Updated Work Plan for Avista's

2020 Electric Integrated Resource Plan

February 27, 2019

2020 Electric Integrated Resource Planning (IRP) Work Plan

The Company's updated work plan is submitted in compliance with Order 01 in Docket No. UE-180738 dated February 15, 2019. Due to the numerous legislative proposals in the States of Washington, Montana, and Oregon that will have major impacts on the regional electric market, Avista petitioned the Washington Utilities and Transportation Commission for a temporary exemption from WAC 480-100-238(4) to change the filing date of its next IRP from August 31, 2019, to February 28, 2020 with an updated work plan to be filed February 28, 2019.

This updated work plan outlines the process Avista will follow to develop its 2020 Electric IRP to be filed with the Washington and Idaho Commissions by February 28, 2020. Avista uses a public process to solicit technical expertise and feedback throughout the development of the IRP through a series of Technical Advisory Committee (TAC) meetings. Avista held the first TAC meeting for this IRP on July 25, 2018.

The 2020 IRP process will be similar to those used to produce the previous IRPs. Avista will use Aurora for electric market price forecasting, resource valuation and for conducting Monte-Carlo style risk analyses of the electric market place. Aurora modeling results will be used to select the Preferred Resource Strategy (PRS) and alternative scenario portfolios using Avista's proprietary PRiSM model. This tool fills future capacity and energy (physical/renewable) deficits using an efficient frontier approach to evaluate quantitative portfolio risk versus portfolio cost while accounting for environmental laws and regulations. Qualitative risk evaluations involve separate analyses. Avista will utilize its proprietary Avista Decision Support System or ADSS model to conduct analyses to evaluate reserve products such as ancillary services and intermittent generation. Avista contracted with Applied Energy Group (AEG) to conduct conservation and demand response potential studies. Exhibit 1 shows the updated 2020 IRP timeline and the process to identify the PRS is in Exhibit 2.

Avista intends to use both detailed site-specific and generic resource assumptions in development of the 2020 IRP. The assumptions combine Avista's research of similar generating technologies, engineering studies, and the Northwest Power and Conservation Council's studies. Avista will rely on third party and consulting studies for storage resources. Avista will model renewable resources as power purchase agreements rather than utility-owned assets where it is more economic. This IRP will study renewable portfolio standards, environmental costs, sustained peaking requirements and resource adequacy, energy efficiency programs, energy storage and demand response. The IRP will develop a strategy that meets or exceeds renewable portfolio standards, greenhouse gas emissions regulations, or other regulations passed by our governing states.

Avista intends to create a PRS based on market and policy assumptions in the expected case based on the results of pending state energy legislation. The expected case is based on known or likely drivers affecting the company and energy industry. The IRP will include scenarios to address alternative futures in the electric market and public policy. TAC meetings help determine the underlying assumptions used in the expected case, market scenarios and portfolio studies. The IRP process is very technical and data intensive; public comments are welcome and we encourage

timely input and participation for inclusion into the process so the plan can be submitted according to the schedule in this Work Plan.

The following topics and meeting times may change depending on the availability of presenters and requests for additional topics from the TAC members. The timeline and proposed agenda items for TAC meetings follows:

- **TAC 1: Completed on Thursday, July 25, 2018:**
    - TAC meeting expectations and IRP process overview,
    - Review of 2017 IRP acknowledgement & policy statements,
    - 2017 IRP action plan update,
    - Hydro One merger agreement's impact on the 2019 IRP,
    - Demand and economic forecast, and
    - Review the 2019 IRP draft Work Plan.

- **TAC 2: Completed on Tuesday, November 27, 2018**:
    - Modeling process overview, including Aurora and PRiSM,
    - Generation options (cost & assumptions),
    - Resource adequacy and effective load carrying capability (ELCC) analysis,
    - Overview of home heating technologies and efficiency,
    - Expected case key assumptions (regional loads, CO_2 regulation, etc.), and
    - Discuss market and portfolio scenarios.

- **TAC 3: Tuesday, April 16, 2019:**
    - Regional legislative update,
    - IRP Transmission planning studies,
    - Distribution planning within the IRP,
    - Pullman Smart Grid Demonstration Project review,
    - Pacific Northwest Pathways to 2050 Study,
    - Conservation Potential Assessment (AEG), and
    - Demand Response Potential Assessment (AEG).

