2012 Natural Gas Integrated Resource Plan Appendices

August 31, 2012

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APPENDIX 1.1 || TAC MEMBER LIST

ORGANIZATION	REPRESENTATIVES	
Avista	Bruce Folsom Christopher Williams Greg Rahn Heather Rosentrater Jeff Webb John Lyons Jon Powell Kelly Irvine Kerry Shroy	Steve Harper Kris Ransom Linda Gervais Lori Hermanson Pat Ehrbar Randy Barcus Shawn Bonfield Tom Pardee
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Fortis BC	Christina Lemire	Ken Ross
Intermountain Gas	Dave Swenson Mike McGrath	Shelli Chase
Idaho Public Utility Commission	Donn English Kathleen McHugh Matt Elam	Rick Sterling Terri Carlock
Northwest Gas Association	Ben Hemson	Dan Kirschner
Northwest Industrial Gas Users	Paula Pyron	
Northwest Natural Gas	John Sohl Mark Thompson	Sarah Dammen Jennifer Gross
Northwest Pipeline	Dave Allred Mike Rasmuson	Teresa Hagins
Northwest Power and Conservation Council	Terry Morlan	
Oregon Public Utility Commission	Ken Zimmerman	Lisa Gorsuch
Oregon CUB	Bob Jenks	
Puget Sound Energy	Gurvinder Singh	Phillip Popoff
TransCanada	Celeste Rudolph David White	Lee Bennett
Washington Attorney General's Office	Lea Daeschel	
Washington Utility and Transportation Commission	David Nightingale	Steven Johnson
	Deborah Reynolds Rick Applegate	Vonda Novak
WA Department of Commerce	Greg Nothstein	

APPENDIX 1.2 COMMENTS AND RESPONSES TO 2012 DRAFT INTEGRATED RESOURCE PLAN

The following table summarizes the significant comments on our DRAFT as submitted by TAC members and Avista's responses. The planning environment in this IRP cycle was especially challenging given some of the most challenging economic volatility seen in decades coupled with industry changing dynamics in natural gas production. We continued our robust, flexible demand forecasting methodology that captured a broad range of demand forecasts fully vetted with our TAC. This IRP produced reduced forecasted demand scenarios and no near term resource needs even in our most robust demand scenario. We appreciate the time and effort invested by all our TAC members throughout the IRP process. Many good suggestions have been made and we have incorporated those that enhance the document.

Document Reference[1]	Comment/Question	Avista Response
3.1 - DEMAND	Once again Staff requests that Avista Reverse this process. Evaluate need vs. resources in terms of annual average normal demand first and then move to need vs. resources in terms of peak demand. This builds demand and resources from the bottom up, which better represents how customer demand is actually built up and served.	We start with annual average demand and then do the peak demand forecast. We have enhanced the wording to make it clear that this is our process.
3.2 – DEMAND	Storage is a peak and near-peak resource only, correct?	Storage is to serve annual average demand as well as providing the delivery capacity to meet our peak or near-peak day requirements. Our plan is designed to ensure that there is sufficient gas available should a peak weather event occur.
3.2 - DEMAND	Do the analysis for each of these equations separately, and only later do the analysis for the two combined. See notes above.	The base usage factor is not annual average demand. Base usage is non-weather sensitive usage. This represents customer usage that is consistent throughout the year for applications like heating water in a residential home. The weather sensitive is usage that is dependent on temperature. When moving from annual average demand to peak the heating degree day assumption changes, thereby changing the amount of heat sensitive demand.

[1] All references are in reference to the DRAFT IRP submitted to the TAC on May 25, 2012.

Document Reference[1]	Comment/Question	Avista Response
3.2 - DEMAND	Basic questions to answer: Why would someone become a gas customer? After becoming a customer how much will that customer consume?	These questions are considered when developing the customer growth forecast. It is a combination of historical analysis and forward estimates driven primarily off of economics. The how much a customer will use is based initially on historical values but is altered for anticipated future issues. For example we adjust usage based on the change in natural gas prices through a price elasticity adjustment and demand side management measure adoption.
3.3 - DEMAND	So this average base and weather sensitive demand forecast, not design or extreme peak?	The use per customer coefficients is applied based on heating degree days. Base usage factors are multiplied by customers to develop base usage. Then heat sensitive coefficients are multiplied by customers and HDDs and are then added together. This methodology allows us to vary the weather assumption so we can do the build up from average load to peak load. Again we start by using the base and heat sensitive coefficients to develop an annual average demand forecast. We then change the weather assumption to incorporate peak weather and calculate the peak demand forecast.
3.6 - DEMAND	And these are ... ?	The worst case scenario would be the death or injury of a customer due to an outage at extremely cold temperatures. However, the potential cost due to appliance destruction, freezing pipes, etc. should also be a consideration.
3.12 - DEMAND	So the expected case for demand is that on average it will not grow over the next 20 years? Correct? Where is the expected case on this graph?	Total demand is expected to grow, but the elasticity adjustment and global warming also affect total annual demand. The difference between annual demand in the expected case and the alternate planning standard is minimal and so the lines lie almost on top of one another.

Document Reference[1]	Comment/Question	Avista Response
3.12 - DEMAND	Why is expected case peak demand growing? What are the primary and secondary elements underlying this growth?	Peak day demand is growing as customer counts grow. Additionally, we do not apply a price elastic adjustment to the peak factors, we assume that people are using at that level due to extreme temperatures not necessarily economically driven. Peak HDDs are also not adjusted for global warming.
3.13 - DEMAND	But you are still not checking your "statistical" or "stochastic" forecasting results with non-statistical approaches, so there is no cross verification?	We have researched many non-statistical forecasting methodologies and found them to be not relevant for our forecasting needs. Which non-statistical would provide proper verification? If we cannot find a valid non-statistical forecast then verification is not possible.
3.14 - DEMAND	But for IRP purposes you still need to focus on an "expected" case demand forecast and then integrate this into the expected case planning portfolio for the IRP.	We first do an average case, which shows that we are not resource deficient within the planning horizon. We then layer in the peak weather planning assumption which is our Expected case. The process is fully integrated.
4.1 - DSM	So potential estimates are not used? Isn't this contrary to the IRP guidelines?	Potential estimates are used. Before the DSM potential estimates were developed Global Energy Partners need to create a baseline demand forecast without any incremental DSM. From there Global developed its DSM potential which is used in the IRP.
5.8 – SUPPLY SIDE RESOURCES	But these must be included in the preferred portfolio and assessed in terms of cost and risk via that portfolio.	They are if the proposed enhancement solves a resource shortage in a particular region it is assessed in term of cost and risk in the same manner as other demand and supply side options. Many distribution projects are routine maintenance and reliability enhancements. These costs are not included in the IRP analysis.

Document Reference[1]	Comment/Question	Avista Response
6.21 – INTEGRATED PORTFOLIO	Highlighted conclusion statement	The sentence will be changed to reflect that the analysis is performed on the Average Demand case first and then the Expected Peak Demand case.
7.5 – ALTERNATE PORTFOLIO ANALYSIS	Does this include the $4.6M in distribution upgrades by 2014? See Table 8.1, Ref #3203.	Yes, the Medford project costs were included in the 2009 IRP and this IRP. However, it is important to understand that not all the capital projects detailed in Table 8.1 are included in the IRP analysis. Many of the capital projects are part of routine capital maintenance or are distribution system reliability/reinforcement issues and are not IRP issues. The IRP will include the costs necessary to facilitate additional interstate pipeline capacity takeaway when an area is resource deficient from a supply side, as was the case in Medford.

Document Reference[1]	Comment/Question	Avista Response
9.4 – ACTION PLAN	What supply-side resources does the IRP indicate are needed in the next two-three years? What demand-side resources does the IRP indicate are needed in the next two-three years? Which of those from #1 and #2 are included in the IRP for assessment? Any other resources shown in the IRP needed over next two-three years? Identify top 3-5 resource portfolios in terms of cost (NPVRR) and risk, and the portfolio chosen by the Company for this IRP (with all reasoning behind that choice laid out). Most of these values are included in Chapter 7, particularly the section called "Portfolio Selection" and in Table 7.3, as well as at the "Conclusion" section form Chapter 7. Also the chapter 7 analysis should be at least summarized in this chapter. Also, as noted on my notes for Table 7.3 an explanation needs to be included of whether the NPVRRs include the distribution resources and costs from Chapter 8, and summarized here.	The Action Plan was re-written to address these items.

Document Reference[1]	Comment/Question	Avista Response
Chapter 4 - DSM	Commission staff has some concerns that every one of the company's demand forecasts includes a Demand Side Management (DSM) effects adjustment on top of each forecast. Commission staff would like to see each one of the company's forecasts without this downward adjustment in load. This is due to current relative uncertainty of actual net effect that DSM has on load, and various off-setting factors that may be present and unaccounted for when calculating an estimated impact on the company's overall load. The company may include a forecast which incorporates this downward adjustment, but also alongside that forecast, have a picture of load without this adjustment. Commission staff would also like see the performance of these downward adjusted forecasts historically.	We show the graphs which will be included in Appendix 6 where we compare demand with and without DSM. The updated CPA provided less DSM potential than previous IRPs. There is not a material difference between the two which the graphs will show. Historic numbers which are used to generate the use per customer coefficients have embedded in them demand side management. A comparison of IRP use to actual is provided to staff each quarter as a part of our quarterly update.
Chapter 3 - DEMAND	In this current IRP, the company has developed Use Per Customer models for average use and for peak use, to better allow the company to depict (and predict) customer responses in terms of gas use in various temperature situations. For the company's super peak coefficients (which are utilized to model extreme occurrences, beyond typical annual peaks), it is necessary for the company to define what "very cold temperatures" were.	Very cold is defined as HDDs equal to or greater than 65.

Document Reference[1]	Comment/Question	Avista Response
Chapter 3 - DEMAND	Commission staff has concerns that the three years of data the Company used is not sufficient to establish its use per customer coefficients, and that Avista should consider using at least five years of data. The company has stated in its IRP that "five years incorporate some years of higher use per customer, which may overstate use due to changes in building codes and investments made in conservation initiatives[1]." Looking at figure 3.3[2] which shows a graph of the three-year Use Per Customer versus the five-year Use Per Customer on a total system basis, it appears the three-year and five-year lines lay relatively on top of one another. The speed of energy efficiency measure implementation and building code changes does not seem to commission staff to make such significant advances in a span of two years that these additional historical years must be excluded to prevent future bias in the company's Use Per Customer coefficients. Due to this observation, it makes sense to commission staff to utilize the five years of data points, to ensure that sufficient data points are used to allow development of a strong relationship.	The difference between 3 years and 5 years is not significantly different for Washington and Idaho. However, there is a significant difference for our Oregon service territory. In order to maintain consistency in our modeling and because the difference is insignificant in Washington and Idaho we utilized 3 years of data. There is a strong correlation, R-squared of over 90% with the three years of data.

[1] Chapter 3, Demand Forecasts, page 3.4

[2] Chapter 3, Demand Forecasts, page 3.5

Document Reference[1]	Comment/Question	Avista Response
Chapter 3 - DEMAND	Commission staff also has concerns about what seems to be a "conditional global warming" trend in its forecasts of future heating degree days in the planning period. The company claims that there has arisen from the analysis of historical weather data, a distinct warming trend in average weather data, yet the warming trend is absent, at least with any certainty, from the peak weather data. This caused the company to make adjustments downward in forecasts for future expected weather conditions, but not make any adjustments in future peak weather conditions. Commission staff is of the opinion that if a global warming trend exists, it should apply universally. At a minimum, the Company should explain in its next IRP why the trend is absent in the peak weather conditions.	We discussed the issue with the TAC at our first meeting. Consistent with our previous IRP we do not apply the global warming adjustment to our peak day weather planning assumption as we have not found evidence that global warming does in fact affect extreme events. If anything we have heard that volatility in weather may in fact be greater due to the overall global warming trend. To the extent we discover research counter to our current assumption we will assess it in our next IRP cycle.

Chapter 4 – DSM	The company has included in this overview of conservation, the low natural gas prices, and they have stated in their IRP that this is impacting the cost-effectiveness of measures due to the low avoided costs resulting from low natural gas prices. In WAC 480-90-238 (2) (b), the section titled "definitions", there is stated lowest reasonable cost mix of resources must, at a minimum, consider the following: Resource costs Market-volatility risks Demand-side resource uncertainties Risks imposed on ratepayers Resource effect on system operations Public policies regarding resource preference adopted by Washington state or the federal government Costs of risks associated with environmental effects including emissions of carbon dioxide Need for security of supply Commission staff has concerns that Avista's avoided costs calculation resulted in omitting many conservation measures, due to heavily emphasizing the relatively low cost of gas in this current time period, and the failure to consider appropriately the other variables which should play a larger role in the calculation. The nature of an IRP was meant to be utilized as a long-range planning tool, and commission staff considers the other variables mentioned in WAC 280-90-238 (2) (b) to be important, and not to be minimized. Specifically, commission staff would like the company to make a comparative avoided costs analysis to that shown in NW Natural's 2010 Natural Gas IRP, Docket UG-100245 in Chapter 6.2 and present the results in its revision of their draft plan. Commission staff notes that NW Natural included a 10% conservation adder to avoided costs to account for unquantifiable benefits of DSM as suggested by the NW Power and Conservation Council, as well as a CO2 emission adder. Commission staff would like to see these components added to Avista's avoided costs calculation.	The IRP selected essentially all the DSM that was given to the model. The avoided cost stream that comes from SENDOUT® does include a CO2 adder, as it is embedded in the expected price curve. The avoided costs also include variable charges (volumetric pipeline charges and fuel). This cost stream is provided to our DSM department for business planning purposes and program development/measurement, where they further incorporate the 10% conservation adder as well as a distribution system cost adder. Avista agrees with staff that the IRP is a long term plan and appropriately incorporates variables into the calculation. We agree that the low cost of gas in this current time period provides challenges for DSM programs; however the low cost is good for our customers. Additionally, we run a scenario with high prices to understand what implications that may have on our customer usage and portfolio costs and ultimately the avoided cost used to determine the cost effectiveness of DSM programs. Evaluation of the avoided costs will be ongoing. Should the price of natural gas rise rendering programs cost effective we will be proactive in requesting reinstatement our natural gas DSM programs.

APPENDIX 2.1 II AVISTA CORPORATION 2012 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 2012 Natural Gas IRP by Aug. 31, 2012. Avista uses a public process to obtain technical expertise and guidance throughout the planning period via Technical Advisory Committee (TAC) meetings. The TAC will be providing input into assumptions, scenarios, and modeling techniques.

PROCESS

The 2012 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.

This plan will continue to include demand analysis, demand side management and avoided cost determination, existing and potential supply-side resource analysis, resource integration and alternative sensitivities and scenario analysis.

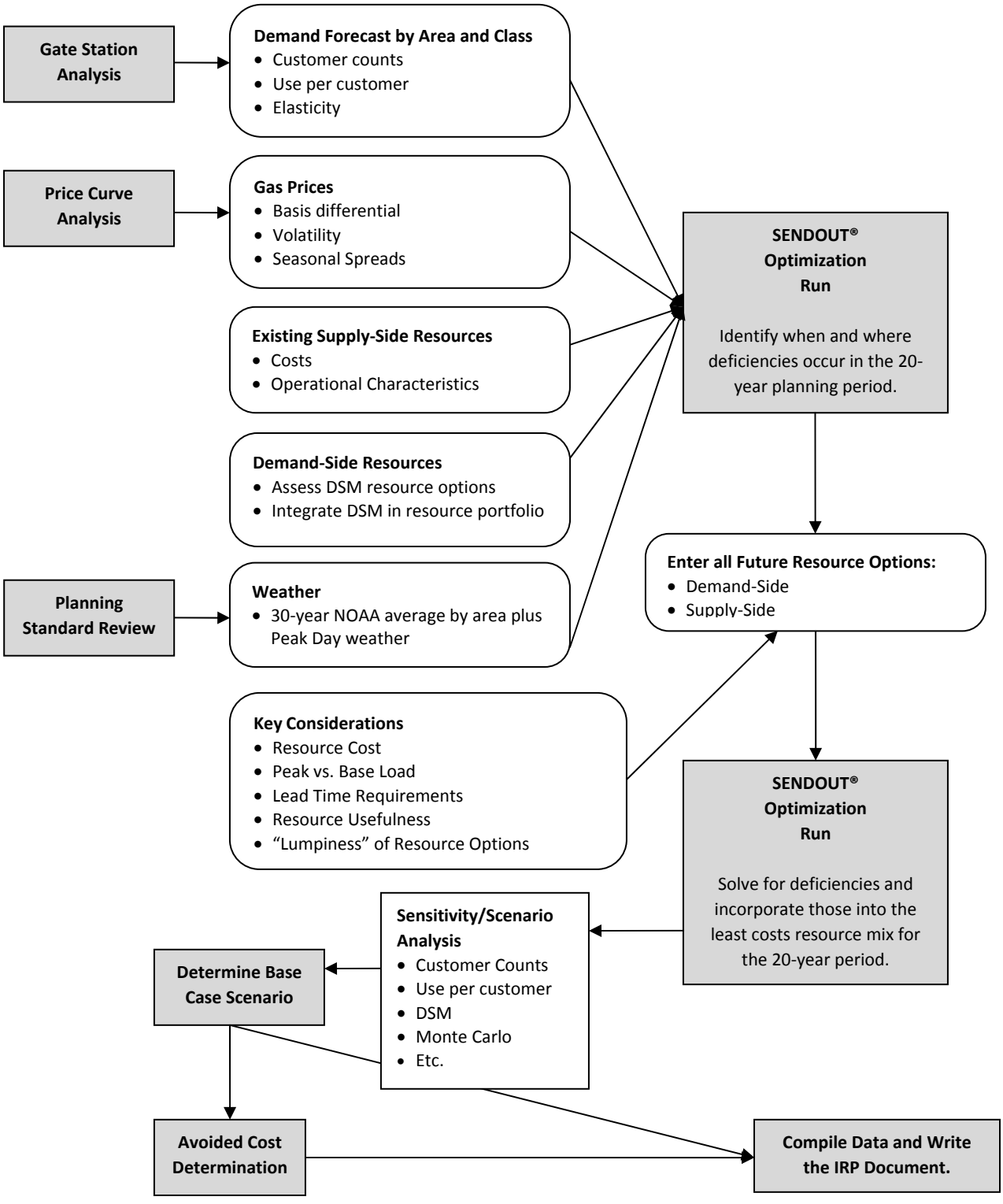
Additionally, Avista intends to incorporate action plan items identified in the 2009 Natural Gas IRP including more detailed demand analysis regarding use per customer, demand side management results and possible price elastic responses to evolving economic conditions, an updated assessment of conservation potential in our service territories, consideration of alternate forecasting methodologies, and the changing landscape of natural gas supply (i.e. shale gas, Canadian exports, and US LNG exports) and its implications to the planning process. 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 2012 Natural Gas IRP timeline:

August 31, 2011	Work Plan filed with WUTC	
January through April 2012	Technical Advisory Committee meetings (exact meeting dates ***subject to change***). Meeting topics will include:	
	January 17	Demand Forecast & Demand-Side Management
	February 21	Distribution Planning & Supply/Infrastructure and Potential Case Discussion
	March 20	SENDOUT® Preliminary Output Results and Further Case Discussion
	April 17	SENDOUT® results
May 11, 2012	Draft of IRP document to TAC	
June 29, 2012	Comments on draft due back to Avista	
July 17, 2012	TAC final review meeting (if necessary)	
August 31, 2012	File finalized IRP document	

EXHIBIT 1: AVISTA'S 2012 NATURAL GAS IRP MODELING PROCESS



APPENDIX 2.2 II WASHINGTON PUBLIC UTILITY COMMISSION IRP POLICIES AND GUIDELINES – WAC 480-90-238

Avista Natural Gas IRP Review		
Rule	**Requirement**	**Plan Citation**
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 August 31, 2011, See attachment to this Appendix 2.1.
WAC 480-90-238(4)	Work plan outlines content of IRP.	See workplan attached to this Appendix 2.1.
WAC 480-90-238(4)	Work plan outlines method for assessing potential resources. (See LRC analysis below)	See Appendix 2.1.
WAC 480-90-238(5)	Work plan outlines timing and extent of public participation.	See Appendix 2.1.
WAC 480-90-238(4)	Integrated resource plan submitted within two years of previous plan.	Last Integrated Resource Plan was submitted on December 31, 2009. In March 2011 the company asked to extend the deadline of filing to August 31, 2012 due to the lack of immediate resource needs and in order to alleviate resource burdens.
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. 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. 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 on demand scenarios
WAC 480-90-238(2)(b)	LRC analysis considers need for security of supply.	See Chapter 5 on Supply Side Resources

Rule	Requirement	Plan Citation
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 4 on Demand Side Resources and 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 9 Action Plan
WAC 480-90-238(3)(i)	Plan includes a progress report on the implementation of the previously filed plan.	See Section 9 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 2.1.

APPENDIX 2.2 II IDAHO PUBLIC UTILITY COMMISSION IRP POLICIES AND GUIDELINES – ORDER NO. 25342

	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 2012 IRP on or before August 31, 2012.
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. While the primiary focus has been to ensure customer's needs are met under peak or design weather conditions, this process also evaluates the resource portfolio under normal/average operating conditions. The IRP provides the framework and methodology for evaluating Avista's natural gas demand and resources.
3	Elements of Plan. Each gas utility shall submit to the Commission on a biennial basis an integrated resource plan that shall include:	2012 IRP to be filed on or before August 31, 2012. The last IRP was filed on December 31, 2009. In March 2011 Avista asked for an extention in meeting the filing deadline. The lack of immediate resource needs coupled with better balancing of work load needs facilitated a change to the August 31, 2012 filing date.
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 3 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 et.al.** for detailed information on the DSM potential evaluated and selected for this IRP and the operational implementation process.
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. Chapter 4 also includes how results from the IRP are then utilized to create operational business plans. Operational implementation may differ from IRP results due to modeling assumptions.
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 9 - 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 bi-annually 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 January and ending in April. See **Chapter 1 - Introduction** for more detail about public participation in the IRP process.

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.	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.
	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 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 2.2 II OREGON PUBLIC UTILITY COMMISSION IRP STANDARD AND GUIDELINES – ORDER 07- 002

Guideline 1: Substantive Requirements		
1.a.1	All resources must be evaluated on a consistent and comparable basis.	All resource options considered, 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, capacity release recalls, interstate pipeline transportation, interruptible customer supply, and storage options including liquefied natural gas. Chapter 4 and Appendix 4.1 documents Avista's demand-side management resources considered. Chapter 5 and Appendix 6.3 documents supply-side resources. Chapter 6 and 7 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 5.35% 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.	Risk and uncertainty are key considerations in long term planning. In order to address risk and uncertainties a wide range of sensitivity, scenario and portfolio analysis is completed. A description of risk associated with each scenario is included in Appendix 3.6. One of the key risks is the "flat demand" risk as described in Chapter 2. Avista performed 14 sensitivities on demand. From there five demand scenarios were developed (Table 1.1) for SENDOUT® modeling purposes. Monthly demand coefficients were developed for base, heating demand 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 and selected high, medium and low price scenarios for modeling purposes. The annual average prices are then weighted by month using fundamental forecast data. Additionally, the Henry Hub price forecasts are basis adjusted using the same fundamental forecast data.

		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 9 portfolios were evaluated (See Table 7.3 for the PVRR results). Avista stochastic modeling techniques for price and weather variables to analyze weather sensitivity and to quantify the risk to customers under varying price environments. While there continues to be some uncertainty around GHG emission, Avista considered GHG emissions regulatory compliance costs in Appendix 4.2. As currently modeled, we include a carbon adder to our price curve to capture the costs of emission regulation.
	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 and 7 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 7 plus supporting information in Appendix 3.6 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.
	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 stochastic analysis, 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 7 further describes this analysis. The variability of costs is plotted against the Expected Case while the scenarios beyond the 95th percentile capture the severity of outcomes. Chapter 5 discusses Avista's physical and financial hedging methodology.
	The utility should explain in its plan how its resource choices appropriately	Chapter 5, 6, and 7 describe various specific resource considerations and related risks, and describes what criteria

	balance cost and risk.	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 public meetings held for the 2012 IRP. Avista encourages participation in the development of the plan, as each party brings a unique perspective and the ability to exchange information and ideas makes for a more robust plan.
	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 document and appendices will be available on the company website for viewing.
	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 all TAC members on May 25, 2012 and requested comments by July 13, 2012.
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 2009 Natural Gas IRP was acknowledged on 6/08/2010.
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	Commission staff and parties should complete their comments and recommendations within six months of IRP filing	Pending
3d	The Commission will consider comments and recommendations on a utility's plan at a public meeting before issuing an order on acknowledgment. The Commission may provide the utility an opportunity to revise the plan before issuing an acknowledgment order	Pending
3e	The Commission may provide direction to a utility regarding any additional analyses or actions that the utility should undertake in its next IRP.	Pending
3f	Each utility must submit an annual update on its most recently acknowledged plan. The update is due on or before the acknowledgment order anniversary date. Once a utility	An annual update was filed on May 9, 2011. No request for acknowledgement was required.

	anticipates a significant deviation from its acknowledged IRP, it must file an update with the Commission, unless the utility is within six months of filing its next IRP. The utility must summarize the update at a Commission public meeting. The utility may request acknowledgment of changes in proposed actions identified in an update	
3g	Unless the utility requests acknowledgement of changes in proposed actions, the annual update is an informational filing that: ▮ Describes what actions the utility has taken to implement the plan; ▮ Provides an assessment of what has changed since the acknowledgment order that affects the action plan, including changes in such factors as load, expiration of resource contracts, supply-side and demand-side resource acquisitions, resource costs, and transmission availability; and ▮ Justifies any deviations from the acknowledged action plan.	The annual update filed on May 9, 2011 was an informational filing updating changes since acknowledgment of the 2009 IRP and an update of emerging planning issues. The update did not request acknowledgement of any changes. A request to present the information at a public meeting was not requested.
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 five 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 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 7.1 and 7.2 summarizes the peak day demand for the 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 4.1 identify the demand-side potential 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 6, 7, and 8 discusses the modeling tools, customer growth forecasting and cost-risk considerations used to maintain and plan a reliable gas delivery system. These Chapters 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. Appendix 3.6 highlights key risks associated with each portfolio.
4g	Identification of key assumptions about the future (e.g. fuel prices and environmental compliance costs) and alternative scenarios considered.	Appendix 6 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 SENDOUT® 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 6.18 and 6.19 for the Expected Case and Appendix 7.1 for the High Growth case.
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 and Appendix 3.6 show 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.
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	Chapter 9 presents the IRP Action Plan with focus on the following areas: II Modeling II Supply/capacity II Forecasting II Regulatory communication II DSM

	in portfolio testing.	
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.	Global Energy Inc. performed a conservation potential assessment study for our 2012 IRP. A discussion of the study is included in Chapter 4. The full study document is in Appendix 4.1. Avista incorporates a comprehensive assessment of the potential for utility acquisition of energy-efficiency resources into the regularly-scheduled Integrated Resource Planning process.
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.	A discussion on the treatment of conservation programs is included in Chapter 4 while selection methodology is documented in Chapter 6. The action plan details conservation targets, if any, as developed through the operational business planning process. These targets are updated annually, with the most current avoided costs. Given the challenge of the low cost environment, current operational planning and program evaluation is still underway and targets for Oregon have not yet been set.
6c	To the extent that an outside party administers 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.	Not applicable. See the response for 6.b above.
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	Avista's current direct gas distribution system infrastructure does not result in any CO2, NOx, SO2, or Hg emissions.

	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.	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 achieves a best cost/risk portfolio for all their retail customers.	The 2012 IRP conforms to the multi-state planning approach.
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	Not applicable to Avista's gas utility operations.

	Benchmark Resources it plans to consider in competitive bidding.	
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.
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 Appendix 4.2 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	The Environmental Externalities discussion in Appendix 4.2 describes our process for addressing these costs.

	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.	

APPENDIX 3.1 || ECONOMIC OUTLOOK AND CUSTOMER COUNT FORECAST

INTRODUCTION

For over twenty five years, Avista has produced natural gas customer forecasts which assume there is a direct relationship between economic growth and customer growth. This update of the Natural Gas Integrated Resource Plan continues this tradition. It would come as no surprise to readers that other utilities around the country use similar methods and procedures to produce customer forecasts. What follows is a narrative description of the methodology. A verbal description was provided at the 1st Technical Advisory Committee meeting held in Portland, Oregon, on January 17, 2012.

The Avista customer forecast is the primary driver of natural gas demand from firm natural gas customers. The forecast is produced by staff in the Finance Department, Financial Planning and Analysis group. These forecasts are produce annually in June of each calendar year and provide the basis for revenue forecasts, demand forecasts, purchased gas adjustments and general rate cases. The company employs the "one forecast" concept, wherein consistency across all parts of the business and regulatory environment is synchronized. However, the company does from time to time update forecasts when there is turbulence in the economy. This provides for flexibility as opposed to rigidity in terms of making good decisions for customers during unusual times. It would be accurate to say that between 2007 and 2010 the economy was moving downward as the recession evolved and the impacts on near term projections of customer growth were significant. The company updated their forecasts more frequently during this period, but now that the economy has settled down into a less volatile state forecast updates have returned to an annual update cycle. The forecast presented in this document was produced in June 2011 and relied on economic forecasts and actual customer data from May 2011. At this writing, an update to the customer forecast is being prepared for completion in June 2012. Early indications suggest the new forecast will not have material short term or long term adjustments from the base case.

In order to stress test the demand forecast, alternative customer forecasts have been prepared using publically available data from reliable sources. For at least the last five company natural gas plans, Avista has relied on high and low population forecasts from the State of Washington, Office of Financial Management, to provide alternative trajectories of customer growth. The principal economic drivers for the base case customer forecast are purchased from IHS Global Insight, Inc. As in previous plans, Avista's contract with Global Insight provides the company with a twenty five year forecast of economic drivers in the three metropolitan areas where we provide the bulk of our natural gas services (Spokane, Coeur d'Alene and Medford.) Avista also purchases limited economic forecasts from Global Insight on the other counties where we provide natural gas service. However, we rely on these metro-area forecasts as the primary drivers of customer forecasts in our Washington, Idaho and Oregon service areas.

What follows in order are discussions of the county-level forecasts, customer regressions and customer forecasts, with the final section addressing the alternative higher and lower forecasts.

SERVICE AREA ECONOMY

The service area economy in Washington includes ten mostly rural agriculture and resource extraction counties plus Spokane County, the regional metropolitan statistical area (MSA). Spokane County

(hereinafter referred to as Spokane) has a well diversified economy dominated by manufacturing, health care, retail and government. Spokane as well is a regional banking center and has a number of professional services firms (like architecture, engineering and information). One of the distinguishing characteristics of the company's Washington service area is the location of Washington State University roughly 75 miles south of downtown Spokane. But Spokane does have a large and growing public and private higher education sector. As the primary employment center for eastern Washington and northern Idaho, Spokane is also the largest area of customers and customer growth. In both 2010 and 2011, the Spokane area accounted for 45 percent of system customer growth, while Coeur d'Alene averaged 16 percent and Medford 14 percent. The remaining 25 percent of customer growth was widely spread between other counties in Washington, Idaho and Oregon. Subsequent paragraphs will detail information for Coeur d'Alene and Medford.

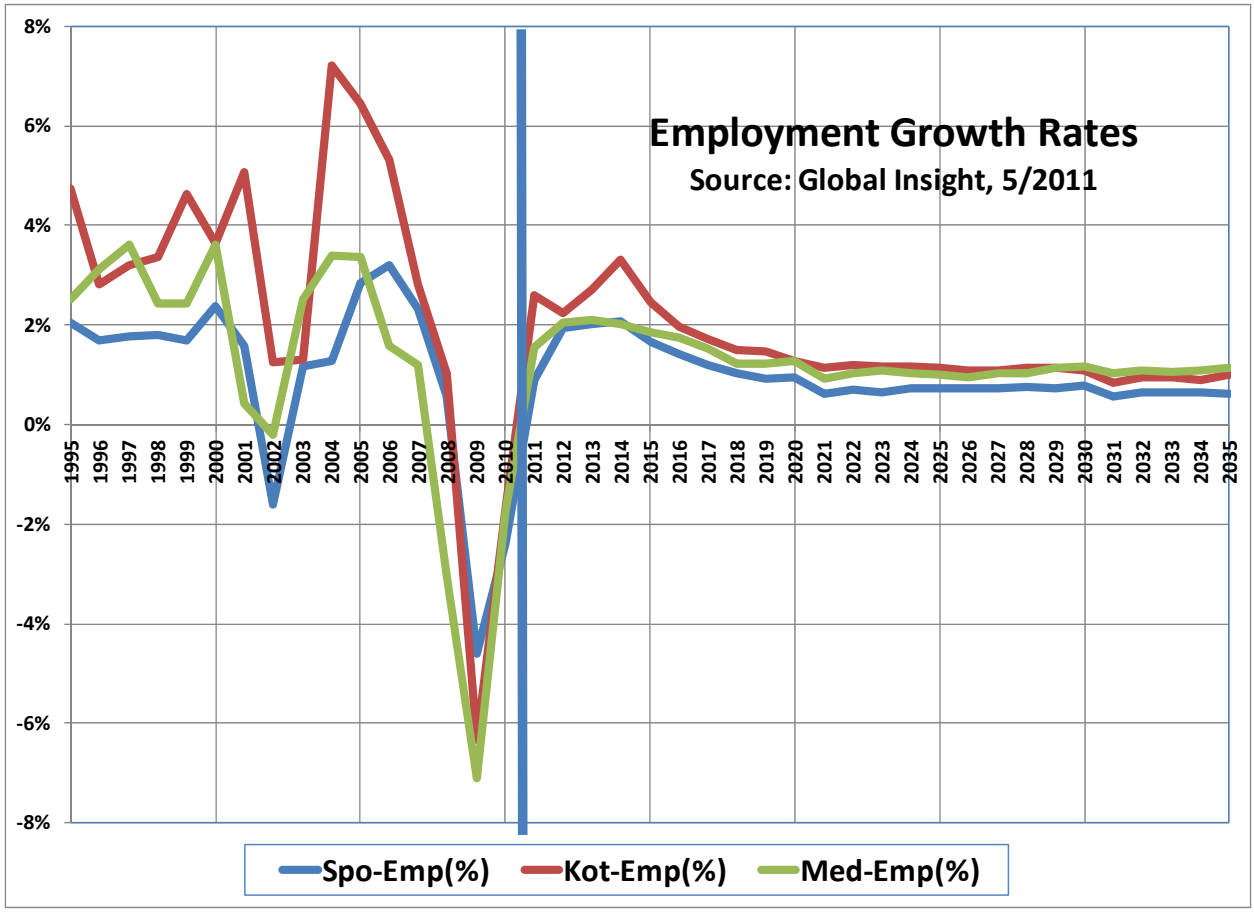
The service area in rural northern Idaho is similar to Washington but does substitute forestry for agriculture and Kootenai County (Coeur d'Alene) for Spokane. The metro area of Coeur d'Alene has been one of the faster growing parts of our service area and during the last census decade was one of the fastest growing counties in Idaho. Coeur d'Alene has an economic base that includes light manufacturing, health care and government services while its hospitality sector is a significant contributor to jobs. The remaining six counties have several notable large employers in the pulp and paper, mining and smelting and lumber and wood product industries. While Spokane has a very large higher education sector, Coeur d'Alene does not. In Idaho higher education is concentrated at the University of Idaho in Moscow, Idaho, and Lewis and Clark State in Lewiston, Idaho.

The company's Oregon service territory is made up of the urban areas of five counties, four of which are in southwestern Oregon and one small county in northeastern Oregon. Jackson County (with Medford as the largest city) is a metropolitan statistical area. Josephine County lies to the west of Jackson County and together the two counties, tied together by Interstate 5, comprise the Medford division of Avista. Due north of Josephine County is Douglas County, but the cities of Roseburg, Green, Winston, Sutherlin and Myrtle Creek lie in a different climate zone from Medford and the service area division of Roseburg is forecasted separately. The other geographic separation of the Oregon region occurs with Klamath County which lies due east of Jackson County but is separated by the Cascade mountain range not to mention being a few thousand feet higher elevation. For example, the Medford airport is at 1,335' elevation, while Klamath Falls airport is at 4,095' elevation. Due to the geographic separation and elevation differences, Klamath Falls and surrounding cities have a much colder climate than Medford and Roseburg. In order to accurately forecast customer demand, the Klamath Falls division is forecast separately. Last but not least, Union County (La Grande) is on Interstate 84 about 50 miles southeast of Pendleton, Oregon, represents less than 2 percent of customer growth but because of its climate and location isolation is forecast separately. Of the five counties, Jackson, Klamath Falls and La Grande are higher education centers with Southern Oregon, Oregon Institute of Technology and Eastern Oregon universities, respectively, located therein. With over 60 percent of Oregon customer growth, the Medford division of the company gets disproportionate scrutiny, but each of the four divisions employ the same customer forecast methodology.

The slides from Technical Advisory Committee #1 are available online. A brief summary of the forecasts follows. As mentioned previously, the company purchases county level forecasts from Global Insight. The charts provide a long term perspective, with historical data from 1995 to 2010 and forecasts from 2011 to 2035. Overall, it is clear from the slides that all three metro areas were briefly impacted by the brief recession in 2001 and were significantly impacted by the so-called "Great Recession" which began in 2007 and ended in 2009. Lackluster employment growth and slowly declining unemployment rates

have been the recent story. Global Insight forecasts a mild recovery in jobs begins during 2012 and gains steam in the 2013 to 2015 time period before settling back to its long term growth.

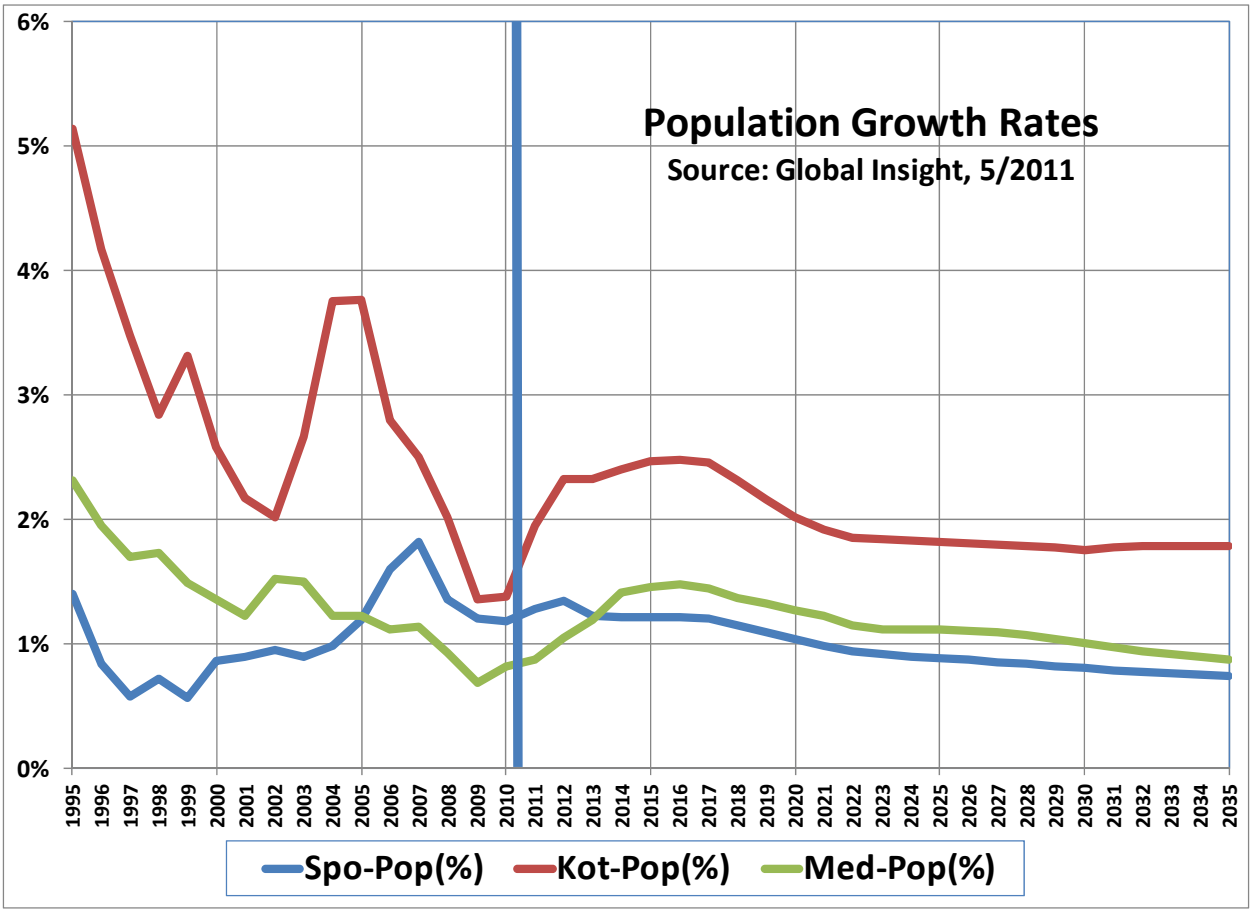
Chart F.1



It is clear from the chart above that employment growth rates which averaged over two percent in the prior fifteen years will be below two percent longer term in the next twenty-five years.

Global Insight largely drives their population forecast from their employment forecast although they do take into account changes in higher education enrollment and retirement and other migration impacts. The annual rates of growth of population in the three metro areas are shown on the following chart.

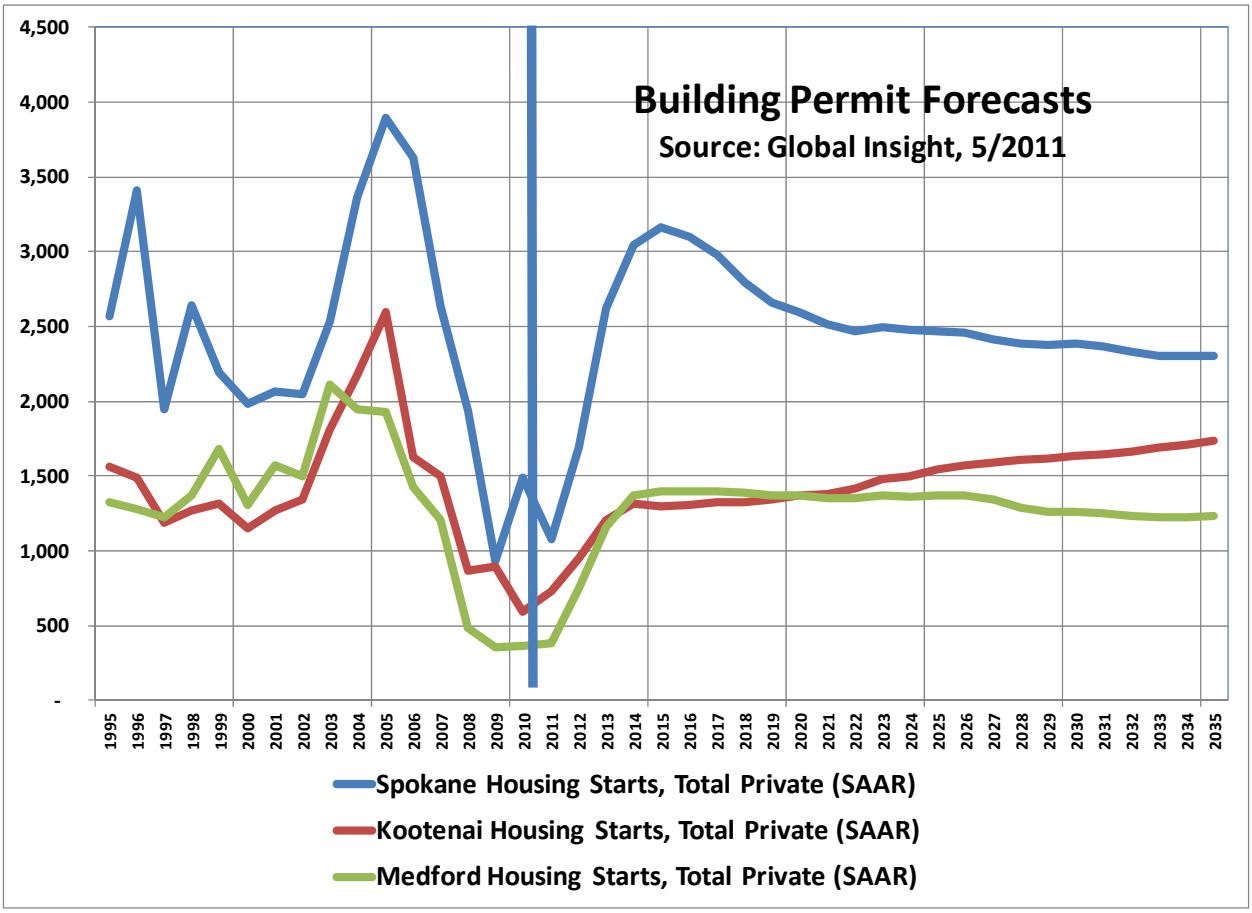
Chart F.2



Population growth rates have been highest in Kootenai County, Idaho as the "bedroom" effect of cross border commuting has been observed over the years. After a modest pause in population growth due to issues with labor mobility and recession –induced impacts, population growth is expected to rebound modestly consistent with the jobs forecast.

