DRAFT – Discussion Only

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2009

Natural Gas Integrated Resource Plan Appendices

December 31, 2009

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2009 NATURAL GAS INTEGRATED RESOURCE PLAN APPENDICIES

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APPENDIX 1.1

TAC MEMBERS

Appendix 1.1
2009 IRP TAC Member List

Name	Organization
Bob Jenks	Oregon CUB
Bruce Folsom	Avista
Carrie Dolwick	NW Energy
Chau Lau	Cascade Natural Gas Company
Dan Kirschner	Northwest Gas Association
Dave Allred	Northwest Pipeline
Dave Sloan	Gas Transmission Northwest
David Nightingale	WUTC
Deborah Reynolds	WUTC
Greg Rahn	Avista
Gurvinder Singh	Puget Sound Energy
Inara Scott	Northwest Natural
Joe Ross	Gas Transmission Northwest
Jon Powell	Avista
Kelly Irvine	Avista
Ken Ross	Terasen Gas
Kerry Shroy	Avista
Ken Zimmerman	OPUC
Kevin Christie	Avista
Lea Daischel	Washington Attorney General's Office
Linda Gervais	Avista
Lisa Gorsuch	OPUC
Lori Hermanson	Avista
Lynn Kittilson	OPUC
Mark Sellers-Vaughn	Cascade Natural Gas Company
Matt Elam	IPUC
Megan Clark	Northwest Gas Association
Paula Pyron	Northwest Industrial Gas Users
Randy Barcus	Avista
Rich Cowan	Gas Transmission Northwest
Steven Johnson	WUTC
Steven Simmons	Northwest Natural
Terrence Browne	Avista
Terri Carlock	IPUC
Terry Morlan	Northwest Power and Conservation Coucil
Vonda Novak	WUTC

APPENDIX 1.2

WORK PLAN

Avista Corporation 2009 Natural Gas Integrated Resource Plan Work Plan

IRP Work Plan Requirements

Section 480-90-238 (4), of the natural gas Integrated Resource Plan ("IRP") rules, specify requirements for the IRP Work Plan:

> Not later than twelve months prior to the due date of a plan, the utility must provide a work plan for informal commission review. The work plan must outline the content of the integrated resource plan to be developed by the utility and the method for assessing potential resources.

Additionally, Section 480-90-238 (5) of the WAC states:

The work plan must outline the timing and extent of public participation.

Overview

This Work Plan outlines the process Avista will follow to complete its 2009 Natural Gas IRP by December 31, 2009. Avista uses a public process to obtain technical expertise and guidance throughout the planning period via Technical Advisory Committee (TAC) meetings. The TAC provided input into this work plan and will be providing input into assumptions, scenarios, and modeling techniques.

Process

The 2009 IRP process will be similar to that used to produce the previously published plan. Avista will use SENDOUT® (a PC based linear programming model widely used to solve natural gas supply and transportation optimization questions) to develop the risk adjusted least-cost resource mix for the 20 year planning period.

For this plan, Avista intends to incorporate action plan items identified in the 2007 Natural Gas IRP including regional demand modeling, weather standard evaluation, Canadian natural gas imports monitoring, and analyze (using SENDOUT® and VectorGas™) realistic alternative situations in which the company may have to operate during the next 20 years. VectorGas™ is the Monte Carlo risk assessment element of SENDOUT® which evaluates the cost and reliability impact of market price and demand volatility.

