-effective investments.

The Company maintains that efficiency improvements for all currently completed distribution projects totals approximately 7,479 MWh on an annual basis. Staff supports Avista's emphasis on transmission and distribution efficiency and sees it as an important part of an integrated resource plan.

Future Resource Options

Avista considered several future resource options in establishing its Preferred Resource Strategy (PRS). To compare resource strategies on an equal basis, Avista assumed all resources would be developed and owned by the Company. The Company included all costs associated with transmission interconnection and assumed no extension of current State or Federal

incentives for renewable resource development. It is reasonable to assume the current tax incentives will not be extended at this time, but Staff notes pending legislation in Congress to extend the renewable tax credit for solar and wind generation.

The Company then compared resource options on a levelized revenue requirement basis over the resource life. Viable resource options from this analysis included natural gas combined cycle combustion turbines, simple cycle combustion turbines, natural gas-fired reciprocating engines, large-scale wind generation, energy storage, solar photovoltaic, hydroelectric upgrades to existing units, and thermal upgrades to existing units. Resource options not considered viable included biomass, geothermal, co-generation, nuclear, landfill gas, and anaerobic digesters.

When considering valuation for ancillary services Avista has traditionally modeled the value of the resource using hourly models. This method provides a good approximation of resource value, but it does not provide a value for the intra-hour or ancillary services needs within a balancing area. The 2015 IRP developed a new tool, called the Avista Decision Support System (ADSS), for use in operations and long-term planning. This program optimizes a set of resources to meet system load and ancillary services requirements using intra-hour information.

Since the new ADSS tool estimates the value of intra-hour or ancillary services, Staff believes the ADSS tool is an improvement from the 2013 IRP. Staff also believes the Company has selected a reasonable set of viable resources, and agrees with its approach to compare strategies on an equivalent basis.

Market Analysis

Avista uses the AURORA model to evaluate availability and price risk associated with electric and natural gas markets. Using this model, Avista performed a Monte Carlo-style analysis that varied hydroelectric capacity, wind generation, system loads, forced outages, and natural gas pricing for over 500 iterations to simulate a range of potential future market conditions.

The Company's Mid-Columbia price forecast for the Expected Case, is a levelized price of $38.48 per MWh in nominal dollars for the 2016-2035 timeframe. Avista observed that electricity and natural gas prices are highly correlated because natural gas fuels provide marginal generation in the Northwest during most of the year. The Company reports that nominal

levelized Expected Case natural gas prices at the Stanfield trading hub in northeastern Oregon, based on 500 Monte Carlo iterations, averages $4.97 per dekatherm over the next 20 years.

In addition to the Expected Case scenario, the Company developed three other scenarios using stochastic analyses:

1. The Benchmark Scenario removed carbon pricing and relaxed requirements in meeting draft CPP goals. This scenario provided data regarding the impact of the environmental policies relative to the Expected Case. Results from the Benchmark Case indicate that the cost of lower emissions from the Expected Case are relatively modest for the Western Interconnect, at a levelized $30 million each year.
2. The No Colstrip Scenario assumes all four Colstrip units are retired by the end of 2026. This scenario used a portfolio study to estimate impacts of an early Colstrip closure. Results from this scenario indicate without Colstrip, regional market prices increase slightly beginning in 2027 with a $0.93 per MWh annual average price difference. While price changes were not significant, this scenario assumed the average price over a year with average water conditions. However, without replacement capacity, the annual cost to all customers in the west increased by $651 million or 2.6 percent beginning in 2027.
3. The Social Cost of Carbon Scenario looked at the added costs on market price and associated reduction in greenhouse gas emissions from a social perspective. This scenario showed a market price increase of 15 percent and significant increases in carbon reduction cost.

In evaluating the additional scenarios, the Company looks at the sensitivity of the Expected Case when compared to unlikely but potential scenarios. Staff believes it is reasonable to consider these additional scenarios given their potential impacts to the Expected Case.