The population forecast becomes the key driver for the building permit forecasts for the three metro areas. After some recession induced absorption of foreclosures get worked out of the housing market and consistent with our observations and discussions locally with homebuilders and real estate professionals, the housing market forecasts shows a modest rebound.

Chart F.3



As we understand it, Global Insight has assumed banks and other financial institutions are expected to be more disciplined in lending practices such that the longer range forecasts do not include more housing bubbles or popped bubbles like we have observed in the recent history. Although we remain skeptical about this notion that housing cycles will be tempered, we do believe that these fundamentals based forecasts of housing are appropriate for long term natural gas customer forecasting. We have one additional observation about chart F.3; the apparent amplified rebound in Spokane housing permits is impacted by a large number of multi-family units being built to satisfy the growing higher education sector in Spokane which is largely absent in Coeur d'Alene. Although Medford has several higher education institutions, the growth there is expected to be muted due to state government policies and spending plans.

The final feature of economic data used to inform the customer forecast comes to us from using the State of Washington Office of Financial Management. In Washington, OFM's population forecasting division is the agency by law that produces population estimates for the Growth Management Act. At the time of the production of this Plan, OFM had produced a high, medium and low population forecast for Spokane County in 2007. At the 1st Technical Advisory Committee, we showed the members a table of population forecasts with these forecasts for 2010-2030. The high forecast in 2030 had 1.6 times the population growth of the medium forecast, and the low forecast during the same period had 0.6 times the population growth of the medium forecast. We proposed applying these ratios of population variation to our expected growth in residential customers because the logic of the building permit forecast ties to population

growth. We agreed it was a shortcut and represented to the committee this approach was reasonable and logical. We did not record any disagreement and have proceeded with this approach to scenarios.

CUSTOMER FORECAST REGRESSIONS

The process of customer forecasting employs regression analysis to utilize forecasts of building permits to produce forecasts of residential customer additions. We also use regression analysis to produce commercial customer additions as a function of residential customer additions. Indirectly, the logic and rationale is borrowed from Global Insight as follows. Employment drives population, population drives building permits, building permits drive residential customer growth, and residential customer growth drives commercial customer growth. Taking this full circle, employees have to work somewhere, and they largely work in commercial buildings. The forecasts for industrial employment are stable, and therefore we forecast firm industrial customers to grow slowly into the future. Important also is that firm industrial customers (and the therms they consume) are a very small portion of total firm sales.

CUSTOMER FORECASTS USED BY SENDOUT®

The company produces customer forecasts used by Sendout® in the following format. Monthly customer forecasts for residential, firm commercial and firm industrial for the combined Washington/Idaho service areas and the same customer forecasts for Oregon broken out by the four divisions, namely Medford, Roseburg, Klamath Falls and La Grande.

An annual summary for the Washington/Idaho region and for Oregon is shown in the table below. The term CGR is the compound growth rate from 2011-2031.

Table F.1

	Residential Customers	Commercial Customers	Industrial Customers
2006	185,897	20,884	247
2007	190,433	21,350	242
2008	194,316	21,844	238
2009	196,920	22,162	235
2010	198,604	22,344	230
2011	200,451	22,466	225
2012	203,404	22,621	228
2013	207,309	22,997	229
2014	211,420	23,442	231
2015	215,536	23,908	235
2016	219,611	24,370	237
2017	223,624	24,826	239
2018	227,540	25,267	241
2019	231,424	25,705	243
2020	235,300	26,141	244
2021	239,151	26,569	247
2022	243,002	26,998	248
2023	246,923	27,431	250
2024	250,835	27,864	251
2025	254,765	28,298	255
2026	258,699	28,732	256
2027	262,615	29,163	258
2028	266,515	29,593	259
2029	270,407	30,022	262
2030	274,312	30,446	263
2031	278,218	30,872	266
2032	282,115	31,295	267
2033	286,021	31,719	270
2034	289,943	32,145	271
2035	293,886	32,572	273
20 yr CGR 2011-31	1.65%	1.60%	0.84%

Table F.2

	Residential Medford Customers	Residential Roseburg Customers	Residential Klamath Falls Customers	Residential La Grande Customers	Commercial Medford Customers	Commercial Roseburg Customers	Commercial Klamath Falls Customers	Commercial La Grande Customers	Industrial Medford Customers	Industrial Roseburg Customers	Industrial Klamath Falls Customers	Industrial La Grande Customers
2006	49,002	12,726	13,424	6,296	6,263	2,134	1,585	878	1	2	0	3
2007	49,833	12,990	13,777	6,382	6,367	2,125	1,612	873	9	2	5	3
2008	50,239	13,037	13,859	6,441	6,427	2,120	1,624	886	10	2	5	3
2009	50,381	13,054	13,863	6,449	6,386	2,136	1,636	895	14	2	6	2
2010	50,682	13,077	13,886	6,473	6,433	2,124	1,635	895	13	2	7	2
2011	50,857	13,132	13,965	6,493	6,483	2,129	1,650	885	15	3	7	1
2012	51,282	13,250	14,090	6,528	6,513	2,149	1,670	895	15	3	7	1
2013	52,182	13,475	14,265	6,578	6,563	2,174	1,695	910	15	3	7	1
2014	53,432	13,775	14,515	6,628	6,643	2,204	1,725	925	15	3	7	1
2015	54,732	14,100	14,790	6,678	6,763	2,234	1,755	945	16	3	7	1
2016	56,027	14,434	15,059	6,737	6,886	2,258	1,780	958	16	3	7	1
2017	57,327	14,745	15,312	6,791	7,009	2,281	1,804	970	16	3	7	1
2018	58,616	15,034	15,553	6,842	7,131	2,303	1,827	981	16	3	7	1
2019	59,882	15,323	15,794	6,891	7,251	2,324	1,849	992	16	3	7	1
2020	61,139	15,614	16,034	6,940	7,369	2,346	1,872	1,002	17	3	7	1
2021	62,374	15,902	16,271	6,988	7,486	2,367	1,894	1,013	17	3	7	1
2022	63,608	16,189	16,506	7,036	7,603	2,388	1,916	1,023	17	3	7	1
2023	64,875	16,478	16,741	7,083	7,723	2,410	1,939	1,034	17	3	7	1
2024	66,137	16,771	16,977	7,130	7,842	2,431	1,961	1,044	17	3	7	1
2025	67,420	17,068	17,214	7,176	7,964	2,453	1,983	1,054	18	3	7	1
2026	68,698	17,368	17,452	7,223	8,085	2,476	2,006	1,064	18	3	7	1
2027	69,937	17,675	17,687	7,271	8,202	2,498	2,028	1,075	18	3	7	1
2028	71,120	17,906	17,919	7,321	8,314	2,515	2,050	1,086	18	3	7	1
2029	72,271	18,133	18,147	7,373	8,423	2,532	2,071	1,097	18	3	7	1
2030	73,426	18,361	18,375	7,424	8,532	2,549	2,093	1,108	19	3	7	1
2031	74,569	18,590	18,602	7,475	8,640	2,566	2,114	1,119	19	3	7	1
2032	75,684	18,814	18,828	7,525	8,746	2,583	2,135	1,131	19	3	7	1
2033	76,786	19,042	19,056	7,576	8,850	2,599	2,157	1,142	19	3	7	1
2034	77,893	19,272	19,285	7,627	8,955	2,616	2,178	1,153	19	3	7	1
2035	79,008	19,500	19,513	7,678	9,060	2,633	2,200	1,164	19	3	7	1
20 yr CGR 2011-2031	1.93%	1.75%	1.44%	0.71%	1.45%	0.94%	1.25%	1.18%	1.26%	0.14%	0.00%	-1.30%

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION WASHINGTON AND IDAHO

	Washington and Idaho - Expected Growth			Washington and Idaho - High Growth			Washington and Idaho - Low Growth		
	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers
Jan-12	202,574	22,501	228	203,572	22,510	228	201,908	22,495	228
Feb-12	202,563	22,523	227	203,555	22,545	227	201,902	22,508	227
Mar-12	202,688	22,547	227	203,755	22,584	227	201,977	22,523	227
Apr-12	202,517	22,561	227	203,481	22,606	227	201,874	22,531	227
May-12	202,633	22,564	227	203,667	22,611	227	201,944	22,533	227
Jun-12	202,521	22,612	227	203,488	22,688	227	201,877	22,562	227
Jul-12	202,830	22,623	228	203,982	22,705	228	202,062	22,568	228
Aug-12	203,492	22,641	228	205,041	22,734	228	202,459	22,579	228
Sep-12	203,900	22,676	228	205,694	22,790	228	202,704	22,600	228
Oct-12	204,313	22,699	228	206,355	22,827	228	202,952	22,614	228
Nov-12	204,999	22,735	228	207,452	22,884	228	203,363	22,635	228
Dec-12	205,820	22,764	228	208,766	22,931	228	203,856	22,653	228
Jan-13	206,379	22,812	229	209,660	23,008	229	204,191	22,682	229
Feb-13	206,368	22,839	228	209,643	23,051	228	204,185	22,698	228
Mar-13	206,493	22,868	228	209,843	23,097	228	204,260	22,715	228
Apr-13	206,322	22,902	228	209,569	23,152	228	204,157	22,736	228
May-13	206,538	22,930	228	209,915	23,196	228	204,287	22,752	228
Jun-13	206,426	22,993	228	209,736	23,297	228	204,220	22,790	228
Jul-13	206,735	23,019	229	210,230	23,339	229	204,405	22,806	229
Aug-13	207,397	23,042	229	211,289	23,376	229	204,802	22,820	229
Sep-13	207,905	23,092	229	212,102	23,456	229	205,107	22,850	229
Oct-13	208,318	23,120	229	212,763	23,500	229	205,355	22,866	229
Nov-13	209,004	23,156	229	213,860	23,558	229	205,766	22,888	229
Dec-13	209,825	23,185	229	215,174	23,604	229	206,259	22,905	229
Jan-14	210,490	23,257	232	216,238	23,720	232	206,658	22,949	232
Feb-14	210,479	23,284	231	216,220	23,763	231	206,651	22,965	231
Mar-14	210,604	23,313	231	216,420	23,809	231	206,726	22,982	231
Apr-14	210,433	23,347	231	216,147	23,864	231	206,624	23,003	231
May-14	210,649	23,375	231	216,492	23,908	231	206,753	23,019	231
Jun-14	210,537	23,438	231	216,313	24,009	231	206,686	23,057	231
Jul-14	210,846	23,464	231	216,808	24,051	231	206,872	23,073	231
Aug-14	211,508	23,487	231	217,867	24,088	231	207,269	23,087	231
Sep-14	212,016	23,537	231	218,680	24,168	231	207,574	23,117	231
Oct-14	212,429	23,565	231	219,340	24,212	231	207,821	23,133	231
Nov-14	213,115	23,601	231	220,438	24,270	231	208,233	23,155	231
Dec-14	213,936	23,630	231	221,752	24,316	231	208,726	23,172	231
Jan-15	214,606	23,723	235	222,824	24,465	235	209,128	23,228	235
Feb-15	214,595	23,750	234	222,806	24,508	234	209,121	23,244	234
Mar-15	214,720	23,779	234	223,006	24,555	234	209,196	23,262	234
Apr-15	214,549	23,813	234	222,732	24,609	234	209,093	23,282	234
May-15	214,765	23,841	234	223,078	24,654	234	209,223	23,299	234
Jun-15	214,653	23,904	234	222,899	24,755	234	209,156	23,337	234
Jul-15	214,962	23,930	235	223,393	24,796	235	209,341	23,352	235
Aug-15	215,624	23,953	235	224,452	24,833	235	209,738	23,366	235
Sep-15	216,132	24,003	235	225,265	24,913	235	210,043	23,396	235
Oct-15	216,545	24,031	235	225,926	24,958	235	210,291	23,413	235
Nov-15	217,231	24,067	235	227,024	25,016	235	210,703	23,435	235
Dec-15	218,052	24,096	235	228,337	25,062	235	211,195	23,452	235
Jan-16	218,664	24,182	237	229,316	25,200	237	211,562	23,504	237
Feb-16	218,652	24,210	236	229,298	25,244	236	211,555	23,520	236

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION WASHINGTON AND IDAHO

	Washington and Idaho - Expected Growth			Washington and Idaho - High Growth			Washington and Idaho - Low Growth		
	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers
Mar-16	218,780	24,239	236	229,502	25,291	236	211,632	23,538	236
Apr-16	218,606	24,274	236	229,223	25,347	236	211,527	23,559	236
May-16	218,826	24,303	236	229,575	25,393	236	211,659	23,576	236
Jun-16	218,712	24,367	236	229,393	25,495	236	211,591	23,614	236
Jul-16	219,026	24,393	237	229,896	25,538	237	211,780	23,630	237
Aug-16	219,701	24,417	237	230,975	25,575	237	212,185	23,644	237
Sep-16	220,219	24,468	237	231,804	25,657	237	212,495	23,675	237
Oct-16	220,639	24,496	237	232,477	25,702	237	212,748	23,692	237
Nov-16	221,338	24,533	237	233,595	25,761	237	213,167	23,714	237
Dec-16	222,175	24,563	237	234,934	25,808	237	213,669	23,732	237
Jan-17	222,659	24,634	239	235,708	25,923	239	213,959	23,775	239
Feb-17	222,647	24,662	238	235,689	25,968	238	213,952	23,792	238
Mar-17	222,777	24,693	238	235,897	26,016	238	214,030	23,810	238
Apr-17	222,599	24,728	238	235,613	26,073	238	213,924	23,831	238
May-17	222,823	24,757	238	235,972	26,119	238	214,058	23,849	238
Jun-17	222,707	24,822	238	235,786	26,224	238	213,988	23,888	238
Jul-17	223,028	24,849	239	236,299	26,267	239	214,181	23,904	239
Aug-17	223,715	24,873	239	237,398	26,306	239	214,593	23,918	239
Sep-17	224,242	24,925	239	238,241	26,389	239	214,909	23,949	239
Oct-17	224,670	24,954	239	238,926	26,435	239	215,166	23,967	239
Nov-17	225,382	24,992	239	240,065	26,495	239	215,593	23,989	239
Dec-17	226,234	25,022	239	241,428	26,543	239	216,104	24,007	239
Jan-18	226,558	25,072	241	241,946	26,623	241	216,299	24,038	241
Feb-18	226,546	25,100	240	241,928	26,669	240	216,292	24,055	240
Mar-18	226,678	25,131	240	242,139	26,718	240	216,371	24,073	240
Apr-18	226,498	25,167	240	241,850	26,776	240	216,263	24,095	240
May-18	226,726	25,197	240	242,215	26,823	240	216,399	24,112	240
Jun-18	226,607	25,263	240	242,026	26,930	240	216,328	24,152	240
Jul-18	226,934	25,291	241	242,548	26,974	241	216,524	24,169	241
Aug-18	227,632	25,315	241	243,666	27,012	241	216,943	24,183	241
Sep-18	228,169	25,368	241	244,524	27,097	241	217,265	24,215	241
Oct-18	228,605	25,397	241	245,222	27,144	241	217,527	24,233	241
Nov-18	229,329	25,435	241	246,380	27,205	241	217,961	24,256	241
Dec-18	230,196	25,466	241	247,767	27,254	241	218,481	24,274	241
Jan-19	230,425	25,507	243	248,134	27,319	243	218,619	24,298	243
Feb-19	230,413	25,536	242	248,115	27,366	242	218,612	24,316	242
Mar-19	230,547	25,567	242	248,330	27,415	242	218,692	24,335	242
Apr-19	230,364	25,603	242	248,036	27,474	242	218,582	24,356	242
May-19	230,596	25,634	242	248,407	27,522	242	218,721	24,375	242
Jun-19	230,475	25,701	242	248,215	27,630	242	218,649	24,415	242
Jul-19	230,807	25,729	243	248,745	27,675	243	218,848	24,432	243
Aug-19	231,518	25,754	243	249,883	27,715	243	219,275	24,447	243
Sep-19	232,063	25,808	243	250,755	27,801	243	219,602	24,479	243
Oct-19	232,507	25,838	243	251,465	27,849	243	219,868	24,497	243
Nov-19	233,243	25,877	243	252,643	27,911	243	220,310	24,520	243
Dec-19	234,125	25,908	243	254,054	27,961	243	220,839	24,539	243
Jan-20	234,284	25,939	244	254,309	28,011	244	220,935	24,558	244
Feb-20	234,272	25,969	243	254,290	28,058	243	220,927	24,576	243
Mar-20	234,409	26,000	243	254,508	28,109	243	221,009	24,595	243
Apr-20	234,222	26,038	243	254,210	28,169	243	220,897	24,617	243

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION WASHINGTON AND IDAHO

	Washington and Idaho - Expected Growth			Washington and Idaho - High Growth			Washington and Idaho - Low Growth		
	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers
May-20	234,458	26,068	243	254,587	28,218	243	221,039	24,635	243
Jun-20	234,336	26,137	243	254,391	28,328	243	220,965	24,677	243
Jul-20	234,673	26,166	244	254,931	28,373	244	221,168	24,694	244
Aug-20	235,396	26,191	244	256,087	28,414	244	221,601	24,709	244
Sep-20	235,950	26,245	244	256,975	28,501	244	221,934	24,742	244
Oct-20	236,401	26,276	244	257,696	28,550	244	222,205	24,760	244
Nov-20	237,150	26,315	244	258,894	28,613	244	222,654	24,784	244
Dec-20	238,046	26,347	244	260,328	28,664	244	223,192	24,803	244
Jan-21	238,119	26,364	247	260,444	28,691	247	223,235	24,813	247
Feb-21	238,106	26,394	246	260,424	28,739	246	223,228	24,831	246
Mar-21	238,245	26,426	246	260,646	28,791	246	223,311	24,850	246
Apr-21	238,055	26,464	246	260,343	28,851	246	223,197	24,873	246
May-21	238,295	26,495	246	260,726	28,901	246	223,341	24,892	246
Jun-21	238,171	26,565	246	260,527	29,013	246	223,266	24,934	246
Jul-21	238,514	26,594	247	261,076	29,059	247	223,472	24,951	247
Aug-21	239,248	26,620	247	262,251	29,100	247	223,913	24,966	247
Sep-21	239,812	26,675	247	263,153	29,189	247	224,251	25,000	247
Oct-21	240,270	26,706	247	263,886	29,239	247	224,526	25,018	247
Nov-21	241,031	26,746	247	265,104	29,303	247	224,983	25,042	247
Dec-21	241,942	26,779	247	266,561	29,354	247	225,529	25,062	247
Jan-22	241,953	26,790	248	266,579	29,372	248	225,536	25,068	248
Feb-22	241,941	26,820	247	266,559	29,420	247	225,529	25,086	247
Mar-22	242,082	26,853	247	266,785	29,473	247	225,613	25,106	247
Apr-22	241,889	26,891	247	266,477	29,534	247	225,497	25,129	247
May-22	242,133	26,923	247	266,866	29,585	247	225,644	25,148	247
Jun-22	242,006	26,994	247	266,664	29,699	247	225,568	25,191	247
Jul-22	242,355	27,023	248	267,222	29,746	248	225,777	25,208	248
Aug-22	243,101	27,049	248	268,416	29,787	248	226,225	25,224	248
Sep-22	243,674	27,106	248	269,332	29,878	248	226,568	25,258	248
Oct-22	244,139	27,137	248	270,077	29,928	248	226,848	25,277	248
Nov-22	244,913	27,178	248	271,315	29,993	248	227,312	25,301	248
Dec-22	245,838	27,211	248	272,796	30,046	248	227,867	25,321	248
Jan-23	245,857	27,220	250	272,825	30,060	250	227,878	25,326	250
Feb-23	245,844	27,251	249	272,805	30,110	249	227,871	25,345	249
Mar-23	245,988	27,284	249	273,034	30,163	249	227,957	25,365	249
Apr-23	245,792	27,323	249	272,721	30,225	249	227,839	25,388	249
May-23	246,039	27,355	249	273,117	30,277	249	227,987	25,407	249
Jun-23	245,911	27,427	249	272,911	30,392	249	227,910	25,451	249
Jul-23	246,265	27,457	250	273,478	30,440	250	228,123	25,469	250
Aug-23	247,023	27,484	250	274,691	30,482	250	228,578	25,485	250
Sep-23	247,605	27,541	250	275,622	30,574	250	228,927	25,519	250
Oct-23	248,078	27,573	250	276,379	30,625	250	229,211	25,538	250
Nov-23	248,864	27,614	250	277,637	30,692	250	229,683	25,563	250
Dec-23	249,805	27,648	250	279,142	30,745	250	230,247	25,583	250
Jan-24	249,752	27,649	251	279,058	30,747	251	230,215	25,584	251
Feb-24	249,739	27,680	250	279,037	30,797	250	230,208	25,603	250
Mar-24	249,885	27,714	250	279,270	30,851	250	230,295	25,623	250
Apr-24	249,686	27,754	250	278,951	30,914	250	230,176	25,647	250
May-24	249,937	27,786	250	279,354	30,967	250	230,326	25,666	250
Jun-24	249,807	27,860	250	279,145	31,084	250	230,248	25,710	250

APPENDIX 3.2 ▌▌ CUSTOMER FORECASTS BY REGION
WASHINGTON AND IDAHO

	Washington and Idaho - Expected Growth			Washington and Idaho - High Growth			Washington and Idaho - Low Growth		
	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers
Jul-24	250,167	27,890	251	279,720	31,133	251	230,464	25,728	251
Aug-24	250,937	27,917	251	280,953	31,175	251	230,926	25,745	251
Sep-24	251,528	27,975	251	281,899	31,269	251	231,281	25,780	251
Oct-24	252,009	28,008	251	282,668	31,321	251	231,569	25,799	251
Nov-24	252,807	28,050	251	283,945	31,388	251	232,048	25,824	251
Dec-24	253,763	28,084	251	285,474	31,442	251	232,622	25,845	251
Jan-25	253,666	28,080	255	285,320	31,436	255	232,564	25,842	255
Feb-25	253,653	28,112	254	285,299	31,487	254	232,556	25,862	254
Mar-25	253,801	28,146	254	285,535	31,542	254	232,644	25,882	254
Apr-25	253,599	28,186	254	285,212	31,607	254	232,523	25,906	254
May-25	253,854	28,220	254	285,620	31,660	254	232,676	25,926	254
Jun-25	253,722	28,294	254	285,409	31,779	254	232,597	25,971	254
Jul-25	254,087	28,325	255	285,993	31,828	255	232,816	25,989	255
Aug-25	254,869	28,352	255	287,245	31,872	255	233,286	26,006	255
Sep-25	255,470	28,411	255	288,206	31,967	255	233,646	26,041	255
Oct-25	255,958	28,445	255	288,987	32,020	255	233,939	26,061	255
Nov-25	256,769	28,487	255	290,284	32,088	255	234,425	26,087	255
Dec-25	257,739	28,521	255	291,837	32,143	255	235,008	26,107	255
Jan-26	257,583	28,510	256	291,587	32,124	256	234,914	26,100	256
Feb-26	257,570	28,542	255	291,566	32,176	255	234,906	26,120	255
Mar-26	257,720	28,577	255	291,806	32,232	255	234,996	26,141	255
Apr-26	257,515	28,618	255	291,477	32,297	255	234,873	26,165	255
May-26	257,774	28,652	255	291,892	32,351		235,028	26,185	255
Jun-26	257,639	28,727	255	291,677	32,472	255	234,948	26,231	255
Jul-26	258,010	28,759	256	292,270	32,522	256	235,170	26,250	256
Aug-26	258,805	28,786	256	293,542	32,567	256	235,647	26,266	256
Sep-26	259,415	28,846	256	294,517	32,663	256	236,013	26,302	256
Oct-26	259,910	28,880	256	295,310	32,717	256	236,310	26,322	256
Nov-26	260,734	28,923	256	296,628	32,786	256	236,804	26,348	256
Dec-26	261,719	28,958	256	298,204	32,842	256	237,395	26,369	256
Jan-27	261,482	28,938	258	297,825	32,809	258	237,253	26,357	258
Feb-27	261,468	28,971	257	297,803	32,862	257	237,245	26,377	257
Mar-27	261,621	29,006	257	298,047	32,918	257	237,336	26,398	257
Apr-27	261,412	29,048	257	297,714	32,984	257	237,211	26,423	257
May-27	261,676	29,082	257	298,135	33,039	257	237,369	26,443	257
Jun-27	261,539	29,159	257	297,917	33,162	257	237,287	26,490	257
Jul-27	261,916	29,190	258	298,519	33,213	258	237,513	26,509	258
Aug-27	262,722	29,218	258	299,809	33,258	258	237,997	26,525	258
Sep-27	263,341	29,279	258	300,800	33,355	258	238,369	26,562	258
Oct-27	263,844	29,313	258	301,605	33,410	258	238,671	26,582	258
Nov-27	264,680	29,357	258	302,942	33,480	258	239,172	26,609	258
Dec-27	265,681	29,393	258	304,543	33,537	258	239,772	26,630	258
Jan-28	265,365	29,365	259	304,038	33,492	259	239,583	26,613	259
Feb-28	265,351	29,398	258	304,016	33,546	258	239,575	26,633	258
Mar-28	265,506	29,434	258	304,263	33,603	258	239,667	26,655	258
Apr-28	265,294	29,476	258	303,925	33,670	258	239,541	26,680	258
May-28	265,561	29,511	258	304,352	33,726	258	239,701	26,701	258
Jun-28	265,423	29,589	258	304,131	33,851	258	239,618	26,748	258
Jul-28	265,805	29,621	259	304,742	33,902	259	239,847	26,767	259
Aug-28	266,624	29,650	259	306,052	33,948	259	240,338	26,784	259

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION WASHINGTON AND IDAHO

	Washington and Idaho Expected Growth			Washington and Idaho - High Growth			Washington and Idaho - Low Growth		
	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers
Sep-28	267,252	29,711	259	307,057	34,047	259	240,715	26,821	259
Oct-28	267,762	29,746	259	307,874	34,102	259	241,021	26,842	259
Nov-28	268,611	29,791	259	309,231	34,173	259	241,530	26,869	259
Dec-28	269,626	29,827	259	310,855	34,231	259	242,140	26,890	259
Jan-29	269,240	29,790	262	310,237	34,172	262	241,908	26,868	262
Feb-29	269,226	29,824	261	310,215	34,227	261	241,900	26,889	261
Mar-29	269,383	29,860	261	310,466	34,285	261	241,994	26,911	261
Apr-29	269,168	29,903	261	310,123	34,353	261	241,865	26,936	261
May-29	269,439	29,938	261	310,557	34,409	261	242,027	26,957	261
Jun-29	269,299	30,017	261	310,332	34,536	261	241,943	27,005	261
Jul-29	269,686	30,050	262	310,952	34,588	262	242,176	27,024	262
Aug-29	270,517	30,079	262	312,281	34,634	262	242,674	27,042	262
Sep-29	271,154	30,142	262	313,301	34,735	262	243,056	27,079	262
Oct-29	271,672	30,177	262	314,130	34,791	262	243,367	27,100	262
Nov-29	272,533	30,222	262	315,507	34,863	262	243,884	27,128	262
Dec-29	273,563	30,258	262	317,155	34,922	262	244,502	27,149	262
Jan-30	273,128	30,211	263	316,459	34,846	263	244,241	27,121	263
Feb-30	273,114	30,246	262	316,436	34,901	262	244,232	27,142	262
Mar-30	273,273	30,283	262	316,691	34,961	262	244,328	27,164	262
Apr-30	273,055	30,326	262	316,343	35,030	262	244,197	27,190	262
May-30	273,330	30,362	262	316,783	35,087	262	244,362	27,211	262
Jun-30	273,188	30,442	262	316,554	35,215	262	244,277	27,259	262
Jul-30	273,581	30,475	263	317,184	35,268	263	244,513	27,279	263
Aug-30	274,424	30,504	263	318,532	35,315	263	245,018	27,297	263
Sep-30	275,070	30,568	263	319,566	35,417	263	245,406	27,335	263
Oct-30	275,596	30,604	263	320,407	35,474	263	245,721	27,357	263
Nov-30	276,469	30,649	263	321,804	35,547	263	246,245	27,384	263
Dec-30	277,514	30,686	263	323,476	35,606	263	246,872	27,406	263
Jan-31	277,018	30,633	266	322,682	35,522	266	246,575	27,374	266
Feb-31	277,004	30,668	265	322,660	35,578	265	246,566	27,395	265
Mar-31	277,165	30,706	265	322,918	35,638	265	246,663	27,418	265
Apr-31	276,944	30,750	265	322,565	35,708	265	246,530	27,444	265
May-31	277,223	30,786	265	323,011	35,766	265	246,698	27,466	265
Jun-31	277,078	30,867	265	322,779	35,896	265	246,611	27,515	265
Jul-31	277,477	30,901	266	323,418	35,950	266	246,850	27,535	266
Aug-31	278,332	30,930	266	324,785	35,997	266	247,363	27,553	266
Sep-31	278,988	30,995	266	325,834	36,100	266	247,757	27,591	266
Oct-31	279,521	31,031	266	326,687	36,158	266	248,076	27,613	266
Nov-31	280,406	31,078	266	328,104	36,233	266	248,608	27,641	266
Dec-31	281,466	31,115	266	329,799	36,293	266	249,244	27,663	266
Jan-32	280,897	31,053	267	328,890	36,194	267	248,902	27,626	267
Feb-32	280,883	31,089	266	328,867	36,251	266	248,894	27,648	266
Mar-32	281,047	31,127	266	329,129	36,311	266	248,992	27,670	266
Apr-32	280,823	31,171	266	328,771	36,382	266	248,858	27,697	266
May-32	281,106	31,208	266	329,223	36,441	266	249,027	27,719	266
Jun-32	280,959	31,290	266	328,988	36,573	266	248,939	27,769	266
Jul-32	281,363	31,324	267	329,635	36,628	267	249,182	27,789	267
Aug-32	282,230	31,355	267	331,022	36,676	267	249,702	27,807	267
Sep-32	282,895	31,420	267	332,086	36,780	267	250,101	27,846	267
Oct-32	283,435	31,457	267	332,951	36,839	267	250,425	27,868	267

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION WASHINGTON AND IDAHO

	Washington and Idaho - Expected Growth			Washington and Idaho - High Growth			Washington and Idaho - Low Growth		
	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers	Residential Customers	Commercial Customers	Industrial Customers
Nov-32	284,333	31,504	267	334,387	36,914	267	250,964	27,897	267
Dec-32	285,408	31,542	267	336,107	36,975	267	251,609	27,919	267
Jan-33	284,787	31,474	270	335,113	36,867	270	251,236	27,879	270
Feb-33	284,772	31,510	269	335,090	36,924	269	251,227	27,900	269
Mar-33	284,938	31,548	269	335,355	36,986	269	251,327	27,923	269
Apr-33	284,711	31,593	269	334,992	37,058	269	251,191	27,950	269
May-33	284,998	31,631	269	335,451	37,117	269	251,363	27,973	269
Jun-33	284,849	31,714	269	335,213	37,251	269	251,274	28,023	269
Jul-33	285,259	31,749	270	335,869	37,306	270	251,520	28,044	270
Aug-33	286,138	31,779	270	337,274	37,355	270	252,047	28,062	270
Sep-33	286,812	31,846	270	338,353	37,461	270	252,451	28,102	270
Oct-33	287,360	31,883	270	339,230	37,521	270	252,780	28,124	270
Nov-33	288,270	31,930	270	340,686	37,597	270	253,326	28,153	270
Dec-33	289,360	31,969	270	342,430	37,659	270	253,980	28,176	270
Jan-34	288,692	31,897	271	341,361	37,544	271	253,579	28,133	271
Feb-34	288,677	31,933	270	341,338	37,602	270	253,570	28,154	270
Mar-34	288,846	31,972	270	341,607	37,664	270	253,671	28,178	270
Apr-34	288,615	32,018	270	341,239	37,737	270	253,533	28,205	270
May-34	288,906	32,056	270	341,704	37,798	270	253,708	28,228	270
Jun-34	288,755	32,140	270	341,463	37,933	270	253,617	28,279	270
Jul-34	289,171	32,175	271	342,128	37,989	271	253,867	28,300	271
Aug-34	290,062	32,206	271	343,553	38,038	271	254,401	28,318	271
Sep-34	290,745	32,274	271	344,646	38,146	271	254,811	28,359	271
Oct-34	291,301	32,311	271	345,535	38,206	271	255,144	28,381	271
Nov-34	292,223	32,360	271	347,011	38,284	271	255,698	28,410	271
Dec-34	293,328	32,399	271	348,778	38,346	271	256,361	28,434	271
Jan-35	292,617	32,321	273	347,642	38,221	273	255,934	28,387	273
Feb-35	292,602	32,357	272	347,618	38,280	272	255,925	28,409	272
Mar-35	292,773	32,397	272	347,890	38,343	272	256,028	28,433	272
Apr-35	292,540	32,443	272	347,517	38,418	272	255,888	28,460	272
May-35	292,834	32,481	272	347,989	38,479	272	256,064	28,483	272
Jun-35	292,681	32,567	272	347,744	38,616	272	255,973	28,535	272
Jul-35	293,103	32,603	273	348,418	38,673	273	256,226	28,556	273
Aug-35	294,005	32,634	273	349,863	38,723	273	256,767	28,575	273
Sep-35	294,698	32,702	273	350,971	38,832	273	257,183	28,616	273
Oct-35	295,261	32,740	273	351,872	38,893	273	257,521	28,639	273
Nov-35	296,196	32,789	273	353,368	38,971	273	258,082	28,668	273
Dec-35	297,316	32,829	273	355,160	39,034	273	258,754	28,692	273

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
MEDFORD

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers
Jan-12	51,338	6,544	15	51,762	6,581	15	51,056	6,520	15
Feb-12	51,254	6,553	15	51,627	6,595	15	51,005	6,525	15
Mar-12	51,297	6,489	15	51,696	6,493	15	51,031	6,487	15
Apr-12	51,214	6,510	15	51,563	6,526	15	50,981	6,499	15
May-12	51,264	6,505	18	51,643	6,518	18	51,011	6,496	18
Jun-12	51,177	6,500	15	51,504	6,510	15	50,959	6,493	15
Jul-12	51,096	6,494	15	51,374	6,501	15	50,910	6,490	15
Aug-12	51,095	6,492	15	51,373	6,497	15	50,910	6,488	15
Sep-12	51,027	6,502	15	51,264	6,513	15	50,869	6,494	15
Oct-12	51,232	6,513	15	51,592	6,531	15	50,992	6,501	15
Nov-12	51,508	6,527	15	52,034	6,553	15	51,158	6,509	15
Dec-12	51,884	6,531	15	52,635	6,560	15	51,383	6,512	15
Jan-13	52,038	6,594	15	52,882	6,661	15	51,476	6,550	15
Feb-13	51,954	6,603	15	52,747	6,675	15	51,425	6,555	15
Mar-13	51,997	6,539	15	52,816	6,573	15	51,451	6,517	15
Apr-13	52,014	6,560	15	52,843	6,606	15	51,461	6,529	15
May-13	52,064	6,555	18	52,923	6,598	18	51,491	6,526	18
Jun-13	52,077	6,550	15	52,944	6,590	15	51,499	6,523	15
Jul-13	51,996	6,544	15	52,814	6,581	15	51,450	6,520	15
Aug-13	52,095	6,542	15	52,973	6,577	15	51,510	6,518	15
Sep-13	52,027	6,552	15	52,864	6,593	15	51,469	6,524	15
Oct-13	52,332	6,563	15	53,352	6,611	15	51,652	6,531	15
Nov-13	52,608	6,577	15	53,794	6,633	15	51,818	6,539	15
Dec-13	52,984	6,581	15	54,395	6,640	15	52,043	6,542	15
Jan-14	53,138	6,674	15	54,642	6,789	15	52,136	6,598	15
Feb-14	53,054	6,683	15	54,507	6,803	15	52,085	6,603	15
Mar-14	53,197	6,619	15	54,736	6,701	15	52,171	6,565	15
Apr-14	53,214	6,640	15	54,763	6,734	15	52,181	6,577	15
May-14	53,364	6,635	18	55,003	6,726	18	52,271	6,574	18
Jun-14	53,377	6,630	15	55,024	6,718	15	52,279	6,571	15
Jul-14	53,296	6,624	15	54,894	6,709	15	52,230	6,568	15
Aug-14	53,395	6,622	15	55,053	6,705	15	52,290	6,566	15
Sep-14	53,327	6,632	15	54,944	6,721	15	52,249	6,572	15
Oct-14	53,632	6,643	15	55,432	6,739	15	52,432	6,579	15
Nov-14	53,908	6,657	15	55,874	6,761	15	52,598	6,587	15
Dec-14	54,284	6,661	15	56,475	6,768	15	52,823	6,590	15
Jan-15	54,438	6,794	16	56,722	6,981	16	52,916	6,670	16
Feb-15	54,354	6,803	16	56,587	6,995	16	52,865	6,675	16
Mar-15	54,497	6,739	16	56,816	6,893	16	52,951	6,637	16
Apr-15	54,514	6,760	16	56,843	6,926	16	52,961	6,649	16
May-15	54,664	6,755	19	57,083	6,918	19	53,051	6,646	19
Jun-15	54,677	6,750	16	57,104	6,910	16	53,059	6,643	16
Jul-15	54,596	6,744	16	56,974	6,901	16	53,010	6,640	16
Aug-15	54,695	6,742	16	57,133	6,897	16	53,070	6,638	16
Sep-15	54,627	6,752	16	57,024	6,913	16	53,029	6,644	16
Oct-15	54,932	6,763	16	57,512	6,931	16	53,212	6,651	16
Nov-15	55,208	6,777	16	57,954	6,953	16	53,378	6,659	16
Dec-15	55,584	6,781	16	58,555	6,960	16	53,603	6,662	16
Jan-16	55,726	6,917	16	58,782	7,177	16	53,688	6,743	16

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
MEDFORD

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers
Feb-16	55,640	6,926	16	58,644	7,192	16	53,637	6,749	16
Mar-16	55,786	6,861	16	58,879	7,088	16	53,724	6,710	16
Apr-16	55,803	6,882	16	58,906	7,122	16	53,735	6,723	16
May-16	55,957	6,877	19	59,152	7,114	19	53,827	6,720	19
Jun-16	55,970	6,872	16	59,173	7,106	16	53,835	6,717	16
Jul-16	55,887	6,866	16	59,041	7,096	16	53,785	6,713	16
Aug-16	55,989	6,864	16	59,203	7,093	16	53,846	6,712	16
Sep-16	55,919	6,874	16	59,091	7,109	16	53,804	6,718	16
Oct-16	56,231	6,885	16	59,591	7,127	16	53,992	6,724	16
Nov-16	56,514	6,900	16	60,043	7,150	16	54,161	6,733	16
Dec-16	56,899	6,904	16	60,659	7,156	16	54,392	6,735	16
Jan-17	57,018	7,041	17	60,850	7,375	17	54,464	6,818	17
Feb-17	56,930	7,050	17	60,710	7,390	17	54,411	6,823	17
Mar-17	57,080	6,984	17	60,949	7,284	17	54,501	6,783	17
Apr-17	57,098	7,005	17	60,978	7,319	17	54,512	6,796	17
May-17	57,255	7,000	20	61,229	7,310	20	54,606	6,793	20
Jun-17	57,269	6,995	17	61,251	7,302	17	54,614	6,790	17
Jul-17	57,184	6,989	17	61,115	7,292	17	54,563	6,786	17
Aug-17	57,288	6,987	17	61,281	7,289	17	54,625	6,785	17
Sep-17	57,216	6,997	17	61,167	7,305	17	54,583	6,791	17
Oct-17	57,536	7,008	17	61,678	7,324	17	54,774	6,798	17
Nov-17	57,825	7,023	17	62,141	7,347	17	54,948	6,807	17
Dec-17	58,219	7,027	17	62,771	7,354	17	55,184	6,809	17
Jan-18	58,301	7,163	17	62,903	7,571	17	55,234	6,891	17
Feb-18	58,211	7,173	17	62,759	7,586	17	55,180	6,897	17
Mar-18	58,365	7,105	17	63,004	7,478	17	55,272	6,856	17
Apr-18	58,383	7,127	17	63,033	7,514	17	55,282	6,870	17
May-18	58,543	7,122	20	63,290	7,505	20	55,379	6,866	20
Jun-18	58,557	7,117	17	63,312	7,497	17	55,387	6,863	17
Jul-18	58,471	7,110	17	63,174	7,487	17	55,335	6,859	17
Aug-18	58,577	7,108	17	63,343	7,484	17	55,399	6,858	17
Sep-18	58,504	7,119	17	63,227	7,500	17	55,355	6,865	17
Oct-18	58,830	7,130	17	63,749	7,519	17	55,551	6,871	17
Nov-18	59,126	7,145	17	64,222	7,543	17	55,728	6,880	17
Dec-18	59,529	7,149	17	64,867	7,549	17	55,970	6,883	17
Jan-19	59,560	7,283	17	64,917	7,764	17	55,989	6,963	17
Feb-19	59,469	7,293	17	64,770	7,779	17	55,934	6,969	17
Mar-19	59,625	7,224	17	65,021	7,669	17	56,028	6,928	17
Apr-19	59,644	7,247	17	65,051	7,705	17	56,039	6,941	17
May-19	59,808	7,242	20	65,313	7,697	20	56,137	6,938	20
Jun-19	59,822	7,236	17	65,336	7,688	17	56,146	6,935	17
Jul-19	59,733	7,230	17	65,194	7,678	17	56,093	6,931	17
Aug-19	59,842	7,228	17	65,367	7,675	17	56,158	6,930	17
Sep-19	59,767	7,238	17	65,248	7,692	17	56,113	6,936	17
Oct-19	60,101	7,250	17	65,782	7,711	17	56,313	6,943	17
Nov-19	60,403	7,265	17	66,265	7,735	17	56,495	6,952	17
Dec-19	60,814	7,270	17	66,924	7,741	17	56,741	6,955	17
Jan-20	60,811	7,403	17	66,918	7,955	17	56,739	7,035	17
Feb-20	60,717	7,413	17	66,768	7,971	17	56,683	7,041	17

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
MEDFORD

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers
Mar-20	60,876	7,343	17	67,023	7,859	17	56,779	6,999	17
Apr-20	60,895	7,366	17	67,054	7,896	17	56,790	7,013	17
May-20	61,063	7,360	21	67,322	7,887	21	56,891	7,009	21
Jun-20	61,078	7,355	17	67,345	7,878	17	56,899	7,006	17
Jul-20	60,987	7,348	17	67,200	7,868	17	56,845	7,002	17
Aug-20	61,098	7,346	17	67,377	7,864	17	56,911	7,001	17
Sep-20	61,022	7,357	17	67,255	7,882	17	56,866	7,007	17
Oct-20	61,362	7,369	17	67,801	7,901	17	57,070	7,015	17
Nov-20	61,671	7,384	17	68,294	7,925	17	57,255	7,024	17
Dec-20	62,091	7,389	17	68,966	7,932	17	57,507	7,026	17
Jan-21	62,039	7,520	18	68,883	8,143	18	57,476	7,105	18
Feb-21	61,943	7,530	18	68,730	8,159	18	57,419	7,111	18
Mar-21	62,106	7,459	18	68,990	8,045	18	57,516	7,069	18
Apr-21	62,125	7,483	18	69,021	8,082	18	57,528	7,083	18
May-21	62,296	7,477	21	69,295	8,074	21	57,631	7,079	21
Jun-21	62,311	7,472	18	69,319	8,065	18	57,639	7,076	18
Jul-21	62,219	7,465	18	69,171	8,054	18	57,584	7,072	18
Aug-21	62,332	7,463	18	69,351	8,051	18	57,652	7,071	18
Sep-21	62,254	7,474	18	69,227	8,068	18	57,605	7,077	18
Oct-21	62,602	7,486	18	69,783	8,088	18	57,814	7,085	18
Nov-21	62,916	7,501	18	70,287	8,112	18	58,003	7,094	18
Dec-21	63,345	7,506	18	70,972	8,120	18	58,260	7,097	18
Jan-22	63,266	7,638	18	70,847	8,330	18	58,213	7,176	18
Feb-22	63,169	7,648	18	70,691	8,346	18	58,154	7,182	18
Mar-22	63,335	7,576	18	70,957	8,231	18	58,254	7,139	18
Apr-22	63,355	7,599	18	70,988	8,269	18	58,266	7,153	18
May-22	63,529	7,594	21	71,267	8,260	21	58,370	7,149	21
Jun-22	63,544	7,588	18	71,291	8,251	18	58,379	7,146	18
Jul-22	63,450	7,581	18	71,141	8,240	18	58,323	7,142	18
Aug-22	63,565	7,579	18	71,325	8,237	18	58,392	7,141	18
Sep-22	63,486	7,590	18	71,198	8,255	18	58,344	7,147	18
Oct-22	63,840	7,603	18	71,766	8,275	18	58,557	7,155	18
Nov-22	64,161	7,618	18	72,279	8,300	18	58,750	7,164	18
Dec-22	64,598	7,623	18	72,978	8,307	18	59,012	7,167	18
Jan-23	64,526	7,758	18	72,863	8,523	18	58,968	7,248	18
Feb-23	64,427	7,768	18	72,703	8,539	18	58,909	7,254	18
Mar-23	64,596	7,695	18	72,974	8,422	18	59,010	7,210	18
Apr-23	64,616	7,719	18	73,007	8,461	18	59,023	7,225	18
May-23	64,794	7,713	22	73,291	8,452	22	59,129	7,221	22
Jun-23	64,809	7,708	18	73,316	8,442	18	59,138	7,218	18
Jul-23	64,713	7,701	18	73,162	8,432	18	59,081	7,214	18
Aug-23	64,831	7,699	18	73,350	8,428	18	59,151	7,212	18
Sep-23	64,750	7,710	18	73,221	8,446	18	59,103	7,219	18
Oct-23	65,112	7,723	18	73,799	8,466	18	59,320	7,227	18
Nov-23	65,439	7,739	18	74,323	8,492	18	59,516	7,236	18
Dec-23	65,884	7,743	18	75,036	8,499	18	59,783	7,239	18
Jan-24	65,782	7,878	19	74,872	8,715	19	59,722	7,320	19
Feb-24	65,680	7,888	19	74,709	8,732	19	59,661	7,326	19
Mar-24	65,853	7,814	19	74,986	8,613	19	59,765	7,282	19