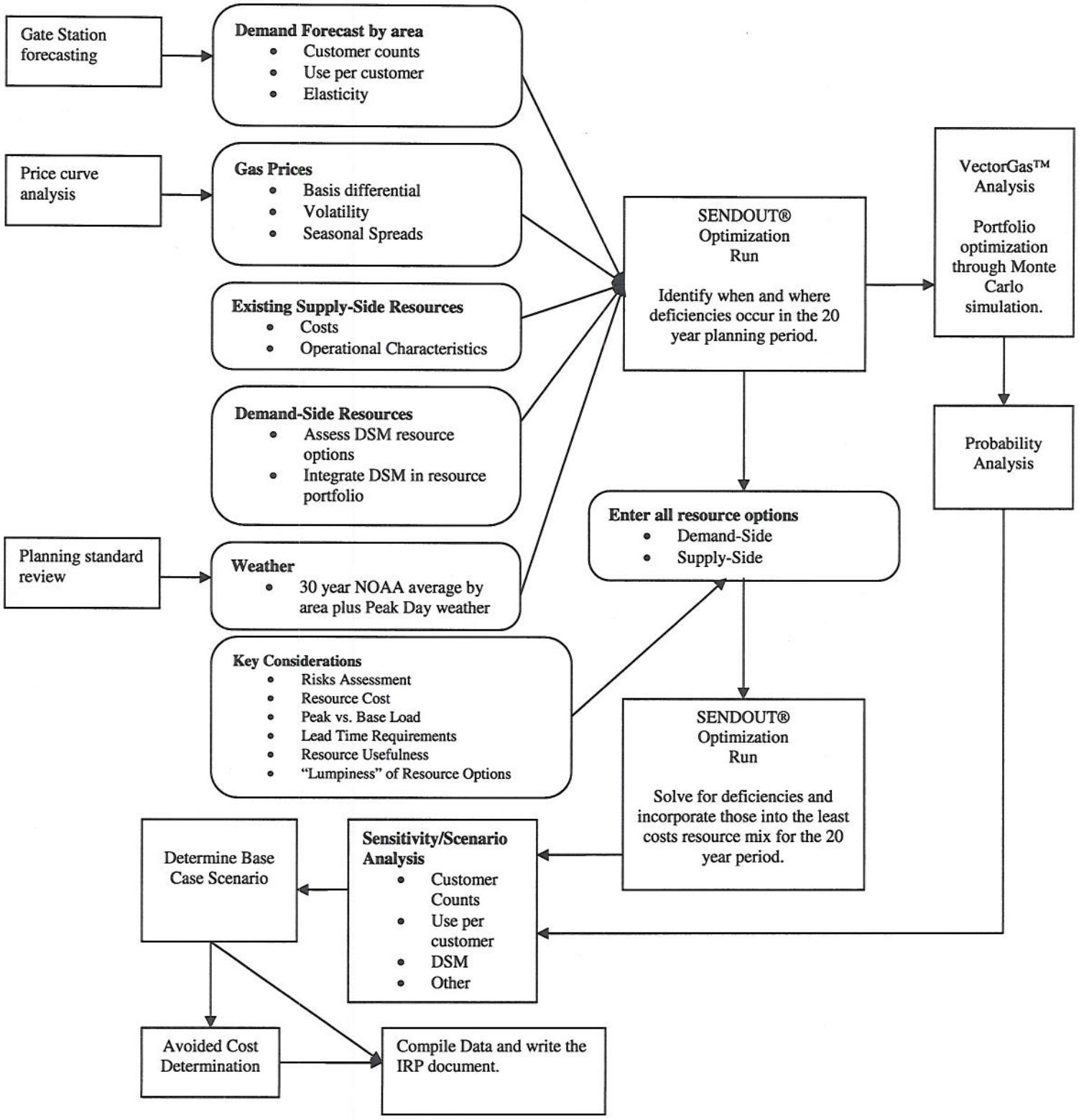
This plan will continue to include demand analysis, detailed demand side management program analysis and avoided cost determination, distribution planning, existing and potential supply-side resource analysis and resource integration. Further details about Avista's process for determining the risk adjusted least-cost resource mix is shown in Exhibit 1.

Timeline

The following is Avista's TENTATIVE 2009 Natural Gas IRP timeline:

- **December 29, 2008** – Work Plan filed with WUTC
- **April through July 2009** – Technical Advisory Committee meetings (exact meeting dates ***subject to change***). Meeting topics will include:
  - Demand Forecast & Demand-Side Management – April 28
  - Distribution Planning & Supply/Infrastructure – May 19
  - SENDOUT® Preliminary Output Results and Potential Case Discussion – June 16
  - SENDOUT® and VectorGas™ results – July 16
- **September 1, 2009 –** Draft of IRP document to TAC
- **October 30, 2009 –** Comments on draft due back to Avista
- **November 6, 2009 –** TAC final review meeting (if necessary)
- **December 31, 2009 –** File finalized IRP document

Exhibit 1: Avista's 2009 Natural Gas IRP Modeling Process



APPENDIX 2.1

IRP REGULATORY GUIDELINES

Appendix 1.2 - IDAHO Public Utility Commission IRP Policies and Guidelines - ORDER NO. 25342

REF #	DESCRIPTION OF REQUIREMENT	FULLFILLMENT OF REQUIREMENT
1	Purpose and Process. Each gas utility regulated by the Idaho Public Utilities Commission with retail sales of more than 10,000,000,000 cubic feet in a calendar year (except gas utilities doing business in Idaho that are regulated by contract with a regulatory commission of another State) has the responsibility to meet system demand at least cost to the utility and its ratepayers. Therefore, an ‘‘integrated resource plan’’ shall be developed by each gas utility subject to this rule.	Avista prepares a comprehensive 20 year Integrated Resource Plan every two years. Avista will be filing its 2009 IRP on or before December 31, 2009.
2	Definition. Integrated resource planning. ‘‘Integrated resource planning’’ means planning by the use of any standard, regulation, practice, or policy to undertake a systematic comparison between demand-side management measures and the supply of gas by a gas utility to minimize life-cycle costs of adequate and reliable utility services to gas customers. Integrated resource planning shall take into account necessary features for system operation such as diversity, reliability, dispatchability, and other factors of risk and shall treat demand and supply to gas consumers on a consistent and integrated basis.	Avista's IRP brings together dynamic demand forecasts and matches them against demand-side and supply-side resources in order to evaluate the least cost/best risk portfoio for its core customers.
3	Elements of Plan. Each gas utility shall submit to the Commission on a biennial basis an integrated resource plan that shall include:	2009 IRP to be filed on or before Dec 31, 2009 within 2 years of our 2007 IRP filing.
a.	A range of forecasts of future gas demand in firm and interruptible markets for each customer class for one, five, and twenty years using methods that examine the effect of economic forces on the consumption of gas and that address changes in the number, type and e-fficiency of gas end-uses.	See **Chapter 3 - Demand Forecasts** and **Appendix 2.1 et. al.** for a detailed discussion of how demand was forecasted for this IRP.
b.	An assessment for each customer class of the technically feasible improvements in the efficient use of gas, including load management, as well as the policies and programs needed to obtain the efficiency improvements.	See **Chapter 4 - Demand Side Management** and **DSM Appendicies 4.1 et.al.** for detailed information on the DSM measures evaluated and selected for this IRP and the implementation process.

