

Work Plan for NW Natural’s 2018
WASHINGTON
 Integrated Resource Plan
 Issued June 8, 2018

Methodology

The purpose of the Integrated Resource Plan (IRP) is to develop strategies for purchasing gas and improving efficiencies of gas usage to meet current and future needs consistent with a lowest reasonable cost approach. To do this, NW Natural will develop and integrate demand forecasts, weather patterns, natural gas price forecasts, and demand side and supply side resources into Gas Supply and Planning Optimization software. The resulting model will act as a guide to steer the Company toward the least cost resource planning portfolio.

Technical Working Group Meetings

The table below provides the schedule for Technical Working Group meetings.

Technical Working Group (TWG) Meetings	
1st Meeting Discuss Planning Environment	December 20, 2017 9:30 a.m. – 3:30 p.m.
2nd Meeting Discuss Load Forecast	February 28, 2018 9:30 a.m. – 3:30 p.m.
3rd Meeting Discuss Supply and Demand Side Resources	March 14, 2018 9:30 a.m. – 3:30 p.m.
4th Meeting Discuss Environmental Updates and Portfolio Results	April 25, 2018 9:30 a.m. – 3:30 p.m.
5th Meeting Discuss Distribution System Planning	May 22, 2018 9:30 a.m. – 3:30 p.m.
File Draft 2018 Washington IRP	July 6, 2018
6th Meeting Action Plan Review and Draft IRP Review	June 27, 2018 9:30 a.m. – 3:30 p.m.
7th Meeting Final Review (if necessary)	August 2, 2018 9:30 a.m. – 3:30 p.m.
File Final 2018 Washington IRP	August 24, 2018

In addition to the Technical Working Group meetings, a public meeting will be held at NW Natural to review the draft and receive public comments. Via bill inserts, customers will be notified of the draft IRP and the public meeting. Additionally, customers will also be directed to the draft IRP on our website and the Company will ask for comments.

It is expected that all meetings will be held at the company's headquarters at 220 NW Second Avenue in Portland, Oregon.

Content of 2018 Integrated Resource Plan

1. Executive Summary
 - Overview of Company and Resource Plan
 - Principal Conclusions from this Plan
 - 2018 IRP Multi-Year Action Plan

2. Planning Environment
 - Overview
 - Environmental Considerations
 - Environmental Policies
 - Planning Standard
 - Gas Price Forecast
 - Emerging Markets
 - Key Findings

3. Gas Requirements Forecast
 - Overview
 - Customer Forecast
 - Peak Day Forecast
 - Load Forecast Model
 - Emerging Markets
 - Results
 - Base Case
 - Demand Scenarios
 - Forecast Accuracy and Peak Day Analysis
 - Key Findings

4. Avoided Costs
 - Avoided Costs Overview
 - Methodology and Components
 - Results
 - Avoided Costs in various scenarios
 - Key Findings

5. Demand-Side Resources in Washington
 - Energy Efficiency Overview
 - Methodology – Energy Efficiency
 - Demand-Side Management Forecasts

- Program Funding and Delivery
 - Energy Efficiency Programs
 - Low Income Programs
- Load Management and Demand Response
- Key Findings

6. Supply-Side Resources

- Overview
- Current Resources
- Investments in Current Resources
- Future Resource Alternatives
- Gas Supply Portfolio Acquisition Strategy
- Key Findings

7. Linear Programming and the Company's Resource Choices

- Overview
- Resource Planning Model Integration
- Resource Planning Model Results
- Reliability Modeling and Model Results
- Monte Carlo Simulation
- Key Findings

8. Distribution Planning

- Background
- Scope
- Distribution System Planning Methodology
- Significant HP Transmission/Distribution System Planning Projects
- Key Findings

9. Public Participation

- Technical Working Group
- Public Participation