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION MEDFORD

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers
Apr-24	65,874	7,838	19	75,019	8,652	19	59,777	7,296	19
May-24	66,055	7,833	22	75,309	8,642	22	59,886	7,293	22
Jun-24	66,071	7,827	19	75,334	8,633	19	59,895	7,289	19
Jul-24	65,973	7,820	19	75,177	8,622	19	59,836	7,285	19
Aug-24	66,092	7,818	19	75,369	8,618	19	59,908	7,284	19
Sep-24	66,010	7,829	19	75,237	8,637	19	59,859	7,291	19
Oct-24	66,379	7,842	19	75,827	8,657	19	60,080	7,298	19
Nov-24	66,712	7,858	19	76,360	8,683	19	60,280	7,308	19
Dec-24	67,167	7,863	19	77,087	8,691	19	60,553	7,311	19
Jan-25	67,057	8,000	19	76,913	8,910	19	60,487	7,393	19
Feb-25	66,954	8,010	19	76,747	8,927	19	60,425	7,399	19
Mar-25	67,130	7,935	19	77,029	8,806	19	60,531	7,354	19
Apr-25	67,151	7,960	19	77,062	8,846	19	60,543	7,369	19
May-25	67,336	7,954	22	77,358	8,836	22	60,654	7,366	22
Jun-25	67,352	7,948	19	77,384	8,827	19	60,664	7,362	19
Jul-25	67,252	7,941	19	77,224	8,816	19	60,604	7,358	19
Aug-25	67,374	7,939	19	77,419	8,812	19	60,677	7,356	19
Sep-25	67,290	7,950	19	77,285	8,831	19	60,627	7,363	19
Oct-25	67,666	7,963	19	77,886	8,851	19	60,852	7,371	19
Nov-25	68,006	7,980	19	78,430	8,878	19	61,056	7,381	19
Dec-25	68,469	7,984	19	79,171	8,885	19	61,334	7,384	19
Jan-26	68,329	8,121	19	78,947	9,104	19	61,250	7,466	19
Feb-26	68,223	8,132	19	78,778	9,121	19	61,187	7,472	19
Mar-26	68,403	8,056	19	79,065	8,999	19	61,295	7,427	19
Apr-26	68,424	8,081	19	79,100	9,039	19	61,307	7,442	19
May-26	68,613	8,075	23	79,401	9,030	23	61,420	7,438	23
Jun-26	68,629	8,069	19	79,427	9,020	19	61,430	7,434	19
Jul-26	68,527	8,062	19	79,264	9,009	19	61,369	7,430	19
Aug-26	68,651	8,059	19	79,463	9,005	19	61,444	7,429	19
Sep-26	68,566	8,071	19	79,327	9,024	19	61,392	7,436	19
Oct-26	68,949	8,084	19	79,939	9,045	19	61,622	7,444	19
Nov-26	69,295	8,101	19	80,493	9,072	19	61,830	7,454	19
Dec-26	69,767	8,106	19	81,248	9,079	19	62,113	7,457	19
Jan-27	69,561	8,239	20	80,918	9,293	20	61,989	7,537	20
Feb-27	69,454	8,250	20	80,747	9,310	20	61,925	7,543	20
Mar-27	69,636	8,172	20	81,039	9,186	20	62,035	7,497	20
Apr-27	69,658	8,198	20	81,074	9,227	20	62,048	7,512	20
May-27	69,850	8,192	23	81,380	9,217	23	62,163	7,508	23
Jun-27	69,866	8,186	20	81,407	9,207	20	62,173	7,505	20
Jul-27	69,763	8,178	20	81,241	9,196	20	62,111	7,500	20
Aug-27	69,889	8,176	20	81,444	9,192	20	62,186	7,499	20
Sep-27	69,803	8,188	20	81,305	9,211	20	62,134	7,506	20
Oct-27	70,192	8,201	20	81,928	9,232	20	62,368	7,514	20
Nov-27	70,545	8,218	20	82,493	9,260	20	62,580	7,524	20
Dec-27	71,025	8,223	20	83,261	9,267	20	62,868	7,527	20
Jan-28	70,738	8,351	20	82,801	9,472	20	62,695	7,604	20
Feb-28	70,628	8,362	20	82,626	9,490	20	62,630	7,611	20
Mar-28	70,814	8,284	20	82,924	9,364	20	62,741	7,563	20
Apr-28	70,836	8,310	20	82,959	9,406	20	62,755	7,579	20

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
MEDFORD

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers
May-28	71,031	8,303	24	83,271	9,396	24	62,872	7,575	24
Jun-28	71,048	8,297	20	83,298	9,386	20	62,882	7,572	20
Jul-28	70,943	8,290	20	83,129	9,374	20	62,819	7,567	20
Aug-28	71,072	8,288	20	83,335	9,370	20	62,896	7,566	20
Sep-28	70,983	8,300	20	83,194	9,390	20	62,843	7,573	20
Oct-28	71,379	8,313	20	83,828	9,412	20	63,080	7,581	20
Nov-28	71,738	8,331	20	84,402	9,439	20	63,296	7,592	20
Dec-28	72,227	8,335	20	85,183	9,447	20	63,589	7,594	20
Jan-29	71,882	8,461	20	84,633	9,648	20	63,382	7,670	20
Feb-29	71,772	8,472	20	84,455	9,665	20	63,316	7,676	20
Mar-29	71,960	8,392	20	84,757	9,538	20	63,429	7,629	20
Apr-29	71,983	8,418	20	84,793	9,580	20	63,443	7,644	20
May-29	72,181	8,412	24	85,110	9,570	24	63,561	7,641	24
Jun-29	72,198	8,406	20	85,138	9,560	20	63,572	7,637	20
Jul-29	72,091	8,399	20	84,967	9,548	20	63,507	7,632	20
Aug-29	72,222	8,396	20	85,176	9,544	20	63,586	7,631	20
Sep-29	72,132	8,409	20	85,032	9,564	20	63,532	7,638	20
Oct-29	72,535	8,422	20	85,676	9,586	20	63,774	7,647	20
Nov-29	72,899	8,440	20	86,260	9,614	20	63,992	7,657	20
Dec-29	73,396	8,445	20	87,054	9,622	20	64,290	7,660	20
Jan-30	73,032	8,571	21	86,472	9,823	21	64,072	7,736	21
Feb-30	72,919	8,582	21	86,291	9,841	21	64,004	7,742	21
Mar-30	73,111	8,501	21	86,598	9,712	21	64,119	7,694	21
Apr-30	73,134	8,528	21	86,635	9,755	21	64,133	7,710	21
May-30	73,335	8,521	24	86,957	9,744	24	64,254	7,706	24
Jun-30	73,352	8,515	21	86,985	9,734	21	64,264	7,702	21
Jul-30	73,244	8,508	21	86,811	9,722	21	64,199	7,698	21
Aug-30	73,377	8,505	21	87,023	9,718	21	64,279	7,696	21
Sep-30	73,285	8,518	21	86,877	9,738	21	64,224	7,704	21
Oct-30	73,694	8,532	21	87,532	9,761	21	64,469	7,712	21
Nov-30	74,065	8,549	21	88,124	9,789	21	64,692	7,723	21
Dec-30	74,569	8,554	21	88,931	9,797	21	64,994	7,726	21
Jan-31	74,168	8,679	21	88,290	9,997	21	64,754	7,801	21
Feb-31	74,054	8,691	21	88,106	10,015	21	64,685	7,808	21
Mar-31	74,248	8,609	21	88,418	9,884	21	64,802	7,759	21
Apr-31	74,272	8,636	21	88,455	9,927	21	64,816	7,775	21
May-31	74,476	8,629	24	88,782	9,917	24	64,938	7,771	24
Jun-31	74,494	8,623	21	88,811	9,907	21	64,949	7,767	21
Jul-31	74,383	8,615	21	88,634	9,895	21	64,883	7,762	21
Aug-31	74,518	8,613	21	88,850	9,891	21	64,964	7,761	21
Sep-31	74,425	8,626	21	88,702	9,911	21	64,908	7,769	21
Oct-31	74,841	8,640	21	89,366	9,934	21	65,157	7,777	21
Nov-31	75,217	8,657	21	89,968	9,962	21	65,383	7,788	21
Dec-31	75,729	8,663	21	90,788	9,970	21	65,690	7,791	21
Jan-32	75,277	8,785	21	90,064	10,166	21	65,419	7,864	21
Feb-32	75,161	8,797	21	89,878	10,185	21	65,349	7,871	21
Mar-32	75,359	8,714	21	90,194	10,053	21	65,468	7,822	21
Apr-32	75,382	8,741	21	90,232	10,096	21	65,482	7,838	21
May-32	75,589	8,735	24	90,564	10,086	24	65,606	7,834	24

APPENDIX 3.2 ▮▮ CUSTOMER FORECASTS BY REGION
MEDFORD

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers	Residential Medford Customers	Commercial Medford Customers	Industrial Medford Customers
Jun-32	75,607	8,728	21	90,593	10,075	21	65,617	7,830	21
Jul-32	75,495	8,721	21	90,414	10,063	21	65,550	7,826	21
Aug-32	75,632	8,718	21	90,633	10,059	21	65,632	7,824	21
Sep-32	75,538	8,731	21	90,482	10,080	21	65,576	7,832	21
Oct-32	75,960	8,745	21	91,157	10,102	21	65,829	7,840	21
Nov-32	76,342	8,763	21	91,768	10,131	21	66,058	7,851	21
Dec-32	76,862	8,768	21	92,599	10,140	21	66,370	7,854	21
Jan-33	76,373	8,890	21	91,818	10,334	21	66,077	7,927	21
Feb-33	76,255	8,902	21	91,630	10,353	21	66,006	7,934	21
Mar-33	76,456	8,818	21	91,951	10,219	21	66,126	7,884	21
Apr-33	76,480	8,845	21	91,989	10,263	21	66,141	7,900	21
May-33	76,690	8,839	24	92,325	10,252	24	66,267	7,897	24
Jun-33	76,709	8,832	21	92,355	10,242	21	66,278	7,893	21
Jul-33	76,595	8,824	21	92,173	10,229	21	66,210	7,888	21
Aug-33	76,734	8,822	21	92,395	10,225	21	66,293	7,886	21
Sep-33	76,638	8,835	21	92,242	10,246	21	66,236	7,894	21
Oct-33	77,066	8,849	21	92,927	10,269	21	66,493	7,903	21
Nov-33	77,454	8,868	21	93,547	10,298	21	66,725	7,914	21
Dec-33	77,981	8,873	21	94,391	10,307	21	67,041	7,917	21
Jan-34	77,475	8,995	21	93,580	10,502	21	66,738	7,990	21
Feb-34	77,355	9,007	21	93,389	10,522	21	66,666	7,997	21
Mar-34	77,559	8,922	21	93,715	10,386	21	66,788	7,947	21
Apr-34	77,583	8,950	21	93,753	10,430	21	66,802	7,963	21
May-34	77,796	8,944	24	94,095	10,420	24	66,931	7,959	24
Jun-34	77,815	8,937	21	94,124	10,409	21	66,942	7,955	21
Jul-34	77,700	8,929	21	93,940	10,397	21	66,873	7,951	21
Aug-34	77,840	8,926	21	94,165	10,392	21	66,957	7,949	21
Sep-34	77,744	8,940	21	94,011	10,413	21	66,899	7,957	21
Oct-34	78,178	8,954	21	94,705	10,437	21	67,159	7,966	21
Nov-34	78,570	8,973	21	95,334	10,466	21	67,395	7,977	21
Dec-34	79,106	8,978	21	96,190	10,475	21	67,716	7,980	21
Jan-35	78,583	9,101	21	95,354	10,672	21	67,403	8,054	21
Feb-35	78,462	9,113	21	95,160	10,691	21	67,330	8,061	21
Mar-35	78,668	9,027	21	95,490	10,554	21	67,454	8,010	21
Apr-35	78,693	9,056	21	95,529	10,599	21	67,468	8,027	21
May-35	78,909	9,049	24	95,875	10,588	24	67,598	8,022	24
Jun-35	78,928	9,042	21	95,906	10,578	21	67,610	8,018	21
Jul-35	78,811	9,034	21	95,718	10,565	21	67,539	8,014	21
Aug-35	78,954	9,031	21	95,947	10,560	21	67,625	8,012	21
Sep-35	78,856	9,045	21	95,790	10,582	21	67,566	8,020	21
Oct-35	79,296	9,060	21	96,494	10,605	21	67,830	8,029	21
Nov-35	79,694	9,078	21	97,132	10,635	21	68,069	8,040	21
Dec-35	80,237	9,084	21	98,000	10,644	21	68,395	8,043	21

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
ROSEBURG

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers
Jan-12	13,266	2,150	3	13,405	2,161	3	13,173	2,143	3
Feb-12	13,303	2,148	3	13,464	2,158	3	13,195	2,142	3
Mar-12	13,294	2,158	3	13,450	2,174	3	13,190	2,148	3
Apr-12	13,284	2,140	3	13,434	2,145	3	13,184	2,137	3
May-12	13,258	2,141	3	13,392	2,146	3	13,168	2,137	3
Jun-12	13,235	2,142	3	13,356	2,148	3	13,155	2,138	3
Jul-12	13,176	2,145	3	13,261	2,153	3	13,119	2,140	3
Aug-12	13,170	2,147	3	13,252	2,156	3	13,116	2,141	3
Sep-12	13,155	2,151	3	13,228	2,162	3	13,107	2,143	3
Oct-12	13,184	2,152	3	13,274	2,164	3	13,124	2,144	3
Nov-12	13,291	2,152	3	13,445	2,164	3	13,188	2,144	3
Dec-12	13,382	2,159	3	13,591	2,175	3	13,243	2,148	3
Jan-13	13,416	2,175	3	13,645	2,201	3	13,263	2,158	3
Feb-13	13,453	2,173	3	13,704	2,198	3	13,285	2,157	3
Mar-13	13,469	2,183	3	13,730	2,214	3	13,295	2,163	3
Apr-13	13,459	2,165	3	13,714	2,185	3	13,289	2,152	3
May-13	13,458	2,166	3	13,712	2,186	3	13,288	2,152	3
Jun-13	13,485	2,167	3	13,756	2,188	3	13,305	2,153	3
Jul-13	13,426	2,170	3	13,661	2,193	3	13,269	2,155	3
Aug-13	13,420	2,172	3	13,652	2,196	3	13,266	2,156	3
Sep-13	13,430	2,176	3	13,668	2,202	3	13,272	2,158	3
Oct-13	13,459	2,177	3	13,714	2,204	3	13,289	2,159	3
Nov-13	13,566	2,177	3	13,885	2,204	3	13,353	2,159	3
Dec-13	13,657	2,184	3	14,031	2,215	3	13,408	2,163	3
Jan-14	13,716	2,205	3	14,125	2,249	3	13,443	2,176	3
Feb-14	13,753	2,203	3	14,184	2,246	3	13,465	2,175	3
Mar-14	13,769	2,213	3	14,210	2,262	3	13,475	2,181	3
Apr-14	13,759	2,195	3	14,194	2,233	3	13,469	2,170	3
May-14	13,758	2,196	3	14,192	2,234	3	13,468	2,170	3
Jun-14	13,785	2,197	3	14,236	2,236	3	13,485	2,171	3
Jul-14	13,726	2,200	3	14,141	2,241	3	13,449	2,173	3
Aug-14	13,720	2,202	3	14,132	2,244	3	13,446	2,174	3
Sep-14	13,730	2,206	3	14,148	2,250	3	13,452	2,176	3
Oct-14	13,759	2,207	3	14,194	2,252	3	13,469	2,177	3
Nov-14	13,866	2,207	3	14,365	2,252	3	13,533	2,177	3
Dec-14	13,957	2,214	3	14,511	2,263	3	13,588	2,181	3
Jan-15	14,041	2,235	3	14,645	2,297	3	13,638	2,194	3
Feb-15	14,078	2,233	3	14,704	2,294	3	13,660	2,193	3
Mar-15	14,094	2,243	3	14,730	2,310	3	13,670	2,199	3
Apr-15	14,084	2,225	3	14,714	2,281	3	13,664	2,188	3
May-15	14,083	2,226	3	14,712	2,282	3	13,663	2,188	3
Jun-15	14,110	2,227	3	14,756	2,284	3	13,680	2,189	3
Jul-15	14,051	2,230	3	14,661	2,289	3	13,644	2,191	3
Aug-15	14,045	2,232	3	14,652	2,292	3	13,641	2,192	3
Sep-15	14,055	2,236	3	14,668	2,298	3	13,647	2,194	3
Oct-15	14,084	2,237	3	14,714	2,300	3	13,664	2,195	3
Nov-15	14,191	2,237	3	14,885	2,300	3	13,728	2,195	3
Dec-15	14,282	2,244	3	15,031	2,311	3	13,783	2,199	3
Jan-16	14,373	2,260	3	15,177	2,336	3	13,838	2,209	3

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
ROSEBURG

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Roseburg	Roseburg	Roseburg	Roseburg	Roseburg	Roseburg	Roseburg	Roseburg	Roseburg
Feb-16	14,411	2,258	3	15,238	2,333	3	13,860	2,207	3
Mar-16	14,428	2,268	3	15,264	2,349	3	13,870	2,213	3
Apr-16	14,417	2,250	3	15,247	2,320	3	13,864	2,203	3
May-16	14,416	2,251	3	15,246	2,322	3	13,863	2,203	3
Jun-16	14,444	2,252	3	15,290	2,323	3	13,880	2,204	3
Jul-16	14,384	2,255	3	15,193	2,328	3	13,844	2,206	3
Aug-16	14,377	2,257	3	15,183	2,331	3	13,840	2,207	3
Sep-16	14,388	2,261	3	15,200	2,338	3	13,846	2,209	3
Oct-16	14,417	2,262	3	15,247	2,340	3	13,864	2,210	3
Nov-16	14,527	2,262	3	15,423	2,340	3	13,930	2,210	3
Dec-16	14,620	2,269	3	15,572	2,351	3	13,986	2,214	3
Jan-17	14,683	2,283	3	15,673	2,373	3	14,023	2,222	3
Feb-17	14,722	2,281	3	15,735	2,370	3	14,047	2,221	3
Mar-17	14,739	2,291	3	15,761	2,386	3	14,057	2,227	3
Apr-17	14,728	2,273	3	15,745	2,357	3	14,050	2,216	3
May-17	14,727	2,274	3	15,743	2,358	3	14,050	2,217	3
Jun-17	14,755	2,275	3	15,788	2,360	3	14,067	2,218	3
Jul-17	14,694	2,278	3	15,689	2,365	3	14,030	2,219	3
Aug-17	14,687	2,280	3	15,679	2,368	3	14,026	2,221	3
Sep-17	14,698	2,284	3	15,696	2,375	3	14,032	2,223	3
Oct-17	14,728	2,285	3	15,745	2,376	3	14,050	2,224	3
Nov-17	14,840	2,285	3	15,924	2,376	3	14,118	2,224	3
Dec-17	14,935	2,292	3	16,076	2,388	3	14,175	2,228	3
Jan-18	14,971	2,304	3	16,133	2,407	3	14,196	2,235	3
Feb-18	15,010	2,302	3	16,196	2,404	3	14,220	2,234	3
Mar-18	15,027	2,312	3	16,224	2,421	3	14,230	2,240	3
Apr-18	15,017	2,294	3	16,206	2,391	3	14,224	2,229	3
May-18	15,016	2,295	3	16,205	2,393	3	14,223	2,230	3
Jun-18	15,045	2,296	3	16,251	2,394	3	14,240	2,230	3
Jul-18	14,982	2,299	3	16,150	2,399	3	14,203	2,232	3
Aug-18	14,975	2,301	3	16,140	2,402	3	14,199	2,233	3
Sep-18	14,986	2,305	3	16,157	2,409	3	14,205	2,236	3
Oct-18	15,017	2,306	3	16,206	2,411	3	14,224	2,237	3
Nov-18	15,131	2,306	3	16,389	2,411	3	14,292	2,237	3
Dec-18	15,228	2,313	3	16,544	2,422	3	14,350	2,241	3
Jan-19	15,259	2,326	3	16,594	2,442	3	14,369	2,248	3
Feb-19	15,299	2,323	3	16,658	2,438	3	14,393	2,247	3
Mar-19	15,317	2,334	3	16,686	2,455	3	14,404	2,253	3
Apr-19	15,306	2,315	3	16,669	2,425	3	14,397	2,242	3
May-19	15,305	2,316	3	16,667	2,427	3	14,396	2,243	3
Jun-19	15,334	2,317	3	16,714	2,428	3	14,414	2,243	3
Jul-19	15,270	2,320	3	16,611	2,433	3	14,376	2,245	3
Aug-19	15,263	2,322	3	16,601	2,437	3	14,372	2,246	3
Sep-19	15,274	2,327	3	16,618	2,443	3	14,378	2,249	3
Oct-19	15,306	2,328	3	16,669	2,445	3	14,397	2,249	3
Nov-19	15,422	2,328	3	16,855	2,445	3	14,467	2,249	3
Dec-19	15,521	2,335	3	17,013	2,457	3	14,526	2,254	3
Jan-20	15,549	2,347	3	17,058	2,476	3	14,543	2,261	3
Feb-20	15,590	2,345	3	17,124	2,473	3	14,568	2,260	3
Mar-20	15,608	2,356	3	17,152	2,490	3	14,578	2,266	3

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
ROSEBURG

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers
Apr-20	15,597	2,337	3	17,134	2,459	3	14,572	2,255	3
May-20	15,596	2,338	3	17,133	2,461	3	14,571	2,255	3
Jun-20	15,626	2,339	3	17,181	2,463	3	14,589	2,256	3
Jul-20	15,560	2,342	3	17,076	2,468	3	14,550	2,258	3
Aug-20	15,554	2,344	3	17,065	2,471	3	14,546	2,259	3
Sep-20	15,565	2,348	3	17,083	2,478	3	14,552	2,262	3
Oct-20	15,597	2,349	3	17,134	2,480	3	14,572	2,262	3
Nov-20	15,715	2,349	3	17,324	2,480	3	14,643	2,262	3
Dec-20	15,816	2,357	3	17,485	2,491	3	14,703	2,267	3
Jan-21	15,836	2,368	4	17,517	2,510	4	14,715	2,274	4
Feb-21	15,878	2,366	4	17,584	2,507	4	14,740	2,273	4
Mar-21	15,896	2,377	4	17,613	2,524	4	14,751	2,279	4
Apr-21	15,884	2,358	4	17,595	2,493	4	14,744	2,268	4
May-21	15,883	2,359	4	17,593	2,495	4	14,744	2,268	4
Jun-21	15,914	2,360	4	17,642	2,497	4	14,762	2,269	4
Jul-21	15,847	2,363	4	17,535	2,502	4	14,722	2,271	4
Aug-21	15,840	2,365	4	17,524	2,505	4	14,718	2,272	4
Sep-21	15,852	2,369	4	17,542	2,512	4	14,725	2,274	4
Oct-21	15,884	2,371	4	17,595	2,514	4	14,744	2,275	4
Nov-21	16,005	2,371	4	17,788	2,514	4	14,817	2,275	4
Dec-21	16,108	2,378	4	17,952	2,526	4	14,878	2,280	4
Jan-22	16,121	2,390	4	17,974	2,544	4	14,886	2,287	4
Feb-22	16,164	2,388	4	18,042	2,541	4	14,912	2,285	4
Mar-22	16,182	2,398	4	18,071	2,558	4	14,923	2,292	4
Apr-22	16,171	2,379	4	18,053	2,527	4	14,916	2,280	4
May-22	16,170	2,380	4	18,051	2,529	4	14,915	2,281	4
Jun-22	16,201	2,381	4	18,101	2,531	4	14,934	2,281	4
Jul-22	16,133	2,384	4	17,992	2,536	4	14,893	2,283	4
Aug-22	16,126	2,386	4	17,981	2,539	4	14,889	2,285	4
Sep-22	16,137	2,391	4	18,000	2,546	4	14,896	2,287	4
Oct-22	16,171	2,392	4	18,053	2,548	4	14,916	2,288	4
Nov-22	16,294	2,392	4	18,249	2,548	4	14,990	2,288	4
Dec-22	16,398	2,399	4	18,417	2,560	4	15,052	2,292	4
Jan-23	16,409	2,411	4	18,434	2,578	4	15,059	2,299	4
Feb-23	16,452	2,409	4	18,503	2,575	4	15,085	2,298	4
Mar-23	16,471	2,420	4	18,533	2,592	4	15,096	2,305	4
Apr-23	16,459	2,400	4	18,514	2,561	4	15,089	2,293	4
May-23	16,458	2,401	4	18,512	2,563	4	15,088	2,294	4
Jun-23	16,490	2,402	4	18,563	2,565	4	15,107	2,294	4
Jul-23	16,421	2,406	4	18,453	2,570	4	15,066	2,296	4
Aug-23	16,414	2,408	4	18,441	2,573	4	15,062	2,297	4
Sep-23	16,425	2,412	4	18,460	2,580	4	15,069	2,300	4
Oct-23	16,459	2,413	4	18,514	2,582	4	15,089	2,301	4
Nov-23	16,584	2,413	4	18,714	2,582	4	15,164	2,301	4
Dec-23	16,691	2,421	4	18,885	2,594	4	15,228	2,305	4
Jan-24	16,701	2,433	4	18,902	2,613	4	15,234	2,312	4
Feb-24	16,745	2,431	4	18,972	2,610	4	15,261	2,311	4
Mar-24	16,764	2,441	4	19,002	2,627	4	15,272	2,318	4
Apr-24	16,752	2,422	4	18,983	2,596	4	15,265	2,306	4
May-24	16,751	2,423	4	18,982	2,598	4	15,264	2,307	4

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
ROSEBURG

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers
Jun-24	16,783	2,424	4	19,033	2,599	4	15,284	2,307	4
Jul-24	16,713	2,427	4	18,921	2,605	4	15,241	2,309	4
Aug-24	16,706	2,429	4	18,909	2,608	4	15,237	2,310	4
Sep-24	16,718	2,434	4	18,928	2,615	4	15,244	2,313	4
Oct-24	16,752	2,435	4	18,983	2,617	4	15,265	2,314	4
Nov-24	16,880	2,435	4	19,187	2,617	4	15,341	2,314	4
Dec-24	16,988	2,443	4	19,360	2,629	4	15,406	2,318	4
Jan-25	16,996	2,455	4	19,374	2,648	4	15,411	2,326	4
Feb-25	17,041	2,453	4	19,445	2,645	4	15,438	2,324	4
Mar-25	17,061	2,463	4	19,476	2,662	4	15,450	2,331	4
Apr-25	17,048	2,444	4	19,457	2,631	4	15,443	2,319	4
May-25	17,047	2,445	4	19,455	2,633	4	15,442	2,320	4
Jun-25	17,080	2,446	4	19,507	2,634	4	15,462	2,320	4
Jul-25	17,008	2,449	4	19,393	2,640	4	15,419	2,322	4
Aug-25	17,001	2,451	4	19,382	2,643	4	15,414	2,324	4
Sep-25	17,013	2,456	4	19,401	2,650	4	15,422	2,326	4
Oct-25	17,048	2,457	4	19,457	2,652	4	15,443	2,327	4
Nov-25	17,178	2,457	4	19,664	2,652	4	15,520	2,327	4
Dec-25	17,288	2,465	4	19,841	2,664	4	15,586	2,332	4
Jan-26	17,296	2,477	4	19,853	2,684	4	15,591	2,339	4
Feb-26	17,341	2,475	4	19,926	2,680	4	15,618	2,338	4
Mar-26	17,361	2,486	4	19,957	2,698	4	15,630	2,344	4
Apr-26	17,349	2,466	4	19,938	2,666	4	15,623	2,332	4
May-26	17,347	2,467	4	19,936	2,668	4	15,622	2,333	4
Jun-26	17,381	2,468	4	19,989	2,670	4	15,642	2,334	4
Jul-26	17,308	2,471	4	19,872	2,675	4	15,598	2,336	4
Aug-26	17,301	2,474	4	19,861	2,679	4	15,594	2,337	4
Sep-26	17,313	2,478	4	19,880	2,686	4	15,601	2,340	4
Oct-26	17,349	2,479	4	19,938	2,687	4	15,623	2,340	4
Nov-26	17,480	2,479	4	20,148	2,687	4	15,702	2,340	4
Dec-26	17,593	2,487	4	20,328	2,700	4	15,769	2,345	4
Jan-27	17,602	2,500	4	20,342	2,720	4	15,775	2,353	4
Feb-27	17,648	2,497	4	20,416	2,717	4	15,802	2,351	4
Mar-27	17,668	2,509	4	20,448	2,735	4	15,814	2,358	4
Apr-27	17,656	2,489	4	20,428	2,702	4	15,807	2,346	4
May-27	17,654	2,490	4	20,426	2,704	4	15,806	2,347	4
Jun-27	17,688	2,491	4	20,481	2,706	4	15,826	2,347	4
Jul-27	17,614	2,494	4	20,362	2,711	4	15,782	2,349	4
Aug-27	17,607	2,496	4	20,350	2,715	4	15,778	2,351	4
Sep-27	17,619	2,501	4	20,370	2,722	4	15,785	2,353	4
Oct-27	17,656	2,502	4	20,428	2,724	4	15,807	2,354	4
Nov-27	17,790	2,502	4	20,643	2,724	4	15,887	2,354	4
Dec-27	17,904	2,510	4	20,826	2,736	4	15,956	2,359	4
Jan-28	17,832	2,517	4	20,710	2,748	4	15,913	2,363	4
Feb-28	17,879	2,515	4	20,785	2,744	4	15,941	2,362	4
Mar-28	17,899	2,526	4	20,818	2,762	4	15,953	2,368	4
Apr-28	17,886	2,506	4	20,797	2,730	4	15,945	2,356	4
May-28	17,885	2,507	4	20,795	2,731	4	15,945	2,357	4
Jun-28	17,919	2,508	4	20,850	2,733	4	15,965	2,357	4
Jul-28	17,844	2,511	4	20,730	2,739	4	15,920	2,359	4

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
ROSEBURG

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers
Aug-28	17,837	2,513	4	20,718	2,742	4	15,916	2,361	4
Sep-28	17,849	2,518	4	20,739	2,749	4	15,923	2,364	4
Oct-28	17,886	2,519	4	20,797	2,751	4	15,945	2,364	4
Nov-28	18,022	2,519	4	21,015	2,751	4	16,027	2,364	4
Dec-28	18,138	2,527	4	21,200	2,764	4	16,096	2,369	4
Jan-29	18,058	2,534	4	21,072	2,775	4	16,048	2,373	4
Feb-29	18,105	2,531	4	21,148	2,771	4	16,077	2,372	4
Mar-29	18,126	2,543	4	21,181	2,789	4	16,089	2,378	4
Apr-29	18,113	2,522	4	21,160	2,756	4	16,081	2,366	4
May-29	18,112	2,523	4	21,158	2,758	4	16,081	2,367	4
Jun-29	18,146	2,525	4	21,214	2,760	4	16,101	2,368	4
Jul-29	18,070	2,528	4	21,092	2,765	4	16,056	2,370	4
Aug-29	18,063	2,530	4	21,080	2,769	4	16,051	2,371	4
Sep-29	18,076	2,535	4	21,101	2,776	4	16,059	2,374	4
Oct-29	18,113	2,536	4	21,160	2,778	4	16,081	2,374	4
Nov-29	18,250	2,536	4	21,380	2,778	4	16,164	2,374	4
Dec-29	18,368	2,544	4	21,568	2,791	4	16,234	2,379	4
Jan-30	18,285	2,550	5	21,435	2,802	5	16,184	2,383	5
Feb-30	18,333	2,548	5	21,512	2,798	5	16,213	2,382	5
Mar-30	18,354	2,560	5	21,545	2,816	5	16,226	2,389	5
Apr-30	18,341	2,539	5	21,525	2,783	5	16,218	2,376	5
May-30	18,339	2,540	5	21,523	2,785	5	16,217	2,377	5
Jun-30	18,375	2,541	5	21,579	2,787	5	16,238	2,378	5
Jul-30	18,298	2,545	5	21,456	2,792	5	16,192	2,380	5
Aug-30	18,290	2,547	5	21,443	2,796	5	16,188	2,381	5
Sep-30	18,303	2,552	5	21,464	2,803	5	16,195	2,384	5
Oct-30	18,341	2,553	5	21,525	2,805	5	16,218	2,384	5
Nov-30	18,480	2,553	5	21,748	2,805	5	16,302	2,384	5
Dec-30	18,599	2,561	5	21,937	2,818	5	16,373	2,389	5
Jan-31	18,512	2,567	5	21,799	2,829	5	16,321	2,393	5
Feb-31	18,561	2,565	5	21,877	2,825	5	16,350	2,392	5
Mar-31	18,582	2,577	5	21,911	2,843	5	16,363	2,399	5
Apr-31	18,569	2,556	5	21,890	2,810	5	16,355	2,386	5
May-31	18,567	2,557	5	21,887	2,812	5	16,354	2,387	5
Jun-31	18,603	2,558	5	21,944	2,814	5	16,375	2,388	5
Jul-31	18,525	2,562	5	21,820	2,819	5	16,329	2,390	5
Aug-31	18,517	2,564	5	21,807	2,823	5	16,324	2,391	5
Sep-31	18,530	2,569	5	21,828	2,830	5	16,332	2,394	5
Oct-31	18,569	2,570	5	21,890	2,832	5	16,355	2,395	5
Nov-31	18,710	2,570	5	22,115	2,832	5	16,439	2,395	5
Dec-31	18,830	2,578	5	22,307	2,845	5	16,511	2,399	5
Jan-32	18,735	2,584	5	22,156	2,855	5	16,455	2,403	5
Feb-32	18,785	2,582	5	22,235	2,851	5	16,484	2,402	5
Mar-32	18,806	2,593	5	22,269	2,870	5	16,497	2,409	5
Apr-32	18,793	2,572	5	22,248	2,837	5	16,489	2,396	5
May-32	18,791	2,574	5	22,246	2,838	5	16,488	2,397	5
Jun-32	18,827	2,575	5	22,303	2,840	5	16,510	2,398	5
Jul-32	18,749	2,578	5	22,177	2,846	5	16,463	2,400	5
Aug-32	18,740	2,580	5	22,164	2,850	5	16,458	2,401	5
Sep-32	18,754	2,585	5	22,186	2,857	5	16,466	2,404	5

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
ROSEBURG

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers	Residential Roseburg Customers	Commercial Roseburg Customers	Industrial Roseburg Customers
Oct-32	18,793	2,586	5	22,248	2,859	5	16,489	2,405	5
Nov-32	18,935	2,586	5	22,476	2,859	5	16,575	2,405	5
Dec-32	19,057	2,594	5	22,670	2,872	5	16,648	2,409	5
Jan-33	18,963	2,601	5	22,520	2,882	5	16,591	2,413	5
Feb-33	19,013	2,599	5	22,600	2,878	5	16,621	2,412	5
Mar-33	19,034	2,610	5	22,635	2,897	5	16,634	2,419	5
Apr-33	19,021	2,589	5	22,613	2,864	5	16,626	2,406	5
May-33	19,019	2,590	5	22,611	2,865	5	16,625	2,407	5
Jun-33	19,056	2,592	5	22,669	2,867	5	16,647	2,408	5
Jul-33	18,976	2,595	5	22,542	2,873	5	16,599	2,410	5
Aug-33	18,968	2,597	5	22,529	2,877	5	16,594	2,411	5
Sep-33	18,982	2,602	5	22,550	2,884	5	16,603	2,414	5
Oct-33	19,021	2,603	5	22,613	2,886	5	16,626	2,415	5
Nov-33	19,165	2,603	5	22,844	2,886	5	16,713	2,415	5
Dec-33	19,288	2,611	5	23,041	2,899	5	16,787	2,420	5
Jan-34	19,191	2,618	5	22,885	2,909	5	16,728	2,424	5
Feb-34	19,242	2,616	5	22,966	2,906	5	16,759	2,422	5
Mar-34	19,264	2,627	5	23,001	2,924	5	16,772	2,429	5
Apr-34	19,250	2,606	5	22,979	2,891	5	16,764	2,416	5
May-34	19,249	2,607	5	22,977	2,893	5	16,763	2,417	5
Jun-34	19,285	2,608	5	23,036	2,894	5	16,785	2,418	5
Jul-34	19,205	2,612	5	22,907	2,900	5	16,736	2,420	5
Aug-34	19,197	2,614	5	22,894	2,904	5	16,732	2,421	5
Sep-34	19,210	2,619	5	22,916	2,911	5	16,740	2,424	5
Oct-34	19,250	2,620	5	22,979	2,913	5	16,764	2,425	5
Nov-34	19,396	2,620	5	23,213	2,913	5	16,851	2,425	5
Dec-34	19,521	2,628	5	23,412	2,926	5	16,926	2,430	5
Jan-35	19,418	2,635	5	23,249	2,936	5	16,865	2,434	5
Feb-35	19,469	2,632	5	23,331	2,933	5	16,895	2,432	5
Mar-35	19,492	2,644	5	23,366	2,951	5	16,909	2,439	5
Apr-35	19,478	2,623	5	23,344	2,918	5	16,900	2,427	5
May-35	19,476	2,624	5	23,342	2,919	5	16,899	2,427	5
Jun-35	19,514	2,625	5	23,401	2,921	5	16,922	2,428	5
Jul-35	19,432	2,629	5	23,271	2,927	5	16,873	2,430	5
Aug-35	19,424	2,631	5	23,258	2,931	5	16,868	2,432	5
Sep-35	19,438	2,636	5	23,280	2,938	5	16,876	2,434	5
Oct-35	19,478	2,637	5	23,344	2,940	5	16,900	2,435	5
Nov-35	19,626	2,637	5	23,581	2,940	5	16,989	2,435	5
Dec-35	19,752	2,645	5	23,782	2,953	5	17,065	2,440	5

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
KLAMATH FALLS

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers
Jan-12	14,147	1,668	7	14,317	1,678	7	14,034	1,662	7
Feb-12	14,137	1,675	8	14,301	1,689	8	14,028	1,666	8
Mar-12	14,169	1,666	6	14,352	1,674	6	14,047	1,660	6
Apr-12	14,126	1,671	7	14,283	1,682	7	14,021	1,663	7
May-12	14,139	1,669	7	14,304	1,679	7	14,029	1,662	7
Jun-12	14,054	1,663	7	14,168	1,670	7	13,978	1,659	7
Jul-12	14,008	1,663	7	14,094	1,670	7	13,950	1,659	7
Aug-12	13,904	1,665	7	13,928	1,673	7	13,888	1,660	7
Sep-12	13,910	1,671	7	13,938	1,682	7	13,892	1,663	7
Oct-12	14,014	1,672	7	14,104	1,684	7	13,954	1,664	7
Nov-12	14,179	1,675	7	14,368	1,689	7	14,053	1,666	7
Dec-12	14,296	1,679	7	14,555	1,695	7	14,123	1,668	7
Jan-13	14,297	1,693	7	14,557	1,718	7	14,124	1,677	7
Feb-13	14,287	1,700	8	14,541	1,729	8	14,118	1,681	8
Mar-13	14,319	1,691	6	14,592	1,714	6	14,137	1,675	6
Apr-13	14,276	1,696	7	14,523	1,722	7	14,111	1,678	7
May-13	14,289	1,694	7	14,544	1,719	7	14,119	1,677	7
Jun-13	14,229	1,688	7	14,448	1,710	7	14,083	1,674	7
Jul-13	14,183	1,688	7	14,374	1,710	7	14,055	1,674	7
Aug-13	14,079	1,690	7	14,208	1,713	7	13,993	1,675	7
Sep-13	14,085	1,696	7	14,218	1,722	7	13,997	1,678	7
Oct-13	14,214	1,697	7	14,424	1,724	7	14,074	1,679	7
Nov-13	14,404	1,700	7	14,728	1,729	7	14,188	1,681	7
Dec-13	14,521	1,704	7	14,915	1,735	7	14,258	1,683	7
Jan-14	14,547	1,723	7	14,957	1,766	7	14,274	1,695	7
Feb-14	14,537	1,730	8	14,941	1,777	8	14,268	1,699	8
Mar-14	14,569	1,721	6	14,992	1,762	6	14,287	1,693	6
Apr-14	14,526	1,726	7	14,923	1,770	7	14,261	1,696	7
May-14	14,539	1,724	7	14,944	1,767	7	14,269	1,695	7
Jun-14	14,479	1,718	7	14,848	1,758	7	14,233	1,692	7
Jul-14	14,433	1,718	7	14,774	1,758	7	14,205	1,692	7
Aug-14	14,329	1,720	7	14,608	1,761	7	14,143	1,693	7
Sep-14	14,335	1,726	7	14,618	1,770	7	14,147	1,696	7
Oct-14	14,464	1,727	7	14,824	1,772	7	14,224	1,697	7
Nov-14	14,654	1,730	7	15,128	1,777	7	14,338	1,699	7
Dec-14	14,771	1,734	7	15,315	1,783	7	14,408	1,701	7
Jan-15	14,822	1,753	7	15,397	1,814	7	14,439	1,713	7
Feb-15	14,812	1,760	8	15,381	1,825	8	14,433	1,717	8
Mar-15	14,844	1,751	6	15,432	1,810	6	14,452	1,711	6
Apr-15	14,801	1,756	7	15,363	1,818	7	14,426	1,714	7
May-15	14,814	1,754	7	15,384	1,815	7	14,434	1,713	7
Jun-15	14,754	1,748	7	15,288	1,806	7	14,398	1,710	7
Jul-15	14,708	1,748	7	15,214	1,806	7	14,370	1,710	7
Aug-15	14,604	1,750	7	15,048	1,809	7	14,308	1,711	7
Sep-15	14,610	1,756	7	15,058	1,818	7	14,312	1,714	7
Oct-15	14,739	1,757	7	15,264	1,820	7	14,389	1,715	7
Nov-15	14,929	1,760	7	15,568	1,825	7	14,503	1,717	7
Dec-15	15,046	1,764	7	15,755	1,831	7	14,573	1,719	7

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
KLAMATH FALLS

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers
Jan-16	15,091	1,778	7	15,827	1,854	7	14,600	1,728	7
Feb-16	15,081	1,785	8	15,811	1,865	8	14,594	1,732	8
Mar-16	15,113	1,776	6	15,863	1,851	6	14,614	1,727	6
Apr-16	15,070	1,781	7	15,793	1,859	7	14,587	1,730	7
May-16	15,083	1,779	7	15,814	1,856	7	14,595	1,728	7
Jun-16	15,022	1,773	7	15,716	1,846	7	14,559	1,725	7
Jul-16	14,975	1,773	7	15,641	1,846	7	14,531	1,725	7
Aug-16	14,869	1,775	7	15,472	1,849	7	14,467	1,726	7
Sep-16	14,875	1,781	7	15,482	1,859	7	14,471	1,730	7
Oct-16	15,006	1,782	7	15,692	1,861	7	14,549	1,730	7
Nov-16	15,200	1,785	7	16,001	1,865	7	14,666	1,732	7
Dec-16	15,319	1,789	7	16,192	1,872	7	14,737	1,734	7
Jan-17	15,345	1,802	7	16,234	1,892	7	14,753	1,742	7
Feb-17	15,335	1,809	8	16,217	1,904	8	14,746	1,746	8
Mar-17	15,368	1,800	6	16,270	1,889	6	14,766	1,741	6
Apr-17	15,323	1,805	7	16,199	1,897	7	14,740	1,744	7
May-17	15,337	1,803	7	16,220	1,894	7	14,748	1,743	7
Jun-17	15,275	1,797	7	16,121	1,884	7	14,710	1,739	7
Jul-17	15,227	1,797	7	16,045	1,884	7	14,682	1,739	7
Aug-17	15,119	1,799	7	15,873	1,887	7	14,617	1,740	7
Sep-17	15,126	1,805	7	15,882	1,897	7	14,621	1,744	7
Oct-17	15,259	1,806	7	16,096	1,899	7	14,701	1,745	7
Nov-17	15,456	1,809	7	16,411	1,904	7	14,819	1,746	7
Dec-17	15,577	1,813	7	16,605	1,910	7	14,892	1,749	7
Jan-18	15,587	1,825	7	16,620	1,929	7	14,898	1,756	7
Feb-18	15,576	1,832	8	16,604	1,940	8	14,891	1,760	8
Mar-18	15,610	1,823	6	16,657	1,925	6	14,912	1,754	6
Apr-18	15,565	1,828	7	16,585	1,934	7	14,884	1,758	7
May-18	15,578	1,826	7	16,607	1,930	7	14,893	1,756	7
Jun-18	15,515	1,820	7	16,506	1,920	7	14,855	1,753	7
Jul-18	15,467	1,820	7	16,429	1,920	7	14,826	1,753	7
Aug-18	15,358	1,822	7	16,254	1,924	7	14,760	1,754	7
Sep-18	15,364	1,828	7	16,264	1,934	7	14,764	1,758	7
Oct-18	15,499	1,829	7	16,481	1,935	7	14,845	1,758	7
Nov-18	15,699	1,832	7	16,800	1,940	7	14,965	1,760	7
Dec-18	15,822	1,836	7	16,997	1,947	7	15,039	1,763	7
Jan-19	15,828	1,847	7	17,006	1,965	7	15,042	1,769	7
Feb-19	15,817	1,855	8	16,989	1,977	8	15,036	1,774	8
Mar-19	15,851	1,845	6	17,044	1,961	6	15,056	1,768	6
Apr-19	15,806	1,851	7	16,970	1,970	7	15,029	1,771	7
May-19	15,819	1,849	7	16,993	1,966	7	15,037	1,770	7
Jun-19	15,755	1,842	7	16,890	1,956	7	14,999	1,766	7
Jul-19	15,706	1,842	7	16,812	1,956	7	14,969	1,766	7
Aug-19	15,595	1,844	7	16,634	1,960	7	14,903	1,767	7
Sep-19	15,602	1,851	7	16,644	1,970	7	14,907	1,771	7
Oct-19	15,739	1,852	7	16,865	1,972	7	14,989	1,772	7
Nov-19	15,942	1,855	7	17,189	1,977	7	15,111	1,774	7
Dec-19	16,067	1,859	7	17,389	1,983	7	15,186	1,776	7