Appendix 1.2 - IDAHO Public Utility Commission IRP Policies and Guidelines - ORDER NO. 25342

REF #	DESCRIPTION OF REQUIREMENT	FULLFILLMENT OF REQUIREMENT
c.	An analysis for each customer class of gas supply options, including: (1) a projection of spot market versus long-term purchases for both firm and interruptible markets; (2) an evaluation of the opportunities for using company-owned or contracted storage or production; (3) an analysis of prospects for company participation in a gas futures market; and (4) an assessment of opportunities for access to multiple pipeline suppliers or direct purchases from producers.	See **Chapter 5 - Supply-Side Resources** for details about the market, storage, and pipeline transportation as well as other resource options considered in this IRP. See also the procurement plan section in this same chapter for supply procurement strategies.
d.	A comparative evaluation of gas purchasing options and improvements in the efficient use of gas based on a consistent method for calculating cost-effectiveness.	See Methodology section of **Chapter 4 - Demand-Side Resources** where we describe our process on how demand-side and supply-side resources are compared on par with each other in the SENDOUT® model.
e.	The integration of the demand forecast and resource evaluations into a long-range (e.g., twenty-year) integrated resource plan describing the strategies designed to meet current and future needs at the lowest cost to the utility and its ratepayers.	See **Chapter 6 - Integrated Resource Portfolio** for details on how we model demand and supply coming together to provide the least cost/best risk portfolio of resources.
f.	A short-term (e.g., two-year) plan outlining the specific actions to be taken by the utility in implementing the integrated resource plan.	See **Chapter 8 - Action Plan** for actions to be taken in implementing the IRP.
4	Relationship Between Plans. All plans following the initial integrated resource plan shall include a progress report that relates the new plan to the previously filed plan.	Avista strives to meet at least quarterly with Staff and/or Commisioners to discuss the state of the market, procurement planning practices, and any other issues that may impact resource needs or other analysis within the IRP.
5	Plans to Be Considered in Rate Cases. The integrated resource plan will be considered with other available information to evaluate the performance of the utility in rate proceedings before the Commission.	We prepare and file our plan in part to establish a public record of our plan.
6	Public Participation. In formulating its plan, the gas utility must provide an opportunity for public participation and comment and must provide methods that will be available to the public of validating predicted performance.	Avista held four Technical Advisory Committee meetings beginning in April and ending in August. See **Chapter 1 - Introduction** for more detail about public participation in the IRP process.

Appendix 1.2 - IDAHO Public Utility Commission IRP Policies and Guidelines - ORDER NO. 25342

REF #	DESCRIPTION OF REQUIREMENT	FULLFILLMENT OF REQUIREMENT
7	Legal Effect of Plan. The plan constitutes the base line against which the utility's performance will ordinarily be measured. The requirement for implementation of a plan does not mean that the plan must be followed without deviation. The requirement of implementation of a plan means that a gas utility, having made an integrated resource plan to provide adequate and reliable service to its gas customers at the lowest system cost, may and should deviate from that plan when presented with responsible, reliable opportunities to further lower its planned system cost not anticipated or identified in existing or earlier plans and not undermining the utility's reliability. In order to encourage prudent planning and prudent deviation from past planning when presented with opportunities for improving upon a plan, a gas utility's plan must be on file with the Commission and available for public inspection. But the filing of a plan does not constitute approval or disa-pproval of the plan having the force and effect of law, and deviation from the plan would not constitute violation of the Commission's Orders or rules. The prudence of a utility's plan and the utility's prudence in following or not following a plan are matters that may be considered in a general rate proceeding or other proce-edings in which those issues have been noticed.	See section titled "Avista's Procurement Plan" in **Chapter 5 - Supply-Side Resources**. Among other details we discuss plan revisions in response to changing market conditions. See also section titled "Alternate Supply-Side Scenarios" in **Chapter 6 - Integrated Resource Portfolio** where we discuss different supply portfolios that are resonsive to changing assumptions about resource alternatives.

Appendix 2.1 Oregon Public Utility Commission IRP Standard and Guidelines – Order 07- 002