Preferred Resource Strategy

An important part of the 2015 IRP is to develop Avista's future Preferred Resource Strategy (PRS). The PRS defines the Company's approach to satisfying forecasted load growth while balancing cost and risk factors. Avista relied on modeling techniques to balance cost, reliability, rate volatility, and renewable resource requirements in developing the PRS.

Avista primarily uses two analytical simulations to develop the PRS. AURORA^{xmp} is used to model the Western Interconnect electricity market, the results are then entered into the PRiSM model to identify individual resource portfolios that satisfy energy, capacity, and renewable portfolio standard requirements.

PRiSM modeling resulted in a series of least cost portfolios that represents the range of opportunities based on model constraints. The resulting 2015 PRS meets future load growth with a portfolio of upgrades to existing generation facilities, energy efficiency, and natural gas-fired technologies. Avista believes its selection of the 2015 PRS is the most reasonable low-cost plan among the potential resource portfolios considering fuel supply, regulatory requirements, and price risks.

The following table shows the 2015 Preferred Resource Strategy:

Table 11.2: 2015 Preferred Resource Strategy

Resource	By the End of Year	ISO Conditions (MW)	Winter Peak (MW)	Energy (aMW)
Natural Gas Peaker	2020	96	102	89
Thermal Upgrades	2021-2025	38	38	35
Combined Cycle CT	2026	286	306	265
Natural Gas Peaker	2027	96	102	89
Thermal Upgrades	2033	3	3	3
Natural Gas Peaker	2034	47	47	43
Total		**565**	**597**	**524**
Efficiency Improvements	Acquisition Range		Winter Peak Reduction (MW)	Energy (aMW)
Energy Efficiency	2016-2035		193	132
Distribution Efficiencies			<1	<1
Total			**193**	**132**

The first resource acquisition identified in the PRS is 96 MW of natural gas-fired peaking capacity required by the end of 2020. The first resource identified in the PRS is 96 MW of natural gas-fired peaking capacity by the end of 2020. This meets forecasted load growth and replaces two expired contracts, 82 MW WNP-3 with Bonneville Power Administration (BPA) and 28 MW Douglas County PUD contract. Other resources in the PRS are upgrades to Avista's thermal fleet, a 286 MW CCCT to replace the Lancaster tolling agreement that expires in 2026, and energy efficiencies.

Comparison with 2013 IRP

Overall, the Company indicates the 2015 PRS performs better when compared to the 2013 IRP strategy.

The major changes from the 2013 plan include delayed acquisition of a natural gas-fired peaking plant, the elimination of demand response, and a modest reduction in energy efficiency. The 2015 PRS also assumes replacement of the Lancaster Purchase Power Agreement with a new combined cycle combustion turbine facility of similar size due to uncertainty in Lancaster contract extensions.

Average annual load growth was reduced to 0.6 percent from just over 1 percent in 2013. Finally, the 2015 PRS specifies a short-term purchase power agreement and a one year delay in acquiring the other new natural gas-fired resource to account for the reduction in forecasted average annual load growth.

Risk Analysis

Avista evaluated the Preferred Resource Strategy against several alternative strategies with various scenarios of load, hydro conditions, emissions charges, wind generation, capital costs and fuel prices. This helped to identify tipping points where the PRS could change under differing conditions from the Expected Case. In addition, scenarios were investigated that included solar, energy storage, and demand response. Overall, the Preferred Resource Strategy performed well, both in the Base Case and under these numerous scenarios.

Staff believes the Company's risk analysis was rigorous and thorough, and that a reasonable range of risks and scenarios were considered. Staff accepts that the Preferred Resource Strategy selected by Avista is superior to the other resource strategies considered in the IRP.

2017 Action Items

The 2015 IRP provides a status update to the prior 2013 IRP action item list and further presents an action plan that lists new items to be addressed in developing the 2017 IRP. These new action items fall into three categories: (1) generation resource related analysis, (2) energy efficiency, and (3) transmission and distribution planning. These new action items are listed below.