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
KLAMATH FALLS

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers
Jan-20	16,068	1,870	7	17,391	2,001	7	15,186	1,783	7
Feb-20	16,057	1,878	8	17,373	2,013	8	15,180	1,787	8
Mar-20	16,092	1,868	6	17,429	1,997	6	15,201	1,782	6
Apr-20	16,045	1,873	7	17,354	2,006	7	15,173	1,785	7
May-20	16,059	1,871	7	17,377	2,003	7	15,181	1,783	7
Jun-20	15,994	1,865	7	17,273	1,992	7	15,142	1,780	7
Jul-20	15,945	1,865	7	17,193	1,992	7	15,112	1,780	7
Aug-20	15,832	1,867	7	17,012	1,996	7	15,045	1,781	7
Sep-20	15,838	1,873	7	17,023	2,006	7	15,049	1,785	7
Oct-20	15,978	1,874	7	17,247	2,008	7	15,132	1,785	7
Nov-20	16,184	1,878	7	17,576	2,013	7	15,256	1,787	7
Dec-20	16,311	1,882	7	17,779	2,020	7	15,332	1,790	7
Jan-21	16,306	1,892	7	17,771	2,037	7	15,329	1,796	7
Feb-21	16,295	1,900	8	17,753	2,049	8	15,323	1,801	8
Mar-21	16,330	1,890	6	17,810	2,033	6	15,344	1,795	6
Apr-21	16,283	1,896	7	17,734	2,042	7	15,315	1,798	7
May-21	16,297	1,893	7	17,757	2,038	7	15,324	1,797	7
Jun-21	16,231	1,887	7	17,651	2,028	7	15,284	1,793	7
Jul-21	16,180	1,887	7	17,570	2,028	7	15,254	1,793	7
Aug-21	16,066	1,889	7	17,387	2,031	7	15,185	1,794	7
Sep-21	16,073	1,896	7	17,398	2,042	7	15,189	1,798	7
Oct-21	16,215	1,897	7	17,625	2,044	7	15,274	1,799	7
Nov-21	16,424	1,900	7	17,959	2,049	7	15,400	1,801	7
Dec-21	16,552	1,904	7	18,165	2,056	7	15,477	1,803	7
Jan-22	16,542	1,915	7	18,148	2,072	7	15,471	1,810	7
Feb-22	16,530	1,922	8	18,130	2,084	8	15,464	1,814	8
Mar-22	16,566	1,912	6	18,187	2,069	6	15,485	1,808	6
Apr-22	16,518	1,918	7	18,111	2,077	7	15,456	1,811	7
May-22	16,533	1,916	7	18,134	2,074	7	15,465	1,810	7
Jun-22	16,466	1,909	7	18,027	2,063	7	15,425	1,806	7
Jul-22	16,414	1,909	7	17,945	2,063	7	15,394	1,806	7
Aug-22	16,298	1,911	7	17,759	2,067	7	15,325	1,808	7
Sep-22	16,305	1,918	7	17,770	2,077	7	15,329	1,811	7
Oct-22	16,449	1,919	7	18,000	2,079	7	15,415	1,812	7
Nov-22	16,661	1,922	7	18,339	2,084	7	15,542	1,814	7
Dec-22	16,792	1,927	7	18,548	2,091	7	15,621	1,817	7
Jan-23	16,777	1,937	7	18,525	2,107	7	15,612	1,823	7
Feb-23	16,766	1,944	8	18,507	2,120	8	15,605	1,827	8
Mar-23	16,802	1,934	6	18,565	2,104	6	15,627	1,821	6
Apr-23	16,753	1,940	7	18,487	2,113	7	15,598	1,825	7
May-23	16,768	1,938	7	18,510	2,109	7	15,606	1,823	7
Jun-23	16,700	1,931	7	18,402	2,099	7	15,566	1,819	7
Jul-23	16,648	1,931	7	18,318	2,099	7	15,534	1,819	7
Aug-23	16,530	1,933	7	18,130	2,102	7	15,464	1,821	7
Sep-23	16,537	1,940	7	18,141	2,113	7	15,468	1,825	7
Oct-23	16,683	1,941	7	18,375	2,115	7	15,555	1,825	7
Nov-23	16,898	1,944	7	18,719	2,120	7	15,684	1,827	7
Dec-23	17,031	1,949	7	18,931	2,127	7	15,764	1,830	7

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
KLAMATH FALLS

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers
Jan-24	17,014	1,959	7	18,904	2,143	7	15,754	1,836	7
Feb-24	17,002	1,967	8	18,885	2,156	8	15,747	1,841	8
Mar-24	17,039	1,957	6	18,944	2,139	6	15,769	1,835	6
Apr-24	16,990	1,962	7	18,865	2,148	7	15,739	1,838	7
May-24	17,005	1,960	7	18,889	2,145	7	15,748	1,837	7
Jun-24	16,936	1,953	7	18,779	2,134	7	15,707	1,833	7
Jul-24	16,883	1,953	7	18,694	2,134	7	15,675	1,833	7
Aug-24	16,764	1,956	7	18,503	2,138	7	15,604	1,834	7
Sep-24	16,770	1,962	7	18,514	2,148	7	15,608	1,838	7
Oct-24	16,918	1,963	7	18,751	2,150	7	15,697	1,839	7
Nov-24	17,137	1,967	7	19,100	2,156	7	15,828	1,841	7
Dec-24	17,271	1,971	7	19,315	2,163	7	15,908	1,844	7
Jan-25	17,251	1,981	7	19,284	2,179	7	15,896	1,850	7
Feb-25	17,240	1,989	8	19,265	2,191	8	15,889	1,854	8
Mar-25	17,277	1,979	6	19,325	2,175	6	15,912	1,848	6
Apr-25	17,227	1,985	7	19,245	2,184	7	15,882	1,852	7
May-25	17,242	1,982	7	19,269	2,181	7	15,891	1,850	7
Jun-25	17,172	1,976	7	19,157	2,170	7	15,849	1,846	7
Jul-25	17,119	1,976	7	19,071	2,170	7	15,817	1,846	7
Aug-25	16,998	1,978	7	18,878	2,173	7	15,744	1,847	7
Sep-25	17,005	1,985	7	18,889	2,184	7	15,748	1,852	7
Oct-25	17,155	1,986	7	19,129	2,186	7	15,838	1,852	7
Nov-25	17,376	1,989	7	19,483	2,191	7	15,971	1,854	7
Dec-25	17,512	1,994	7	19,701	2,199	7	16,053	1,857	7
Jan-26	17,489	2,004	7	19,664	2,214	7	16,039	1,863	7
Feb-26	17,477	2,012	8	19,645	2,227	8	16,032	1,868	8
Mar-26	17,515	2,001	6	19,706	2,211	6	16,055	1,862	6
Apr-26	17,464	2,007	7	19,624	2,220	7	16,024	1,865	7
May-26	17,480	2,005	7	19,649	2,216	7	16,033	1,864	7
Jun-26	17,409	1,998	7	19,536	2,205	7	15,991	1,859	7
Jul-26	17,355	1,998	7	19,449	2,205	7	15,958	1,859	7
Aug-26	17,232	2,000	7	19,253	2,209	7	15,885	1,861	7
Sep-26	17,239	2,007	7	19,264	2,220	7	15,889	1,865	7
Oct-26	17,391	2,008	7	19,507	2,222	7	15,980	1,866	7
Nov-26	17,615	2,012	7	19,866	2,227	7	16,115	1,868	7
Dec-26	17,753	2,016	7	20,087	2,235	7	16,198	1,870	7
Jan-27	17,725	2,026	7	20,042	2,250	7	16,181	1,876	7
Feb-27	17,713	2,034	8	20,023	2,263	8	16,174	1,881	8
Mar-27	17,752	2,023	6	20,084	2,246	6	16,197	1,875	6
Apr-27	17,700	2,029	7	20,002	2,256	7	16,166	1,878	7
May-27	17,716	2,027	7	20,027	2,252	7	16,175	1,877	7
Jun-27	17,644	2,020	7	19,912	2,241	7	16,132	1,873	7
Jul-27	17,589	2,020	7	19,824	2,241	7	16,099	1,873	7
Aug-27	17,465	2,022	7	19,625	2,244	7	16,024	1,874	7
Sep-27	17,472	2,029	7	19,636	2,256	7	16,029	1,878	7
Oct-27	17,626	2,030	7	19,883	2,257	7	16,121	1,879	7
Nov-27	17,853	2,034	7	20,247	2,263	7	16,258	1,881	7
Dec-27	17,993	2,038	7	20,471	2,270	7	16,342	1,884	7

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
KLAMATH FALLS

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers
Jan-28	17,958	2,048	7	20,414	2,285	7	16,320	1,889	7
Feb-28	17,945	2,056	8	20,394	2,298	8	16,313	1,894	8
Mar-28	17,984	2,045	6	20,456	2,281	6	16,336	1,888	6
Apr-28	17,932	2,051	7	20,373	2,290	7	16,305	1,891	7
May-28	17,948	2,049	7	20,398	2,287	7	16,314	1,890	7
Jun-28	17,875	2,042	7	20,282	2,276	7	16,271	1,886	7
Jul-28	17,819	2,042	7	20,193	2,276	7	16,237	1,886	7
Aug-28	17,693	2,044	7	19,991	2,279	7	16,162	1,887	7
Sep-28	17,701	2,051	7	20,003	2,290	7	16,166	1,891	7
Oct-28	17,857	2,052	7	20,253	2,292	7	16,260	1,892	7
Nov-28	18,087	2,056	7	20,621	2,298	7	16,398	1,894	7
Dec-28	18,229	2,060	7	20,848	2,305	7	16,483	1,897	7
Jan-29	18,186	2,069	7	20,780	2,319	7	16,457	1,902	7
Feb-29	18,174	2,077	8	20,760	2,332	8	16,450	1,907	8
Mar-29	18,213	2,067	6	20,823	2,315	6	16,474	1,901	6
Apr-29	18,160	2,073	7	20,738	2,325	7	16,442	1,904	7
May-29	18,176	2,070	7	20,764	2,321	7	16,451	1,903	7
Jun-29	18,103	2,063	7	20,646	2,310	7	16,407	1,899	7
Jul-29	18,046	2,063	7	20,556	2,310	7	16,373	1,899	7
Aug-29	17,919	2,065	7	20,352	2,314	7	16,297	1,900	7
Sep-29	17,926	2,073	7	20,363	2,325	7	16,301	1,904	7
Oct-29	18,084	2,074	7	20,617	2,327	7	16,396	1,905	7
Nov-29	18,317	2,077	7	20,990	2,332	7	16,536	1,907	7
Dec-29	18,461	2,082	7	21,219	2,340	7	16,622	1,910	7
Jan-30	18,414	2,090	7	21,144	2,353	7	16,594	1,915	7
Feb-30	18,402	2,099	8	21,124	2,367	8	16,587	1,920	8
Mar-30	18,441	2,088	6	21,188	2,350	6	16,610	1,914	6
Apr-30	18,388	2,094	7	21,102	2,359	7	16,578	1,917	7
May-30	18,404	2,092	7	21,128	2,355	7	16,588	1,916	7
Jun-30	18,330	2,084	7	21,009	2,344	7	16,543	1,911	7
Jul-30	18,272	2,084	7	20,917	2,344	7	16,509	1,911	7
Aug-30	18,143	2,087	7	20,711	2,348	7	16,432	1,913	7
Sep-30	18,151	2,094	7	20,723	2,359	7	16,436	1,917	7
Oct-30	18,311	2,095	7	20,979	2,361	7	16,532	1,918	7
Nov-30	18,547	2,099	7	21,357	2,367	7	16,674	1,920	7
Dec-30	18,692	2,104	7	21,589	2,374	7	16,761	1,923	7
Jan-31	18,642	2,112	7	21,509	2,388	7	16,731	1,928	7
Feb-31	18,630	2,120	8	21,489	2,401	8	16,723	1,933	8
Mar-31	18,670	2,109	6	21,554	2,384	6	16,748	1,926	6
Apr-31	18,616	2,115	7	21,467	2,394	7	16,715	1,930	7
May-31	18,632	2,113	7	21,493	2,390	7	16,725	1,929	7
Jun-31	18,557	2,106	7	21,373	2,378	7	16,680	1,924	7
Jul-31	18,499	2,106	7	21,280	2,378	7	16,645	1,924	7
Aug-31	18,368	2,108	7	21,071	2,382	7	16,567	1,926	7
Sep-31	18,376	2,115	7	21,083	2,394	7	16,571	1,930	7
Oct-31	18,538	2,117	7	21,342	2,396	7	16,668	1,931	7
Nov-31	18,777	2,120	7	21,725	2,401	7	16,812	1,933	7
Dec-31	18,924	2,125	7	21,960	2,409	7	16,900	1,936	7

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
KLAMATH FALLS

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers	Residential Klamath Falls Customers	Commercial Klamath Falls Customers	Industrial Klamath Falls Customers
Jan-32	18,868	2,133	7	21,871	2,422	7	16,867	1,941	7
Feb-32	18,856	2,142	8	21,851	2,435	8	16,859	1,946	8
Mar-32	18,896	2,131	6	21,916	2,418	6	16,883	1,939	6
Apr-32	18,842	2,137	7	21,828	2,428	7	16,851	1,943	7
May-32	18,858	2,134	7	21,855	2,424	7	16,861	1,941	7
Jun-32	18,782	2,127	7	21,732	2,412	7	16,815	1,937	7
Jul-32	18,723	2,127	7	21,639	2,412	7	16,780	1,937	7
Aug-32	18,591	2,129	7	21,427	2,416	7	16,700	1,938	7
Sep-32	18,598	2,137	7	21,439	2,428	7	16,705	1,943	7
Oct-32	18,763	2,138	7	21,702	2,430	7	16,803	1,944	7
Nov-32	19,005	2,142	7	22,089	2,435	7	16,948	1,946	7
Dec-32	19,154	2,146	7	22,327	2,443	7	17,038	1,949	7
Jan-33	19,097	2,155	7	22,237	2,456	7	17,004	1,954	7
Feb-33	19,084	2,163	8	22,216	2,470	8	16,996	1,959	8
Mar-33	19,125	2,152	6	22,282	2,452	6	17,021	1,952	6
Apr-33	19,070	2,158	7	22,193	2,462	7	16,988	1,956	7
May-33	19,087	2,156	7	22,220	2,458	7	16,998	1,954	7
Jun-33	19,009	2,148	7	22,097	2,446	7	16,951	1,950	7
Jul-33	18,950	2,148	7	22,002	2,446	7	16,916	1,950	7
Aug-33	18,816	2,151	7	21,787	2,450	7	16,835	1,951	7
Sep-33	18,824	2,158	7	21,800	2,462	7	16,840	1,956	7
Oct-33	18,990	2,159	7	22,066	2,464	7	16,940	1,956	7
Nov-33	19,235	2,163	7	22,457	2,470	7	17,087	1,959	7
Dec-33	19,386	2,168	7	22,699	2,478	7	17,177	1,962	7
Jan-34	19,326	2,176	7	22,604	2,491	7	17,141	1,966	7
Feb-34	19,313	2,185	8	22,583	2,505	8	17,134	1,972	8
Mar-34	19,355	2,174	6	22,650	2,487	6	17,159	1,965	6
Apr-34	19,299	2,180	7	22,560	2,497	7	17,125	1,969	7
May-34	19,316	2,177	7	22,587	2,493	7	17,135	1,967	7
Jun-34	19,238	2,170	7	22,462	2,481	7	17,088	1,963	7
Jul-34	19,178	2,170	7	22,366	2,481	7	17,052	1,963	7
Aug-34	19,042	2,172	7	22,149	2,485	7	16,971	1,964	7
Sep-34	19,050	2,180	7	22,162	2,497	7	16,976	1,969	7
Oct-34	19,218	2,181	7	22,431	2,499	7	17,076	1,969	7
Nov-34	19,466	2,185	7	22,827	2,505	7	17,225	1,972	7
Dec-34	19,618	2,190	7	23,071	2,512	7	17,317	1,975	7
Jan-35	19,555	2,198	7	22,970	2,525	7	17,279	1,979	7
Feb-35	19,542	2,206	8	22,948	2,539	8	17,271	1,985	8
Mar-35	19,584	2,195	6	23,016	2,521	6	17,296	1,978	6
Apr-35	19,527	2,201	7	22,925	2,531	7	17,262	1,982	7
May-35	19,544	2,199	7	22,953	2,527	7	17,272	1,980	7
Jun-35	19,465	2,191	7	22,826	2,515	7	17,225	1,976	7
Jul-35	19,405	2,191	7	22,729	2,515	7	17,188	1,976	7
Aug-35	19,267	2,194	7	22,509	2,519	7	17,106	1,977	7
Sep-35	19,275	2,201	7	22,522	2,531	7	17,111	1,982	7
Oct-35	19,445	2,203	7	22,794	2,533	7	17,213	1,982	7
Nov-35	19,696	2,206	7	23,195	2,539	7	17,363	1,985	7
Dec-35	19,851	2,211	7	23,442	2,547	7	17,456	1,988	7

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
LA GRANDE

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers
Jan-12	6,568	903	0	6,627	911	0	6,529	898	0
Feb-12	6,580	911	0	6,646	924	0	6,536	903	0
Mar-12	6,541	892	0	6,584	893	0	6,513	891	0
Apr-12	6,537	897	0	6,577	901	0	6,510	894	0
May-12	6,531	887	0	6,568	885	0	6,507	888	0
Jun-12	6,505	888	0	6,526	887	0	6,491	889	0
Jul-12	6,473	884	0	6,475	880	0	6,472	886	0
Aug-12	6,456	885	0	6,448	882	0	6,462	887	0
Sep-12	6,452	887	5	6,441	885	5	6,459	888	5
Oct-12	6,520	900	5	6,550	906	5	6,500	896	5
Nov-12	6,566	900	0	6,624	906	0	6,528	896	0
Dec-12	6,609	906	0	6,692	916	0	6,553	900	0
Jan-13	6,618	918	0	6,707	935	0	6,559	907	0
Feb-13	6,630	926	0	6,726	948	0	6,566	912	0
Mar-13	6,591	907	0	6,664	917	0	6,543	900	0
Apr-13	6,587	912	0	6,657	925	0	6,540	903	0
May-13	6,581	902	0	6,648	909	0	6,537	897	0
Jun-13	6,555	903	0	6,606	911	0	6,521	898	0
Jul-13	6,523	899	0	6,555	904	0	6,502	895	0
Aug-13	6,506	900	0	6,528	906	0	6,492	896	0
Sep-13	6,502	902	5	6,521	909	5	6,489	897	5
Oct-13	6,570	915	5	6,630	930	5	6,530	905	5
Nov-13	6,616	915	0	6,704	930	0	6,558	905	0
Dec-13	6,659	921	0	6,772	940	0	6,583	909	0
Jan-14	6,668	933	0	6,787	959	0	6,589	916	0
Feb-14	6,680	941	0	6,806	972	0	6,596	921	0
Mar-14	6,641	922	0	6,744	941	0	6,573	909	0
Apr-14	6,637	927	0	6,737	949	0	6,570	912	0
May-14	6,631	917	0	6,728	933	0	6,567	906	0
Jun-14	6,605	918	0	6,686	935	0	6,551	907	0
Jul-14	6,573	914	0	6,635	928	0	6,532	904	0
Aug-14	6,556	915	0	6,608	930	0	6,522	905	0
Sep-14	6,552	917	5	6,601	933	5	6,519	906	5
Oct-14	6,620	930	5	6,710	954	5	6,560	914	5
Nov-14	6,666	930	0	6,784	954	0	6,588	914	0
Dec-14	6,709	936	0	6,852	964	0	6,613	918	0
Jan-15	6,718	953	0	6,867	991	0	6,619	928	0
Feb-15	6,730	961	0	6,886	1,004	0	6,626	933	0
Mar-15	6,691	942	0	6,824	973	0	6,603	921	0
Apr-15	6,687	947	0	6,817	981	0	6,600	924	0
May-15	6,681	937	0	6,808	965	0	6,597	918	0
Jun-15	6,655	938	0	6,766	967	0	6,581	919	0
Jul-15	6,623	934	0	6,715	960	0	6,562	916	0
Aug-15	6,606	935	0	6,688	962	0	6,552	917	0
Sep-15	6,602	937	5	6,681	965	5	6,549	918	5
Oct-15	6,670	950	5	6,790	986	5	6,590	926	5
Nov-15	6,716	950	0	6,864	986	0	6,618	926	0
Dec-15	6,759	956	0	6,932	996	0	6,643	930	0
Jan-16	6,777	966	0	6,962	1,012	0	6,654	936	0

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
LA GRANDE

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers
Feb-16	6,789	974	0	6,981	1,025	0	6,662	940	0
Mar-16	6,750	955	0	6,918	994	0	6,638	929	0
Apr-16	6,746	960	0	6,912	1,002	0	6,636	932	0
May-16	6,740	950	0	6,902	986	0	6,632	926	0
Jun-16	6,714	951	0	6,860	987	0	6,616	926	0
Jul-16	6,681	947	0	6,808	981	0	6,597	924	0
Aug-16	6,664	948	0	6,781	982	0	6,587	925	0
Sep-16	6,660	950	5	6,775	986	5	6,584	926	5
Oct-16	6,729	963	5	6,884	1,007	5	6,625	934	5
Nov-16	6,775	963	0	6,959	1,007	0	6,653	934	0
Dec-16	6,819	969	0	7,028	1,017	0	6,679	937	0
Jan-17	6,832	978	0	7,049	1,031	0	6,687	943	0
Feb-17	6,844	986	0	7,069	1,044	0	6,694	948	0
Mar-17	6,804	967	0	7,005	1,013	0	6,671	936	0
Apr-17	6,800	972	0	6,999	1,021	0	6,668	939	0
May-17	6,794	962	0	6,989	1,005	0	6,665	933	0
Jun-17	6,768	963	0	6,946	1,006	0	6,649	934	0
Jul-17	6,735	959	0	6,894	1,000	0	6,629	931	0
Aug-17	6,718	960	0	6,867	1,001	0	6,619	932	0
Sep-17	6,714	962	5	6,860	1,005	5	6,616	933	5
Oct-17	6,783	975	5	6,971	1,026	5	6,658	941	5
Nov-17	6,830	975	0	7,046	1,026	0	6,686	941	0
Dec-17	6,874	981	0	7,116	1,036	0	6,712	945	0
Jan-18	6,883	989	0	7,130	1,049	0	6,718	950	0
Feb-18	6,895	997	0	7,150	1,062	0	6,725	954	0
Mar-18	6,855	978	0	7,086	1,030	0	6,701	943	0
Apr-18	6,851	983	0	7,080	1,039	0	6,699	946	0
May-18	6,845	973	0	7,070	1,022	0	6,695	940	0
Jun-18	6,818	974	0	7,027	1,024	0	6,679	940	0
Jul-18	6,785	969	0	6,975	1,017	0	6,659	938	0
Aug-18	6,768	970	0	6,947	1,019	0	6,649	938	0
Sep-18	6,764	973	5	6,940	1,022	5	6,646	940	5
Oct-18	6,834	986	5	7,052	1,044	5	6,688	948	5
Nov-18	6,881	986	0	7,127	1,044	0	6,716	948	0
Dec-18	6,925	992	0	7,198	1,054	0	6,743	951	0
Jan-19	6,932	1,000	0	7,210	1,066	0	6,747	956	0
Feb-19	6,945	1,008	0	7,230	1,080	0	6,755	961	0
Mar-19	6,905	989	0	7,165	1,048	0	6,731	949	0
Apr-19	6,900	994	0	7,159	1,056	0	6,728	952	0
May-19	6,894	983	0	7,149	1,039	0	6,725	946	0
Jun-19	6,867	984	0	7,106	1,041	0	6,708	947	0
Jul-19	6,834	980	0	7,053	1,034	0	6,689	944	0
Aug-19	6,817	981	0	7,025	1,036	0	6,678	945	0
Sep-19	6,813	983	5	7,018	1,039	5	6,676	946	5
Oct-19	6,883	997	5	7,131	1,061	5	6,718	954	5
Nov-19	6,930	997	0	7,207	1,061	0	6,746	954	0
Dec-19	6,975	1,003	0	7,278	1,071	0	6,773	958	0
Jan-20	6,982	1,011	0	7,289	1,083	0	6,777	963	0
Feb-20	6,994	1,019	0	7,309	1,097	0	6,785	968	0

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LA GRANDE

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Mar-20	6,954	999	0	7,244	1,065	0	6,760	956	0
Apr-20	6,950	1,005	0	7,237	1,073	0	6,758	959	0
May-20	6,943	994	0	7,227	1,056	0	6,754	952	0
Jun-20	6,916	995	0	7,184	1,058	0	6,738	953	0
Jul-20	6,883	991	0	7,131	1,051	0	6,718	950	0
Aug-20	6,865	992	0	7,103	1,053	0	6,707	951	0
Sep-20	6,861	994	5	7,096	1,056	5	6,705	952	5
Oct-20	6,932	1,008	5	7,209	1,078	5	6,747	961	5
Nov-20	6,980	1,008	0	7,285	1,078	0	6,776	961	0
Dec-20	7,024	1,014	0	7,357	1,089	0	6,803	964	0
Jan-21	7,030	1,022	0	7,366	1,100	0	6,806	969	0
Feb-21	7,043	1,030	0	7,386	1,114	0	6,814	974	0
Mar-21	7,002	1,010	0	7,321	1,082	0	6,789	962	0
Apr-21	6,998	1,015	0	7,314	1,090	0	6,787	965	0
May-21	6,991	1,004	0	7,304	1,073	0	6,783	959	0
Jun-21	6,964	1,005	0	7,261	1,075	0	6,767	959	0
Jul-21	6,931	1,001	0	7,207	1,068	0	6,746	957	0
Aug-21	6,913	1,002	0	7,179	1,070	0	6,736	957	0
Sep-21	6,909	1,004	5	7,172	1,073	5	6,733	959	5
Oct-21	6,980	1,018	5	7,286	1,095	5	6,776	967	5
Nov-21	7,028	1,018	0	7,363	1,095	0	6,805	967	0
Dec-21	7,073	1,025	0	7,435	1,106	0	6,832	971	0
Jan-22	7,078	1,032	0	7,443	1,117	0	6,835	975	0
Feb-22	7,091	1,041	0	7,463	1,131	0	6,842	980	0
Mar-22	7,049	1,020	0	7,397	1,098	0	6,818	968	0
Apr-22	7,045	1,026	0	7,390	1,107	0	6,815	971	0
May-22	7,039	1,015	0	7,380	1,090	0	6,811	965	0
Jun-22	7,012	1,016	0	7,336	1,091	0	6,795	965	0
Jul-22	6,978	1,011	0	7,283	1,084	0	6,775	963	0
Aug-22	6,960	1,013	0	7,254	1,086	0	6,764	964	0
Sep-22	6,956	1,015	5	7,247	1,090	5	6,761	965	5
Oct-22	7,027	1,029	5	7,362	1,112	5	6,804	973	5
Nov-22	7,076	1,029	0	7,439	1,112	0	6,833	973	0
Dec-22	7,121	1,035	0	7,512	1,122	0	6,861	977	0
Jan-23	7,125	1,042	0	7,518	1,134	0	6,863	981	0
Feb-23	7,138	1,051	0	7,539	1,148	0	6,871	987	0
Mar-23	7,097	1,030	0	7,473	1,115	0	6,846	974	0
Apr-23	7,092	1,036	0	7,466	1,123	0	6,843	978	0
May-23	7,086	1,025	0	7,456	1,106	0	6,840	971	0
Jun-23	7,058	1,026	0	7,411	1,108	0	6,823	972	0
Jul-23	7,024	1,022	0	7,357	1,101	0	6,803	969	0
Aug-23	7,006	1,023	0	7,328	1,102	0	6,792	970	0
Sep-23	7,002	1,025	5	7,322	1,106	5	6,789	971	5
Oct-23	7,074	1,039	5	7,437	1,129	5	6,833	979	5
Nov-23	7,123	1,039	0	7,515	1,129	0	6,862	979	0
Dec-23	7,169	1,046	0	7,588	1,139	0	6,889	983	0
Jan-24	7,172	1,053	0	7,594	1,150	0	6,891	988	0
Feb-24	7,185	1,062	0	7,614	1,165	0	6,899	993	0
Mar-24	7,143	1,041	0	7,548	1,131	0	6,874	980	0

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
LA GRANDE

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers
Apr-24	7,139	1,046	0	7,541	1,140	0	6,872	984	0
May-24	7,133	1,035	0	7,530	1,122	0	6,868	977	0
Jun-24	7,105	1,036	0	7,486	1,124	0	6,851	978	0
Jul-24	7,071	1,032	0	7,431	1,117	0	6,831	975	0
Aug-24	7,053	1,033	0	7,402	1,119	0	6,820	976	0
Sep-24	7,048	1,035	5	7,395	1,122	5	6,817	977	5
Oct-24	7,121	1,049	5	7,512	1,145	5	6,861	986	5
Nov-24	7,170	1,049	0	7,590	1,145	0	6,890	986	0
Dec-24	7,216	1,056	0	7,664	1,156	0	6,918	990	0
Jan-25	7,219	1,063	0	7,669	1,167	0	6,919	994	0
Feb-25	7,232	1,072	0	7,689	1,181	0	6,927	999	0
Mar-25	7,190	1,051	0	7,622	1,147	0	6,902	986	0
Apr-25	7,186	1,056	0	7,615	1,156	0	6,900	990	0
May-25	7,179	1,045	0	7,605	1,138	0	6,896	983	0
Jun-25	7,151	1,046	0	7,560	1,140	0	6,879	984	0
Jul-25	7,117	1,042	0	7,505	1,133	0	6,858	981	0
Aug-25	7,099	1,043	0	7,476	1,135	0	6,847	982	0
Sep-25	7,095	1,045	5	7,469	1,138	5	6,845	983	5
Oct-25	7,168	1,060	5	7,586	1,162	5	6,889	992	5
Nov-25	7,217	1,060	0	7,665	1,162	0	6,918	992	0
Dec-25	7,263	1,066	0	7,739	1,172	0	6,946	996	0
Jan-26	7,266	1,073	0	7,743	1,183	0	6,947	1,000	0
Feb-26	7,279	1,082	0	7,764	1,198	0	6,955	1,005	0
Mar-26	7,237	1,061	0	7,697	1,163	0	6,930	993	0
Apr-26	7,232	1,067	0	7,690	1,172	0	6,927	996	0
May-26	7,226	1,055	0	7,679	1,154	0	6,923	989	0
Jun-26	7,198	1,056	0	7,634	1,156	0	6,907	990	0
Jul-26	7,163	1,052	0	7,579	1,149	0	6,886	987	0
Aug-26	7,145	1,053	0	7,549	1,151	0	6,875	988	0
Sep-26	7,140	1,055	5	7,542	1,154	5	6,872	989	5
Oct-26	7,214	1,070	5	7,660	1,178	5	6,916	998	5
Nov-26	7,264	1,070	0	7,740	1,178	0	6,946	998	0
Dec-26	7,310	1,077	0	7,814	1,189	0	6,974	1,002	0
Jan-27	7,314	1,084	0	7,820	1,200	0	6,976	1,006	0
Feb-27	7,327	1,093	0	7,841	1,215	0	6,984	1,012	0
Mar-27	7,285	1,071	0	7,773	1,180	0	6,959	999	0
Apr-27	7,280	1,077	0	7,766	1,189	0	6,956	1,002	0
May-27	7,274	1,066	0	7,756	1,171	0	6,952	995	0
Jun-27	7,245	1,067	0	7,711	1,173	0	6,935	996	0
Jul-27	7,211	1,062	0	7,655	1,166	0	6,914	993	0
Aug-27	7,192	1,063	0	7,625	1,167	0	6,903	994	0
Sep-27	7,188	1,066	5	7,618	1,171	5	6,901	995	5
Oct-27	7,262	1,080	5	7,737	1,195	5	6,945	1,004	5
Nov-27	7,312	1,080	0	7,817	1,195	0	6,975	1,004	0
Dec-27	7,359	1,087	0	7,892	1,206	0	7,003	1,008	0
Jan-28	7,365	1,095	0	7,901	1,218	0	7,007	1,013	0
Feb-28	7,378	1,104	0	7,922	1,233	0	7,015	1,019	0
Mar-28	7,335	1,082	0	7,854	1,198	0	6,989	1,005	0
Apr-28	7,331	1,088	0	7,847	1,207	0	6,986	1,009	0

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
LA GRANDE

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers
May-28	7,324	1,077	0	7,837	1,189	0	6,982	1,002	0
Jun-28	7,296	1,078	0	7,791	1,190	0	6,965	1,003	0
Jul-28	7,260	1,073	0	7,735	1,183	0	6,944	1,000	0
Aug-28	7,242	1,074	0	7,705	1,185	0	6,933	1,001	0
Sep-28	7,237	1,077	5	7,698	1,189	5	6,930	1,002	5
Oct-28	7,312	1,092	5	7,817	1,212	5	6,975	1,011	5
Nov-28	7,362	1,092	0	7,898	1,212	0	7,005	1,011	0
Dec-28	7,410	1,098	0	7,973	1,224	0	7,034	1,015	0
Jan-29	7,416	1,106	0	7,984	1,236	0	7,038	1,020	0
Feb-29	7,430	1,116	0	8,006	1,251	0	7,046	1,025	0
Mar-29	7,387	1,094	0	7,937	1,216	0	7,020	1,012	0
Apr-29	7,382	1,099	0	7,930	1,225	0	7,017	1,016	0
May-29	7,376	1,088	0	7,919	1,207	0	7,013	1,009	0
Jun-29	7,347	1,089	0	7,873	1,208	0	6,996	1,009	0
Jul-29	7,312	1,084	0	7,817	1,201	0	6,975	1,007	0
Aug-29	7,293	1,085	0	7,787	1,203	0	6,964	1,007	0
Sep-29	7,288	1,088	5	7,779	1,207	5	6,961	1,009	5
Oct-29	7,363	1,103	5	7,900	1,231	5	7,006	1,018	5
Nov-29	7,414	1,103	0	7,981	1,231	0	7,037	1,018	0
Dec-29	7,462	1,110	0	8,057	1,242	0	7,065	1,022	0
Jan-30	7,468	1,118	0	8,067	1,254	0	7,069	1,027	0
Feb-30	7,481	1,127	0	8,088	1,269	0	7,077	1,032	0
Mar-30	7,438	1,105	0	8,019	1,234	0	7,051	1,019	0
Apr-30	7,433	1,111	0	8,011	1,243	0	7,048	1,022	0
May-30	7,427	1,099	0	8,001	1,224	0	7,044	1,015	0
Jun-30	7,398	1,100	0	7,955	1,226	0	7,027	1,016	0
Jul-30	7,362	1,095	0	7,898	1,219	0	7,005	1,013	0
Aug-30	7,343	1,097	0	7,867	1,221	0	6,994	1,014	0
Sep-30	7,339	1,099	5	7,860	1,224	5	6,991	1,015	5
Oct-30	7,415	1,114	5	7,981	1,249	5	7,037	1,024	5
Nov-30	7,466	1,114	0	8,063	1,249	0	7,067	1,024	0
Dec-30	7,513	1,121	0	8,140	1,260	0	7,096	1,029	0
Jan-31	7,519	1,129	0	8,149	1,272	0	7,100	1,033	0
Feb-31	7,533	1,138	0	8,170	1,287	0	7,108	1,039	0
Mar-31	7,489	1,116	0	8,100	1,251	0	7,081	1,026	0
Apr-31	7,484	1,122	0	8,093	1,261	0	7,079	1,029	0
May-31	7,478	1,110	0	8,082	1,242	0	7,075	1,022	0
Jun-31	7,449	1,111	0	8,036	1,244	0	7,057	1,023	0
Jul-31	7,413	1,106	0	7,979	1,236	0	7,036	1,020	0
Aug-31	7,394	1,108	0	7,948	1,238	0	7,024	1,021	0
Sep-31	7,389	1,110	5	7,941	1,242	5	7,022	1,022	5
Oct-31	7,465	1,125	5	8,063	1,267	5	7,067	1,031	5
Nov-31	7,517	1,125	0	8,145	1,267	0	7,098	1,031	0
Dec-31	7,565	1,132	0	8,222	1,278	0	7,127	1,035	0
Jan-32	7,570	1,140	0	8,230	1,290	0	7,130	1,040	0
Feb-32	7,584	1,150	0	8,252	1,305	0	7,138	1,046	0
Mar-32	7,540	1,127	0	8,181	1,269	0	7,112	1,032	0
Apr-32	7,535	1,133	0	8,174	1,279	0	7,109	1,036	0
May-32	7,528	1,121	0	8,163	1,260	0	7,105	1,029	0

APPENDIX 3.2 II CUSTOMER FORECASTS BY REGION
LA GRANDE

	Oregon - Expected Growth			Oregon - High Growth			Oregon - Low Growth		
	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers	Residential La Grande Customers	Commercial La Grande Customers	Industrial La Grande Customers
Jun-32	7,499	1,122	0	8,116	1,261	0	7,087	1,029	0
Jul-32	7,463	1,117	0	8,059	1,254	0	7,066	1,026	0
Aug-32	7,444	1,119	0	8,028	1,256	0	7,054	1,027	0
Sep-32	7,439	1,121	5	8,021	1,260	5	7,052	1,029	5
Oct-32	7,516	1,137	5	8,143	1,284	5	7,098	1,038	5
Nov-32	7,568	1,137	0	8,226	1,284	0	7,129	1,038	0
Dec-32	7,616	1,144	0	8,304	1,296	0	7,158	1,042	0
Jan-33	7,621	1,151	0	8,312	1,308	0	7,161	1,047	0
Feb-33	7,635	1,161	0	8,334	1,324	0	7,169	1,053	0
Mar-33	7,591	1,138	0	8,263	1,287	0	7,142	1,039	0
Apr-33	7,586	1,144	0	8,256	1,297	0	7,140	1,042	0
May-33	7,579	1,132	0	8,245	1,277	0	7,136	1,035	0
Jun-33	7,550	1,133	0	8,198	1,279	0	7,118	1,036	0
Jul-33	7,514	1,128	0	8,140	1,271	0	7,096	1,033	0
Aug-33	7,494	1,130	0	8,109	1,273	0	7,085	1,034	0
Sep-33	7,490	1,132	5	8,102	1,277	5	7,082	1,035	5
Oct-33	7,567	1,148	5	8,225	1,302	5	7,128	1,045	5
Nov-33	7,619	1,148	0	8,308	1,302	0	7,159	1,045	0
Dec-33	7,668	1,155	0	8,387	1,314	0	7,189	1,049	0
Jan-34	7,673	1,163	0	8,394	1,326	0	7,192	1,054	0
Feb-34	7,686	1,172	0	8,416	1,342	0	7,200	1,059	0
Mar-34	7,642	1,149	0	8,345	1,305	0	7,173	1,046	0
Apr-34	7,637	1,155	0	8,337	1,314	0	7,170	1,049	0
May-34	7,630	1,143	0	8,327	1,295	0	7,166	1,042	0
Jun-34	7,601	1,144	0	8,279	1,297	0	7,148	1,043	0
Jul-34	7,564	1,139	0	8,221	1,289	0	7,126	1,040	0
Aug-34	7,545	1,141	0	8,189	1,291	0	7,115	1,040	0
Sep-34	7,540	1,143	5	8,182	1,295	5	7,112	1,042	5
Oct-34	7,618	1,159	5	8,306	1,320	5	7,159	1,051	5
Nov-34	7,670	1,159	0	8,390	1,320	0	7,190	1,051	0
Dec-34	7,719	1,166	0	8,469	1,332	0	7,220	1,056	0
Jan-35	7,724	1,174	0	8,476	1,344	0	7,222	1,060	0
Feb-35	7,738	1,184	0	8,498	1,360	0	7,231	1,066	0
Mar-35	7,693	1,160	0	8,426	1,322	0	7,204	1,052	0
Apr-35	7,688	1,166	0	8,419	1,332	0	7,201	1,056	0
May-35	7,681	1,154	0	8,408	1,313	0	7,197	1,048	0
Jun-35	7,651	1,155	0	8,360	1,315	0	7,179	1,049	0
Jul-35	7,614	1,150	0	8,301	1,307	0	7,157	1,046	0
Aug-35	7,595	1,152	0	8,270	1,309	0	7,145	1,047	0
Sep-35	7,590	1,154	5	8,263	1,313	5	7,142	1,048	5
Oct-35	7,669	1,170	5	8,388	1,338	5	7,189	1,058	5
Nov-35	7,721	1,170	0	8,472	1,338	0	7,221	1,058	0
Dec-35	7,771	1,178	0	8,551	1,350	0	7,251	1,063	0

APPENDIX 3.3 II DEMAND COEFFICIENTS

	January	February	March	April	May	June	July	August	September	October	November	December
HEAT COEFFICIENTS												
WA/ID Res	0.009844	0.008976	0.008870	0.008029	0.005690	0.003686	0.001174	0.000826	0.002388	0.006412	0.008695	0.009962
WA/ID Com	0.049978	0.045349	0.043363	0.037282	0.024076	0.016817	0.004930	0.007713	0.019781	0.036017	0.042431	0.050435
WA/ID Ind	0.129009	0.115248	0.094806	0.084501	0.041487	0.055783	0.044625	0.132057	0.198661	0.283820	0.164946	0.170180
Rose Res	0.010208	0.010184	0.009517	0.008514	0.006722	0.005038	0.000615	0.000049	0.001527	0.004756	0.008477	0.010124
Rose Com	0.041388	0.039173	0.037762	0.031763	0.022073	0.010826	0.003070	0.002933	0.020028	0.027221	0.036871	0.044178
Rose Ind	0.560088	0.639565	0.609582	1.794676	0.050434	0.307867	3.765089	4.759543	4.064708	1.476627	1.166407	0.839549
Medford Res	0.0103873	0.0100818	0.0100326	0.0089329	0.0066631	0.0046337	0.0021118	0.0009412	0.0029039	0.0064739	0.0090313	0.0105071
Medford Com	0.0404618	0.0406224	0.0364242	0.0292521	0.0221656	0.0144695	0.0106799	0.0095883	0.0213454	0.0383247	0.0390795	0.0420363
Medford Ind	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
LaGrande Res	0.0087736	0.0081353	0.0080601	0.0074661	0.0054241	0.0033964	0.0004897	0.0105253	0.0007420	0.0030466	0.0077767	0.0089209
LaGrande Com	0.0424449	0.0405465	0.0370305	0.0313249	0.0210792	0.0124668	0.0094054	0.0766325	0.0081499	0.0183217	0.0346280	0.0402809
LaGrande Ind	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Klamath Res	0.008035	0.007601	0.007340	0.006312	0.004454	0.002573	0.000170	0.000560	0.001306	0.004338	0.006839	0.007861
Klamath Com	0.031883	0.030028	0.027044	0.021792	0.013740	0.004544	0.000226	0.006202	0.008292	0.023551	0.028058	0.031165
Klamath Ind	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
BASE COEFFICIENTS												
WA/ID Res	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491
WA/ID Com	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420
WA/ID Ind	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386
Rose Res	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476
Rose Com	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449
Rose Ind	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195
Medford Res	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121
Medford Com	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897
Medford Ind	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345
LaGrande Res	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749
LaGrande Com	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881
LaGrande Ind	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306
Klamath Res	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313
Klamath Com	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781
Klamath Ind	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761
SUPER PEAK 1/												
WA/ID Res	0.009594	0.009594										0.009594
WA/ID Com	0.048587	0.048587										0.048587
WA/ID Ind	0.138145	0.138145										0.138145
Rose Res	0.010172	0.010172										0.010172
Rose Com	0.041580	0.041580										0.041580
Rose Ind	0.679734	0.679734										0.679734
Medford Res	0.010325	0.010325										0.010325
Medford Com	0.041040	0.041040										0.041040
Medford Ind	-	-										-
LaGrande Res	0.008610	0.008610										0.008610
LaGrande Com	0.041091	0.041091										0.041091
LaGrande Ind	-	-										-
Klamath Res	0.007832	0.007832										0.007832
Klamath Com	0.031025	0.031025										0.031025
Klamath Ind	-	-										-