Guideline Number	Description of Requirement	Fulfillment of Requirement
Guideline 1: Substantive Requirements		
1.a.1	All resources must be evaluated on a consistent and comparable basis.	All resource options including demand-side and supply-side are modeled in SENDOUT® utilizing the same common general assumptions, approach and methodology.
1.a.2	All known resources for meeting the utility's load should be considered, including supply-side options which focus on the generation, purchase and transmission of power – or gas purchases, transportation, and storage – and demand-side options which focus on conservation and demand response.	Avista considered a range of resources including demand-side management, distribution system enhancements, interstate pipeline transportation, transport backhauls, and storage options including liquefied natural gas. Chapter 4 and Appendix 4.3 documents Avista's demand-side management resources considered. Chapter 5 and Appendix 6.3 documents supply-side resources. Chapter 6 documents how Avista developed and assessed each of these resources.
1.a.3	Utilities should compare different resource fuel types, technologies, lead times, in-service dates, durations and locations in portfolio risk modeling.	Avista considered various combinations of technologies, lead times, in-service dates, durations, and locations. Chapter 6 provides details about the modeling methodology and results. Chapter 5 describes resource attributes and Appendix 6.3 summarizes the resources' lead times, in-service dates and locations.
1.a.4	Consistent assumptions and methods should be used for evaluation of all resources.	Appendix 6.2 documents general assumptions used in Avista's SENDOUT® modeling software. All portfolio resources both demand and supply-side were evaluated within SENDOUT® using the same sets of inputs.
1.a.5	The after-tax marginal weighted-average cost of capital (WACC) should be used to discount all future resource costs.	Avista applied its after-tax WACC of 4.18% to discount all future resource costs. (See general assumptions at Appendix 6.2)
1.b.1	Risk and uncertainty must be considered. Electric utilities only	Not Applicable
1.b.2	Risk and uncertainty must be considered. Natural gas utilities should consider demand (peak, swing and base-load), commodity supply and price, transportation availability and price, and costs to comply with any regulation of greenhouse gas (GHG) emissions.	After considering the influencers on demand, Avista performed 15 sensitivities on demand. From there nine demand scenarios were developed (Table 1.1) for SENDOUT® modeling purposes. Monthly demand coefficients were developed for base, heating demand (Appendix 3.3) while peak demand was contemplated through modeling a weather planning standard of the coldest day on record (see heating degree day data in Appendix 3.4). Avista evaluated several price forecasts (Figure 6.3) and selected high, medium and low price scenarios for modeling purposes (Figures 6.4 & 6.5).

Guideline Number	Description of Requirement	Fulfillment of Requirement
		An updated price forecast was also analyzed as it incorporated more current market conditions. This forecast became our expected case forecast and is also shown in Figures 6.4 & 6.5. Four supply scenarios were also evaluated, see Table 5.3. These supply scenarios were combined with demand scenarios in order to establish portfolios for evaluation. Ultimately 13 portfolios were evaluated. Avista also ran Monte Carlo simulations using VectorGas™ for price and weather variables to analyze demand sensitivity to weather and to quantify the risk to customers under varying price environments. Avista considered GHG emissions regulatory compliance costs in Appendix 4.2 .
	Utilities should identify in their plans any additional sources of risk and uncertainty.	Avista evaluated additional risks and uncertainties. Risks associated with the planning environment are detailed in Chapter 1 Introduction. Avista also analyzed demand risk which is detailed in Chapter 3. Chapter 4 discusses the uncertainty around how much DSM is achievable. Supply-side resource risks are discussed in Chapter 5. Chapter 6 discusses the variables modeled for scenario and stochastic risk analysis.
1c	The primary goal must be the selection of a portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers.	Avista evaluated cost/risk tradeoffs for each of the risk analysis portfolios considered. See Chapter 6 and supporting information at Appendix 6.8 for Avista's portfolio risk analysis and determination of the preferred portfolio.
	The planning horizon for analyzing resource choices should be at least 20 years and account for end effects. Utilities should consider all costs with a reasonable likelihood of being included in rates over the long term, which extends beyond the planning horizon and the life of the resource.	Avista used a 20-year study period for portfolio modeling. Avista contemplated possible costs beyond the planning period that could affect rates including end effects such as infrastructure decommission costs and concluded there were no significant costs reasonably likely to impact rates under different resource selection scenarios.
	Utilities should use present value of revenue requirement (PVRR) as the key cost metric. The plan should include analysis of current and estimated future costs of all long-lived resources such as power plants, gas storage facilities and pipelines, as well as all short-lived resources such as gas supply and short-term power purchases.	Avista's SENDOUT® modeling software utilizes a PVRR cost metric methodology applied to both long and short-lived resources.

Guideline Number	Description of Requirement	Fulfillment of Requirement
	To address risk, the plan should include at a minimum: 1) Two measures of PVRR risk: one that measures the variability of costs and one that measures the severity of bad outcomes. 2) Discussion of the proposed use and impact on costs and risks of physical and financial hedging.	Avista, through its VectorGas™ software, modeled 200 scenarios around varying gas price inputs via Monte Carlo iterations developing a distribution of Total 20 year cost estimates utilizing SENDOUT®'s PVRR methodology. Chapter 6 further describes this analysis while Figure 6.35 summarizes this analysis graphically. The variability of costs is plotted against the Expected Case while the scenarios beyond the 95th percentile capture the severity of bad outcomes. Chapter 5 discusses Avista's physical and financial hedging methodology.
	The utility should explain in its plan how its resource choices appropriately balance cost and risk.	Chapter 6 Regulatory Requirements section summarizes the results of Avista's cost/risk tradeoff analysis considered throughout the IRP process. Chapter 5 and 6 describe various specific resource considerations and related risks, and describes what criteria we used to determine what resource combinations provide an appropriate balance between cost and risk.
1d	The plan must be consistent with the long-run public interest as expressed in Oregon and federal energy policies.	Avista considered current and expected state and federal energy policies in portfolio modeling. Chapter 6 describes the decision process used to derive portfolios, which includes consideration of state resource policy directions.
Guideline 2: Procedural Requirements		
2a	The public, including other utilities, should be allowed significant involvement in the preparation of the IRP. Involvement includes opportunities to contribute information and ideas, as well as to receive information. Parties must have an opportunity to make relevant inquiries of the utility formulating the plan.	Chapter 1 provides an overview of the public process and documents the details on meetings held for the 2009 IRP.
	While confidential information must be protected, the utility should make public, in its plan, any non-confidential information that is relevant to its resource evaluation and action plan.	The entire IRP, as well as the TAC process, includes all of the non-confidential information the company used for portfolio evaluation and selection. Avista also provided stakeholders with non-confidential information to support public meeting discussions via email. The draft plan and subsequent TAC meeting presentations were also made available on Avista's website for public viewing during this period.
	The utility must provide a draft IRP for public review and comment prior to filing a final plan with the Commission.	Avista distributed a draft IRP document for external review to TAC members on September 4, 2009 and requested comments by October 15, 2009.