Resource Additions and Analysis

- Analyze the continued feasibility of the Northeast Combustion Turbine due to its age.
- Continue to review existing facilities for opportunities to upgrade capacity and efficiency.
- Increase the number of manufacturers and sizes of natural gas-fired turbines modeled for the PRS analysis.
- Evaluate the need for, and perform them if needed, updated wind and solar integration studies.
- Participate and evaluate the potential to join a Northwest Energy Imbalance Market.
- Monitor regional winter and summer resource adequacy.
- Participate in state level implementation of the Clean Power Plan.

Energy Efficiency

- Continue to study and quantify transmission and distribution efficiency projects as they apply to EIA goals.
- Complete the assessment of energy efficiency potential on the Company's generation facilities

Transmission and Distribution Planning

- Work to maintain the Company's existing transmission rights for transmission services to bundled retail native load, under applicable FERC policies.
- Continue to participate in BPA transmission processes and rate proceedings to minimize costs of integrating existing resources outside of the Company's service area.
- Continue to participate in regional and sub-regional efforts to facilitate long-term economic expansion of the regional transmission system.

Staff believes Avista has made acceptable progress in addressing action items from the earlier 2013 IRP. Likewise, the Staff believes these newer action items developed as part of the 2015 IRP process will continue to allow Avista to make better resource acquisition decisions.

Public Involvement

Avista has reached out for public involvement through its use of a Technical Advisory Committee (TAC) as part of its IRP process. The TAC was comprised of more than 75 participants, including customers, academics, environmental organizations, government agencies, consultants, utilities, and other interested parties, who as a group joined together in the planning process.

Avista sponsored six TAC meetings during the process. Each of the TAC meetings covered specific topics related to the IRP development. These meetings have provided numerous opportunities for members to learn, comment, suggest areas of study, discuss modeling assumptions, and give further feedback to Avista with regards to the IRP. Staff believes the Avista 2015 IRP benefited from this public participation during its development.

STAFF RECOMMENDATION

Commission Staff has reviewed Avista's 2015 IRP and believes it to be a reasonable assessment of resource options to meet future load. Staff further believes Avista has provided balanced consideration to supply and demand resources, and that it adheres to the requirements of Commission Order Nos. 25260, 24729 and 22299. The Commission has previously noted that acknowledgement of the IRP should not be interpreted as endorsement of any particular element of the plan, nor does it constitute approval of any resource acquisition contained in the plan.

Staff thus recommends that the Commission acknowledged that Avista has filed the 2015 IRP. As a follow-up to this acknowledgement, Commission Staff believes Avista's next IRP should also:

1. Address and quantify the effects of Section 111(d) for the Clean Air Act on scenarios involving Colstrip Units 3 and 4. This evaluation should consider the operating permit, emissions compliance, plant operating life, and power supply costs.
2. Thoroughly investigate the DR program, given the firm curtailment is near cost effective with high achievable DR potential.

Respectfully submitted this 18th day of December 2015.

Karl T. Klein
Deputy Attorney General

Technical Staff: Rick Keller
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CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT I HAVE THIS 18th DAY OF DECEMBER 2015, SERVED THE FOREGOING **COMMENTS OF THE COMMISSION STAFF,** IN CASE NO. AVU-E-15-08, BY MAILING A COPY THEREOF, POSTAGE PREPAID, TO THE FOLLOWING:

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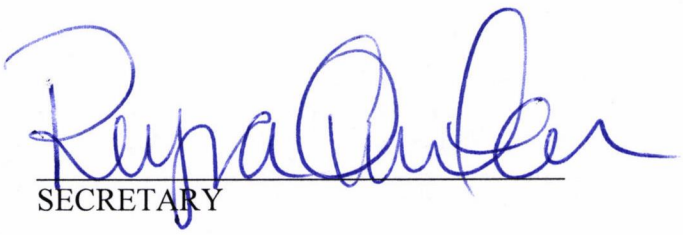

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