1/ Average of DEC JAN FEB heat coefficients

	January	February	March	April	May	June	July	August	September	October	November	December
HEAT COEFFICIENTS												
WA/ID Res	0.009844	0.008976	0.008870	0.008029	0.005690	0.003686	0.001174	0.000826	0.002388	0.006412	0.008695	0.009962
WA/ID Com	0.049978	0.045349	0.043363	0.037282	0.024076	0.016817	0.004930	0.007713	0.019781	0.036017	0.042431	0.050435
WA/ID Ind	0.129009	0.115248	0.094806	0.084501	0.041487	0.055783	0.044625	0.132057	0.198661	0.283820	0.164946	0.170180
Rose Res	0.010208	0.010184	0.009517	0.008514	0.006722	0.005038	0.000615	0.000049	0.001527	0.004756	0.008477	0.010124
Rose Com	0.041388	0.039173	0.037762	0.031763	0.022073	0.010826	0.003070	0.002933	0.020028	0.027221	0.036871	0.044178
Rose Ind	0.560088	0.639565	0.609582	1.794676	0.050434	0.307867	3.765089	4.759543	4.064708	1.476627	1.166407	0.839549
Medford Res	0.0103873	0.0100818	0.0100326	0.0089329	0.0066631	0.0046337	0.0021118	0.0009412	0.0029039	0.0064739	0.0090313	0.0105071
Medford Com	0.0404618	0.0406224	0.0364242	0.0292521	0.0221656	0.0144695	0.0106799	0.0095883	0.0213454	0.0383247	0.0390795	0.0420363
Medford Ind	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
LaGrande Res	0.0087736	0.0081353	0.0080601	0.0074661	0.0054241	0.0033964	0.0004897	0.0105253	0.0007420	0.0030466	0.0077767	0.0089209
LaGrande Com	0.0424449	0.0405465	0.0370305	0.0313249	0.0210792	0.0124668	0.0094054	0.0766325	0.0081499	0.0183217	0.0346280	0.0402809
LaGrande Ind	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Klamath Res	0.008035	0.007601	0.007340	0.006312	0.004454	0.002573	0.000170	0.000560	0.001306	0.004338	0.006839	0.007861
Klamath Com	0.031883	0.030028	0.027044	0.021792	0.013740	0.004544	0.000226	0.006202	0.008292	0.023551	0.028058	0.031165
Klamath Ind	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
BASE COEFFICIENTS												
WA/ID Res	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491	0.055491
WA/ID Com	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420	0.346420
WA/ID Ind	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386	3.651386
Rose Res	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476	0.045476
Rose Com	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449	0.327449
Rose Ind	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195	19.923195
Medford Res	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121	0.047121
Medford Com	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897	0.333897
Medford Ind	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345	3.762345
LaGrande Res	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749	0.053749
LaGrande Com	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881	0.252881
LaGrande Ind	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306	8.968306
Klamath Res	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313	0.041313
Klamath Com	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781	0.319781
Klamath Ind	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761	2.131761
SUPER PEAK 1/												
WA/ID Res	0.009594	0.009594										0.009594
WA/ID Com	0.048587	0.048587										0.048587
WA/ID Ind	0.138145	0.138145										0.138145
Rose Res	0.010172	0.010172										0.010172
Rose Com	0.041580	0.041580										0.041580
Rose Ind	0.679734	0.679734										0.679734
Medford Res	0.010325	0.010325										0.010325
Medford Com	0.041040	0.041040										0.041040
Medford Ind	-	-										-
LaGrande Res	0.008610	0.008610										0.008610
LaGrande Com	0.041091	0.041091										0.041091
LaGrande Ind	-	-										-
Klamath Res	0.007832	0.007832										0.007832
Klamath Com	0.031025	0.031025										0.031025
Klamath Ind	-	-										-

1/ Average of DEC JAN FEB heat coefficients

APPENDIX 3.3 II WA/ID BASE COEFFICIENT CALCULATION

Average Actual Demand by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Demand	11,098	10,607	10,852
	Average of Com Demand	7,729	8,406	8,067
	Average of Ind Demand	991	1,001	996
2006	Average of Res Demand	9,988	10,513	10,250
	Average of Com Demand	6,956	8,331	7,643
	Average of Ind Demand	892	992	942
2007	Average of Res Demand	10,032	10,433	10,232
	Average of Com Demand	6,987	8,267	7,627
	Average of Ind Demand	896	984	940
2008	Average of Res Demand	10,684	10,495	10,590
	Average of Com Demand	7,441	8,317	7,879
	Average of Ind Demand	954	990	972
2009	Average of Res Demand	10,346	10,516	10,431
	Average of Com Demand	7,466	7,810	7,638
	Average of Ind Demand	756	797	777
2010	Average of Res Demand	11,208	10,733	10,971
	Average of Com Demand	8,030	8,435	8,232
	Average of Ind Demand	814	1,174	994
Total Average of Res Demand		10,559	10,549	10,554
Total Average of Com Demand		7,435	8,261	7,848
Total Average of Ind Demand		884	990	937

Average Actual Customer Count by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Cust	179,140	179,447	179,294
	Average of Com Cust	20,450	20,427	20,439
	Average of Ind Cust	263	260	262
2006	Average of Res Cust	185,182	185,455	185,319
	Average of Com Cust	20,748	20,856	20,802
	Average of Ind Cust	246	242	244
2007	Average of Res Cust	189,577	190,087	189,832
	Average of Com Cust	21,291	21,336	21,314
	Average of Ind Cust	244	241	243
2008	Average of Res Cust	193,667	193,643	193,655
	Average of Com Cust	21,847	21,815	21,831
	Average of Ind Cust	239	240	240
2009	Average of Res Cust	196,121	196,276	196,199
	Average of Com Cust	22,087	21,928	22,008
	Average of Ind Cust	233	234	234
2010	Average of Res Cust	198,059	198,572	198,316
	Average of Com Cust	22,344	22,320	22,332
	Average of Ind Cust	227	229	228
Total Average of Res Cust		190,291	190,580	190,436
Total Average of Com Cust		21,461	21,447	21,454
Total Average of Ind Cust		242	241	242

Base Coefficients

(Actual Average Demand/Customer Count)

0.055491	Res Base Usage
0.346420	Com Base Usage
3.651386	Ind Base Usage

APPENDIX 3.3 II WA/ID REGRESSION STATS

WA/ID Residential

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.997654206	0.997358913	0.9949305	0.981505937	0.978167166	0.971495302	0.9512495	0.820421448	0.905297943	0.980838934	0.996347984	0.998826781
R Square	0.995313916	0.994724801	0.989931572	0.963353905	0.956811005	0.943803121	0.904875612	0.673091352	0.819564366	0.962045014	0.992709306	0.997654938
Adjusted R Square	0.961980582	0.957687764	0.956598239	0.928871147	0.923477671	0.909320362	0.871542278	0.639758019	0.785081607	0.92871168	0.958226547	0.964321605
Standard Error	0.025319723	0.026597125	0.023849048	0.032003003	0.019326085	0.008778728	0.001506231	0.002405292	0.007547259	0.020314017	0.026682708	0.016880022
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.009844497	0.008975558	0.008869664	0.008028585	0.005689813	0.003686459	0.001173698	0.000826461	0.00238834	0.006412228	0.008695213	0.009962245
Super Peak	0.009594											

WA/ID Commercial

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.997535461	0.997292266	0.994399095	0.973845966	0.961984203	0.948589598	0.939986639	0.910976062	0.915358718	0.977449556	0.994645052	0.998846897
R Square	0.995076996	0.994591864	0.988829561	0.948375966	0.925413607	0.899822226	0.883574882	0.829877386	0.837881582	0.955407635	0.989318779	0.997695123
Adjusted R Square	0.961743663	0.957554827	0.955496228	0.913893207	0.892080274	0.865339467	0.850241548	0.796544053	0.803398823	0.922074302	0.954836021	0.96436179
Standard Error	0.132669245	0.14116655	0.126255346	0.17113869	0.110750203	0.049490372	0.008170014	0.015327701	0.058953352	0.129636092	0.162257455	0.085502566
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.049978045	0.045348934	0.043362661	0.037282468	0.024075694	0.016816525	0.004929633	0.007712715	0.01978081	0.036017179	0.042430755	0.050434673
Super Peak	0.048587											

WA/ID Industrial

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.976837619	0.985912283	0.965121396	0.812877595	0.747131231	0.713029296	0.866878204	0.97252247	0.917942089	0.963351152	0.979214675	0.991637888
R Square	0.954211734	0.972023031	0.93145931	0.660769984	0.558205076	0.508410777	0.751477821	0.945799954	0.842617678	0.928045441	0.958861379	0.983345701
Adjusted R Square	0.9208784	0.934985994	0.898125976	0.626287226	0.524871743	0.473928018	0.718144488	0.912466621	0.808134919	0.894712108	0.924378621	0.950012368
Standard Error	0.878794521	0.827132425	0.649592069	0.8391273	0.715597581	0.361846573	0.072274178	0.230399915	0.689125252	1.269881938	1.528875182	0.561757012
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.129008542	0.115247756	0.0948062	0.084500696	0.041487475	0.055783015	0.044625063	0.132057167	0.198660758	0.283820092	0.164946307	0.170179963
Super Peak	0.138145											

APPENDIX 3.3 II MEDFORD BASE COEFFICIENT CALCULATION

Average Actual Demand by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Demand	2,420	2,389	2,404
	Average of Com Demand	2,146	2,205	2,176
	Sum of Ind Demand	-	-	-
2006	Average of Res Demand	2,243	2,328	2,285
	Average of Com Demand	1,989	2,148	2,069
	Sum of Ind Demand	-	-	-
2007	Average of Res Demand	2,319	2,285	2,302
	Average of Com Demand	2,044	2,142	2,093
	Sum of Ind Demand	251	212	463
2008	Average of Res Demand	2,300	2,688	2,494
	Average of Com Demand	2,027	2,520	2,274
	Sum of Ind Demand	249	249	498
2009	Average of Res Demand	2,303	2,230	2,266
	Average of Com Demand	2,011	2,045	2,028
	Sum of Ind Demand	953	1,093	2,046
2010	Average of Res Demand	2,276	2,103	2,190
	Average of Com Demand	1,979	2,003	1,991
	Sum of Ind Demand	2,924	4,449	7,373
Total Average of Res Demand		2,310	2,337	2,324
Total Average of Com Demand		2,033	2,177	2,105
Total Sum of Ind Demand		4,377	6,003	10,380

Average Actual Customer Count by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Customer	47,286	47,191	47,239
	Average of Com Customer	6,085	6,094	6,090
	Average of Ind Customer	-	-	-
2006	Average of Res Customer	48,666	48,531	48,599
	Average of Com Customer	6,225	6,229	6,227
	Average of Ind Customer	-	-	-
2007	Average of Res Customer	49,448	49,391	49,420
	Average of Com Customer	6,356	6,352	6,354
	Average of Ind Customer	9	9	9
2008	Average of Res Customer	49,930	49,734	49,832
	Average of Com Customer	6,395	6,391	6,393
	Average of Ind Customer	10	10	10
2009	Average of Res Customer	50,019	49,868	49,944
	Average of Com Customer	6,327	6,301	6,314
	Average of Ind Customer	12	13	13
2010	Average of Res Customer	50,824	50,824	50,824
	Average of Com Customer	6,449	6,449	6,449
	Average of Ind Customer	13	13	13
Total Average of Res Customer		49,362	49,257	49,309
Total Average of Com Customer		6,306	6,303	6,304
Total Average of Ind Customer		7	8	7

Base Coefficients

(Actual Average Demand/Customer Count)

0.047121	Res Base Usage
0.333897	Com Base Usage
3.762345	Ind Base Usage

APPENDIX 3.3 II MEDFORD REGRESSION STATS

Medford Residential

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.997413882	0.997067778	0.995768593	0.992944333	0.991228607	0.920024236	0.734018374	0.597421004	0.913447475	0.97528302	0.993329289	0.995999631
R Square	0.994834451	0.994144154	0.991555091	0.985938449	0.982534151	0.846444594	0.538782974	0.356911856	0.834386289	0.951176968	0.986703075	0.992015265
Adjusted R S	0.961501118	0.957107117	0.958221758	0.95145569	0.949200818	0.811961836	0.505449641	0.323578522	0.799903531	0.917843635	0.952220317	0.958681931
Standard Erro	0.02023568	0.01853198	0.01794617	0.019456396	0.010919646	0.008271836	0.000992949	0.001098302	0.00217479	0.013342662	0.023446397	0.020861739
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.010387258	0.010081776	0.010032583	0.008932892	0.006663115	0.004633661	0.002111771	0.000941211	0.002903862	0.006473882	0.009031279	0.010507109

Super Peak 0.010325

Medford Commercial

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.995602736	0.996276736	0.994485657	0.974882075	0.981370235	0.898112402	0.712055129	0.716686937	0.936128746	0.971201378	0.989751777	0.994448238
R Square	0.991224808	0.992567336	0.989001722	0.95039506	0.963087539	0.806605886	0.507022507	0.513640165	0.87633703	0.943232116	0.97960858	0.988927299
Adjusted R S	0.957891475	0.955530299	0.955668389	0.915912301	0.929754206	0.772123128	0.473689174	0.480306832	0.841854271	0.909898783	0.945125821	0.955593966
Standard Erro	0.10577674	0.098869555	0.07011104	0.093987061	0.058149805	0.022611663	0.005041153	0.01034255	0.017218831	0.089004979	0.132496693	0.101527957
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.040461844	0.040622406	0.036424152	0.029252135	0.022165633	0.014469459	0.010679854	0.009588349	0.021345382	0.038324684	0.039079527	0.04203632

Super Peak 0.041040

APPENDIX 3.3 II ROSEBURG BASE COEFFICIENT CALCULATION

Average Actual Demand by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Demand	859	849	854
	Average of Com Demand	910	1,040	975
	Average of Ind Demand	32	46	39
2006	Average of Res Demand	702	611	657
	Average of Com Demand	744	748	746
	Average of Ind Demand	26	33	29
2007	Average of Res Demand	634	619	627
	Average of Com Demand	672	757	715
	Average of Ind Demand	24	33	28
2008	Average of Res Demand	632	585	609
	Average of Com Demand	670	716	693
	Average of Ind Demand	23	31	27
2009	Average of Res Demand	568	519	543
	Average of Com Demand	659	658	659
	Average of Ind Demand	21	31	26
2010	Average of Res Demand	497	488	492
	Average of Com Demand	631	688	659
	Average of Ind Demand	119	116	118
Total Average of Res Demand		649	612	630
Total Average of Com Demand		714	768	741
Total Average of Ind Demand		41	48	45

Average Actual Customer Count by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Customer	12,311	12,257	12,284
	Average of Com Customer	2,093	2,093	2,093
	Average of Ind Customer	2	2	2
2006	Average of Res Customer	12,570	12,511	12,541
	Average of Com Customer	2,128	2,112	2,120
	Average of Ind Customer	3	4	4
2007	Average of Res Customer	12,900	12,777	12,839
	Average of Com Customer	2,126	2,105	2,116
	Average of Ind Customer	2	1	2
2008	Average of Res Customer	12,942	12,885	12,914
	Average of Com Customer	2,116	2,106	2,111
	Average of Ind Customer	2	2	2
2009	Average of Res Customer	12,920	12,874	12,897
	Average of Com Customer	2,123	2,120	2,122
	Average of Ind Customer	2	1	2
2010	Average of Res Customer	13,183	13,183	13,183
	Average of Com Customer	2,132	2,132	2,132
	Average of Ind Customer	3	3	3
Total Average of Res Customer		12,804	12,748	12,776
Total Average of Com Customer		2,120	2,111	2,116
Total Average of Ind Customer		2	2	2

Base Coefficients

(Actual Average Demand/Customer Count)

0.045476	Res Base Usage
0.327449	Com Base Usage
19.92319	Ind Base Usage

APPENDIX 3.3 II ROSEBRURG REGRESSION STATS

Roseburg Residential

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.995703207	0.996289735	0.995591731	0.990373703	0.989672191	0.961768478		1	1	0.337099931	0.76178275	0.981277194	0.995726522
R Square	0.991424876	0.992593235	0.991202896	0.980840072	0.979451046	0.924998606		1	1	0.113636364	0.580312959	0.962904931	0.991471306
Adjusted R S	0.958091542	0.955556198	0.957869562	0.946357313	0.946117713	0.890515847	0.966666667	0.966666667	0.079153605	0.546979626	0.928422173	0.958137973
Standard Erro	0.020189471	0.020546436	0.015516028	0.019450184	0.012207209	0.007791278	0	0	0	7.63152E-05	0.012083008	0.030766909	0.018667824
Observations	93	85	93	90	93	90	93	93	93	90	93	90	93
Coefficients													
Intercept	0	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.010207961	0.01018421	0.00951694	0.008513573	0.006722065	0.00503812	0.000614775	4.93693E-05	0.001527313	0.004755629	0.00847663	0.010124057	0

Super Peak 0.010172

Roseburg Commercial

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.994259965	0.995327341	0.994711326	0.982448921	0.966029275	0.888034969	0.760421488	0.707524379	0.855176459	0.788678508	0.97623698	0.995508486
R Square	0.988552879	0.990676515	0.989450621	0.965205882	0.933212559	0.788606107	0.578240839	0.500590747	0.731326775	0.622013789	0.953038641	0.991037146
Adjusted R S	0.955219545	0.953639478	0.956117288	0.930723123	0.899879226	0.754123348	0.544907506	0.467257413	0.696844017	0.588680456	0.918555882	0.957703813
Standard Erro	0.101619442	0.103566587	0.074606905	0.097003717	0.071132553	0.033976264	0.002411562	0.008759553	0.018320633	0.094215258	0.180655819	0.088740539
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.041387999	0.039173031	0.037761981	0.031762565	0.022073058	0.010826	0.003070018	0.002933236	0.020028191	0.027221003	0.036871328	0.044178165

Super Peak 0.041580

Roseburg Industrial

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.994038131	0.994751225	0.994750448	0.608177383	0.532904171	1	0.909561529	0.946941185	0.935096746	0.911034319	0.984317571	0.995636562
R Square	0.988111805	0.989529999	0.989528454	0.369879729	0.283986856	1	0.827302176	0.896697608	0.874405925	0.82998353	0.968881081	0.991292163
Adjusted R S	0.954778472	0.952492962	0.956195121	0.335396971	0.250653523	0.965517241	0.793968843	0.863364275	0.839923166	0.796650197	0.934398322	0.95795883
Standard Erro	3.965396109	3.82574582	2.993997033	0.986325539	0.535778415	0	4.895861812	3.485419118	8.945791539	12.11315329	10.57405988	3.838946443
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.560088307	0.639564834	0.609581699	1.794675998	0.050433553	0.307866797	3.765089394	4.759542558	4.064707745	1.47662742	1.166406843	0.839548803

Super Peak 0.679734

APPENDIX 3.3 II KLAMATH FALLS BASE COEFFICIENT CALCULATION

Average Actual Demand by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Demand	752	684	718
	Average of Com Demand	641	684	662
	Average of Ind Demand	-	-	-
2006	Average of Res Demand	552	541	546
	Average of Com Demand	451	541	496
	Average of Ind Demand	-	-	-
2007	Average of Res Demand	576	540	558
	Average of Com Demand	484	547	515
	Average of Ind Demand	7	10	8
2008	Average of Res Demand	494	508	501
	Average of Com Demand	416	514	465
	Average of Ind Demand	6	9	8
2009	Average of Res Demand	459	499	479
	Average of Com Demand	428	464	446
	Average of Ind Demand	12	16	14
2010	Average of Res Demand	547	521	534
	Average of Com Demand	437	521	479
	Average of Ind Demand	16	22	19
Total Average of Res Demand		563	549	556
Total Average of Com Demand		476	545	511
Total Average of Ind Demand		7	10	8

Average Actual Customer Count by Class

Year	Data	Month 7	8	Grand Total
2005	Average of Res Customer	12,977	12,855	12,916
	Average of Com Customer	1,576	1,566	1,571
	Average of Ind Customer	-	-	-
2006	Average of Res Customer	13,240	13,135	13,188
	Average of Com Customer	1,582	1,576	1,579
	Average of Ind Customer	-	-	-
2007	Average of Res Customer	13,675	13,610	13,643
	Average of Com Customer	1,605	1,598	1,602
	Average of Ind Customer	5	5	5
2008	Average of Res Customer	13,703	13,576	13,640
	Average of Com Customer	1,603	1,590	1,597
	Average of Ind Customer	5	5	5
2009	Average of Res Customer	13,683	13,604	13,644
	Average of Com Customer	1,624	1,615	1,620
	Average of Ind Customer	6	6	6
2010	Average of Res Customer	13,783	13,679	13,731
	Average of Com Customer	1,620	1,610	1,615
	Average of Ind Customer	7	7	7
Total Average of Res Customer		13,510	13,410	13,460
Total Average of Com Customer		1,602	1,593	1,597
Total Average of Ind Customer		4	4	4

Base Coefficients

(Actual Average Demand/Customer Count)

0.041313	Res Base Usage
0.319781	Com Base Usage
2.131761	Ind Base Usage

APPENDIX 3.3 II KLAMATH FALLS REGRESSION STATS

Klamath Falls Residential

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.99829776	0.994544536	0.992991253	0.983717594	0.966196571	0.950403906	0.868069678	0.791953474	0.811217624	0.957083956	0.993829215	0.996354859
R Square	0.996598417	0.989118833	0.986031629	0.967700304	0.933535813	0.903267585	0.753544966	0.627190306	0.658074033	0.916009699	0.987696508	0.992723005
Adjusted R S	0.963265084	0.952081796	0.952698296	0.933217545	0.90020248	0.868784827	0.720211632	0.593856972	0.623591274	0.882676366	0.95321375	0.959389671
Standard Erro	0.017001108	0.028351681	0.027273526	0.031901251	0.02817435	0.009303672	0.000969873	0.003637699	0.004936244	0.020286287	0.027067469	0.023112268
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.008035196	0.007601401	0.007340407	0.006311879	0.004454224	0.002572739	0.000169675	0.000560013	0.001305856	0.004338331	0.0068389	0.007860587

Super Peak 0.007832

Klamath Falls Commercial

	January	February	March	April	May	June	July	August	September	October	November	December
Regression Statistics												
Multiple R	0.997340356	0.993757996	0.989350597	0.966712005	0.925120201	0.603458962	0.602796287	0.834498042	0.793298581	0.935681771	0.990550238	0.995614497
R Square	0.994687786	0.987554955	0.978814603	0.934532101	0.855847385	0.364162718	0.363363363	0.696386983	0.629322638	0.875500377	0.981189773	0.991248227
Adjusted R S	0.961354452	0.950517917	0.94548127	0.900049343	0.822514052	0.32967996	0.33003003	0.663053649	0.594839879	0.842167044	0.946707014	0.957914893
Standard Erro	0.085213132	0.127752985	0.127404523	0.157638569	0.148601948	0.034214729	0.002984935	0.033287639	0.035625876	0.144022096	0.144170705	0.097840115
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients												
Intercept	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.031882962	0.030028158	0.027044273	0.021792485	0.013739514	0.004543931	0.00022562	0.006201806	0.008292339	0.023550893	0.028057996	0.031164693

Super Peak 0.031025

APPENDIX 3.3 II LA GRANDE BASE COEFFICIENT CALCULATION

Average Actual Demand by Class

Year	Data	Month 7	Grand Total
2005	Average of Res Demand	368	368
	Average of Com Demand	224	224
	Average of Ind Demand	17	17
2006	Average of Res Demand	360	360
	Average of Com Demand	219	219
	Average of Ind Demand	17	17
2007	Average of Res Demand	360	360
	Average of Com Demand	219	219
	Average of Ind Demand	17	17
2008	Average of Res Demand	365	365
	Average of Com Demand	222	222
	Average of Ind Demand	17	17
2009	Average of Res Demand	292	292
	Average of Com Demand	235	235
	Average of Ind Demand	3	3
2010	Average of Res Demand	300	300
	Average of Com Demand	235	235
	Average of Ind Demand	11	11
Total Average of Res Demand		341	341
Total Average of Com Demand		226	226
Total Average of Ind Demand		13	13

Average Actual Customer Count by Class

Year	Data	Month 7	Grand Total
2005	Average of Res Customers	6,475	6,475
	Average of Com Customers	949	949
	Average of Ind Customers	3	3
2006	Average of Res Customers	6,163	6,163
	Average of Com Customers	873	873
	Average of Ind Customers	2	2
2007	Average of Res Customers	6,259	6,259
	Average of Com Customers	868	868
	Average of Ind Customers	1	1
2008	Average of Res Customers	6,351	6,351
	Average of Com Customers	880	880
	Average of Ind Customers	1	1
2009	Average of Res Customers	6,386	6,386
	Average of Com Customers	891	891
	Average of Ind Customers	1	1
2010	Average of Res Customers	6,418	6,418
	Average of Com Customers	894	894
	Average of Ind Customers	1	1
Total Average of Res Customers		6,342	6,342
Total Average of Com Customers		893	893
Total Average of Ind Customers		2	2

Base Coefficients

(Actual Average Demand/Customer Count)

0.0537493	Res Base Usage
0.252881	Com Base Usage
8.9683057	Ind Base Usage

APPENDIX 3.3 II LA GRANDE REGRESSION STATS

LaGrande Residential													
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Regression Statistics													
Multiple R	0.996309419	0.99434025	0.994633514	0.981080712	0.950464084	0.928564142	0.594217046	0.973312551	0.353317	0.858301035	0.98932765	0.994761114
R Square	0.992632458	0.988712533	0.989295827	0.962519364	0.903381976	0.862231366	0.353093898	0.947337323	0.124832902	0.736680666	0.978769199	0.989549674
Adjusted R S	0.959299125	0.951675496	0.955962493	0.928036605	0.870048642	0.827748608	0.319760565	0.914003989	0.090350144	0.703347333	0.94428644	0.95621634
Standard Erro	0.025333762	0.028628557	0.022196244	0.02942289	0.0336419	0.011221729	0.001585687	0.01199327	0.002838372	0.015412471	0.036545557	0.027245655
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients													
Intercept	0	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.008773593	0.008135275	0.00806009	0.007466051	0.005424053	0.003396429	0.00048969 5	0.010525255	0.000742044	0.003046619	0.007776698	0.008920865
Super Peak	0.008610												

LaGrande Commercial													
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Regression Statistics													
Multiple R	0.996207943	0.994427495	0.994652101	0.980673611	0.946830837	0.905913752	0.94890968	0.975588253	0.646135991	0.913700332	0.990307403	0.994680868
R Square	0.992430266	0.988886043	0.989332802	0.961720731	0.896488635	0.820679726	0.90042958	0.951772439	0.417491719	0.834848297	0.980708753	0.98939003
Adjusted R S	0.959096932	0.951849006	0.955999468	0.927237973	0.863155301	0.786196967	0.867096247	0.918439106	0.383008961	0.801514964	0.946225994	0.956056697
Standard Erro	0.132998566	0.168099669	0.099767818	0.125404814	0.139342004	0.04804627	0.011825828	0.086988832	0.062638627	0.091299821	0.177506477	0.140345357
Observations	93	85	93	90	93	90	93	93	90	93	90	93
Coefficients													
Intercept	0	0	0	0	0	0	0	0	0	0	0	0	0
X Variable 1	0.042444919	0.04054651	0.03703053	0.031324856	0.021079166	0.012466839	0.009405361	0.076632518	0.008149919	0.018321714	0.034627962	0.040280918
Super Peak	0.041091												

APPENDIX 3.4 II HEATING DEGREE DAY DATA MONTHLY TABLES

Temp Pattern	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
Klam Falls	2012	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2013	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2014	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2015	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2016	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2017	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2018	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2019	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2020	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2021	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2022	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2023	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2024	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2025	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2026	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2027	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2028	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2029	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2030	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2031	1032	847	780	595	391	181	38	55	184	505	836	1055	6499
Klam Falls	2032	1032	847	780	595	391	181	38	55	184	505	836	1055	6499

Temp Pattern	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
LaGrande	2012	1023	832	717	521	339	148	29	36	187	493	777	1024	6126
LaGrande	2013	1016	826	713	520	337	147	27	35	187	491	771	1021	6091
LaGrande	2014	1011	824	710	519	337	146	27	35	184	488	769	1020	6070
LaGrande	2015	1008	823	709	517	335	145	27	35	184	487	765	1016	6051
LaGrande	2016	1001	822	706	516	333	145	27	35	184	483	761	1015	6028
LaGrande	2017	1001	821	703	513	332	142	27	35	184	480	761	1008	6007
LaGrande	2018	997	817	700	512	332	142	27	35	183	477	757	1005	5984
LaGrande	2019	993	813	699	511	332	142	27	35	181	477	753	1002	5965
LaGrande	2020	993	812	698	509	331	142	26	35	181	476	753	996	5952
LaGrande	2021	991	806	694	505	331	140	26	35	180	475	751	993	5927
LaGrande	2022	989	804	694	505	330	140	26	35	180	474	750	992	5919
LaGrande	2023	987	802	693	503	330	140	26	35	180	473	749	991	5909
LaGrande	2024	983	801	693	502	329	140	26	35	180	473	749	989	5900
LaGrande	2025	982	801	693	502	329	139	26	35	180	472	747	989	5895
LaGrande	2026	981	801	691	501	329	139	26	35	180	472	746	989	5890
LaGrande	2027	980	800	691	501	329	139	26	35	180	471	746	989	5887
LaGrande	2028	979	800	689	499	328	139	26	35	180	471	745	989	5880
LaGrande	2029	979	798	689	498	328	138	26	35	180	471	745	987	5874
LaGrande	2030	975	797	687	498	327	137	26	35	179	471	744	984	5860
LaGrande	2031	972	797	687	498	326	137	26	35	179	470	744	984	5855
LaGrande	2032	971	796	686	497	325	137	26	35	178	470	743	984	5848

Temp Pattern	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
Medford	2012	788	613	539	377	207	62	3	2	64	309	613	825	4402
Medford	2013	788	613	539	377	207	62	3	2	64	309	613	825	4402
Medford	2014	785	610	535	371	205	59	2	2	62	309	611	821	4372
Medford	2015	781	607	533	370	205	59	2	2	62	308	607	816	4352
Medford	2016	777	603	530	367	202	59	2	2	62	306	605	814	4329
Medford	2017	775	601	529	365	201	59	2	2	62	306	603	811	4316
Medford	2018	768	597	527	364	201	59	2	2	62	305	600	806	4293
Medford	2019	765	596	525	364	200	59	2	2	62	304	598	803	4280
Medford	2020	761	595	523	364	198	59	2	2	61	301	589	799	4254
Medford	2021	759	590	520	362	198	59	2	2	61	300	588	796	4237
Medford	2022	756	586	520	361	198	59	2	2	61	300	586	791	4222
Medford	2023	756	586	520	360	198	59	2	2	61	299	586	791	4220
Medford	2024	755	585	520	358	198	59	2	2	61	297	585	788	4210
Medford	2025	753	585	517	358	198	59	2	2	61	296	584	787	4202
Medford	2026	752	584	513	358	198	59	2	2	61	296	583	786	4194
Medford	2027	750	584	512	357	198	59	2	2	61	296	583	786	4190
Medford	2028	748	582	510	357	198	59	2	2	61	295	582	784	4180
Medford	2029	748	582	510	356	198	59	2	2	61	295	581	784	4178
Medford	2030	746	582	510	355	197	59	2	2	61	295	580	783	4172
Medford	2031	746	580	508	355	197	59	2	2	61	295	580	779	4164
Medford	2032	745	578	508	354	196	58	2	2	61	295	580	779	4158

APPENDIX 3.4 II HEATING DEGREE DAY DATA MONTHLY TABLES

Temp Pattern	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
Roseburg	2012	677	551	495	361	219	82	9	3	62	274	497	692	3922
Roseburg	2013	677	551	495	361	219	82	9	3	62	274	497	692	3922
Roseburg	2014	672	550	492	359	219	81	9	3	61	272	495	692	3905
Roseburg	2015	666	547	491	358	217	81	9	3	61	271	492	688	3884
Roseburg	2016	664	544	487	357	217	81	9	3	61	270	490	685	3868
Roseburg	2017	657	544	486	356	216	80	9	3	61	270	488	683	3853
Roseburg	2018	655	544	485	355	216	79	9	3	60	269	488	681	3844
Roseburg	2019	653	539	481	353	215	78	9	3	59	269	486	678	3823
Roseburg	2020	652	539	480	351	214	78	9	3	59	268	483	675	3811
Roseburg	2021	652	538	479	350	213	78	9	3	59	268	482	674	3805
Roseburg	2022	651	533	477	349	212	78	9	3	59	267	477	669	3784
Roseburg	2023	651	533	475	349	212	78	9	3	59	267	476	667	3779
Roseburg	2024	650	533	475	349	212	78	9	3	59	267	475	666	3776
Roseburg	2025	649	533	475	349	212	78	9	3	59	267	475	666	3775
Roseburg	2026	648	532	475	347	211	78	9	3	59	267	474	664	3767
Roseburg	2027	648	531	475	347	211	78	9	3	59	267	474	664	3766
Roseburg	2028	647	530	475	347	211	78	9	3	59	267	474	664	3764
Roseburg	2029	646	528	474	346	210	78	9	3	59	267	472	663	3755
Roseburg	2030	646	527	474	346	209	77	9	3	59	267	472	662	3751
Roseburg	2031	646	527	474	346	209	77	9	3	59	266	472	660	3748
Roseburg	2032	641	527	474	346	208	77	9	3	59	264	471	658	3737

Temp Pattern	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
WA/ID	2012	1102	931	774	545	325	138	35	35	185	544	887	1174	6675
WA/ID	2013	1099	926	768	543	322	137	35	35	183	542	886	1168	6644
WA/ID	2014	1092	924	767	541	320	135	35	35	182	540	884	1165	6620
WA/ID	2015	1087	920	766	540	320	135	35	35	182	537	879	1163	6599
WA/ID	2016	1084	916	765	538	319	135	35	33	182	535	878	1159	6579
WA/ID	2017	1081	913	761	535	317	134	35	33	182	532	869	1153	6545
WA/ID	2018	1080	910	757	533	316	134	34	33	179	530	866	1148	6520
WA/ID	2019	1078	907	755	531	316	134	34	33	176	528	863	1142	6497
WA/ID	2020	1071	902	748	529	315	131	34	33	174	526	861	1138	6462
WA/ID	2021	1066	901	746	526	314	131	34	33	174	525	860	1134	6444
WA/ID	2022	1064	900	745	524	313	131	34	30	173	525	858	1134	6431
WA/ID	2023	1060	896	743	523	313	131	34	30	173	524	858	1132	6417
WA/ID	2024	1057	894	743	522	313	131	34	30	171	524	855	1130	6404
WA/ID	2025	1055	893	741	522	313	131	34	30	171	523	853	1129	6395
WA/ID	2026	1054	890	740	521	313	131	34	30	171	522	853	1128	6387
WA/ID	2027	1053	888	739	519	312	130	34	30	171	521	852	1124	6373
WA/ID	2028	1052	887	737	519	311	129	34	30	171	519	850	1122	6361
WA/ID	2029	1050	887	737	519	311	129	33	29	171	518	847	1120	6351
WA/ID	2030	1049	885	735	519	310	129	33	29	170	517	844	1117	6337
WA/ID	2031	1048	884	735	518	310	129	33	29	169	517	842	1114	6328
WA/ID	2032	1048	883	735	518	310	129	33	29	169	515	841	1109	6319

APPENDIX 3.4 II HEATING DEGREE DAILY MONTH BY AREA

Temp Pattern	Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WA/ID	1	39	36	29	22	15	7	3	1	3	12	24	35
WA/ID	2	39	35	29	22	14	7	3	1	3	12	25	35
WA/ID	3	39	35	29	21	14	7	2	0	3	12	25	36
WA/ID	4	39	35	28	21	14	7	2	1	3	13	26	36
WA/ID	5	39	35	28	21	14	7	2	1	4	13	26	36
WA/ID	6	39	35	28	21	13	6	2	1	4	14	27	36
WA/ID	7	39	34	28	21	13	6	2	1	4	14	27	36
WA/ID	8	39	34	27	20	13	6	2	1	4	15	27	37
WA/ID	9	38	34	27	20	12	6	2	1	5	15	28	37
WA/ID	10	38	34	27	20	12	6	2	1	5	15	28	37
WA/ID	11	38	34	27	20	12	6	2	1	5	16	28	37
WA/ID	12	38	33	26	19	12	5	1	1	5	16	29	37
WA/ID	13	38	62	26	19	11	5	1	1	6	17	29	38
WA/ID	14	38	72	26	19	11	5	1	1	6	17	30	38
WA/ID	15	38	82	26	19	11	5	1	1	6	17	30	38
WA/ID	16	38	67	25	19	11	5	1	1	6	18	30	38
WA/ID	17	38	57	25	18	11	5	1	1	7	18	31	38
WA/ID	18	38	32	25	18	10	5	1	1	7	19	31	51
WA/ID	19	38	32	25	18	10	4	1	1	7	19	31	56
WA/ID	20	37	32	24	18	10	4	1	1	8	20	32	61
WA/ID	21	37	31	24	17	10	4	1	1	8	20	32	58
WA/ID	22	37	31	24	17	9	4	1	2	8	20	32	53
WA/ID	23	37	31	24	17	9	4	1	2	9	21	33	39
WA/ID	24	37	31	24	17	9	4	1	2	9	21	33	39
WA/ID	25	37	30	23	16	9	4	1	2	9	22	33	39
WA/ID	26	37	30	23	16	9	3	1	2	10	22	33	39
WA/ID	27	36	30	23	16	8	3	1	2	10	22	34	39
WA/ID	28	36	29	23	15	8	3	1	2	10	23	34	39
WA/ID	29	36		23	15	8	3	1	2	11	23	34	39
WA/ID	30	36		22	15	8	3	1	3	11	24	35	39
WA/ID	31	36		22		8		1	3		24		39

Temp Pattern	Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Medford	1	27	24	20	16	11	4	1	0	1	5	16	25
Medford	2	27	24	20	16	10	4	1	0	1	6	17	25
Medford	3	27	23	19	15	10	4	1	0	1	6	17	26
Medford	4	27	23	19	15	10	4	1	0	1	6	17	26
Medford	5	27	23	19	15	10	4	1	0	1	7	18	26
Medford	6	27	23	19	15	10	4	1	0	1	7	18	26
Medford	7	27	23	19	15	9	3	1	0	1	7	18	26
Medford	8	27	23	19	15	9	3	1	0	1	7	19	26
Medford	9	27	23	19	15	9	3	1	0	1	8	19	27
Medford	10	27	22	19	14	9	3	1	0	1	8	20	27
Medford	11	27	22	18	14	8	3	0	0	1	8	20	27
Medford	12	27	22	18	14	8	3	0	0	1	9	20	27
Medford	13	26	32	18	14	8	2	0	0	2	9	21	27
Medford	14	26	36	18	14	8	2	0	0	2	9	21	27
Medford	15	26	38	18	14	8	2	0	0	2	10	21	27
Medford	16	26	32	18	13	7	2	0	0	2	10	21	27
Medford	17	26	28	18	13	7	2	0	0	2	10	22	27
Medford	18	26	21	17	13	7	2	0	0	2	11	22	50
Medford	19	26	21	17	13	7	2	0	0	3	11	22	59
Medford	20	26	21	17	13	7	2	0	0	3	11	23	61
Medford	21	25	21	17	12	6	2	0	0	3	12	23	56
Medford	22	25	21	17	12	6	1	0	0	3	12	23	55
Medford	23	25	21	17	12	6	1	0	0	3	13	23	28
Medford	24	25	20	17	12	6	1	0	0	4	13	24	28
Medford	25	25	20	17	12	6	1	0	1	4	13	24	28
Medford	26	25	20	16	12	6	1	0	1	4	14	24	28
Medford	27	25	20	16	11	5	1	0	1	4	14	24	28
Medford	28	25	20	16	11	5	1	0	1	4	14	25	28
Medford	29	24		16	11	5	1	0	1	5	15	25	28
Medford	30	24		16	11	5	1	0	1	5	15	25	27
Medford	31	24		16		5		0	1		16		27

APPENDIX 3.4 II HEATING DEGREE DAILY MONTH BY AREA

Temp Pattern	Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Roseburg	1	24	21	18	14	10	5	1	0	1	5	13	21
Roseburg	2	24	21	17	14	10	4	1	0	1	5	14	21
Roseburg	3	24	21	17	14	9	4	1	0	1	5	14	21
Roseburg	4	23	21	17	14	9	4	1	0	1	6	14	22
Roseburg	5	23	20	17	14	9	4	1	0	1	6	14	22
Roseburg	6	23	20	17	14	9	4	1	0	1	6	15	22
Roseburg	7	23	20	17	14	9	4	1	0	1	6	15	22
Roseburg	8	23	20	17	14	9	4	1	0	1	7	15	22
Roseburg	9	23	20	17	13	8	3	1	0	1	7	16	22
Roseburg	10	23	20	17	13	8	3	1	0	2	7	16	23
Roseburg	11	23	20	17	13	8	3	1	0	2	7	16	23
Roseburg	12	23	20	16	13	8	3	1	0	2	7	17	23
Roseburg	13	23	32	16	13	8	3	1	0	2	8	17	23
Roseburg	14	23	37	16	13	7	3	1	0	2	8	17	23
Roseburg	15	23	42	16	13	7	3	1	0	2	8	17	23
Roseburg	16	23	34	16	13	7	3	1	0	2	9	18	23
Roseburg	17	23	28	16	12	7	3	1	0	2	9	18	23
Roseburg	18	23	19	16	12	7	2	1	0	3	9	18	40
Roseburg	19	22	19	16	12	7	2	1	0	3	9	18	53
Roseburg	20	22	19	16	12	6	2	0	0	3	10	19	55
Roseburg	21	22	18	15	12	6	2	0	1	3	10	19	46
Roseburg	22	22	18	15	12	6	2	0	1	3	10	19	48
Roseburg	23	22	18	15	11	6	2	0	1	3	10	19	24
Roseburg	24	22	18	15	11	6	2	0	1	4	11	20	24
Roseburg	25	22	18	15	11	6	2	0	1	4	11	20	24
Roseburg	26	22	18	15	11	5	2	0	1	4	11	20	24
Roseburg	27	22	18	15	11	5	2	0	1	4	12	20	24
Roseburg	28	21	18	15	10	5	2	0	1	4	12	20	24
Roseburg	29	21		15	10	5	2	0	1	4	12	21	24
Roseburg	30	21		15	10	5	1	0	1	5	13	21	24
Roseburg	31	21		14		5		0	1		13		24

Temp Pattern	Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Klamath Falls	1	35	32	27	22	16	8	3	1	3	10	22	32
Klamath Falls	2	35	32	27	22	15	8	3	1	3	10	22	32
Klamath Falls	3	35	31	27	22	15	8	3	1	4	11	23	33
Klamath Falls	4	35	31	27	22	15	7	3	1	4	11	23	33
Klamath Falls	5	35	31	26	21	15	7	2	1	4	11	24	33
Klamath Falls	6	35	31	26	21	14	7	2	1	4	12	24	33
Klamath Falls	7	35	31	26	21	14	7	2	1	4	12	25	33
Klamath Falls	8	35	31	26	21	14	7	2	1	5	12	25	33
Klamath Falls	9	35	30	26	21	13	6	2	1	5	13	25	34
Klamath Falls	10	35	30	26	20	13	6	2	1	5	13	26	34
Klamath Falls	11	35	30	26	20	13	6	2	1	5	13	26	34
Klamath Falls	12	35	30	25	20	13	6	2	1	5	14	26	34
Klamath Falls	13	35	42	25	20	12	6	2	1	6	14	27	34
Klamath Falls	14	35	51	25	20	12	5	2	1	6	14	27	34
Klamath Falls	15	34	54	25	19	12	5	1	1	6	15	28	34
Klamath Falls	16	34	53	25	19	12	5	1	1	6	15	28	34
Klamath Falls	17	34	47	25	19	12	5	1	1	7	15	28	35
Klamath Falls	18	34	29	24	19	11	5	1	1	7	16	29	54
Klamath Falls	19	34	29	24	19	11	5	1	1	7	16	29	66
Klamath Falls	20	34	28	24	18	11	4	1	1	7	17	29	72
Klamath Falls	21	34	28	24	18	11	4	1	2	7	17	30	68
Klamath Falls	22	34	28	24	18	10	4	1	2	8	17	30	58
Klamath Falls	23	34	28	24	18	10	4	1	2	8	18	30	35
Klamath Falls	24	33	28	23	17	10	4	1	2	8	18	30	35
Klamath Falls	25	33	28	23	17	10	4	1	2	9	19	31	35
Klamath Falls	26	33	27	23	17	9	3	1	2	9	19	31	35
Klamath Falls	27	33	27	23	17	9	3	1	2	9	20	31	35
Klamath Falls	28	33	27	23	16	9	3	1	3	9	20	31	35
Klamath Falls	29	32		23	16	9	3	1	3	10	20	32	35
Klamath Falls	30	32		22	16	8	3	1	3	10	21	32	35
Klamath Falls	31	32		22		8		1	3		21		35