Guideline Number	Description of Requirement	Fulfillment of Requirement
Guideline 3: Plan Filing, Review and Updates		
3a	Utility must file an IRP within two years of its previous IRP acknowledgement order.	This Plan complies with this requirement as the 2007 Natural Gas IRP was acknowledged on 6/02/2008.
3b	Utility must present the results of its filed plan to the Commission at a public meeting prior to the deadline for written public comment.	Avista will work with Staff to fulfill this guideline following filing of the IRP.
3c - g	These guides discuss Commission comments and acknowledgement and the IRP annual update.	Not applicable.
Guideline 4: Plan Components		
	At a minimum, the plan must include the following elements:	
4a	An explanation of how the utility met each of the substantive and procedural requirements.	This table summarizes guideline compliance by providing an overview of how Avista met each of the substantive and procedural requirements for a natural gas IRP.
4b	Analysis of high and low load growth scenarios in addition to stochastic load risk analysis with an explanation of major assumptions.	Avista developed nine demand growth forecasts for scenario analysis. Stochastic variability of demand was also captured in the risk analysis. Chapter 2 describes the demand forecast data and Chapter 6 provides the scenario and risk analysis results. Appendix 6.2 details major assumptions.
4c	For electric utilities only	Not Applicable
4d	A determination of the peaking, swing and base-load gas supply and associated transportation and storage expected for each year of the plan, given existing resources; and identification of gas supplies (peak, swing and base-load), transportation and storage needed to bridge the gap between expected loads and resources.	Figures 1.11 and 1.12 summarize graphically projected annual peak day demand and the existing and selected resources by year to meet demand for the expected case. Appendix 6.6 summarizes the high, low, and other demand scenarios.
4e	Identification and estimated costs of all supply-side and demand-side resource options, taking into account anticipated advances in technology	Chapter 4 and Appendix 4.3 identify the demand-side resources included in this IRP. Chapter 5 and 6 and Appendix 6.3 identify the supply-side resources.
4f	Analysis of measures the utility intends to take to provide reliable service, including cost-risk tradeoffs.	Chapter 7 discusses the modeling tools, customer growth forecasting and cost-risk considerations used to maintain and plan a reliable gas delivery system. The Chapter also captures a summary of the reliability analysis process demonstrated at the second TAC meeting. Chapter 5 discusses the diversified infrastructure and multiple supply basin approach that acts to mitigate certain reliability risks.

Guideline Number	Description of Requirement	Fulfillment of Requirement
4g	Identification of key assumptions about the future (e.g. fuel prices and environmental compliance costs) and alternative scenarios considered.	Appendix 6.2 and Chapter 6 describe the key assumptions and alternative scenarios used in this IRP.
4h	Construction of a representative set of resource portfolios to test various operating characteristics, resource types, fuels and sources, technologies, lead times, in-service dates, durations and general locations - system-wide or delivered to a specific portion of the system.	This Plan documents the development and results for portfolios evaluated in this IRP (see Table 5.3 for supply scenarios considered).
4i	Evaluation of the performance of the candidate portfolios over the range of identified risks and uncertainties.	We evaluated our candidate portfolio by performing stochastic analysis using VectorGas™ varying price under 200 different scenarios. Additionally, we test the portfolio of options with the use of SENDOUT® under deterministic scenarios where demand and price vary. For resources selected, we assess other risk factors such as varying lead times required and potential for cost overruns outside of the amounts included in the modeling assumptions.
4j	Results of testing and rank ordering of the portfolios by cost and risk metric, and interpretation of those results	Avista's four distinct geographic Oregon service territories limit many resource option synergies which inherently reduces available portfolio options. Feasibility uncertainty, lead time variability and uncertain cost escalation around certain resource options also reduce reasonably viable options. Chapter 5 describes resource options reviewed including discussion on uncertainties in lead times and costs as well as viability and resource availability (e.g. LNG). Appendix 6.3 summarizes the potential resource options identifying investment and variable costs, asset availability and lead time requirements while results of resources selected are identified in Table 6.5 as well as graphically presented in Figure 6.17 and 6.18 for the expect case and Appendix 6.8 for High and Low demand cases. (Alternate scenarios are in Appendix 6.5)
4k	Analysis of the uncertainties associated with each portfolio evaluated	See the responses to 1.b above.
4l	Selection of a portfolio that represents the best combination of cost and risk for the utility and its customers	Avista evaluated cost/risk tradeoffs for each of the risk analysis portfolios considered. Chapter 6 shows the company's portfolio risk analysis, as well as the process and determination of the preferred portfolio.
4m	Identification and explanation of any inconsistencies of the selected portfolio with any state and federal energy policies that may affect a utility's plan and any barriers to implementation	This IRP is presumed to have no inconsistencies.

