

Work Plan for NW Natural's 2016  
**WASHINGTON**  
 Integrated Resource Plan  
 Issued October 13, 2015

**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.

<b>Technical Working Group (TWG) Meetings</b>	
<b>1<sup>st</sup> Meeting</b> Load Forecast and Supply Resources	January 13, 2016 - 9 a.m. – 3 p.m.
<b>2<sup>nd</sup> Meeting</b> Distribution Projects, Avoided Cost, and Environmental Regulations and Impacts	February 10, 2016 - 9 a.m. – 3 p.m.
<b>3<sup>rd</sup> Meeting</b> Demand Side Management and other open items	March 17, 2016 - 9 a.m. – 3 p.m.
<b>4<sup>th</sup> Meeting</b> Review Portfolios and Portfolio Results	May 24, 2016 - 9 a.m. – 3 p.m.
<b>File Draft 2016 Washington IRP</b>	June 2016
<b>5<sup>th</sup> Meeting</b> Review Draft and other open items	June 22, 2016 - 9 a.m. – 3 p.m.
<b>File Final 2016 Washington IRP</b>	August 26, 2016

In addition to the Technical Working Group meetings, once the draft has been completed, 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 2016 Integrated Resource Plan**

1. Executive Summary
  - Overview of Company and Resource Plan
  - Principal Conclusions from this Plan
  - 2016 IRP Multi-Year Action Plan
  
2. Gas Requirements Forecast
  - Overview
  - Customer Forecast
  - Load Forecast Model
  - Gas Price Forecast
  - Weather
  - Emerging Markets
  - Results
    - Base Case
    - Demand Scenarios
  - Forecast Accuracy and Peak Day Analysis
  - Key Findings
  
3. Supply-Side Resources
  - Overview
  - Current Resources
  - LNG Refurbishment Project
  - Supply-Side Dispatching
  - Future Resource Alternatives
  - Gas Supply Portfolio Acquisition Strategy
  - Key Findings
  
4. 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
  
5. Energy Policies and Environmental Considerations
  - Overview
  - State, Regional, and Federal Energy Policies
  - Analysis of Carbon Prices
  - Key Findings

6. Distribution Planning
  - Background
  - Scope
  - Overview and Nomenclature
  - Existing Distribution System
  - Distribution System Planning Methodology
  - Significant HP Transmission/Distribution System Planning Projects
  - 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. Avoided Cost Determination
  - Overview
  - Environmental Externalities
  - Methodology
  - Results
  - Avoided Costs-Modified
  - Key Findings
  
9. Public Participation
  - Technical Working Group
    - Issues lists from TWG meetings
  - Public Participation