APPENDIX 3.4 II HEATING DEGREE DAILY MONTH BY AREA

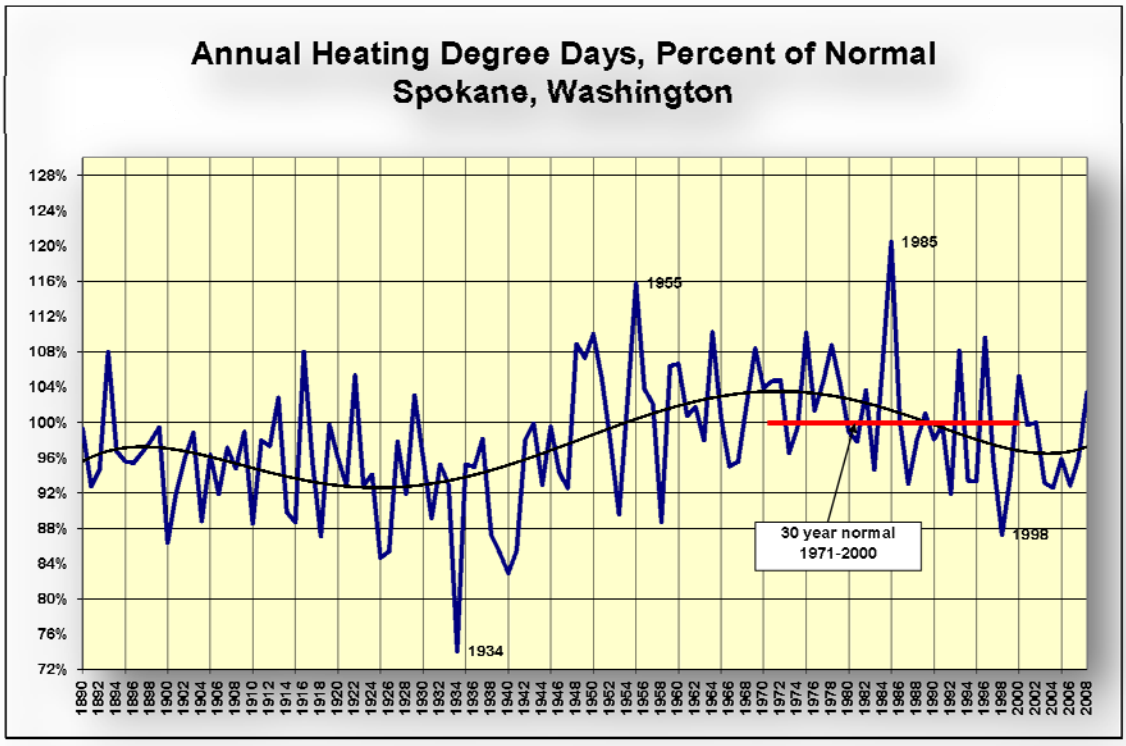
Temp Pattern	Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
LaGrande	1	35	33	28	22	15	8	3	1	4	11	22	32
LaGrande	2	35	33	27	21	15	7	2	1	4	11	23	32
LaGrande	3	35	33	27	21	14	7	2	1	4	12	23	32
LaGrande	4	35	32	27	21	14	7	2	1	4	12	23	32
LaGrande	5	36	32	27	21	14	7	2	1	5	12	24	32
LaGrande	6	36	32	26	21	13	7	2	1	5	13	24	33
LaGrande	7	36	32	26	21	13	6	2	1	5	13	25	33
LaGrande	8	36	32	26	20	13	6	2	1	5	13	25	33
LaGrande	9	35	31	26	20	13	6	2	1	6	13	25	33
LaGrande	10	35	31	26	20	12	6	2	1	6	14	26	33
LaGrande	11	35	31	26	20	12	6	1	1	6	14	26	33
LaGrande	12	35	31	25	20	12	5	1	1	6	14	26	34
LaGrande	13	35	61	25	19	12	5	1	1	6	15	27	34
LaGrande	14	35	68	25	19	11	5	1	1	7	15	27	34
LaGrande	15	35	74	25	19	11	5	1	1	7	15	28	34
LaGrande	16	35	61	25	19	11	5	1	1	7	16	28	34
LaGrande	17	35	60	24	18	11	5	1	1	7	16	28	34
LaGrande	18	35	30	24	18	11	4	1	2	8	17	28	51
LaGrande	19	35	30	24	18	10	4	1	2	8	17	29	58
LaGrande	20	35	29	24	18	10	4	1	2	8	17	29	64
LaGrande	21	35	29	24	17	10	4	1	2	8	18	29	58
LaGrande	22	35	29	23	17	10	4	1	2	9	18	30	51
LaGrande	23	34	29	23	17	9	4	1	2	9	18	30	35
LaGrande	24	34	29	23	17	9	4	1	2	9	19	30	35
LaGrande	25	34	28	23	16	9	3	1	3	9	19	30	35
LaGrande	26	34	28	23	16	9	3	1	3	10	20	31	35
LaGrande	27	34	28	22	16	9	3	1	3	10	20	31	35
LaGrande	28	34	28	22	16	8	3	1	3	10	20	31	35
LaGrande	29	34		22	15	8	3	1	3	10	21	31	35
LaGrande	30	33		22	15	8	3	1	3	11	21	31	35
LaGrande	31	33		22		8		1	4		22		35

APPENDIX 3.5 ▮▮ GLOBAL WARMING

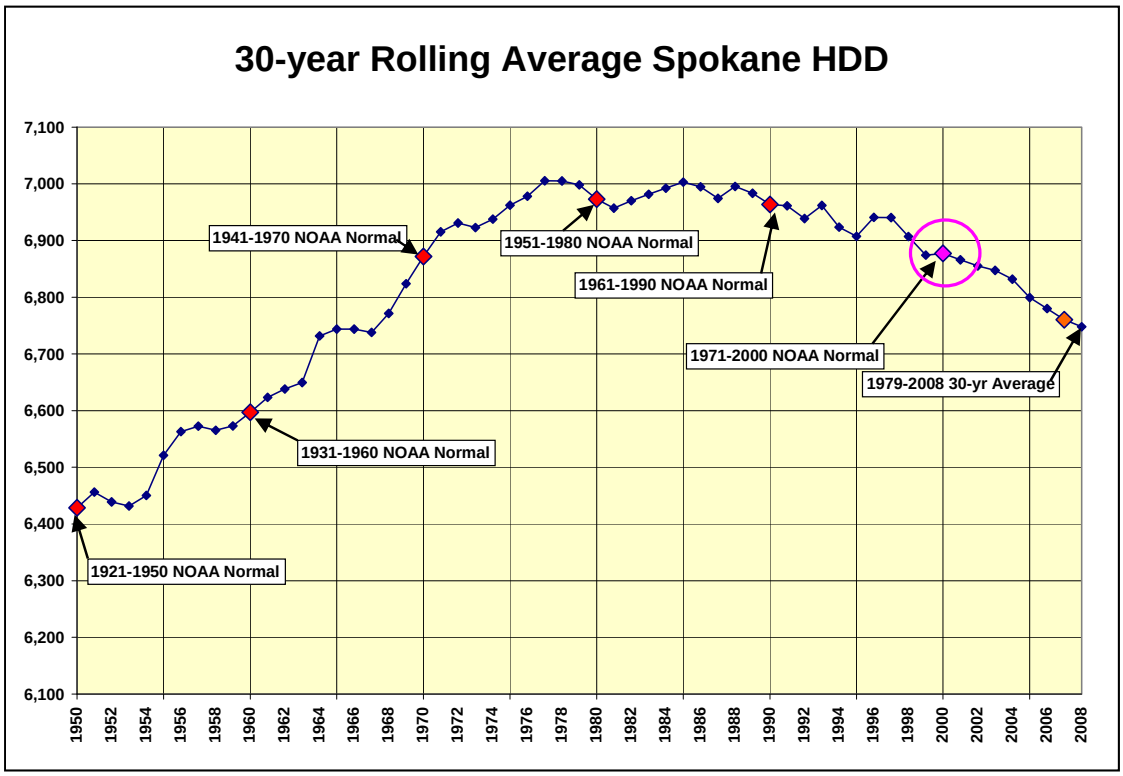
- Peak and trough weather appears more volatile
- Reduce annual consumption over time
- Decrease non peak HDDs over time to reflect warming trend

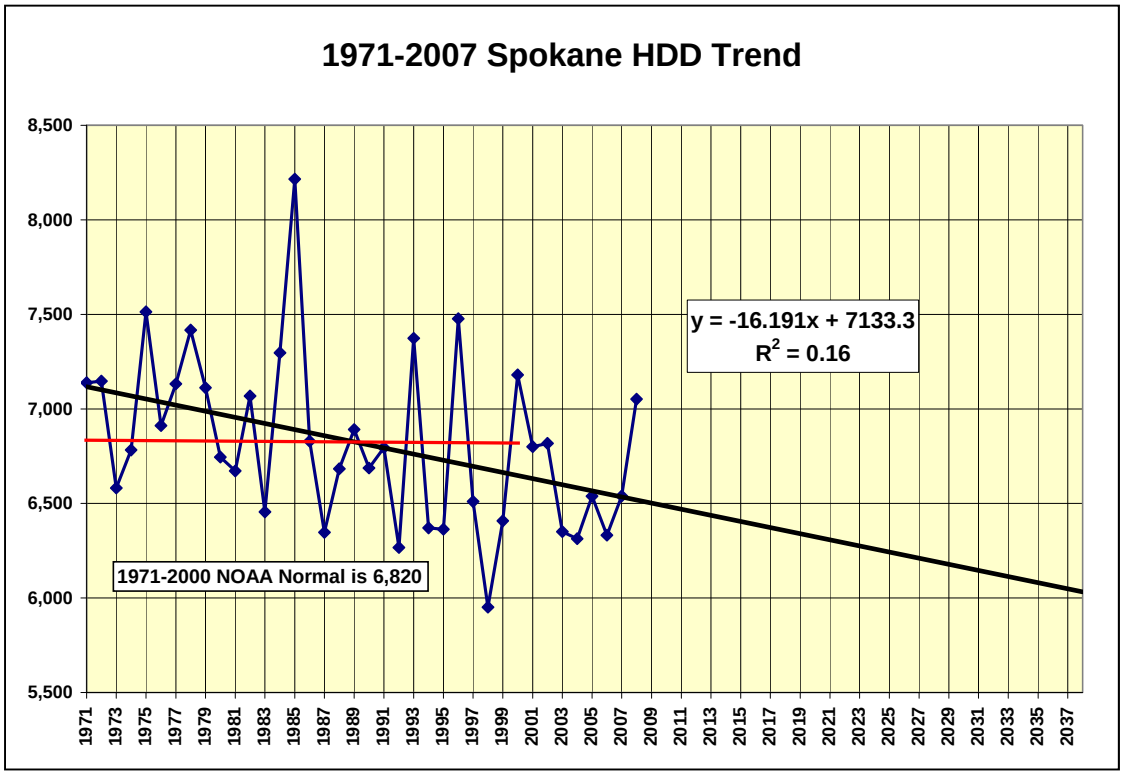
GLOBAL WARMING ADJUSTMENT

- Heating degree day data is obtained from the National Weather Service (NWS). Avista uses the most recent 30-year period, which goes from 1979-2008. For Oregon, Avista uses four weather stations as the weather basis, corresponding to the areas within which natural gas services are provided, all of which are official National Weather Service stations. Heating degree day weather patterns between these areas are uncorrelated.
- At the April 2009 Technical Advisory Committee meeting, Avista presented some data and information regarding trends in heating degree days for its service area. Avista has adopted a "Global Warming" baseline for forecasting which captures the modest warming trend (i.e. gradually declining heating degree days) expected through the 20 year forecast period.
- By 2030, as compared to the "official" NWS normal figures based on the 1971-2000 period, the number of annual heating degree days as a percentage of the official period are:
  - Spokane 93.9%
  - Medford 88.4%
  - Roseburg 86.8%
  - Klamath Falls 94.9%
  - La Grande 81.6%

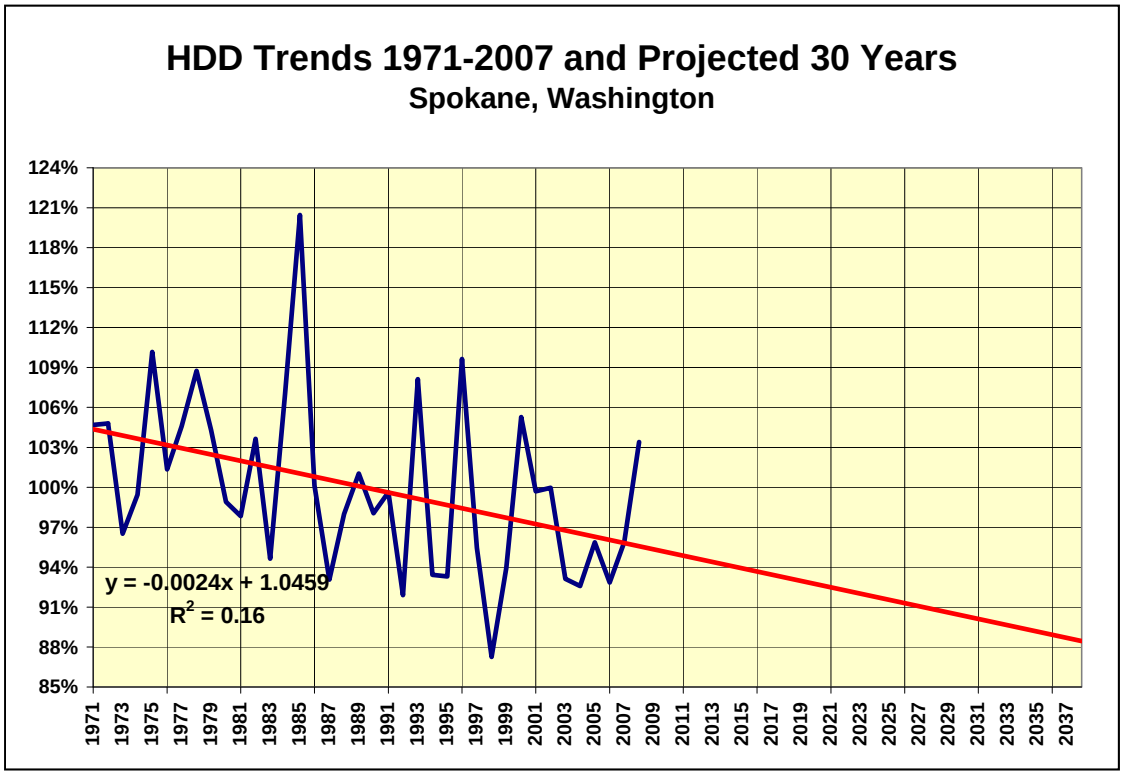


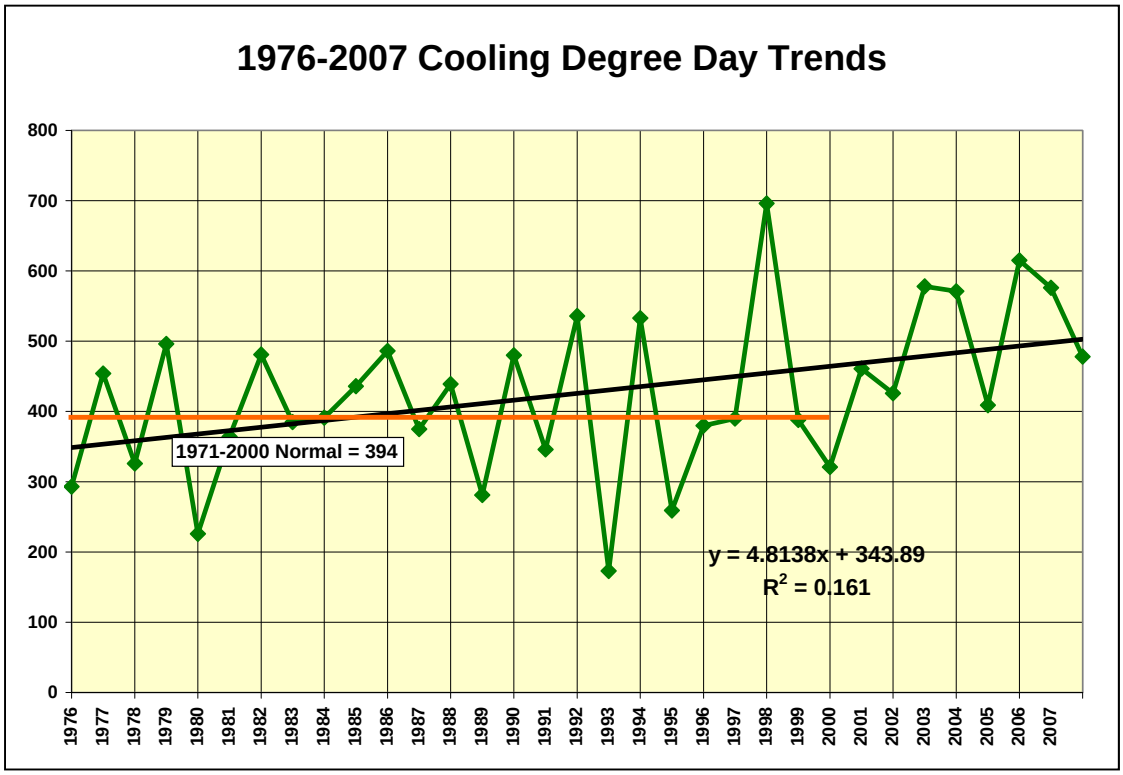
APPENDIX 3.5 II GLOBAL WARMING



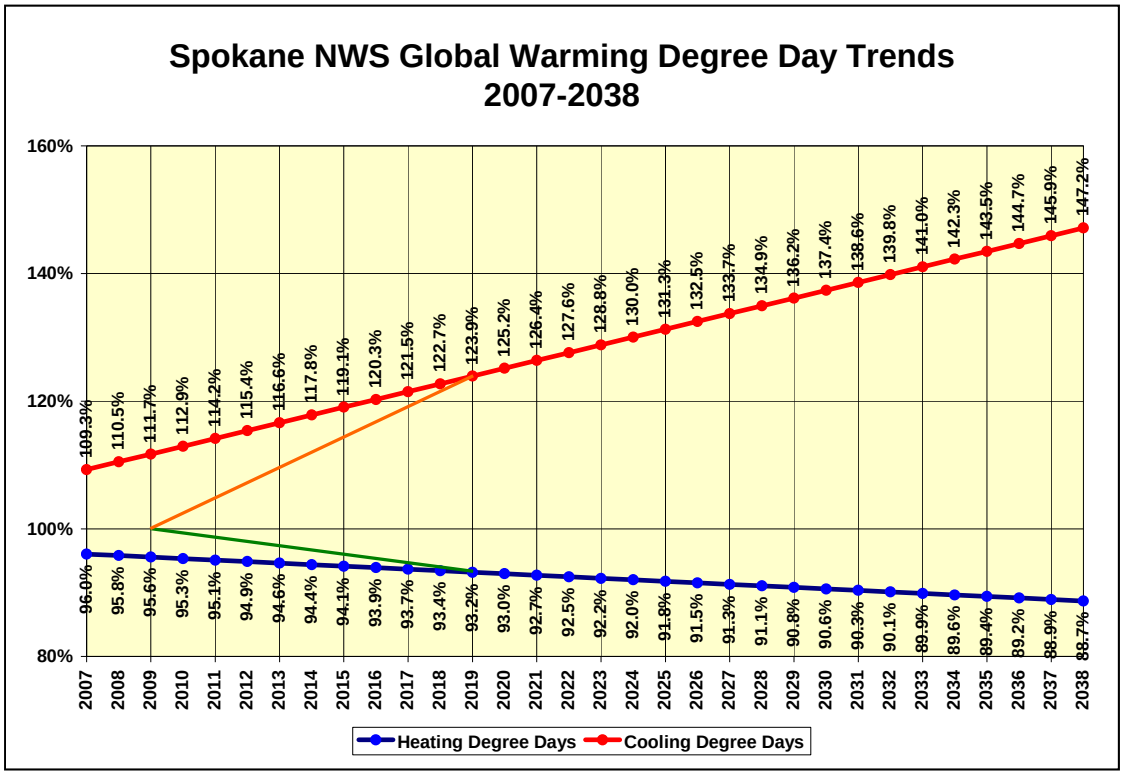


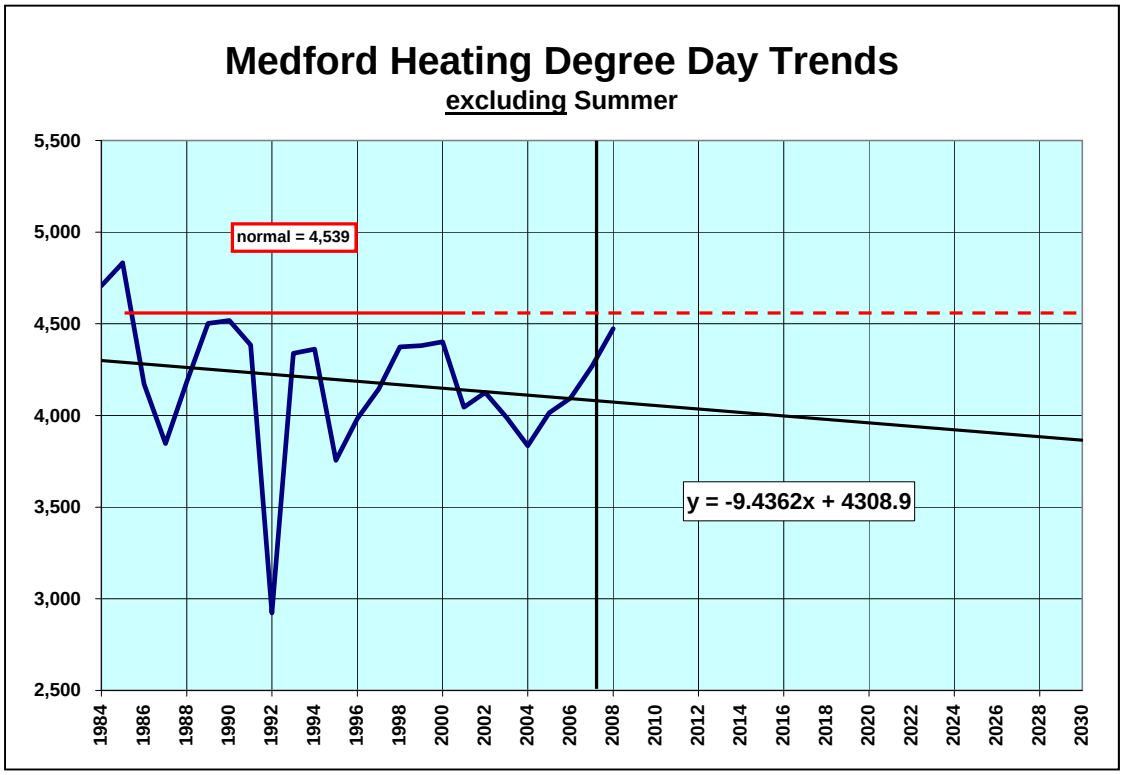
APPENDIX 3.5 II GLOBAL WARMING





APPENDIX 3.5 II GLOBAL WARMING





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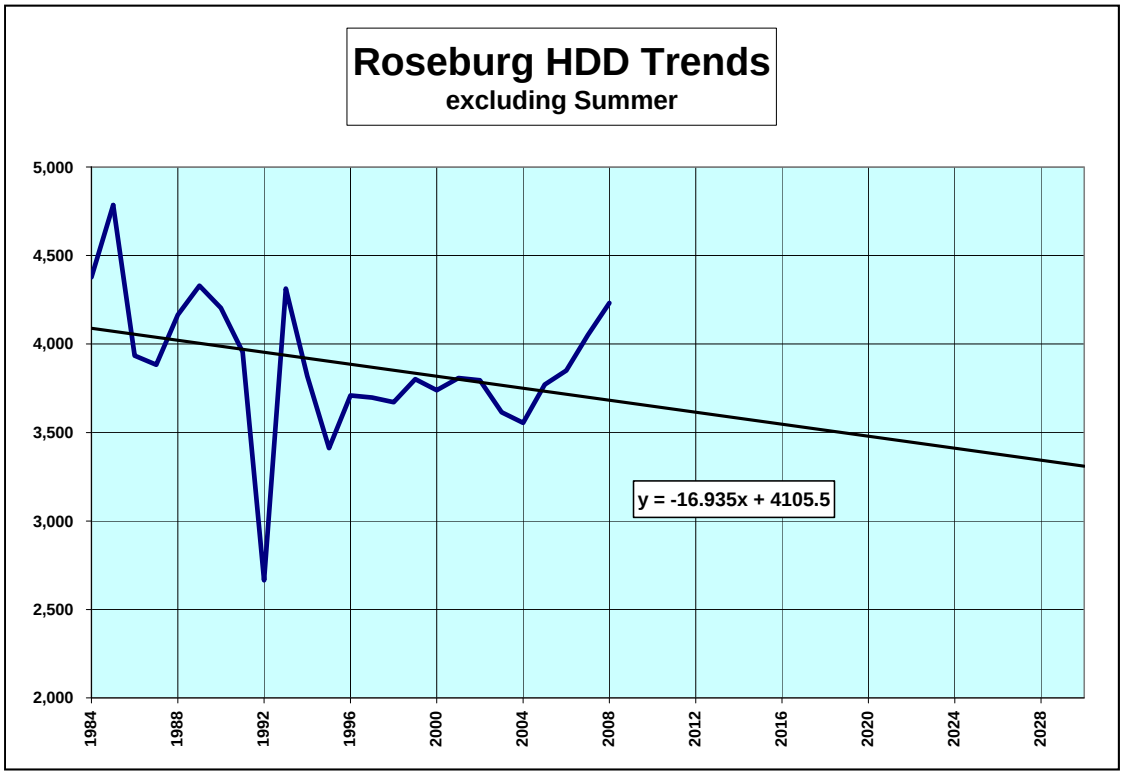

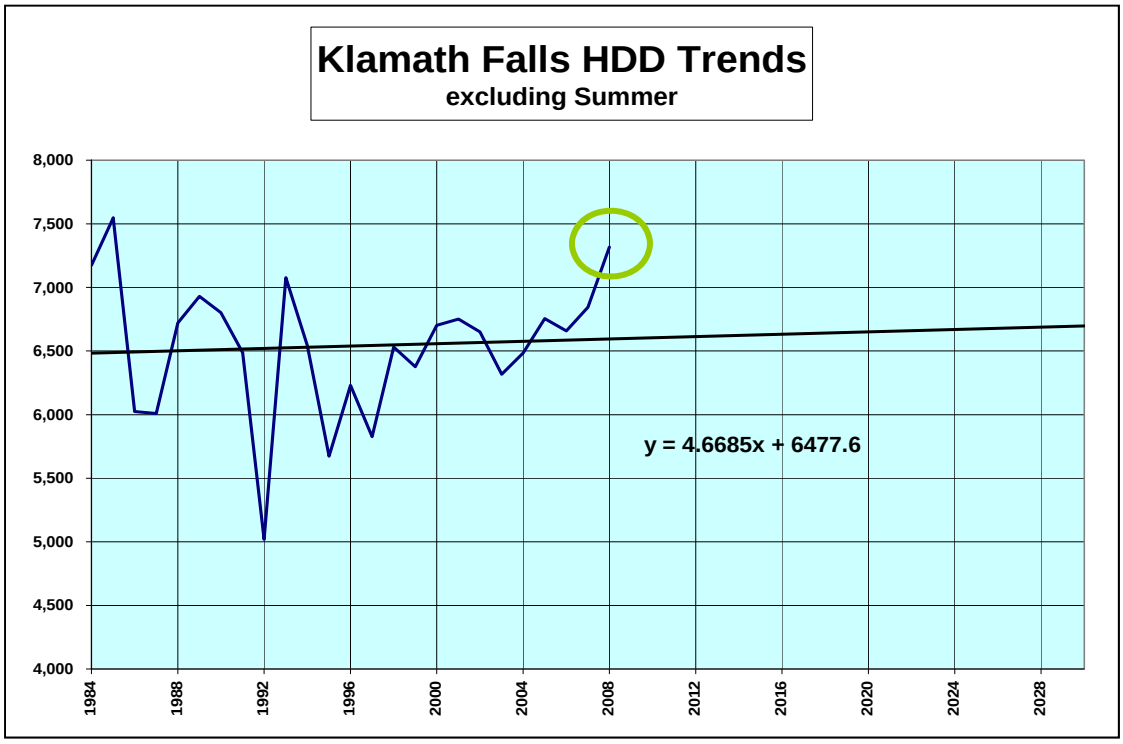

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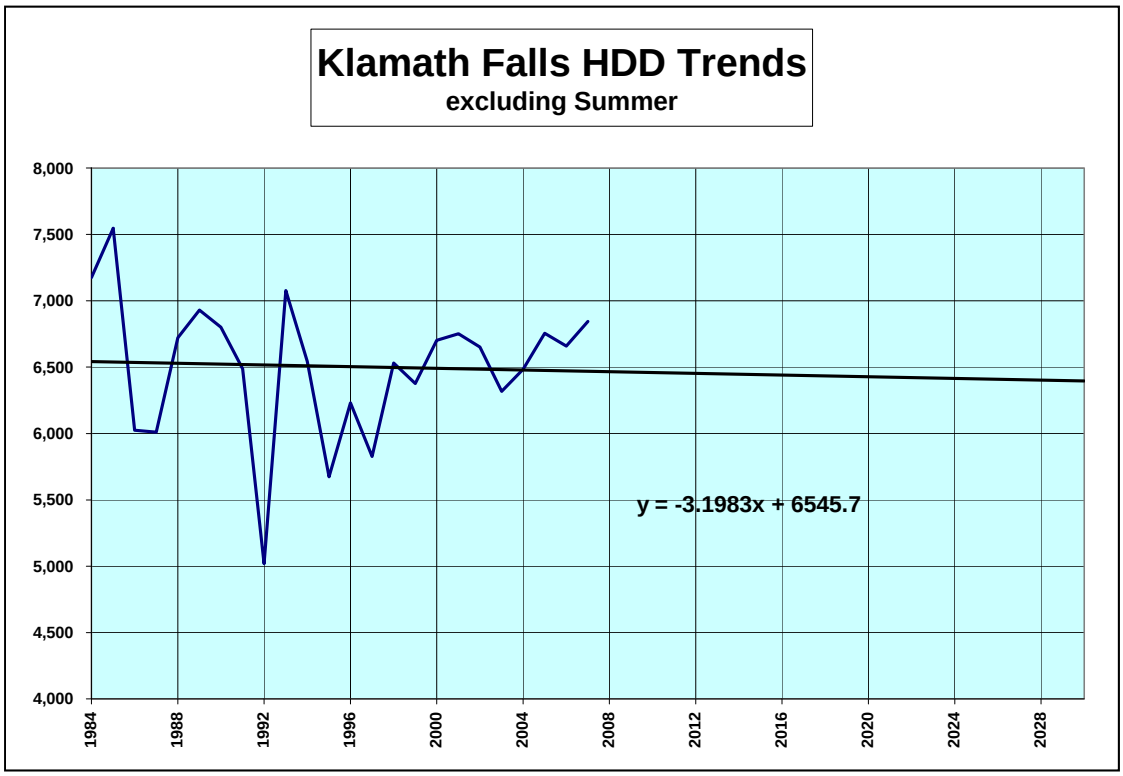
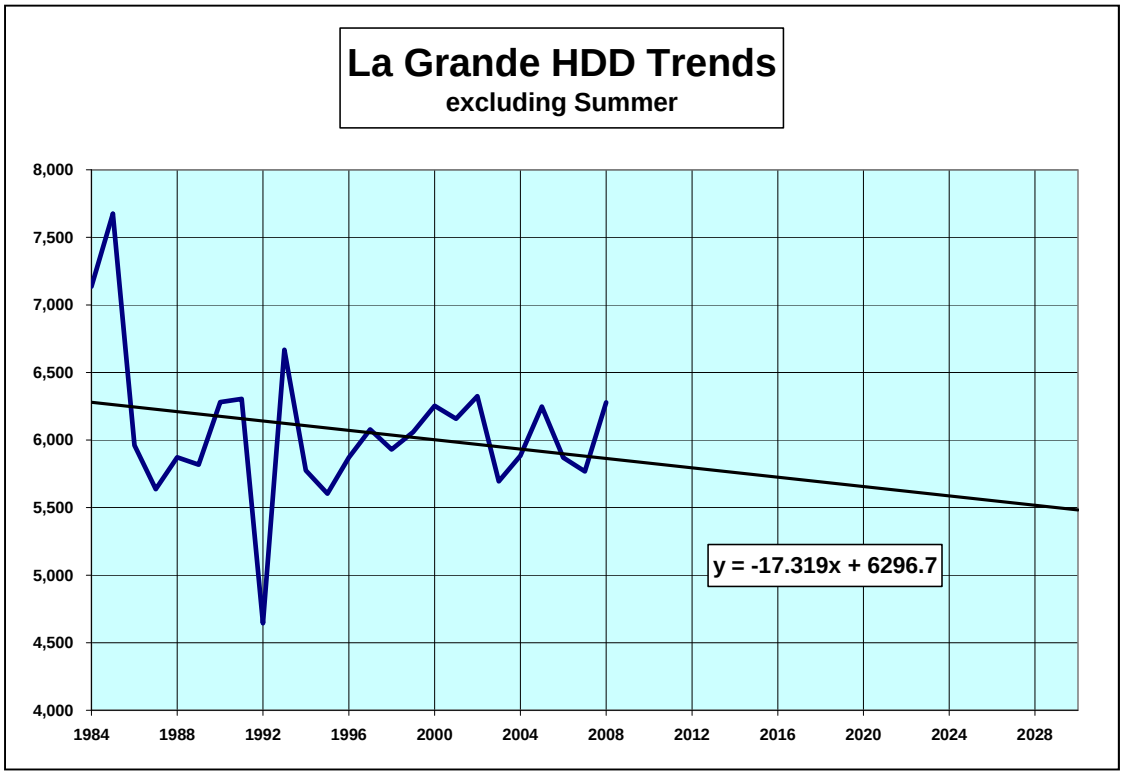
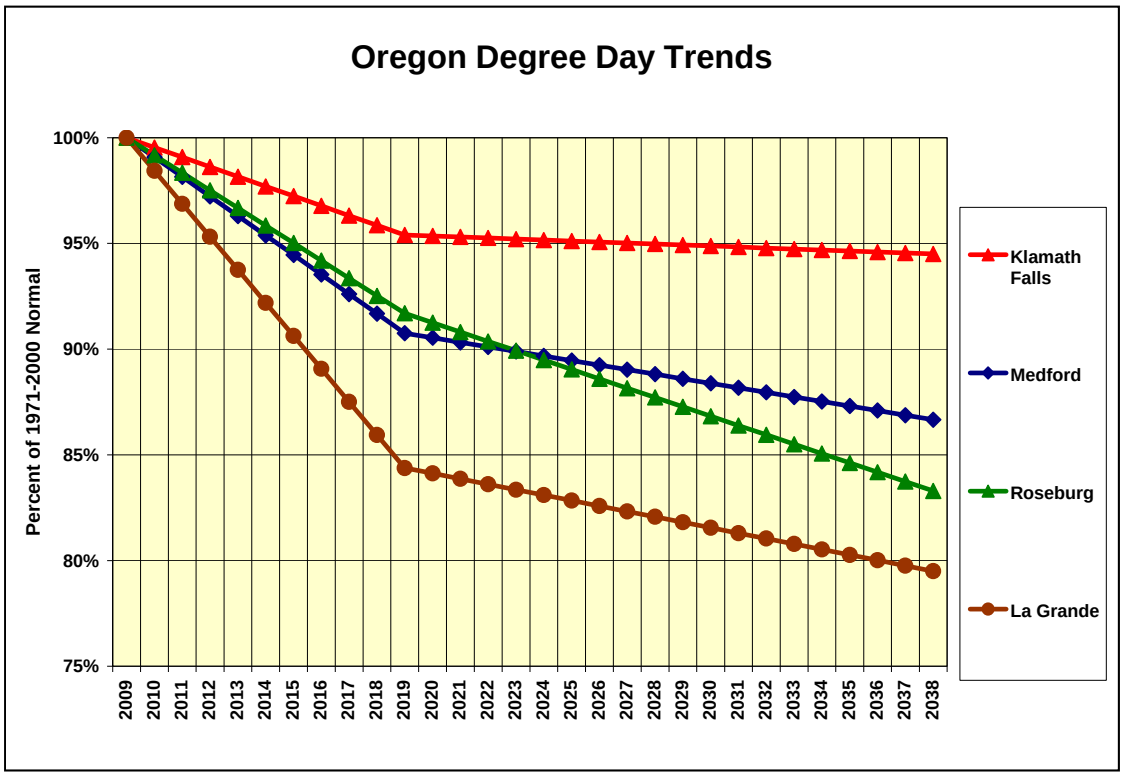




APPENDIX 3.5 II GLOBAL WARMING



APPENDIX 3.6 II DEMAND SENSITIVITIES
SUMMARY OF ASSUMPTIONS – DEMAND SCENARIOS

		DEMAND INFLUENCING - DIRECT									PRICE INFLUENCING - INDIRECT					
INPUT ASSUMPTIONS		**Reference Case**	**Reference Plus Peak Case**	**Low Cust Growth**	**High Cust Growth**	**CNG/NGV Vehicles**	**Alternate Weather Std**	**DSM Case**	**Peak plus DSM Case**	**Alterante Historical UPC Case**	**Expect Elasticity**	**Low Prices**	**High Prices**	**Carbon Legislation**	**Exported LNG**
Customer Growth Rate															
Residential	WA/ID														
Residential	Medford														
Residential	Roseburg			40% Decrease in Cust Growth Rates	60% Increase in Cust Growth Rates										
Residential	Klamath														
Residential	La Grande														
Commercial	WA/ID														
Commercial	Medford														
Commercial	Roseburg														
Commercial	Klamath														
Commercial	La Grande														
Use per Customer		3 Year Historical	3 Year Historical	3 Year Historical	3 Year Historical	15% Growth Cumulative	3 Year Historical	3 Year Historical	3 Year Historical	5 Year Historical	3 Year Historical	3 Year Historical	3 Year Historical	3 Year Historical	3 Year Historical
Weather															
Planning Standard		Normal plus GW Adj	Coldest on Record	Coldest on Record	Coldest on Record	Coldest on Record	Coldest 20yrs	Normal plus GW Adj	Coldest on Record	Coldest on Record	Coldest on Record	Coldest on Record	Coldest on Record	Coldest on Record	Coldest on Record
Demand Side Management															
Programs Included		No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No
Prices															
Price curve		Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Expected	Low	High	Expected	Expected
Price curve adder ($/Dth)		None	None	None	None	None	None	None	None	None					$.50 Adder After 5yrs
Elasticity		None	None	None	None	None	None	None	None	None	Expected	Expected	Expected	Expected	Expected
Carbon Adder ($/Ton)		None	None	None	None	None	None	None	None	None				$14-$22 starting in 2022	
RESULTS															
FIRST YEAR UNSERVED															
	WA/ID	N/A	2023	N/A	2020	2024	2026	N/A	2023	2023	2031	2029	N/A	N/A	N/A
	Medford	N/A	2023	N/A	2020	2023	N/A	N/A	2024	2023	2029	2028	N/A	2030	2030
	Roseburg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Klamath	N/A	2022	N/A	2019	2022	2023	N/A	2023	2022	2031	2028	N/A	2031	2031
	La Grande	N/A	N/A	N/A	2027	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX 3.6 II DEMAND SCENARIOS
PROPOSED SCENARIOS

INPUT ASSUMPTIONS	Expected Case	High Growth & Low Prices	Low Growth & High Prices	Cold Day 20-yr Weather Std	Average Case
Customer Growth Rate	Reference Case Cust Growth Rates	60% Increase in Cust Growth Rates	40% Decrease in Cust Growth Rates	Reference Case Cust Growth Rates	Reference Case Cust Growth Rates
Use per Customer	3 yr Flat + Price Elast.	3 yr Flat + Price Elast. + CNG/NGV	3 yr Flat + Price Elast.	3 yr Flat + Price Elast.	3 yr Flat + Price Elast.
Demand Side Management	Yes	Yes	Yes	Yes	Yes
Weather Planning Standard	Coldest Day	Coldest Day	Coldest Day	Alternate Planning Standard	Normal
Prices					
Price curve	Expected	Low	High	Expected	Expected
Elasticity	Expected	None	Expected	Expected	Expected
Carbon Adder ($/Ton)	$14-$22	None	$14-$22	$14-$22	$14-$22
RESULTS					
First Gas Year Unserved					
WA/ID	2030	2020	N/A	N/A	N/A
Medford	2029	2020	N/A	N/A	N/A
Roseburg	N/A	N/A	N/A	N/A	N/A
Klamath	2030	2019	N/A	N/A	N/A
La Grande	N/A	N/A	N/A	N/A	N/A
SCENARIO SUMMARY					
	Most aggressive peak weather planning case utilizing Average Case assumptions as a starting point and layering in coldest weather on record. The liklihood of occurrence is low.	Aggressive growth assumptions in order to evaluate when our earliest resource shortage could occur. Not likely of occuring.	Stagnant growth assumptions in order to evaluate if a shortage does occur. Not likely to occur.	Evaluates adopting an alternate peak weather standard. Helps provide some bounds around our senstivity to weather.	Case most representative of our average (budget, PGA, rate case, procurement) planning criteria. Most likely to occur.

RISK ASSESSMENT

Higher or lower customer growth rates, which are heavily based on economic recovery. Higher or lower growth rates will lead to accelerated or delayed unserved demand. Looking at various growth assumptions off the Expected Case allows us to capture the risk in terms of the change in demand linked to customer growth.

Higher or lower use per customer will also lead to accelerated or delayed unserved demand. Use per customer can differ in many ways. Direct use per customer influencers, such as demand side management, NGV/CNG usage, and derivation of the use per customer starting point (i.e. one year, three year, etc). Again, varying these assumptions under our forecasting methodology allows us to quantify the change each assumption has to our forecast.

Weather volatility and predictability are a key risk. As the most correlated direct demand influencer, varying weather assumptions is key to understanding the weather related risks.

Indirect influencers including elasticity and price are also important assumptions. The two go hand in hand, as price changes it will influence how much customers consume. If forecasted prices remain relatively stable over the planning horizon our current elasticity assumption will not provide much decreased usage. However, price adders or an overall steepening of the price curve will tirgger a greater decline in usage due to the price elastic response. The maginitude of the elasticity adjustment is also important. We are using a long run elasticity factor as calcuated by the AGA. We continue to evaluate this assumption and are looking to update the study as part of our Action Plan.

APPENDIX 3.7 II DEMAND FORECAST SENSITIVITIES AND SCENARIOS DESCRIPTIONS

DEFINITIONS

DYNAMIC DEMAND METHODOLOGY – Avista's demand forecasting approach wherein we 1) identify key demand drivers behind natural gas consumption, 2) perform sensitivity analysis on each demand driver, and 3) combine demand drivers under various scenarios to develop alternative potential outcomes for forecasted demand.

DEMAND INFLUENCING FACTORS – Factors that directly influence the volume of natural gas consumed by our core customers.

PRICE INFLUENCING FACTORS – Factors that, through price elasticity response, indirectly influence the volume of natural gas consumed by our core customers.

REFERENCE CASE – A baseline point of reference that captures the basic inputs for determining a demand forecast in SENDOUT® which includes number of customers, use per customer, average daily weather temperatures (including an adjustment for global warming) and expected natural gas prices.

SENSITIVITIES – Focused analysis of a specific natural gas demand driver and its impact on forecasted demand relative to the Reference Case when underlying input assumptions are modified.

SCENARIOS – Combination of natural gas demand drivers that make up a demand forecast.

Avista evaluates each sensitivities impact.

SENSITIVITIES

The following Sensitivities were performed on identified demand drivers against the reference case for consideration in Scenario development. Note that Sensitivity assumptions reflect incremental adjustments we estimate are not captured in the underlying reference case forecast.

Following are the Demand Influencing (Direct) Sensitivities we evaluated:

REFERENCE CASE PLUS PEAK – Same assumptions as in the Reference Case with and adjustment made to normal weather to incorporate peak weather conditions. The peak weather data being the coldest day on record for each weather area.

LOW & HIGH CUSTOMER GROWTH – In our low customer growth Sensitivity, annual customer growth rates under perform the reference rate of growth by 40% over our 20 year planning horizon while annual customer growth rates exceed the reference rate by 60% in our high growth Sensitivity.

NATURAL GAS VEHICLES (NGV) AND/OR COMPRESSED NATURAL GAS (CNG) VEHICLES – NGV/CNG vehicles assumed to produce a 15% cumulative incremental demand over our 20 year planning horizon. Our assumption utilized market consumption estimates from an independent analysis on NGV/CNG vehicle viability. The analysis indicates significant challenges exist to widespread adoption but did provide a scenario for significant market penetration (10% in 10 years).

ALTERNATE WEATHER STANDARD (COLDEST DAY 20 YRS) – Peak Day weather temperature reduced to coldest average daily temperature (HDDs) experienced in the most recent 20 years in each region.