Guideline Number	Description of Requirement	Fulfillment of Requirement
4n	An action plan with resource activities the utility intends to undertake over the next two to four years to acquire the identified resources, regardless of whether the activity was acknowledged in a previous IRP, with the key attributes of each resource specified as in portfolio testing.	Chapter 8 presents the IRP Action Plan with focus on the following areas: • Modeling • Supply/capacity • Forecasting • Regulatory communication • DSM Goals
Guideline 5: Transmission		
5	Portfolio analysis should include costs to the utility for the fuel transportation and electric transmission required for each resource being considered. In addition, utilities should consider fuel transportation and electric transmission facilities as resource options, taking into account their value for making additional purchases and sales, accessing less costly resources in remote locations, acquiring alternative fuel supplies, and improving reliability.	Not applicable to Avista's gas utility operations.
Guideline 6: Conservation		
6a	Each utility should ensure that a conservation potential study is conducted periodically for its entire service territory.	Our last third party conservation potential study was in 2005. We expect to conduct a new study prior to our 2011 IRP. Avista incorporates a comprehensive assessment of the potential for utility acquisition of energy-efficiency resources into the regularly-scheduled Integrated Resource Planning process. The assessment that occurred within this IRP process began with over 300 conceptual measures and applications. This is in addition to the site-specific program coverage of any cost-effective non-residential measure.
6b	To the extent that a utility controls the level of funding for conservation programs in its service territory, the utility should include in its action plan all best cost/risk portfolio conservation resources for meeting projected resource needs, specifying annual savings targets.	In Avista's Action Plan in Chapter 8 we include our conservation programs annual savings targets and reference to Chapter 4 and Appendix 4.1 for the program's specific details. A discussion on the treatment of conservation programs is included in Chapter 4 while selection methodology is documented in Chapter 6.
6c	To the extent that an outside party administers	Not applicable. See the response for 6.b above.

Guideline Number	Description of Requirement	Fulfillment of Requirement
	conservation programs in a utility's service territory at a level of funding that is beyond the utility's control, the utility should: 1) determine the amount of conservation resources in the best cost/ risk portfolio without regard to any limits on funding of conservation programs; and 2) identify the preferred portfolio and action plan consistent with the outside party's projection of conservation acquisition.	
Guideline 7: Demand Response		
7	Plans should evaluate demand response resources, including voluntary rate programs, on par with other options for meeting energy, capacity, and transmission needs (for electric utilities) or gas supply and transportation needs (for natural gas utilities).	Avista has periodically evaluated conceptual approaches to meeting capacity constraints using demand-response and similar voluntary programs. Technology, customer characteristics and cost issues are hurdles for developing effective programs. See chapter 4 Demand Response section for more discussion.
Guideline 8: Environmental Costs		
8	Utilities should include, in their base-case analyses, the regulatory compliance costs they expect for CO2, NOx, SO2, and Hg emissions. Utilities should analyze the range of potential CO2 regulatory costs in Order No. 93-695, from $0 - $40 (1990$). In addition, utilities should perform sensitivity analysis on a range of reasonably possible cost adders for NOx, SO2, and Hg, if applicable.	Avista's current direct gas distribution system infrastructure does not result in any CO2, NOx, SO2, or Hg emissions. Upstream gas system infrastructure (pipelines, storage facilities, and gathering systems) do produce CO2 emissions via compressors used to pressurize and move gas throughout the system. The Environmental Externalities discussion in Appendix 4.2 describes our analysis performed. See also the guidelines addendum reflecting revised guidance for environmental costs per Order 08-339.
Guideline 9: Direct Access Loads		
9	An electric utility's load-resource balance should exclude customer loads that are effectively committed to service by an alternative electricity supplier.	Not applicable to Avista's gas utility operations.
Guideline 10: Multi-state utilities		
10	Multi-state utilities should plan their generation and transmission systems, or gas supply and delivery, on an integrated-system basis that	The 2009 IRP conforms to the multi-state planning approach.