- **TAC 4: Tuesday, August 6, 2019:**
    - Natural gas price forecast,
    - Electric market forecast,
    - Energy and peak load forecast,
    - Existing resource overview – Colstrip, Lancaster and other resources, and
    - Final resource needs assessment.

- **TAC 5: Tuesday, October 15, 2019:**
    - Ancillary services and intermittent generation analysis,
    - Energy Imbalance Market analysis,
    - Review Preliminary PRS,
    - Market scenario results,
    - Preliminary Portfolio scenario results,

- **TAC 6: Tuesday, November 19, 2019:**
    - Review of final PRS,
    - Market scenario results (continued),
    - Final Portfolio scenario results,
    - Carbon cost abatement supply curves, and
    - 2020 IRP Action Items.

- **Draft IRP released to TAC members December 1, 2019**. Comments from TAC members are to be returned to Avista by January 15, 2020. Avista's IRP team will be available for conference calls to address comments with individual TAC members or with the entire group if needed.

2020 Electric IRP Draft Outline

This section provides a draft outline of the major sections in the 2020 Electric IRP. This outline may change based on IRP study results and input from the TAC.

1. **Executive Summary**
2. **Introduction and Stakeholder Involvement**
3. **Economic and Load Forecast**
    a. Economic Conditions
    b. Avista Energy & Peak Load Forecasts
    c. Load Forecast Scenarios
4. **Existing Supply Resources**
    a. Avista Resources
    b. Contractual Resources and Obligations
5. **Energy Efficiency and Demand Response**
    a. Conservation Potential Assessment
    b. Demand Response Opportunities
6. **Long-Term Position**
    a. Reliability Planning and Reserve Margins
    b. Resource Requirements
    c. Reserves and Flexibility Assessment
7. **Transmission Planning**
    a. Overview of Avista's Transmission System
    b. Future Upgrades and Interconnections (includes project evaluated with DER alternative)
    c. Transmission Construction Costs and Integration
    d. Merchant Transmission Plan
8. **Distribution Planning**
    a. Overview of Avista's Distribution System
    b. Future Upgrades and Interconnections (includes project evaluated with DER alternative)
9. **Generation and Storage Resource Options**
    a. New Resource Options
    b. Avista Plant Upgrades

10. **Market Analysis**
    a. Marketplace
    b. Federal and State Environmental Policies
    c. Fuel Price Forecasts
    d. Market Price Forecast
    e. Scenario Analysis
11. **Preferred Resource Strategy**
    a. Resource Selection Process
    b. Preferred Resource Strategy
    c. Efficient Frontier Analysis
12. **Portfolio Scenarios**
    a. Portfolio Scenarios
    b. Resource Avoided Cost
    c. Carbon Cost Abatement Supply Curves
13. **Action Plan**[1]
    a. 2017 Action Plan Summary
    b. 2020 Action Plan

[1] The Action Plan chapter will become Chapter 14 and a new chapter will be added in the event state legislation requires additional documentation regarding clean energy.

Exhibit 1: 2020 Electric IRP Timeline	
Task	**Target Date**
Identify Avista's supply resource options (update as needed by July 2019)	Completed
Finalize demand response options & costs	Completed
Finalize energy efficiency options	April 2019
Transmission & Distribution studies due	April 2019
Determine portfolio & market future studies	June 2019
Begin Aurora market modeling	June 2019
Due date for study requests from TAC members	**June 15, 2019**
Finalize natural gas price forecast	July 1, 2019
Finalize datasets/statistics variables for risk studies	July 2019
Update and finalize energy & peak forecast	July 2019
Finalize PRiSM model assumptions	August 2019
Simulation of risk studies "futures" complete	September 2019
Simulate market scenarios in Aurora	September 2019
Evaluate resource strategies against market futures and scenarios	October 2019
Present preliminary study and PRS to TAC	November 2019
Writing Tasks	
File Updated 2020 IRP Work Plan	February 28, 2019
Prepare report and appendix outline	June 2019
Prepare text drafts	October 2019
Prepare charts and tables	October 2019
Internal draft released at Avista	October and November 2019
External draft released to the TAC	December 1, 2019
Comments and edits from TAC due	**January 15, 2020**
Final editing and printing	February 2020
Final IRP submission to Commissions and TAC	February 28, 2020

Exhibit 2: 2020 Electric IRP Modeling Process