DSM – Reference case assumptions including the potential DSM identified by the Conservation Potential Assessment provided by Global Energy Partners. See Appendix 4.1 for full assessment report.

PEAK PLUS DSM – Reference plus peak weather assumptions including the potential DSM identified by the Conservation Potential Assessment provided by Global Energy Partners. See Appendix 4.1 for the full assessment report.

ALTERNATE USE PER CUSTOMER – Reference case use per customer was based upon 3 years of actual use per customer per heating degree day data. This sensitivity used five years of historical use per customer per heating degree day data.

Following are the Price Influencing (Indirect) Sensitivities we evaluated:

EXPECTED ELASTICITY – For our expected elasticity Sensitivity, we incorporate reduced consumption in response to higher natural gas prices utilizing a price elasticity study prepared by the American Gas Association.

LOW & HIGH PRICES – To capture a wide band of alternative prices forecasts, we use the Northwest Power and Conservation Council's "very low" and "very high" natural gas price forecast scenarios with first five years modified to include blend of recent market prices (Nymex forward prices) consistent with our Expected price forecast.

CARBON LEGISLATION– Utilizes carbon cost adders quantified by independent analysis from Consultant #1. They identify both an adder reflecting carbon allowances as well as an adder to capture the effect of increased natural gas demand as more gas turbines come online to replace coal plants and back up wind generation. The allowance adder escalates from $14/ton in 2022 to $22/ton by 2032.

EXPORTED LNG – Beginning in 2017, we apply an estimate of $.50/mmbtu *incremental* adder each year to regional natural gas prices to capture upward price pressure because of exports of LNG to Asian and European counties. There is much uncertainty about the region price impact LNG will have. It is highly dependent on many things including which export facilities get built and the pipeline infrastructure used to serve them. There are several analyses that have been conducted where the price impact can be minimal to $1.00/mmbtu.

SCENARIOS

After identifying the above demand drivers and analyzing the various Sensitivities, we have developed the following demand forecast Scenarios:

AVERAGE CASE – This Scenario we believe represents the most likely average demand forecast modeled. We assume service territory customer growth rates consistent with the reference case, rolling 30 year normal weather in each service territory, our expected natural gas price forecast (Consultant #1), expected price elasticity, and the CO2 cost adders from our **Carbon Legislation** Sensitivity, and DSM. The Scenario does not include incremental cost adders for declining Canadian imports or drilling restrictions beyond what is incorporated in the selected price forecast.

EXPECTED CASE – This Scenario represents the peak demand forecast. We assume service territory customer growth rates consistent with the reference case, a weather standard of coldest day on record in each service territory, our middle range natural gas price forecast (Consultant #1), expected price elasticity, and the CO2 cost adders from our **Carbon Legislation** Sensitivity, and DSM.

HIGH GROWTH, LOW PRICE – This Scenario models a rapid return to robust growth in part spurred on by low energy prices. We assume customer growth rates 60% higher than the reference case, coldest day on record weather standard, incremental demand from NGV/CNG, our low natural gas price forecast, no price elasticity, DSM, and no CO2 adders.

LOW GROWTH, HIGH PRICE – This Scenario models an extended period of slow economic growth in part resulting from high energy prices. We assume customer growth rates 40% lower than the reference case, coldest day on record weather standard, our high natural gas price forecast, expected price elasticity, and CO2 adders from our **Carbon Legislation Sensitivity**.

ALTERNATE WEATHER STANDARD – This Scenario models all the same assumptions as the **Expected Case** Scenario except for the change in the weather planning standard from coldest day on record to coldest day in 20 years for each service territory. As noted in the Sensitivity analysis, this change does not affect the Klamath Falls and La Grande service territories which have each experienced their coldest day on record within the last 20 years.

A case incorporating Exported LNG was not included in this IRP's scenario analysis. There is much uncertainty about the location and timing of exported LNG and its potential price impacts. The forecasters we subscribe to have incorporated some level of export LNG into their price forecasts and therefore our expected price curve does include an export LNG assumption. At this time the effects of LNG are minimal given the robust North American supply picture. Avista will closely monitor developments with export LNG for the potential price and infrastructure impacts.

APPENDIX 3.8 II ANNUAL DEMAND, AVERAGE DAY DEMAND AND PEAK DAY DEMAND (NET OF DSM – CASE AVERAGE

Case	Gas Year	Annual Demand Klamath (MDth)	Daily Demand Klamath (MDth/day)	Peak Day Klamath (MDth/day)	Annual Demand La Grande (MDth)	Daily Demand La Grande (MDth/day)	Peak Day La Grande (MDth/day)	Annual Demand Medford/Roseburg (MDth)	Daily Demand Medford/Roseburg (MDth/day)	Peak Day Medford/Roseburg (MDth/day)
Average	2012	1,277.85	3.501	12.482	719.60	1.972	7.083	6,163.95	16.888	65.99
Average	2013	1,288.18	3.529	12.513	723.97	1.983	7.100	6,210.64	17.015	66.04
Average	2014	1,284.04	3.518	12.817	717.67	1.966	7.224	6,205.13	17.000	67.76
Average	2015	1,298.94	3.559	13.164	721.86	1.978	7.372	6,298.05	17.255	69.87
Average	2016	1,324.25	3.628	13.534	731.58	2.004	7.496	6,445.07	17.658	72.18
Average	2017	1,339.27	3.669	13.884	735.37	2.015	7.610	6,547.54	17.938	74.51
Average	2018	1,358.38	3.722	14.215	741.47	2.031	7.716	6,671.57	18.278	76.82
Average	2019	1,373.79	3.764	14.529	745.61	2.043	7.820	6,777.80	18.569	79.08
Average	2020	1,395.83	3.824	14.843	753.35	2.064	7.923	6,915.81	18.947	81.32
Average	2021	1,408.12	3.858	15.156	755.72	2.070	8.024	7,016.72	19.224	83.54
Average	2022	1,422.13	3.896	15.466	759.18	2.080	8.123	7,120.21	19.507	85.72
Average	2023	1,435.69	3.933	15.772	762.30	2.089	8.222	7,218.04	19.775	87.91
Average	2024	1,456.62	3.991	16.079	769.45	2.108	8.320	7,354.80	20.150	90.14
Average	2025	1,465.16	4.014	16.387	769.77	2.109	8.418	7,428.59	20.352	92.38
Average	2026	1,480.81	4.057	16.696	773.92	2.120	8.515	7,537.43	20.650	94.64
Average	2027	1,493.82	4.093	17.006	776.99	2.129	8.616	7,634.26	20.916	96.91
Average	2028	1,513.95	4.148	17.313	784.11	2.148	8.722	7,759.19	21.258	99.13
Average	2029	1,521.43	4.168	17.616	784.99	2.151	8.830	7,815.12	21.411	101.17
Average	2030	1,534.70	4.205	17.913	789.06	2.162	8.937	7,914.29	21.683	103.16
Average	2031	1,547.94	4.241	18.210	792.95	2.172	9.044	8,004.53	21.930	105.15

Case	Gas Year	Annual Demand Oregon (MDth)	Daily Demand Oregon (MDth/day)	Peak Day Demand Oregon (MDth/day)	Annual Demand WA/ID (MDth)	Daily Demand WA/ID (MDth/day)	Peak Day WA/ID (MDth/day)	Annual Demand Total System (MDth)	Daily Demand Total System (MDth/day)	Peak Day Demand Total System (MDth/day)
Average	2012	8,161.406	22.360	85.551	25,163.851	68.942	245.972	33,325.258	91.302	331.523
Average	2013	8,222.780	22.528	85.654	25,480.238	69.809	248.812	33,703.019	92.337	334.466
Average	2014	8,206.842	22.484	87.804	25,445.489	69.714	256.521	33,652.331	92.198	344.326
Average	2015	8,318.857	22.791	90.406	25,773.110	70.611	264.366	34,091.967	93.403	354.772
Average	2016	8,500.904	23.290	93.208	26,327.094	72.129	272.090	34,827.998	95.419	365.298
Average	2017	8,622.183	23.622	96.002	26,690.777	73.125	279.693	35,312.961	96.748	375.695
Average	2018	8,771.422	24.031	98.748	27,146.080	74.373	287.093	35,917.502	98.404	385.840
Average	2019	8,897.202	24.376	101.434	27,527.058	75.417	294.436	36,424.260	99.792	395.869
Average	2020	9,064.991	24.836	104.083	28,039.888	76.822	301.744	37,104.879	101.657	405.827
Average	2021	9,180.559	25.152	106.719	28,355.733	77.687	308.999	37,536.292	102.839	415.718
Average	2022	9,301.523	25.484	109.314	28,706.582	78.648	316.234	38,008.105	104.132	425.548
Average	2023	9,416.028	25.797	111.903	29,053.598	79.599	323.594	38,469.626	105.396	435.497
Average	2024	9,580.870	26.249	114.541	29,552.166	80.965	330.924	39,133.036	107.214	445.465
Average	2025	9,663.522	26.475	117.181	29,797.373	81.637	338.326	39,460.895	108.112	455.507
Average	2026	9,792.160	26.828	119.855	30,186.012	82.701	345.687	39,978.173	109.529	465.542
Average	2027	9,905.070	27.137	122.532	30,520.477	83.618	353.026	40,425.547	110.755	475.558
Average	2028	10,057.255	27.554	125.162	31,004.570	84.944	360.329	41,061.825	112.498	485.491
Average	2029	10,121.537	27.730	127.612	31,232.440	85.568	367.636	41,353.977	113.299	495.248
Average	2030	10,238.048	28.049	130.006	31,580.327	86.521	374.910	41,818.376	114.571	504.916
Average	2031	10,345.422	28.344	132.406	31,928.321	87.475	382.216	42,273.743	115.818	514.622

APPENDIX 3.8 II ANNUAL DEMAND, AVERAGE DAY DEMAND AND PEAK DAY DEMAND (NET OF DSM) – CASE HIGH

Case	Gas Year	Annual Demand Klamath (MDth)	Daily Demand Klamath (MDth/day)	Peak Day Klamath (MDth/day)	Annual Demand La Grande (MDth)	Daily Demand La Grande (MDth/day)	Peak Day La Grande (MDth/day)	Annual Demand Medford/Roseburg (MDth)	Daily Demand Medford/Roseburg (MDth/day)	Peak Day Medford/Roseburg (MDth/day)
High	2012	1,312.83	3.597	12.482	705.92	1.934	7.083	6,222.40	17.048	65.99
High	2013	1,318.01	3.611	12.513	706.72	1.936	7.100	6,246.05	17.112	66.04
High	2014	1,353.14	3.707	12.817	719.05	1.970	7.224	6,421.81	17.594	67.76
High	2015	1,391.17	3.811	13.164	733.12	2.009	7.372	6,630.94	18.167	69.87
High	2016	1,433.48	3.927	13.534	749.12	2.052	7.496	6,871.78	18.827	72.18
High	2017	1,462.55	4.007	13.884	757.66	2.076	7.610	7,058.12	19.337	74.51
High	2018	1,495.45	4.097	14.215	768.42	2.105	7.716	7,268.03	19.912	76.82
High	2019	1,527.82	4.186	14.529	778.80	2.134	7.820	7,474.62	20.478	79.08
High	2020	1,566.17	4.291	14.843	792.26	2.171	7.923	7,709.62	21.122	81.32
High	2021	1,592.06	4.362	15.156	799.14	2.189	8.024	7,881.95	21.594	83.54
High	2022	1,623.76	4.449	15.466	809.08	2.217	8.123	8,083.19	22.146	85.72
High	2023	1,655.36	4.535	15.772	818.92	2.244	8.222	8,287.63	22.706	87.91
High	2024	1,693.65	4.640	16.079	832.07	2.280	8.320	8,526.67	23.361	90.14
High	2025	1,718.89	4.709	16.387	838.42	2.297	8.418	8,701.46	23.840	92.38
High	2026	1,750.78	4.797	16.696	848.10	2.324	8.515	8,910.37	24.412	94.64
High	2027	1,782.53	4.884	17.006	858.00	2.351	8.616	9,116.08	24.976	96.91
High	2028	1,820.93	4.989	17.313	871.91	2.389	8.722	9,345.33	25.604	99.13
High	2029	1,844.66	5.054	17.616	879.05	2.408	8.830	9,493.84	26.011	101.17
High	2030	1,875.25	5.138	17.913	889.74	2.438	8.937	9,677.82	26.515	103.16
High	2031	1,905.87	5.222	18.210	900.38	2.467	9.044	9,859.35	27.012	105.15

Case	Gas Year	Annual Demand Oregon (MDth)	Daily Demand Oregon (MDth/day)	Peak Day Demand Oregon (MDth/day)	Annual Demand WA/ID (MDth)	Daily Demand WA/ID (MDth/day)	Peak Day WA/ID (MDth/day)	Annual Demand Total System (MDth)	Daily Demand Total System (MDth/day)	Peak Day Demand Total System (MDth/day)
High	2012	8,241.152	22.578	85.551	26,676.459	73.086	245.972	34,917.611	95.665	331.523
High	2013	8,270.788	22.660	85.654	26,733.275	73.242	248.812	35,004.063	95.902	334.466
High	2014	8,494.001	23.271	87.804	27,127.241	74.321	256.521	35,621.241	97.592	344.326
High	2015	8,755.227	23.987	90.406	27,650.283	75.754	264.366	36,405.510	99.741	354.772
High	2016	9,054.378	24.807	93.208	28,293.395	77.516	272.090	37,347.773	102.323	365.298
High	2017	9,278.333	25.420	96.002	28,962.324	79.349	279.693	38,240.657	104.769	375.695
High	2018	9,531.905	26.115	98.748	29,516.994	80.868	287.093	39,048.899	106.983	385.840
High	2019	9,781.233	26.798	101.434	30,027.442	82.267	294.436	39,808.675	109.065	395.869
High	2020	10,068.045	27.584	104.083	30,622.956	83.899	301.744	40,691.001	111.482	405.827
High	2021	10,273.157	28.146	106.719	31,253.974	85.627	308.999	41,527.131	113.773	415.718
High	2022	10,516.037	28.811	109.314	31,976.453	87.607	316.234	42,492.490	116.418	425.548
High	2023	10,761.904	29.485	111.903	32,697.751	89.583	323.594	43,459.655	119.068	435.497
High	2024	11,052.396	30.281	114.541	33,441.452	91.620	330.924	44,493.848	121.901	445.465
High	2025	11,258.779	30.846	117.181	34,206.603	93.717	338.326	45,465.382	124.563	455.507
High	2026	11,509.257	31.532	119.855	35,016.400	95.935	345.687	46,525.656	127.468	465.542
High	2027	11,756.610	32.210	122.532	35,754.261	97.957	353.026	47,510.871	130.167	475.558
High	2028	12,038.173	32.981	125.162	36,578.506	100.215	360.329	48,616.679	133.196	485.491
High	2029	12,217.548	33.473	127.612	37,341.572	102.306	367.636	49,559.119	135.778	495.248
High	2030	12,442.813	34.090	130.006	38,196.855	104.649	374.910	50,639.668	138.739	504.916
High	2031	12,665.597	34.700	132.406	38,985.923	106.811	382.216	51,651.519	141.511	514.622

APPENDIX 3.8 II ANNUAL DEMAND, AVERAGE DAY DEMAND AND PEAK DAY DEMAND (NET OF DSM) – CASE LOW

Case	Gas Year	Annual Demand Klamath (MDth)	Daily Demand Klamath (MDth/day)	Peak Day Klamath (MDth/day)	Annual Demand La Grande (MDth)	Daily Demand La Grande (MDth/day)	Peak Day La Grande (MDth/day)	Annual Demand Medford/Roseburg (MDth)	Daily Demand Medford/Roseburg (MDth/day)	Peak Day Medford/Roseburg (MDth/day)
Low	2012	1,330.48	3.645	12.753	718.84	1.969	7.206	6,326.70	17.333	67.81
Low	2013	1,334.98	3.657	12.839	720.48	1.974	7.255	6,346.10	17.387	68.22
Low	2014	1,257.67	3.446	11.804	675.45	1.851	6.647	6,004.92	16.452	62.76
Low	2015	1,242.11	3.403	11.556	664.53	1.821	6.489	5,949.30	16.299	61.53
Low	2016	1,230.66	3.372	11.314	655.85	1.797	6.323	5,916.94	16.211	60.36
Low	2017	1,226.09	3.359	11.282	650.84	1.783	6.277	5,915.49	16.207	60.35
Low	2018	1,226.50	3.360	11.254	648.66	1.777	6.235	5,939.22	16.272	60.38
Low	2019	1,233.41	3.379	11.305	649.98	1.781	6.240	5,991.97	16.416	60.85
Low	2020	1,244.69	3.410	11.352	653.68	1.791	6.243	6,065.67	16.618	61.28
Low	2021	1,248.11	3.419	11.421	653.10	1.789	6.257	6,100.04	16.712	61.83
Low	2022	1,254.25	3.436	11.463	654.03	1.792	6.258	6,148.25	16.845	62.23
Low	2023	1,260.27	3.453	11.504	654.90	1.794	6.258	6,197.08	16.978	62.62
Low	2024	1,272.34	3.486	11.560	658.98	1.805	6.266	6,275.54	17.193	63.11
Low	2025	1,272.08	3.485	11.582	656.45	1.798	6.255	6,294.48	17.245	63.41
Low	2026	1,279.11	3.504	11.635	657.80	1.802	6.262	6,348.75	17.394	63.89
Low	2027	1,278.47	3.503	11.591	655.25	1.795	6.217	6,366.30	17.442	63.83
Low	2028	1,285.57	3.522	11.585	657.03	1.800	6.194	6,417.67	17.583	63.96
Low	2029	1,282.12	3.513	11.570	653.45	1.790	6.169	6,414.80	17.575	63.99
Low	2030	1,283.44	3.516	11.552	652.45	1.788	6.143	6,435.68	17.632	64.01
Low	2031	1,284.72	3.520	11.533	651.44	1.785	6.117	6,454.48	17.684	64.01

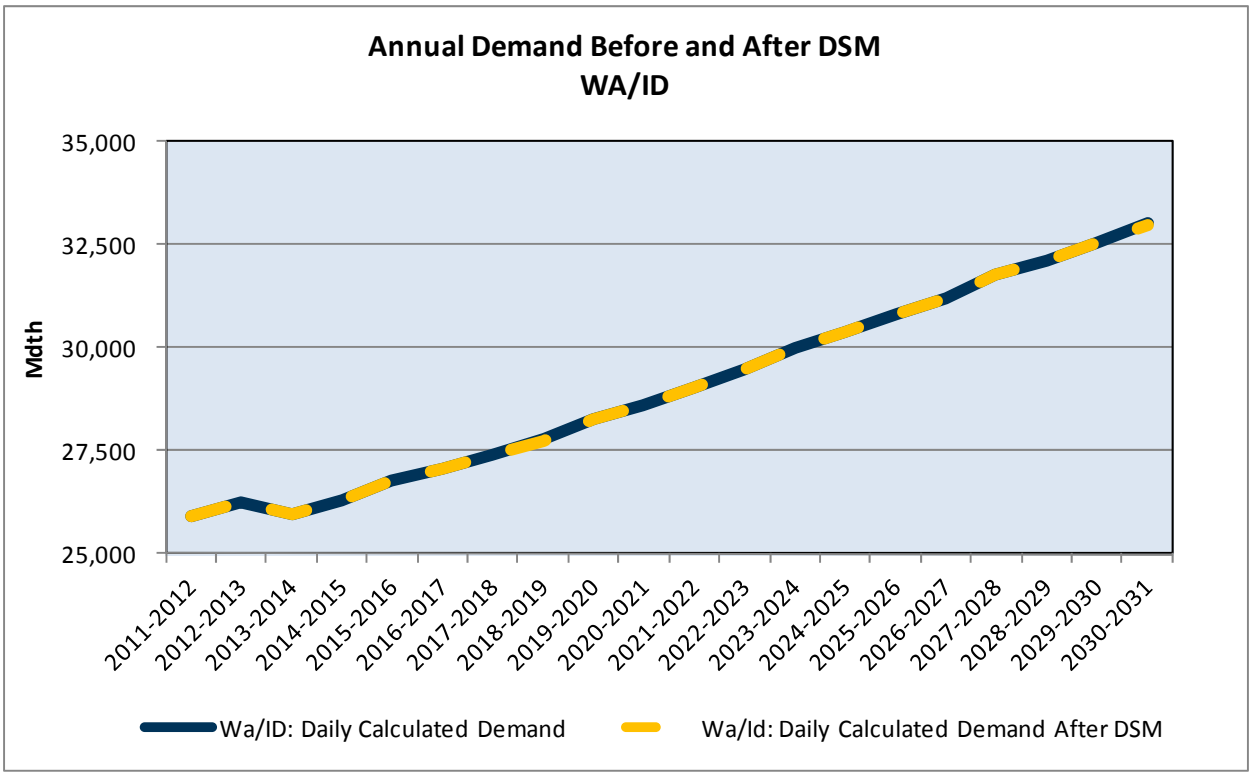
Case	Gas Year	Annual Demand Oregon (MDth)	Daily Demand Oregon (MDth/day)	Peak Day Demand Oregon (MDth/day)	Annual Demand WA/ID (MDth)	Daily Demand WA/ID (MDth/day)	Peak Day WA/ID (MDth/day)	Annual Demand Total System (MDth)	Daily Demand Total System (MDth/day)	Peak Day Demand Total System (MDth/day)
Low	2012	8,376.018	22.948	87.772	25,869.420	70.875	253.682	34,245.438	93.823	341.454
Low	2013	8,401.559	23.018	88.316	26,027.116	71.307	256.267	34,428.675	94.325	344.584
Low	2014	7,938.030	21.748	81.213	24,484.249	67.080	235.970	32,422.280	88.828	317.183
Low	2015	7,855.937	21.523	79.580	24,180.231	66.247	231.265	32,036.167	87.770	310.845
Low	2016	7,803.438	21.379	78.001	23,963.104	65.652	226.450	31,766.543	87.032	304.451
Low	2017	7,792.414	21.349	77.907	23,902.034	65.485	225.981	31,694.448	86.834	303.888
Low	2018	7,814.387	21.409	77.869	23,944.602	65.602	225.656	31,758.990	87.011	303.525
Low	2019	7,875.358	21.576	78.394	24,119.248	66.080	227.010	31,994.606	87.656	305.405
Low	2020	7,964.045	21.819	78.876	24,378.702	66.791	228.263	32,342.747	88.610	307.139
Low	2021	8,001.250	21.921	79.506	24,484.906	67.082	229.973	32,486.156	89.003	309.479
Low	2022	8,056.527	22.073	79.950	24,642.850	67.515	231.151	32,699.377	89.587	311.101
Low	2023	8,112.246	22.225	80.383	24,801.674	67.950	232.338	32,913.920	90.175	312.721
Low	2024	8,206.862	22.485	80.934	25,081.808	68.717	233.825	33,288.670	91.202	314.759
Low	2025	8,223.010	22.529	81.247	25,116.474	68.812	234.654	33,339.484	91.341	315.900
Low	2026	8,285.659	22.700	81.784	25,295.164	69.302	236.060	33,580.823	92.002	317.843
Low	2027	8,300.022	22.740	81.638	25,314.457	69.355	235.478	33,614.479	92.094	317.116
Low	2028	8,360.274	22.905	81.742	25,492.680	69.843	235.657	33,852.953	92.748	317.399
Low	2029	8,350.362	22.878	81.734	25,461.533	69.758	235.688	33,811.895	92.635	317.421
Low	2030	8,371.576	22.936	81.702	25,525.012	69.932	235.658	33,896.588	92.867	317.359
Low	2031	8,390.650	22.988	81.666	25,589.265	70.108	235.634	33,979.915	93.096	317.300

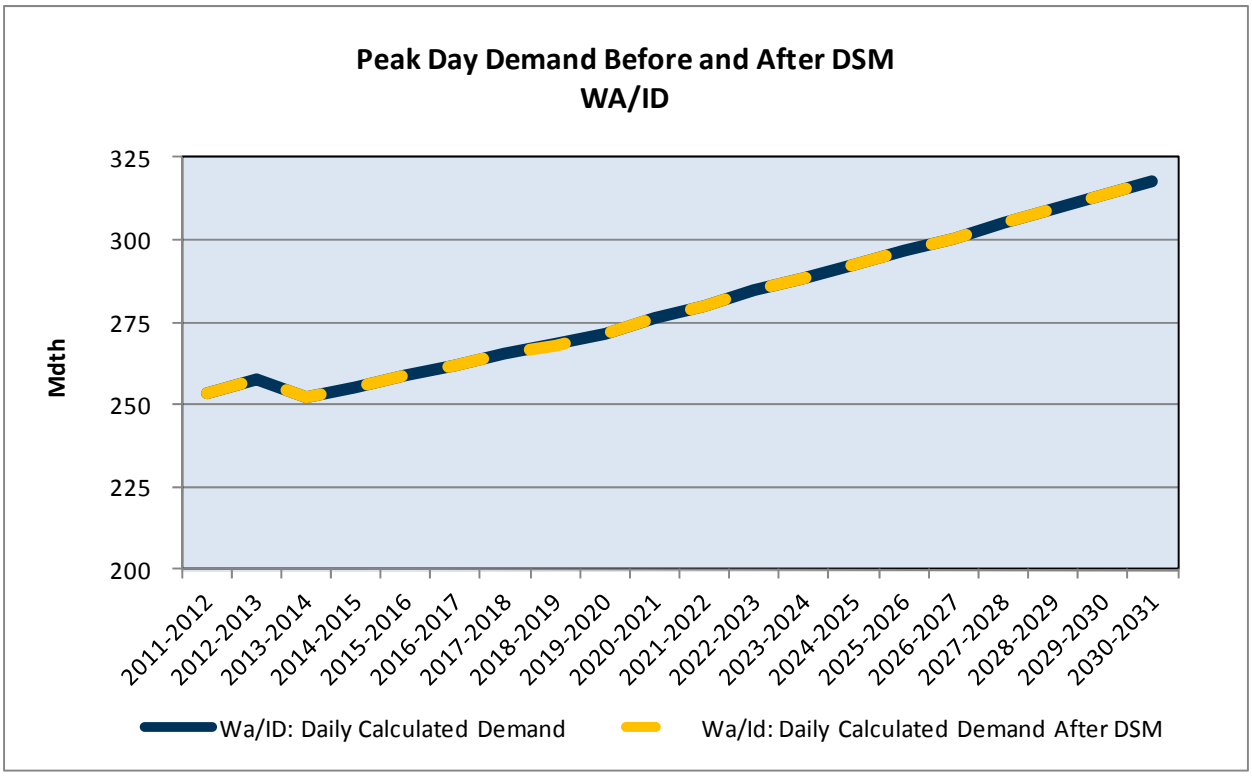
APPENDIX 3.8 II ANNUAL DEMAND, AVERAGE DAY DEMAND AND PEAK DAY DEMAND (NET OF DSM) – CASE COLDEST IN 20

Case	Gas Year	Annual Demand Klamath (MDth)	Daily Demand Klamath (MDth/day)	Peak Day Klamath (MDth/day)	Annual Demand La Grande (MDth)	Daily Demand La Grande (MDth/day)	Peak Day La Grande (MDth/day)	Annual Demand Medford/Roseburg (MDth)	Daily Demand Medford/Roseburg (MDth/day)	Peak Day Medford/Roseburg (MDth/day)
Coldest in 20	2012	1,310.62	3.591	11.393	745.86	2.043	7.231	6,324.53	17.327	60.67
Coldest in 20	2013	1,321.32	3.620	11.519	750.50	2.056	7.312	6,372.93	17.460	61.28
Coldest in 20	2014	1,304.32	3.573	11.251	736.89	2.019	7.108	6,309.85	17.287	59.94
Coldest in 20	2015	1,318.81	3.613	11.344	740.83	2.030	7.136	6,401.37	17.538	60.58
Coldest in 20	2016	1,341.98	3.677	11.498	749.39	2.053	7.180	6,539.28	17.916	61.60
Coldest in 20	2017	1,352.20	3.705	11.626	750.61	2.056	7.210	6,620.72	18.139	62.55
Coldest in 20	2018	1,366.76	3.745	11.746	754.30	2.067	7.236	6,724.60	18.424	63.49
Coldest in 20	2019	1,380.34	3.782	11.850	757.48	2.075	7.257	6,822.92	18.693	64.36
Coldest in 20	2020	1,401.25	3.839	11.976	764.64	2.095	7.292	6,956.07	19.058	65.33
Coldest in 20	2021	1,415.08	3.877	12.146	767.86	2.104	7.354	7,064.45	19.355	66.54
Coldest in 20	2022	1,432.40	3.924	12.293	773.08	2.118	7.404	7,183.63	19.681	67.71
Coldest in 20	2023	1,451.40	3.976	12.461	779.03	2.134	7.463	7,307.07	20.019	68.89
Coldest in 20	2024	1,473.50	4.037	12.596	786.77	2.156	7.505	7,449.79	20.410	69.93
Coldest in 20	2025	1,486.90	4.074	12.762	789.59	2.163	7.564	7,546.85	20.676	71.15
Coldest in 20	2026	1,505.28	4.124	12.922	795.12	2.178	7.617	7,669.18	21.011	72.32
Coldest in 20	2027	1,520.68	4.166	13.047	799.37	2.190	7.654	7,777.92	21.309	73.32
Coldest in 20	2028	1,545.42	4.234	13.212	808.81	2.216	7.717	7,925.26	21.713	74.52
Coldest in 20	2029	1,557.37	4.267	13.370	811.94	2.224	7.781	8,002.99	21.926	75.58
Coldest in 20	2030	1,575.18	4.316	13.525	818.26	2.242	7.841	8,124.26	22.258	76.62
Coldest in 20	2031	1,593.02	4.364	13.680	824.44	2.259	7.902	8,237.08	22.567	77.76

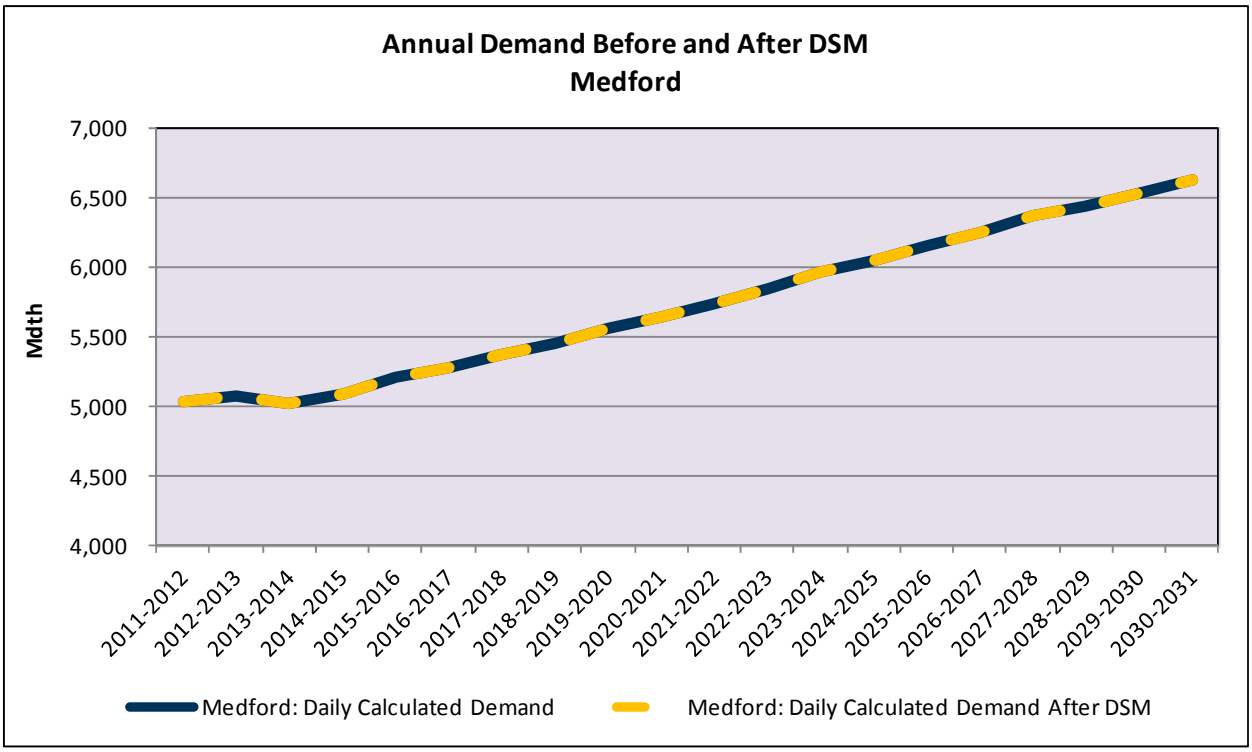
Case	Gas Year	Annual Demand Oregon (MDth)	Daily Demand Oregon (MDth/day)	Peak Day Demand Oregon (MDth/day)	Annual Demand WA/ID (MDth)	Daily Demand WA/ID (MDth/day)	Peak Day WA/ID (MDth/day)	Annual Demand Total System (MDth)	Daily Demand Total System (MDth/day)	Peak Day Demand Total System (MDth/day)
Coldest in 20	2012	8,381.005	22.962	79.297	25,850.890	70.824	236.316	34,231.896	93.786	315.614
Coldest in 20	2013	8,444.741	23.136	80.115	26,178.590	71.722	240.308	34,623.330	94.858	320.423
Coldest in 20	2014	8,351.060	22.880	78.294	25,883.372	70.913	235.606	34,234.432	93.793	313.900
Coldest in 20	2015	8,461.012	23.181	79.061	26,203.844	71.791	238.076	34,664.856	94.972	317.137
Coldest in 20	2016	8,630.650	23.646	80.280	26,714.961	73.192	241.508	35,345.611	96.837	321.789
Coldest in 20	2017	8,723.534	23.900	81.382	26,981.594	73.922	244.543	35,705.129	97.822	325.925
Coldest in 20	2018	8,845.665	24.235	82.470	27,344.674	74.917	247.489	36,190.340	99.152	329.959
Coldest in 20	2019	8,960.745	24.550	83.468	27,688.899	75.860	250.257	36,649.644	100.410	333.725
Coldest in 20	2020	9,121.955	24.992	84.598	28,178.988	77.203	253.448	37,300.943	102.194	338.046
Coldest in 20	2021	9,247.389	25.335	86.037	28,527.323	78.157	257.582	37,774.712	103.492	343.619
Coldest in 20	2022	9,389.109	25.724	87.407	28,946.999	79.307	261.267	38,336.108	105.030	348.674
Coldest in 20	2023	9,537.493	26.130	88.814	29,408.147	80.570	265.451	38,945.640	106.700	354.265
Coldest in 20	2024	9,710.063	26.603	90.034	29,932.043	82.006	268.955	39,642.107	108.609	358.988
Coldest in 20	2025	9,823.340	26.913	91.473	30,280.223	82.960	273.163	40,103.563	109.873	364.636
Coldest in 20	2026	9,969.582	27.314	92.859	30,727.329	84.184	277.147	40,696.911	111.498	370.006
Coldest in 20	2027	10,097.977	27.666	94.017	31,113.863	85.243	280.427	41,211.840	112.909	374.444
Coldest in 20	2028	10,279.493	28.163	95.444	31,696.310	86.839	284.546	41,975.803	115.002	379.990
Coldest in 20	2029	10,372.303	28.417	96.732	32,020.073	87.726	288.556	42,392.376	116.143	385.288
Coldest in 20	2030	10,517.702	28.816	97.987	32,465.913	88.948	292.555	42,983.616	117.763	390.542
Coldest in 20	2031	10,654.532	29.190	99.340	32,913.603	90.174	296.552	43,568.136	119.365	395.892

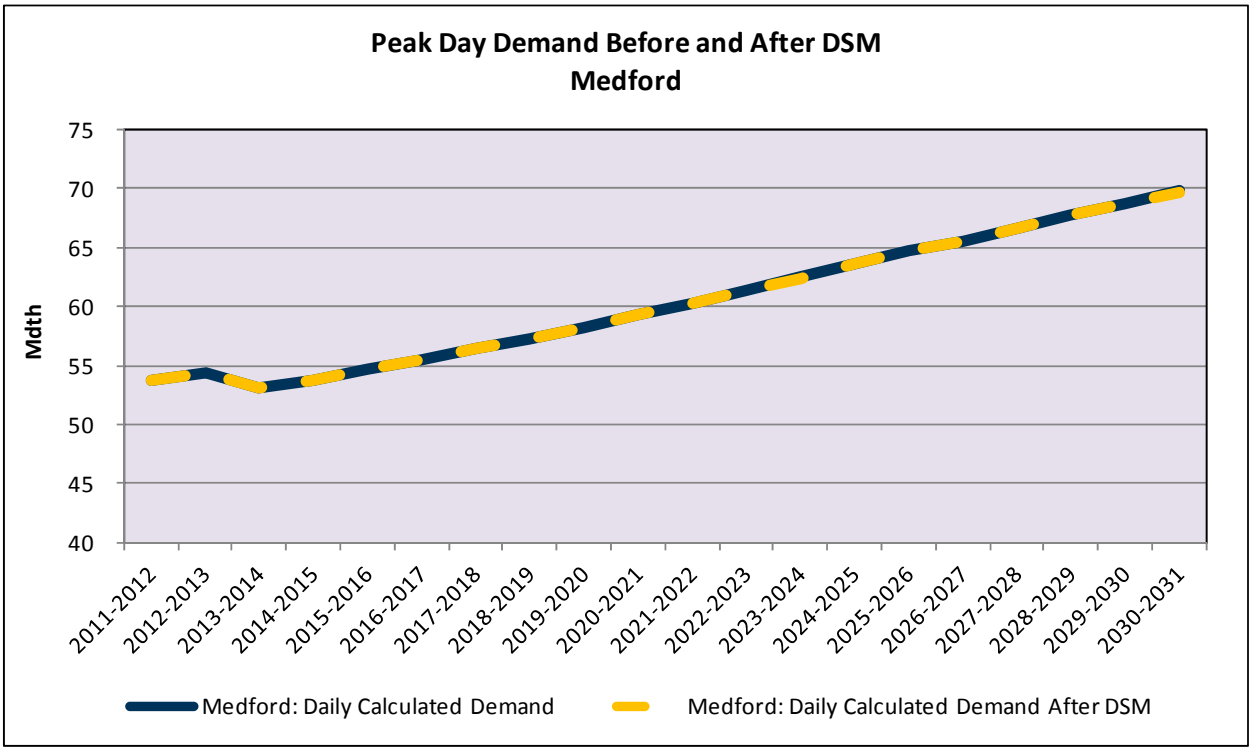
APPENDIX 3.9 II PEAK DAY DEMAND BEFORE AND AFTER DSM WA/ID





APPENDIX 3.9 II PEAK DAY DEMAND BEFORE AND AFTER DSM MEDFORD





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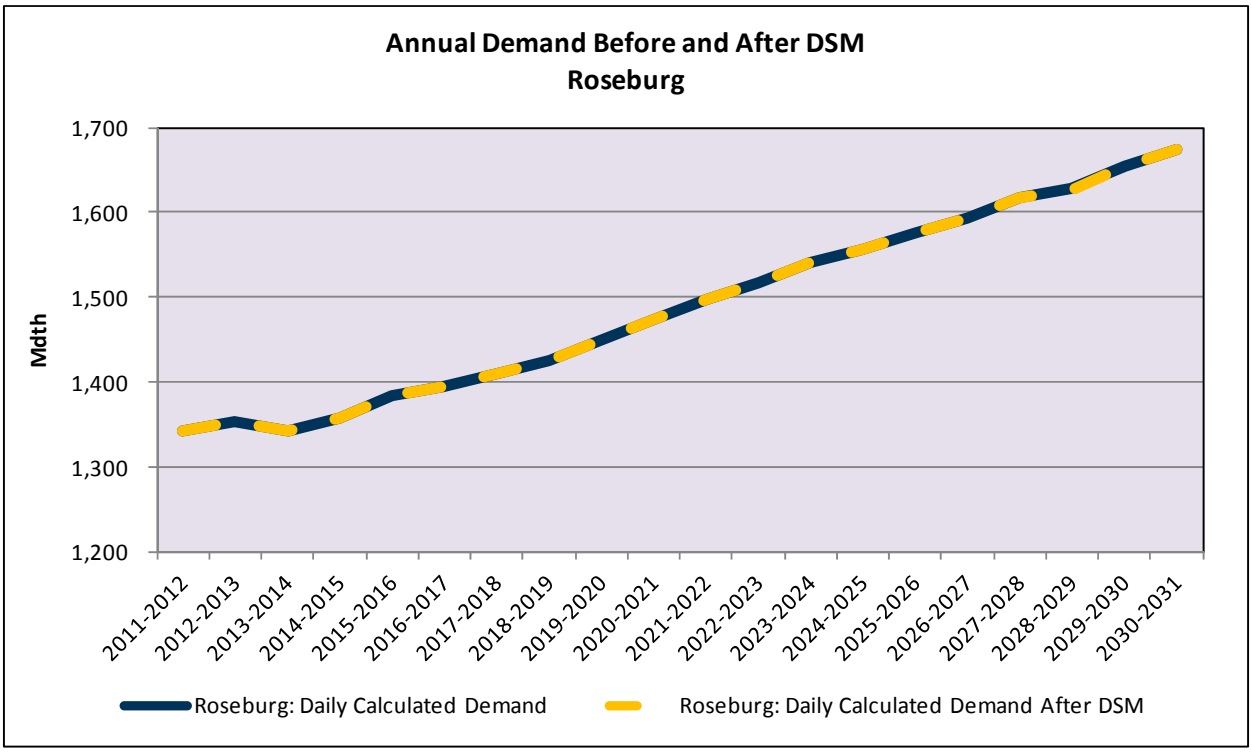
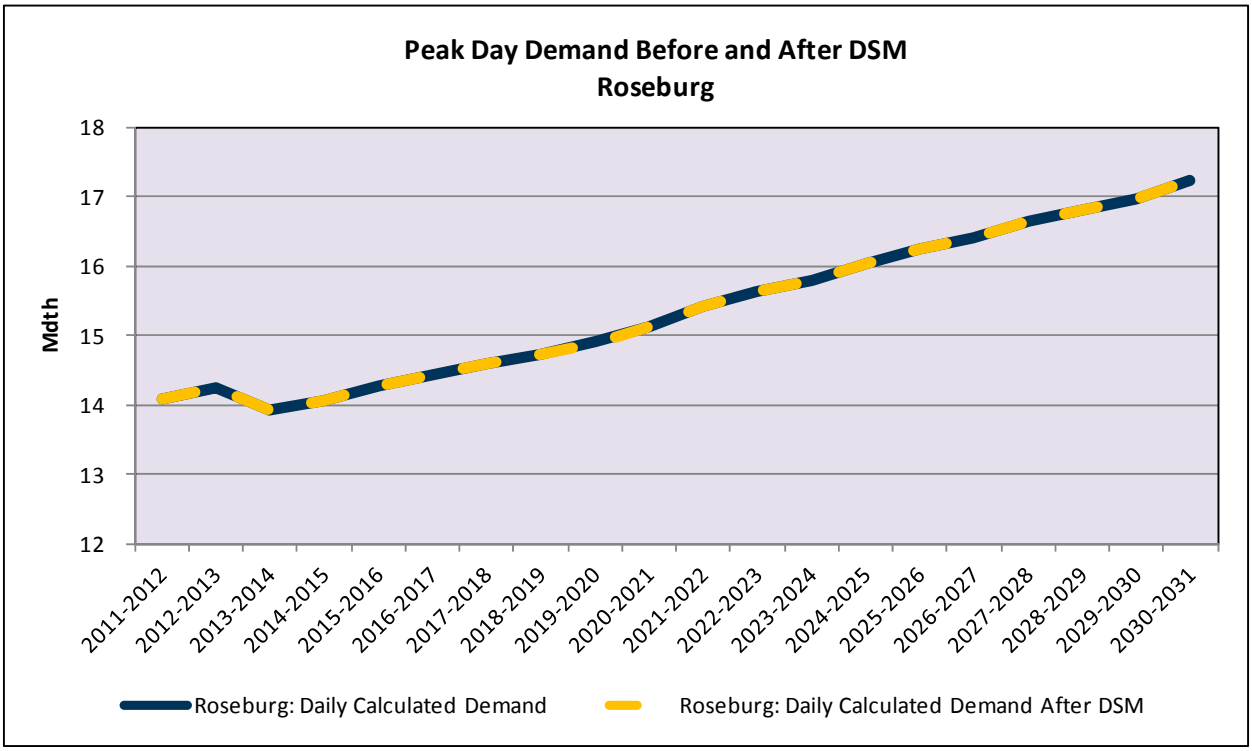
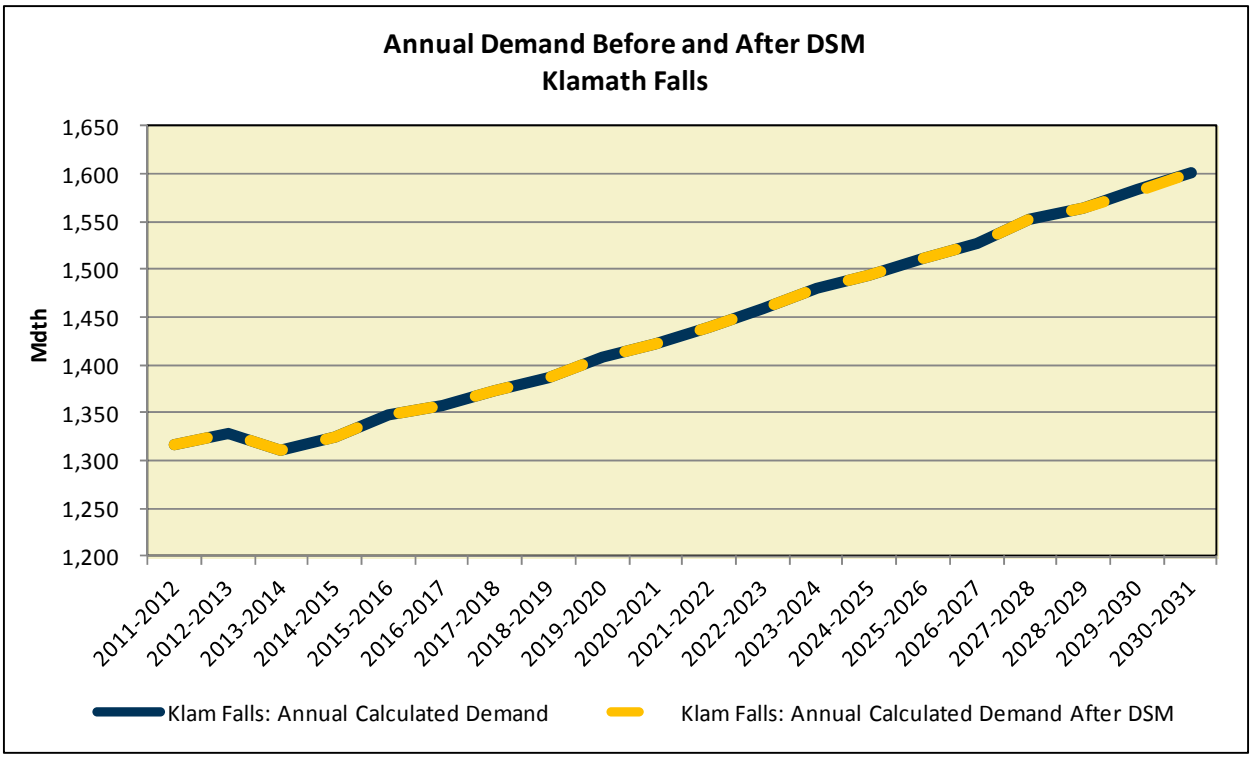
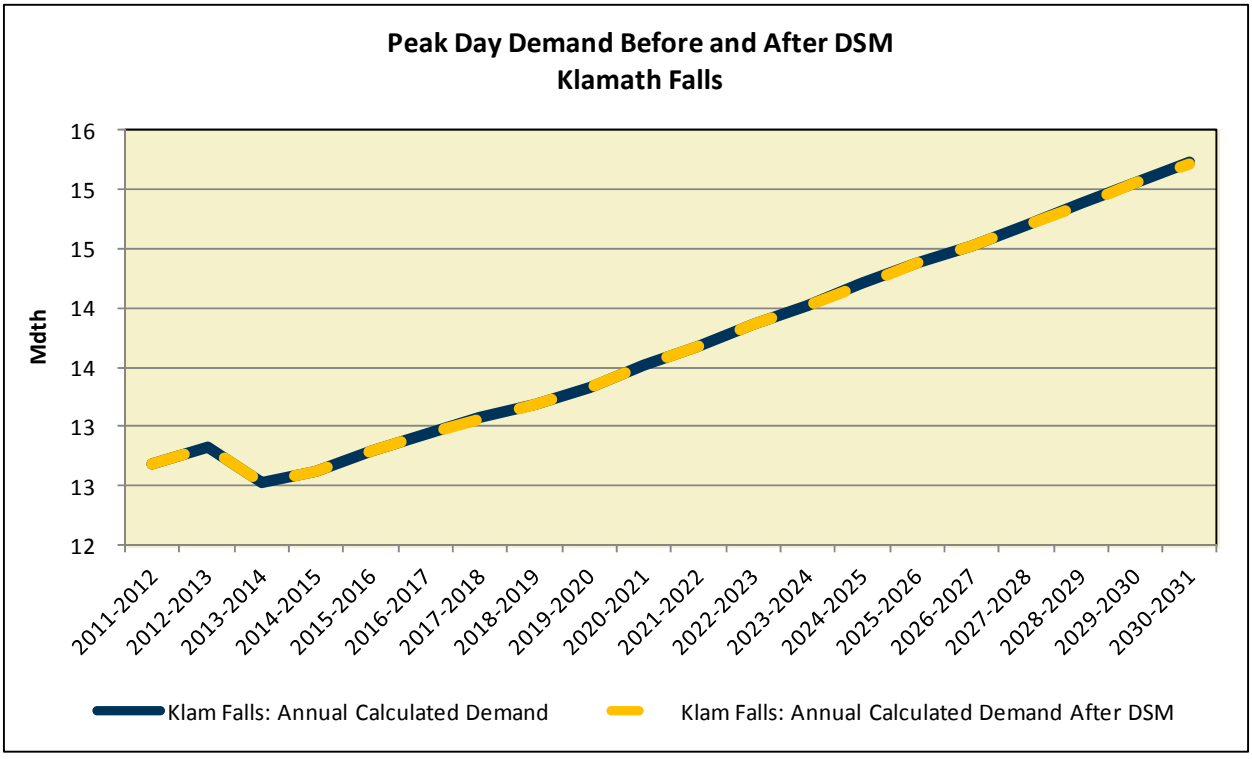