Guideline Number	Description of Requirement	Fulfillment of Requirement
	achieves a best cost/risk portfolio for all their retail customers.	
Guideline 11: Reliability		
11	Electric utilities should analyze reliability within the risk modeling of the actual portfolios being considered. Loss of load probability, expected planning reserve margin, and expected and worst-case unserved energy should be determined by year for top-performing portfolios. Natural gas utilities should analyze, on an integrated basis, gas supply, transportation, and storage, along with demand-side resources, to reliably meet peak, swing, and base-load system requirements. Electric and natural gas utility plans should demonstrate that the utility's chosen portfolio achieves its stated reliability, cost and risk objectives.	Avista's storage and transport resources while planned around meeting a peak day planning standard, also provides opportunities to capture off season pricing while providing system flexibility to meet swing and base-load requirements. Diversity in our transport options enables at least dual fuel source options in event of a transport disruption. For areas with only one fuel source option the cost of duplicative infrastructure is not feasible relative to the risk of generally high reliability infrastructure.
Guideline 12: Distributed Generation		
12	Electric utilities should evaluate distributed generation technologies on par with other supply-side resources and should consider, and quantify where possible, the additional benefits of distributed generation.	Not applicable to Avista's gas utility operations.
Guideline 13: Resource Acquisition		
13a	An electric utility should: identify its proposed acquisition strategy for each resource in its action plan; Assess the advantages and disadvantages of owning a resource instead of purchasing power from another party; identify any Benchmark Resources it plans to consider in competitive bidding.	Not applicable to Avista's gas utility operations.
13b	Natural gas utilities should either describe in the IRP their bidding practices for gas supply and transportation, or provide a description of those practices following IRP acknowledgment.	A discussion of Avista's procurement practices is detailed in Chapter 5.

Appendix 1.2 Oregon Public Utility Commission IRP Standard and Guidelines – Order 08 - 339

Guideline Number	Description of Requirement	Fulfillment of Requirement
Guideline 8: Environmental Costs		
a.	BASE CASE AND OTHER COMPLIANCE SCENARIOS: The utility should construct a base-case scenario to reflect what it considers to be the most likely regulatory compliance future for carbon dioxide (CO_2), nitrogen oxides, sulfur oxides, and mercury emissions. The utility also should develop several compliance scenarios ranging from the present CO_2 regulatory level to the upper reaches of credible proposals by governing entities. Each compliance scenario should include a time profile of CO_2 compliance requirements. The utility should identify whether the basis of those requirements, or "costs", would be CO_2 taxes, a ban on certain types of resources, or CO_2 caps (with or without flexibility mechanisms such as allowance or credit trading or a safety valve). The analysis should recognize significant and important upstream emissions that would likely have a significant impact on its resource decisions. Each compliance scenario should maintain logical consistency, to the extent practicable, between the CO_2 regulatory requirements and other key inputs.	Avista's current direct gas distribution system infrastructure does not result in any CO2, NOx, SO2, or Hg emissions. Upstream gas system infrastructure (pipelines, storage facilities, and gathering systems) do produce CO2 emissions via compressors used to pressurize and move gas throughout the system. The Environmental Externalities discussion in Chapter 4 describes our process for addressing these costs.
b.	TESTING ALTERNATIVE PORTFOLIOS AGAINST THE COMPLIANCE SCENARIOS: The utility should estimate, under each of the compliance scenarios, the present value of revenue requirement (PVRR) costs and risk measures, over at least 20 years, for a set of reasonable alternative portfolios from which the preferred portfolio is selected. The utility should incorporate end-effect considerations in the analyses to allow for comparisons of portfolios containing resources with economic or physical lives that extend beyond the planning period. The utility should also modify projected lifetimes as necessary to be consistent with the compliance scenario under analysis. In addition, the utility should include, if material, sensitivity analyses on a range of reasonably possible regulatory futures for nitrogen oxides, sulfur oxides, and mercury to further inform the preferred portfolio selection.	The Environmental Externalities discussion in Chapter 4 describes our process for addressing these costs.

Guideline Number	Description of Requirement	Fulfillment of Requirement
c.	TRIGGER POINT ANALYSIS: The utility should identify as least one CO_2 compliance "turning point" scenario which, if anticipated now, would lead to, or "trigger" the selection of a portfolio of resources that is substantially different from the preferred portfolio. The utility should develop a substitute portfolio appropriate for this trigger-point scenario and compare the substitute portfolio's expected cost and risk performance to that of the preferred portfolio – under the base case and each of the above CO_2 compliance scenarios. The utility should provide its assessment of whether a CO_2 regulatory future that is equally or more stringent than the identified trigger point will be mandated.	The Environmental Externalities discussion in Chapter 4 describes our process for addressing these costs.
d.	OREGON COMPLIANCE PORTFOLIO: If none of the above portfolios is consistent with Oregon energy policies (including state goals for reducing greenhouse gas emissions) as those policies are applied to the utility, the utility should construct the best cost/risk portfolio that achieves that consistency, present its cost and risk parameters, and compare it to those of the preferred and alternative portfolios.	The Environmental Externalities discussion in Chapter 4 describes our process for addressing these costs.

Appendix 1.2 - Washington Public Utility Commission IRP Policies and Guidelines - WAC 480-90-238

