



**Work Plan for Avista's  
2019 Electric Integrated Resource Plan**

**For the  
Washington Utilities and Transportation Commission**

**August 31, 2018**

## **2019 Electric Integrated Resource Planning Work Plan**

This Work Plan is submitted in compliance with the Washington Utilities and Transportation Commission's Integrated Resource Planning (IRP) rules (WAC 480-100-238). It outlines the process Avista will follow to develop its 2019 Electric IRP for filing with Washington and Idaho Commissions by August 31, 2019. 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 the 2019 IRP on July 25, 2018.

The 2019 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 2019 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 2019 IRP. The assumptions combine Avista's research of similar generating technologies, engineering studies, and the Northwest Power and Conservation Council's Seventh Power Plan and Eighth Power Plan development 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 while also meeting the requirements of the Hydro One merger settlement agreements. The IRP will develop a strategy that meets or exceeds renewable portfolio standards and greenhouse gas emissions regulations.

Avista intends to create a PRS based on market and policy assumptions in the expected case. 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 agenda items for TAC meetings follows:

- **TAC 1: 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: 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<sub>2</sub> regulation, etc.), and
  - Discuss market and portfolio scenarios.<sup>1,2</sup>
  
- **TAC 3: Wednesday, February 6, 2019:**
  - Natural gas price forecast,
  - Electric market forecast,
  - IRP Transmission planning studies,
  - Distribution planning within the IRP,
  - Existing Resource Overview – Colstrip, Lancaster and other resources, and
  - Final resource needs assessment.
  
- **TAC 4: Wednesday, March 27, 2019:**
  - Ancillary services and intermittent generation analysis,
  - Conservation & demand response potential assessment (AEG),
  - Pullman Smart Grid Demonstration Project review,
  - Draft Preferred Resource Strategy (PRS), and
  - Draft market & portfolio results.

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<sup>1</sup> Current proposed market scenarios: Washington carbon tax, 80 percent greenhouse gas reduction (electric sector only) cap and trade, 80 percent greenhouse gas reduction cap and trade (including estimated load from transportation and heating), 50 percent greenhouse gas reduction via cap and trade Western Interconnect wide.

<sup>2</sup> Current proposed portfolio scenarios: Aligning market scenarios from footnote 1, Colstrip alternative closure in 2027 and 2035, 100 percent clean (no thermal resources), 90 percent clean, low & high load growth, Lancaster (continues), and low and high natural gas prices.

- **TAC 5: Tuesday, April 16, 2019:**
  - Review of final PRS,
  - Market scenario results,
  - Portfolio scenario results,
  - Carbon cost abatement supply curves, and
  - 2019 IRP Action Items.
  
- **Draft IRP released to TAC members May 31, 2019.** Comments from TAC members are to be returned to Avista by June 28, 2019. Avista's IRP team will be available for conference calls to address comments with individual TAC members or with the entire group if needed.

## ***2019 Electric IRP Draft Outline***

This section provides a draft outline of the major sections in the 2019 Electric IRP. This outline may change as IRP studies are completed and input from the TAC has been received.

- 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**
  - a. 2017 Action Plan Summary
  - b. 2019 Action Plan

**Exhibit 1: 2019 Electric IRP Timeline**

<b><u>Task</u></b>	<b><u>Target Date</u></b>
<b>Preferred Resource Strategy (PRS)</b>	
Finalize energy forecast	July 2018
Identify Avista’s supply resource options	September 2018
Begin Aurora market model development	October 2018
Energy efficiency load shapes input into Aurora	November 2018
Finalize datasets/statistics variables for risk studies	November 2018
Transmission & Distribution studies due	December 2018
Finalize natural gas price forecast	December 2018
<b>Communicate Energy Efficiency Options to TAC</b>	<b>December 2018</b>
Finalize deterministic and stochastic expected case market studies	January 2019
<b>Due date for study requests from TAC members</b>	<b>January 15, 2019</b>
Develop PRiSM model	January 2019
Finalize peak load forecast	February 2019
Finalize PRiSM model assumptions	February 2019
Simulation of risk studies “futures” complete	February 2019
Simulate market scenarios in Aurora	February 2019
Evaluate resource strategies against market futures and scenarios	March 2019
Present preliminary study and PRS to TAC	March 2019
<b>Writing Tasks</b>	
File 2019 IRP Work Plan	August 31, 2018
Prepare report and appendix outline	October 2018
Prepare text drafts	April 2019
Prepare charts and tables	April 2019
Internal draft released at Avista	May 2019
External draft released to the TAC	May 31, 2019
<b>Comments and edits from TAC due</b>	<b>June 28, 2019</b>
Final editing and printing	August 2019
Final IRP submission to Commissions and TAC	August 31, 2019

## Exhibit 2: 2019 Electric IRP Modeling Process