Avista Natural Gas IRP Review

Rule	Requirement	Plan Citation	Notes
WAC 480-90-238(4)	Work plan filed no later than 12 months before next IRP due date.	Work plan submitted to the WUTC on December 30, 2008, See attachment to this Appendix 1.1	
WAC 480-90-238(4)	Work plan outlines content of IRP.	See workplan attached to this Appendix 1.1.	
WAC 480-90-238(4)	Work plan outlines method for assessing potential resources. (See LRC analysis below)	See Appendix 1.3	
WAC 480-90-238(5)	Work plan outlines timing and extent of public participation.	See Appendix 1.3	
WAC 480-90-238(4)	Integrated resource plan submitted within two years of previous plan.	IRP will be submitted on or before December 31, 2009 within 2 years of our previous plan submitted December 31, 2007	
WAC 480-90-238(5)	Commission issues notice of public hearing after company files plan for review.	TBD	
WAC 480-90-238(5)	Commission holds public hearing.	TBD	
WAC 480-90-238(2)(a)	Plan describes mix of natural gas supply resources.	See Chapter 5 on Supply Side Resources	
WAC 480-90-238(2)(a)	Plan describes conservation supply.	See Chapter 4 on Demand Side Resources	
WAC 480-90-238(2)(a)	Plan addresses supply in terms of current and future needs of utility and ratepayers.	See Chapter 5 on Supply Side Resources and Chapter 6 Integrated Resource Portfolio	
WAC 480-90-238(2)(a)&(b)	Plan uses lowest reasonable cost (LRC) analysis to select mix of resources.	See Chapters 4 and 5 for Demand and Supply Side Resources along with Appendix 4.3 for detailed Demand Side Management programs. Chapter 6 details how Demand and Supply come together to select the least cost/best risk portfolio for ratepayers.	
WAC 480-90-238(2)(b)	LRC analysis considers resource costs.	See Chapters 4 and 5 for Demand and Supply Side Resources along with Appendix 4.3 for detailed Demand Side Management programs. Chapter 6 details how Demand and Supply come together to select the least cost/best risk portfolio for ratepayers.	
WAC 480-90-238(2)(b)	LRC analysis considers market-volatility risks.	See Chapter 5 on Supply Side Resources	
WAC 480-90-238(2)(b)	LRC analysis considers demand side uncertainties.	See Chapter 3 Demand Forecasting	
WAC 480-90-238(2)(b)	LRC analysis considers resource effect on system operation.	See Chapter 5 and Chapter 6	
WAC 480-90-238(2)(b)	LRC analysis considers risks imposed on ratepayers.	See Chapter 5 procurement plan section. We seek to minimize but cannot eliminate price risk for our customers.	
WAC 480-90-238(2)(b)	LRC analysis considers public policies regarding resource preference adopted by Washington state or federal government.	See Chapter 3 demand scenarios	
WAC 480-90-238(2)(b)	LRC analysis considers cost of risks associated with environmental effects including emissions of carbon dioxide.	See Chapter 3 carbon cases used in Alternate Demand Scenarios and Appendix 4.2	
WAC 480-90-238(2)(b)	LRC analysis considers need for security of supply.	See Chapter 5 on Supply Side Resources	

Appendix 1.2 - Washington Public Utility Commission IRP Policies and Guidelines - WAC 480-90-238

Avista Natural Gas IRP Review

Rule	Requirement	Plan Citation	Notes
WAC 480-90-238(2)(c)	Plan defines conservation as any reduction in natural gas consumption that results from increases in the efficiency of energy use or distribution.	See Chapter 4 on Demand Side Resources	
WAC 480-90-238(3)(a)	Plan includes a range of forecasts of future demand.	See Chapter 3 on Demand Forecast	
WAC 480-90-238(3)(a)	Plan develops forecasts using methods that examine the effect of economic forces on the consumption of natural gas.	See Chapter 3 on Demand Forecast	
WAC 480-90-238(3)(a)	Plan develops forecasts using methods that address changes in the number, type and efficiency of natural gas end-uses.	See Chapter 3 on Demand Forecast	
WAC 480-90-238(3)(b)	Plan includes an assessment of commercially available conservation, including load management.	See Chapter 4 on Demand Side Management including demand response section.	
WAC 480-90-238(3)(b)	Plan includes an assessment of currently employed and new policies and programs needed to obtain the conservation improvements.	See Chapter 4 and Appendix 4.1	
WAC 480-90-238(3)(c)	Plan includes an assessment of conventional and commercially available nonconventional gas supplies.	See Chapter 5 on Supply Side Resources	
WAC 480-90-238(3)(d)	Plan includes an assessment of opportunities for using company-owned or contracted storage.	See Chapter 5 on Supply Side Resources	
WAC 480-90-238(3)(e)	Plan includes an assessment of pipeline transmission capability and reliability and opportunities for additional pipeline transmission resources.	See Chapter 5 on Supply Side Resources	
WAC 480-90-238(3)(f)	Plan includes a comparative evaluation of the cost of natural gas purchasing strategies, storage options, delivery resources, and improvements in conservation using a consistent method to calculate cost-effectiveness.	See Chapter 5 on Supply Side Resources	
WAC 480-90-238(3)(g)	Plan includes at least a 10 year long-range planning horizon.	Our plan is a comprehensive 20 year plan.	
WAC 480-90-238(3)(g)	Demand forecasts and resource evaluations are integrated into the long range plan for resource acquisition.	Chapter 6 Integrated Resource Portfolio details how demand and supply come together to form the least cost/best risk portfolio.	
WAC 480-90-238(3)(h)	Plan includes a two-year action plan that implements the long range plan.	See Section 8 Action Plan	
WAC 480-90-238(3)(i)	Plan includes a progress report on the implementation of the previously filed plan.	See Section 8 Action Plan	
WAC 480-90-238(5)	Plan includes description of consultation with commission staff. (Description not required)	See Section 1 Introduction	
WAC 480-90-238(5)	Plan includes description of completion of work plan. (Description not required)	See Appendix 1.3	