APPENDIX 3.9 II PEAK DAY DEMAND BEFORE AND AFTER DSM KLAMATH FALLS





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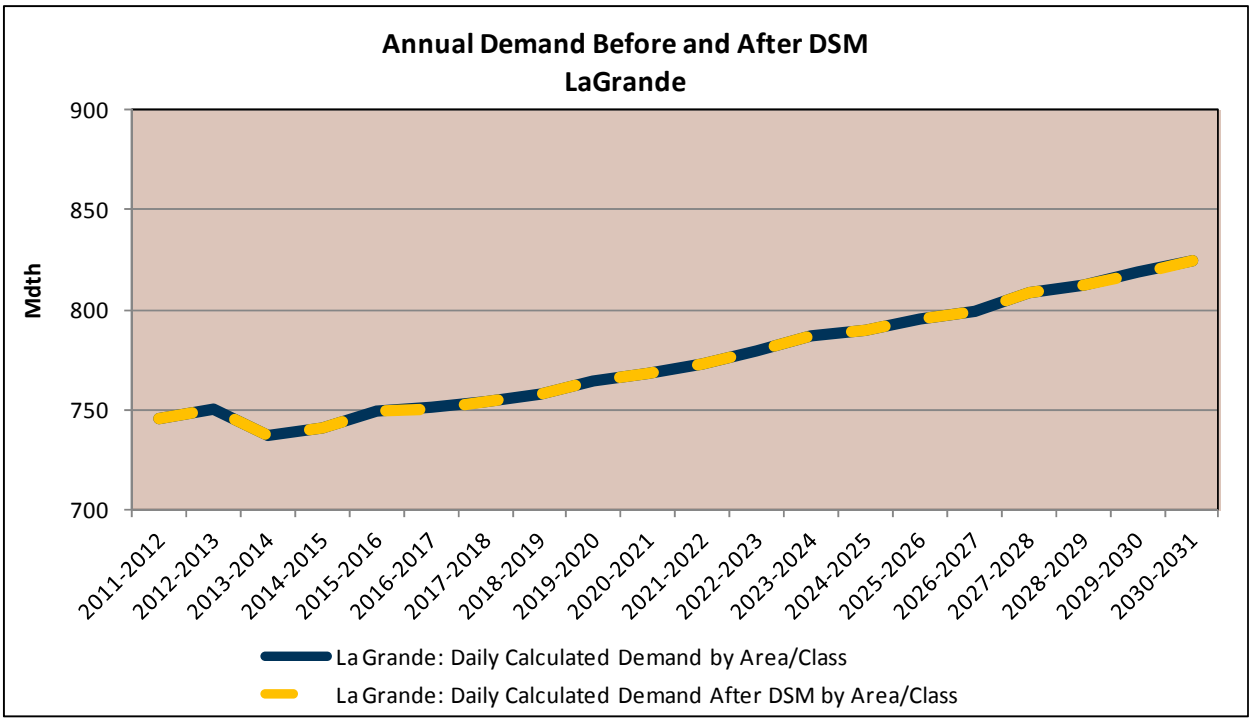
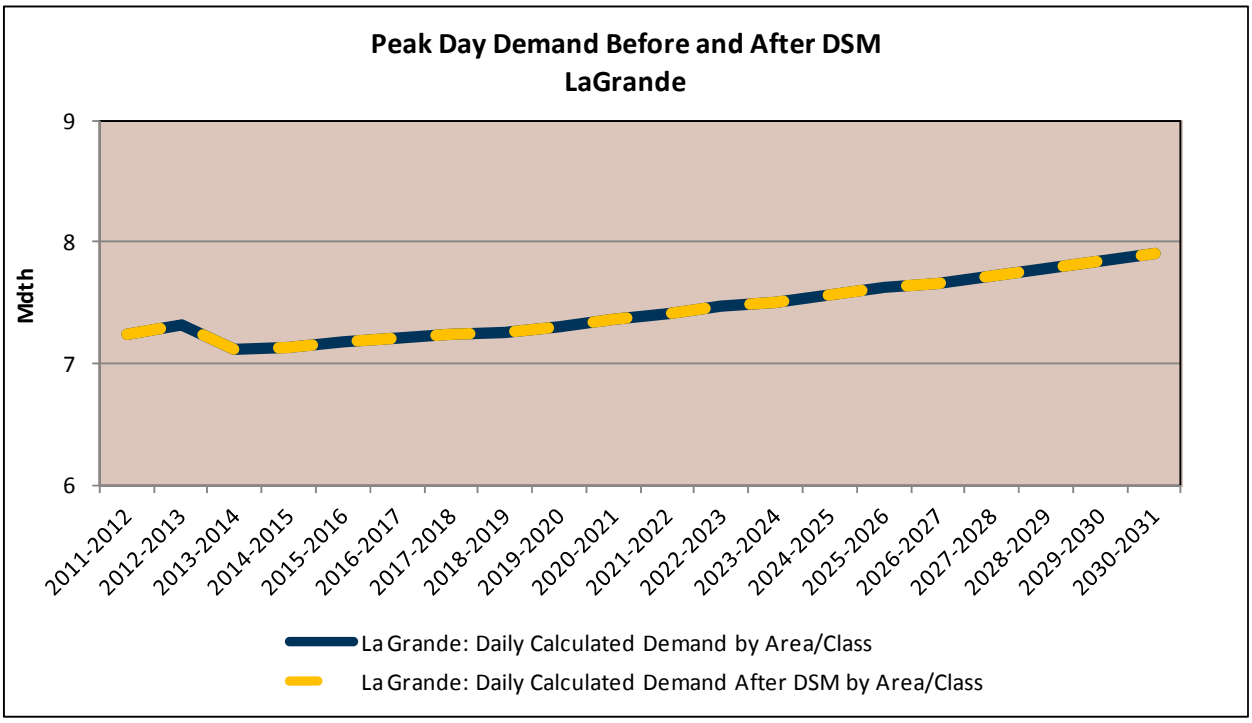




APPENDIX 3.10 II DETAILED DEMAND DATA
EXPECTED MIX

Area	2012: Residential	2012: Commercial	2012: Ind FirmSale	2012 Total	2013: Residential	2013: Commercial	2013: Ind FirmSale	2013 Total	2014: Residential	2014: Commercial	2014: Ind FirmSale	2014 Total
Klam Falls	832.29	479.61	5.02	1,316.92	838.10	484.58	5.01	1,327.69	825.31	480.20	5.01	1,310.52
La Grande	436.90	280.81	28.15	745.86	438.49	283.86	28.15	750.50	428.75	280.00	28.15	736.89
Medford GTN	2,122.77	1,319.53	27.83	3,470.13	2,144.95	1,323.48	28.25	3,496.68	2,127.21	1,305.07	28.25	3,460.54
Medford NWP	953.71	592.83	12.50	1,559.04	963.67	594.61	12.69	1,570.97	955.71	586.34	12.69	1,554.74
Roseburg	711.03	582.36	49.52	1,342.92	717.40	586.53	49.38	1,353.30	712.04	580.41	48.91	1,341.36
OR Sub-Total	**5,056.71**	**3,255.14**	**123.02**	**8,434.86**	**5,102.61**	**3,273.05**	**123.48**	**8,499.15**	**5,049.01**	**3,232.02**	**123.01**	**8,404.04**
WA/ID Both	9,207.42	5,521.06	306.24	15,034.72	9,342.29	5,576.39	306.80	15,225.48	9,230.37	5,518.49	304.41	15,053.27
WA/ID GTN	1,269.99	761.53	42.24	2,073.75	1,288.59	769.16	42.32	2,100.07	1,273.15	761.17	41.99	2,076.32
WA/ID NWP	5,397.45	3,236.49	179.52	8,813.46	5,476.52	3,268.93	179.85	8,925.29	5,410.91	3,234.99	178.45	8,824.35
WA/ID Sub-Total	**15,874.86**	**9,519.08**	**528.00**	**25,921.94**	**16,107.40**	**9,614.48**	**528.96**	**26,250.84**	**15,914.43**	**9,514.66**	**524.85**	**25,953.94**
Case Total	**20,931.57**	**12,774.21**	**651.02**	**34,356.80**	**21,210.01**	**12,887.54**	**652.44**	**34,749.99**	**20,963.44**	**12,746.67**	**647.86**	**34,357.98**

Area	2015: Residential	2015: Commercial	2015: Ind FirmSale	2015 Total	2016: Residential	2016: Commercial	2016: Ind FirmSale	2016 Total	2017: Residential	2017: Commercial	2017: Ind FirmSale	2017 Total
Klam Falls	834.34	485.71	5.01	1,325.06	849.85	493.43	5.02	1,348.30	857.10	496.48	5.01	1,358.59
La Grande	429.01	283.67	28.15	740.83	432.86	288.38	28.15	749.39	432.86	289.61	28.15	750.61
Medford GTN	2,164.16	1,318.96	29.61	3,512.74	2,216.60	1,344.06	30.22	3,590.88	2,249.64	1,358.28	31.49	3,639.41
Medford NWP	972.31	592.58	13.30	1,578.19	995.86	603.85	13.58	1,613.29	1,010.71	610.24	14.15	1,635.10
Roseburg	723.71	585.17	48.81	1,357.69	741.47	592.76	48.90	1,383.13	751.56	594.69	48.69	1,394.94
OR Sub-Total	**5,123.54**	**3,266.09**	**124.88**	**8,514.50**	**5,236.65**	**3,322.48**	**125.87**	**8,684.99**	**5,301.87**	**3,349.31**	**127.48**	**8,778.65**
WA/ID Both	9,342.69	5,589.65	307.19	15,239.53	9,523.97	5,701.77	310.81	15,536.55	9,617.59	5,762.39	311.72	15,691.70
WA/ID GTN	1,288.65	770.99	42.37	2,102.01	1,313.65	786.45	42.87	2,142.98	1,326.57	794.82	43.00	2,164.38
WA/ID NWP	5,476.76	3,276.71	180.08	8,933.55	5,583.03	3,342.44	182.20	9,107.68	5,637.92	3,377.98	182.73	9,198.63
WA/ID Sub-Total	**16,108.10**	**9,637.35**	**529.64**	**26,275.09**	**16,420.66**	**9,830.67**	**535.88**	**26,787.21**	**16,582.07**	**9,935.19**	**537.45**	**27,054.71**
Case Total	**21,231.64**	**12,903.44**	**654.52**	**34,789.59**	**21,657.31**	**13,153.14**	**661.75**	**35,472.20**	**21,883.94**	**13,284.50**	**664.92**	**35,833.36**

Area	2018: Residential	2018: Commercial	2018: Ind FirmSale	2018 Total	2019: Residential	2019: Commercial	2019: Ind FirmSale	2019 Total	2020: Residential	2020: Commercial	2020: Ind FirmSale	2020 Total
Klam Falls	867.06	501.15	5.01	1,373.21	876.37	505.47	5.01	1,386.85	890.47	512.33	5.02	1,407.82
La Grande	434.39	291.76	28.15	754.30	435.63	293.70	28.15	757.48	439.20	297.30	28.15	764.64
Medford GTN	2,291.24	1,377.44	32.00	3,700.68	2,330.95	1,395.74	32.00	3,758.69	2,382.58	1,420.77	32.15	3,835.50
Medford NWP	1,029.40	618.85	14.38	1,662.63	1,047.24	627.07	14.38	1,688.69	1,070.43	638.32	14.44	1,723.19
Roseburg	763.68	598.42	48.63	1,410.72	775.15	601.91	48.56	1,425.61	791.06	608.46	48.66	1,448.18
OR Sub-Total	**5,385.77**	**3,387.61**	**128.16**	**8,901.55**	**5,465.34**	**3,423.89**	**128.10**	**9,017.33**	**5,573.75**	**3,477.17**	**128.42**	**9,179.34**
WA/ID Both	9,746.28	5,842.88	313.60	15,902.77	9,868.05	5,919.40	315.42	16,102.86	10,043.33	6,026.84	317.48	16,387.65
WA/ID GTN	1,344.32	805.92	43.26	2,193.49	1,361.11	816.47	43.51	2,221.09	1,385.29	831.29	43.79	2,260.37
WA/ID NWP	5,713.37	3,425.17	183.84	9,322.37	5,784.75	3,470.03	184.90	9,439.69	5,887.51	3,533.02	186.11	9,606.64
WA/ID Sub-Total	**16,803.97**	**10,073.97**	**540.69**	**27,418.63**	**17,013.92**	**10,205.90**	**543.82**	**27,763.64**	**17,316.12**	**10,391.16**	**547.38**	**28,254.66**
Case Total	**22,189.74**	**13,461.59**	**668.85**	**36,320.18**	**22,479.26**	**13,629.79**	**671.92**	**36,780.97**	**22,889.87**	**13,868.33**	**675.79**	**37,434.00**

Area	2021: Residential	2021: Commercial	2021: Ind FirmSale	2021 Total	2022: Residential	2022: Commercial	2022: Ind FirmSale	2022 Total	2023: Residential	2023: Commercial	2023: Ind FirmSale	2023 Total
Klam Falls	900.18	516.56	5.01	1,421.75	912.06	522.08	5.01	1,439.15	925.10	528.13	5.01	1,458.24
La Grande	440.51	299.20	28.15	767.86	442.98	301.96	28.15	773.08	445.94	304.94	28.15	779.03
Medford GTN	2,421.76	1,438.08	33.36	3,893.20	2,466.89	1,459.16	33.88	3,959.92	2,515.90	1,482.06	33.92	4,031.89
Medford NWP	1,088.04	646.09	14.99	1,749.12	1,108.31	655.56	15.22	1,779.10	1,130.33	665.85	15.24	1,811.43
Roseburg	802.36	611.66	59.87	1,473.89	815.95	616.61	64.67	1,497.23	830.54	622.08	64.67	1,517.29
OR Sub-Total	**5,652.84**	**3,511.60**	**141.37**	**9,305.81**	**5,746.19**	**3,555.36**	**146.92**	**9,448.47**	**5,847.83**	**3,603.06**	**146.98**	**9,597.87**
WA/ID Both	10,168.21	6,102.41	319.77	16,590.39	10,319.06	6,193.88	321.49	16,834.43	10,485.41	6,293.44	323.76	17,102.61
WA/ID GTN	1,402.52	841.72	44.11	2,288.34	1,423.32	854.33	44.34	2,322.00	1,446.27	868.07	44.66	2,358.99
WA/ID NWP	5,960.72	3,577.33	187.45	9,725.50	6,049.15	3,630.95	188.46	9,868.57	6,146.67	3,689.32	189.79	10,025.79
WA/ID Sub-Total	**17,531.44**	**10,521.46**	**551.32**	**28,604.23**	**17,791.54**	**10,679.16**	**554.29**	**29,024.99**	**18,078.35**	**10,850.83**	**558.21**	**29,487.39**
Case Total	**23,184.28**	**14,033.06**	**692.70**	**37,910.03**	**23,537.73**	**14,234.53**	**701.21**	**38,473.47**	**23,926.17**	**14,453.89**	**705.20**	**39,085.26**

APPENDIX 3.10 II DETAILED DEMAND DATA
EXPECTED MIX

Area	2024: Residential	2024: Commercial	2024: Ind FirmSale	2024 Total	2025: Residential	2025: Commercial	2025: Ind FirmSale	2025 Total	2026: Residential	2026: Commercial	2026: Ind FirmSale	2026 Total
Klam Falls	940.04	535.35	5.02	1,480.41	949.44	539.46	5.01	1,493.90	962.02	545.34	5.01	1,512.37
La Grande	449.85	308.78	28.15	786.77	451.01	310.44	28.15	789.59	453.70	313.27	28.15	795.12
Medford GTN	2,570.46	1,508.48	35.35	4,114.29	2,610.10	1,526.07	35.75	4,171.92	2,658.54	1,548.71	35.80	4,243.05
Medford NWP	1,154.84	677.72	15.88	1,848.45	1,172.65	685.63	16.06	1,874.34	1,194.42	695.80	16.08	1,906.30
Roseburg	847.41	629.16	64.82	1,541.40	858.76	632.47	64.63	1,555.87	873.47	637.93	64.62	1,576.02
OR Sub-Total	**5,962.61**	**3,659.49**	**149.22**	**9,771.31**	**6,041.96**	**3,694.06**	**149.60**	**9,885.62**	**6,142.16**	**3,741.06**	**149.65**	**10,032.87**
WA/ID Both	10,674.30	6,406.73	326.03	17,407.06	10,799.03	6,481.43	329.27	17,609.73	10,960.49	6,577.81	331.44	17,869.73
WA/ID GTN	1,472.32	883.69	44.97	2,400.99	1,489.53	894.00	45.42	2,428.94	1,511.80	907.29	45.72	2,464.80
WA/ID NWP	6,257.41	3,755.74	191.12	10,204.27	6,330.53	3,799.53	193.02	10,323.08	6,425.18	3,856.03	194.29	10,475.51
WA/ID Sub-Total	**18,404.03**	**11,046.16**	**562.13**	**30,012.32**	**18,619.09**	**11,174.95**	**567.71**	**30,361.75**	**18,897.46**	**11,341.14**	**571.44**	**30,810.04**
Case Total	**24,366.64**	**14,705.65**	**711.34**	**39,783.63**	**24,661.05**	**14,869.01**	**717.31**	**40,247.37**	**25,039.62**	**15,082.19**	**721.09**	**40,842.91**

Area	2027: Residential	2027: Commercial	2027: Ind FirmSale	2027 Total	2028: Residential	2028: Commercial	2028: Ind FirmSale	2028 Total	2029: Residential	2029: Commercial	2029: Ind FirmSale	2029 Total
Klam Falls	972.59	550.24	5.01	1,527.84	989.35	558.30	5.02	1,552.67	997.76	561.94	5.01	1,564.71
La Grande	455.60	315.63	28.15	799.37	460.54	320.12	28.15	808.81	461.78	322.02	28.15	811.94
Medford GTN	2,700.69	1,568.40	37.11	4,306.20	2,758.04	1,596.10	37.79	4,391.93	2,791.49	1,610.82	37.67	4,439.98
Medford NWP	1,213.35	704.64	16.67	1,934.67	1,239.12	717.09	16.98	1,973.19	1,254.15	723.70	16.93	1,994.77
Roseburg	886.86	642.56	64.57	1,593.99	903.43	649.83	64.76	1,618.02	910.82	651.55	64.57	1,626.94
OR Sub-Total	**6,229.10**	**3,781.48**	**151.51**	**10,162.08**	**6,350.49**	**3,841.44**	**152.70**	**10,344.62**	**6,416.00**	**3,870.03**	**152.32**	**10,438.34**
WA/ID Both	11,099.67	6,661.55	333.26	18,094.47	11,310.26	6,786.85	335.89	18,433.00	11,426.73	6,856.68	338.06	18,621.47
WA/ID GTN	1,530.99	918.84	45.97	2,495.80	1,560.04	936.12	46.33	2,542.50	1,576.11	945.76	46.63	2,568.49
WA/ID NWP	6,506.77	3,905.13	195.36	10,607.26	6,630.23	3,978.58	196.90	10,805.72	6,698.51	4,019.52	198.18	10,916.21
WA/ID Sub-Total	**19,137.43**	**11,485.51**	**574.58**	**31,197.53**	**19,500.53**	**11,701.55**	**579.13**	**31,781.21**	**19,701.34**	**11,821.96**	**582.87**	**32,106.17**
Case Total	**25,366.53**	**15,266.99**	**726.09**	**41,359.61**	**25,851.01**	**15,542.99**	**731.83**	**42,125.83**	**26,117.35**	**15,691.98**	**735.18**	**42,544.51**

Area	2030: Residential	2030: Commercial	2030: Ind FirmSale	2030 Total	2031: Residential	2031: Commercial	2031: Ind FirmSale	2031 Total
Klam Falls	1,009.99	567.60	5.01	1,582.60	1,022.21	573.31	5.01	1,600.52
La Grande	464.85	325.27	28.15	818.26	467.90	328.39	28.15	824.44
Medford GTN	2,835.39	1,631.42	38.99	4,505.80	2,878.97	1,651.77	39.50	4,570.25
Medford NWP	1,273.87	732.96	17.52	2,024.34	1,293.45	742.10	17.75	2,053.30
Roseburg	922.03	655.72	75.89	1,653.64	933.25	659.94	80.69	1,673.89
OR Sub-Total	**6,506.13**	**3,912.96**	**165.54**	**10,584.64**	**6,595.78**	**3,955.51**	**171.10**	**10,722.39**
WA/ID Both	11,588.62	6,952.18	339.94	18,880.74	11,750.46	7,047.50	343.12	19,141.09
WA/ID GTN	1,598.44	958.93	46.89	2,604.26	1,620.76	972.08	47.33	2,640.17
WA/ID NWP	6,793.42	4,075.51	199.28	11,068.20	6,888.30	4,131.38	201.14	11,220.82
WA/ID Sub-Total	**19,980.48**	**11,986.62**	**586.10**	**32,553.20**	**20,259.52**	**12,150.96**	**591.60**	**33,002.08**
Case Total	**26,486.61**	**15,899.58**	**751.65**	**43,137.83**	**26,855.31**	**16,106.47**	**762.69**	**43,724.47**

APPENDIX 3.10 II DETAILED DEMAND DATA
LOW GROWTH HIGH PRICE

Area	2012: Residential	2012: Commercial	2012: Ind FirmSale	2012 Total	2013: Residential	2013: Commercial	2013: Ind FirmSale	2013 Total	2014: Residential	2014: Commercial	2014: Ind FirmSale	2014 Total
Klam Falls	830.20	479.70	5.02	1,314.92	832.39	481.98	5.01	1,319.37	778.93	457.96	5.01	1,241.90
La Grande	436.78	281.08	28.15	746.01	437.05	282.46	28.15	747.65	408.85	265.63	28.15	702.63
Medford GTN	2,122.03	1,321.59	27.83	3,471.45	2,132.06	1,321.98	28.25	3,482.30	2,010.33	1,254.69	28.25	3,293.27
Medford NWP	953.38	593.76	12.50	1,559.64	957.88	593.93	12.69	1,564.51	903.19	563.70	12.69	1,479.58
Roseburg	709.37	582.82	49.59	1,341.78	711.99	584.45	49.44	1,345.89	673.31	557.11	48.35	1,278.77
OR Sub-Total	**5,051.76**	**3,258.95**	**123.08**	**8,433.79**	**5,071.38**	**3,264.80**	**123.55**	**8,459.72**	**4,774.62**	**3,099.09**	**122.45**	**7,996.16**
Wa/Id Both	9,217.51	5,568.18	309.22	15,094.90	9,284.07	5,593.04	309.79	15,186.89	8,714.68	5,278.14	300.26	14,293.07
Wa/Id GTN	1,271.38	768.02	42.65	2,082.06	1,280.56	771.45	42.73	2,094.74	1,202.02	728.02	41.41	1,971.46
Wa/Id NWP	5,403.37	3,264.11	181.27	8,848.74	5,442.39	3,278.68	181.60	8,902.67	5,108.61	3,094.09	176.01	8,378.72
Wa/Id Sub-Total	**15,892.25**	**9,600.31**	**533.13**	**26,025.70**	**16,007.02**	**9,643.17**	**534.11**	**26,184.30**	**15,025.31**	**9,100.25**	**517.69**	**24,643.25**
Case Total	**20,944.01**	**12,859.26**	**656.22**	**34,459.49**	**21,078.39**	**12,907.97**	**657.66**	**34,644.02**	**19,799.93**	**12,199.34**	**640.14**	**32,639.41**

Area	2015: Residential	2015: Commercial	2015: Ind FirmSale	2015 Total	2016: Residential	2016: Commercial	2016: Ind FirmSale	2016 Total	2017: Residential	2017: Commercial	2017: Ind FirmSale	2017 Total
Klam Falls	767.68	453.49	5.01	1,226.18	759.37	450.10	5.02	1,214.49	756.36	448.48	5.01	1,209.85
La Grande	401.03	262.54	28.15	691.73	395.06	259.86	28.15	683.06	391.64	258.27	28.15	678.06
Medford GTN	1,991.60	1,242.65	29.61	3,263.87	1,979.78	1,236.56	30.59	3,246.93	1,980.89	1,235.66	31.00	3,247.56
Medford NWP	894.78	558.29	13.30	1,466.38	889.46	555.56	13.74	1,458.76	889.97	555.15	13.93	1,459.05
Roseburg	667.29	551.43	48.00	1,266.72	664.25	547.20	48.76	1,260.21	664.25	544.53	49.86	1,258.63
OR Sub-Total	**4,722.38**	**3,068.41**	**124.07**	**7,914.86**	**4,687.92**	**3,049.28**	**126.26**	**7,863.46**	**4,683.11**	**3,042.09**	**127.94**	**7,853.14**
Wa/Id Both	8,598.84	5,218.85	300.16	14,117.85	8,513.98	5,179.09	300.23	13,993.30	8,488.77	5,169.66	300.23	13,958.67
Wa/Id GTN	1,186.05	719.84	41.40	1,947.29	1,174.34	714.36	41.41	1,930.11	1,170.87	713.06	41.41	1,925.34
Wa/Id NWP	5,040.71	3,059.34	175.96	8,276.01	4,990.97	3,036.04	176.00	8,203.01	4,976.20	3,030.52	176.00	8,182.72
Wa/Id Sub-Total	**14,825.60**	**8,998.03**	**517.52**	**24,341.16**	**14,679.29**	**8,929.49**	**517.64**	**24,126.42**	**14,635.84**	**8,913.24**	**517.65**	**24,066.72**
Case Total	**19,547.98**	**12,066.44**	**641.59**	**32,256.02**	**19,367.21**	**11,978.77**	**643.90**	**31,989.88**	**19,318.95**	**11,955.33**	**645.59**	**31,919.87**

Area	2018: Residential	2018: Commercial	2018: Ind FirmSale	2018 Total	2019: Residential	2019: Commercial	2019: Ind FirmSale	2019 Total	2020: Residential	2020: Commercial	2020: Ind FirmSale	2020 Total
Klam Falls	756.51	448.60	5.01	1,210.12	761.09	450.79	5.01	1,216.88	768.40	454.53	5.02	1,227.95
La Grande	389.93	257.81	28.15	675.89	390.35	258.72	28.15	677.22	392.17	260.62	28.15	680.94
Medford GTN	1,990.85	1,239.96	31.52	3,262.33	2,011.48	1,249.62	32.04	3,293.14	2,039.06	1,263.49	32.68	3,335.23
Medford NWP	894.44	557.08	14.16	1,465.68	903.71	561.42	14.40	1,479.53	916.10	567.65	14.68	1,498.44
Roseburg	666.82	543.97	51.15	1,261.94	672.77	545.69	52.56	1,271.02	681.42	549.34	54.16	1,284.93
OR Sub-Total	**4,698.54**	**3,047.43**	**129.98**	**7,875.96**	**4,739.40**	**3,066.24**	**132.15**	**7,937.79**	**4,797.16**	**3,095.63**	**134.69**	**8,027.48**
Wa/Id Both	8,501.12	5,182.02	301.26	13,984.40	8,562.06	5,221.46	303.20	14,086.72	8,653.99	5,279.45	305.07	14,238.50
Wa/Id GTN	1,172.57	714.76	41.55	1,928.89	1,180.98	720.20	41.82	1,943.00	1,193.66	728.20	42.08	1,963.94
Wa/Id NWP	4,983.44	3,037.77	176.60	8,197.81	5,019.17	3,060.90	177.74	8,257.81	5,073.06	3,094.90	178.83	8,346.80
Wa/Id Sub-Total	**14,657.14**	**8,934.55**	**519.41**	**24,111.10**	**14,762.21**	**9,002.56**	**522.77**	**24,287.53**	**14,920.71**	**9,102.55**	**525.98**	**24,549.24**
Case Total	**19,355.68**	**11,981.98**	**649.39**	**31,987.06**	**19,501.61**	**12,068.80**	**654.92**	**32,225.32**	**19,717.87**	**12,198.18**	**660.68**	**32,576.72**

Area	2021: Residential	2021: Commercial	2021: Ind FirmSale	2021 Total	2022: Residential	2022: Commercial	2022: Ind FirmSale	2022 Total	2023: Residential	2023: Commercial	2023: Ind FirmSale	2023 Total
Klam Falls	770.84	455.46	5.01	1,231.30	774.88	457.42	5.01	1,237.30	778.84	459.34	5.01	1,243.19
La Grande	391.49	260.72	28.15	680.35	391.70	261.45	28.15	681.29	391.87	262.15	28.15	682.17
Medford GTN	2,053.39	1,269.32	33.12	3,355.83	2,072.11	1,278.10	33.67	3,383.88	2,091.08	1,287.04	34.23	3,412.35
Medford NWP	922.54	570.27	14.88	1,507.69	930.95	574.22	15.13	1,520.29	939.47	578.23	15.38	1,533.08
Roseburg	685.26	549.52	55.51	1,290.29	690.82	551.05	57.04	1,298.91	696.37	552.57	58.61	1,307.55
OR Sub-Total	**4,823.52**	**3,105.28**	**136.67**	**8,065.47**	**4,860.45**	**3,122.23**	**138.99**	**8,121.67**	**4,897.64**	**3,139.33**	**141.37**	**8,178.34**
Wa/Id Both	8,690.67	5,303.22	306.94	14,300.83	8,746.42	5,338.85	308.17	14,393.43	8,802.28	5,374.55	309.73	14,486.57
Wa/Id GTN	1,198.72	731.48	42.34	1,972.54	1,206.41	736.40	42.51	1,985.31	1,214.11	741.32	42.72	1,998.16
Wa/Id NWP	5,094.58	3,108.84	179.93	8,383.35	5,127.26	3,129.73	180.65	8,437.64	5,160.01	3,150.66	181.57	8,492.24
Wa/Id Sub-Total	**14,983.96**	**9,143.55**	**529.21**	**24,656.72**	**15,080.09**	**9,204.97**	**531.33**	**24,816.38**	**15,176.40**	**9,266.53**	**534.03**	**24,976.96**
Case Total	**19,807.48**	**12,248.83**	**665.87**	**32,722.19**	**19,940.54**	**12,327.20**	**670.32**	**32,938.06**	**20,074.04**	**12,405.86**	**675.40**	**33,155.30**

APPENDIX 3.10 II DETAILED DEMAND DATA
LOW GROWTH HIGH PRICE

Area	2024: Residential	2024: Commercial	2024: Ind FirmSale	2024 Total	2025: Residential	2025: Commercial	2025: Ind FirmSale	2025 Total	2026: Residential	2026: Commercial	2026: Ind FirmSale	2026 Total
Klam Falls	786.69	463.33	5.02	1,255.04	786.59	463.12	5.01	1,254.72	791.24	465.37	5.01	1,261.61
La Grande	393.95	264.17	28.15	686.27	392.13	263.47	28.15	683.74	392.60	264.35	28.15	685.10
Medford GTN	2,120.33	1,301.78	34.91	3,457.02	2,128.80	1,304.84	35.38	3,469.02	2,149.65	1,314.74	35.97	3,500.36
Medford NWP	952.61	584.86	15.69	1,553.15	956.42	586.23	15.90	1,558.54	965.78	590.68	16.16	1,572.63
Roseburg	705.57	556.60	60.41	1,322.59	707.54	555.65	61.87	1,325.06	713.83	557.63	63.59	1,335.05
OR Sub-Total	**4,959.15**	**3,170.74**	**144.18**	**8,274.06**	**4,971.47**	**3,173.30**	**146.30**	**8,291.07**	**5,013.10**	**3,192.77**	**148.87**	**8,354.75**
Wa/Id Both	8,902.50	5,436.10	311.75	14,650.35	8,912.55	5,444.59	314.06	14,671.21	8,975.96	5,484.18	315.71	14,775.85
Wa/Id GTN	1,227.94	749.81	43.00	2,020.75	1,229.32	750.98	43.32	2,023.63	1,238.07	756.44	43.55	2,038.06
Wa/Id NWP	5,218.76	3,186.75	182.75	8,588.26	5,224.66	3,191.73	184.11	8,600.50	5,261.84	3,214.94	185.07	8,661.85
Wa/Id Sub-Total	**15,349.20**	**9,372.66**	**537.50**	**25,259.35**	**15,366.53**	**9,387.30**	**541.49**	**25,295.33**	**15,475.87**	**9,455.56**	**544.33**	**25,475.77**
Case Total	**20,308.34**	**12,543.39**	**681.68**	**33,533.42**	**20,338.00**	**12,560.61**	**687.80**	**33,586.41**	**20,488.97**	**12,648.33**	**693.21**	**33,830.51**

Area	2027: Residential	2027: Commercial	2027: Ind FirmSale	2027 Total	2028: Residential	2028: Commercial	2028: Ind FirmSale	2028 Total	2029: Residential	2029: Commercial	2029: Ind FirmSale	2029 Total
Klam Falls	790.61	465.22	5.01	1,260.84	795.02	467.67	5.02	1,267.71	792.73	466.48	5.01	1,264.21
La Grande	390.74	263.66	28.15	682.55	391.43	264.77	28.15	684.35	388.97	263.65	28.15	680.77
Medford GTN	2,156.50	1,317.88	36.57	3,510.95	2,175.76	1,327.87	37.30	3,540.93	2,176.32	1,327.25	37.80	3,541.37
Medford NWP	968.86	592.09	16.43	1,577.38	977.52	596.58	16.76	1,590.85	977.77	596.30	16.98	1,591.05
Roseburg	716.09	557.11	65.24	1,338.43	721.49	559.09	67.18	1,347.76	719.93	556.54	68.76	1,345.23
OR Sub-Total	**5,022.81**	**3,195.96**	**151.40**	**8,370.16**	**5,061.23**	**3,215.98**	**154.40**	**8,431.61**	**5,055.71**	**3,210.22**	**156.70**	**8,422.63**
Wa/Id Both	8,980.67	5,491.01	316.37	14,788.05	9,043.48	5,531.51	317.75	14,892.73	9,029.91	5,526.75	318.72	14,875.38
Wa/Id GTN	1,238.72	757.39	43.64	2,039.75	1,247.38	762.97	43.83	2,054.18	1,245.51	762.32	43.96	2,051.79
Wa/Id NWP	5,264.61	3,218.95	185.46	8,669.01	5,301.43	3,242.69	186.27	8,730.39	5,293.48	3,239.90	186.84	8,720.22
Wa/Id Sub-Total	**15,484.00**	**9,467.35**	**545.46**	**25,496.81**	**15,592.29**	**9,537.17**	**547.84**	**25,677.31**	**15,568.90**	**9,528.97**	**549.52**	**25,647.39**
Case Total	**20,506.80**	**12,663.31**	**696.86**	**33,866.97**	**20,653.52**	**12,753.15**	**702.24**	**34,108.92**	**20,624.61**	**12,739.19**	**706.22**	**34,070.02**

Area	2030: Residential	2030: Commercial	2030: Ind FirmSale	2030 Total	2031: Residential	2031: Commercial	2031: Ind FirmSale	2031 Total
Klam Falls	793.43	466.96	5.01	1,265.40	794.11	467.44	5.01	1,266.55
La Grande	388.03	263.61	28.15	679.79	387.09	263.55	28.15	678.79
Medford GTN	2,184.94	1,331.38	38.43	3,554.75	2,193.23	1,335.38	38.61	3,567.21
Medford NWP	981.64	598.15	17.27	1,597.06	985.36	599.95	17.34	1,602.66
Roseburg	721.32	556.04	70.59	1,347.95	722.67	555.56	71.04	1,349.27
OR Sub-Total	**5,069.36**	**3,216.14**	**159.44**	**8,444.95**	**5,082.46**	**3,221.88**	**160.15**	**8,464.48**
Wa/Id Both	9,051.35	5,542.48	319.36	14,913.18	9,072.44	5,557.76	321.27	14,951.47
Wa/Id GTN	1,248.47	764.49	44.05	2,057.01	1,251.38	766.60	44.31	2,062.29
Wa/Id NWP	5,306.05	3,249.13	187.21	8,742.39	5,318.42	3,258.09	188.33	8,764.84
Wa/Id Sub-Total	**15,605.87**	**9,556.09**	**550.62**	**25,712.58**	**15,642.23**	**9,582.45**	**553.91**	**25,778.59**
Case Total	**20,675.23**	**12,772.23**	**710.06**	**34,157.53**	**20,724.69**	**12,804.33**	**714.06**	**34,243.07**

APPENDIX 3.10 II DETAILED DEMAND DATA
HIGH GROWTH LOW PRICE

Area	2012: Residential	2012: Commercial	2012: Ind FirmSale	2012 Total	2013: Residential	2013: Commercial	2013: Ind FirmSale	2013 Total	2014: Residential	2014: Commercial	2014: Ind FirmSale	2014 Total
Klam Falls	854.74	491.34	5.46	1,351.53	866.16	500.53	5.44	1,372.13	889.34	513.91	5.44	1,408.69
La Grande	440.98	283.42	2.74	727.13	444.55	289.03	2.74	736.31	449.88	296.54	2.74	749.16
Medford GTN	2,149.26	1,328.84	14.34	3,492.44	2,189.93	1,338.15	14.45	3,542.54	2,267.06	1,361.28	14.45	3,642.79
Medford NWP	965.61	597.02	6.44	1,569.07	983.88	601.20	6.49	1,591.57	1,018.53	611.59	6.49	1,636.62
Roseburg	715.91	585.11	33.12	1,334.14	727.85	593.11	33.02	1,353.98	752.82	605.50	33.02	1,391.35
OR Sub-Total	**5,126.49**	**3,285.72**	**62.09**	**8,474.31**	**5,212.37**	**3,322.01**	**62.15**	**8,596.53**	**5,377.63**	**3,388.82**	**62.15**	**8,828.60**
WA/ID Both	9,309.49	5,508.24	303.40	15,121.14	9,548.68	5,609.43	303.96	15,462.07	9,846.00	5,779.62	306.90	15,932.52
WA/ID GTN	1,284.07	759.76	41.85	2,085.67	1,317.06	773.71	41.93	2,132.70	1,358.07	797.19	42.33	2,197.59
WA/ID NWP	5,457.29	3,228.97	177.86	8,864.12	5,597.50	3,288.29	178.18	9,063.98	5,771.80	3,388.06	179.91	9,339.77
WA/ID Sub-Total	**16,050.85**	**9,496.98**	**523.11**	**26,070.94**	**16,463.24**	**9,671.44**	**524.07**	**26,658.75**	**16,975.87**	**9,964.87**	**529.15**	**27,469.89**
High Case Total	**21,177.34**	**12,782.70**	**585.20**	**34,545.24**	**21,675.62**	**12,993.44**	**586.22**	**35,255.28**	**22,353.50**	**13,353.69**	**591.29**	**36,298.49**

Area	2015: Residential	2015: Commercial	2015: Ind FirmSale	2015 Total	2016: Residential	2016: Commercial	2016: Ind FirmSale	2016 Total	2017: Residential	2017: Commercial	2017: Ind FirmSale	2017 Total
Klam Falls	914.90	527.94	5.44	1,448.28	944.51	542.42	5.46	1,492.39	967.90	553.94	5.49	1,527.34
La Grande	455.21	305.86	2.74	763.81	463.09	314.68	2.74	780.50	468.56	320.41	2.76	791.72
Medford GTN	2,353.41	1,396.45	15.24	3,765.10	2,448.94	1,441.44	15.66	3,906.04	2,532.86	1,481.96	16.04	4,030.85
Medford NWP	1,057.33	627.39	6.85	1,691.57	1,100.25	647.60	7.04	1,754.89	1,137.95	665.81	7.20	1,810.96
Roseburg	779.93	618.49	33.02	1,431.44	811.62	632.23	33.85	1,477.70	837.87	642.83	34.95	1,515.65
OR Sub-Total	**5,560.78**	**3,476.13**	**63.29**	**9,100.20**	**5,768.41**	**3,578.38**	**64.74**	**9,411.52**	**5,945.15**	**3,664.93**	**66.44**	**9,676.52**
WA/ID Both	10,145.89	5,958.30	310.93	16,415.11	10,485.18	6,162.36	315.22	16,962.76	10,765.03	6,334.95	318.77	17,418.74
WA/ID GTN	1,399.43	821.84	42.89	2,264.16	1,446.23	849.98	43.48	2,339.69	1,484.83	873.79	43.97	2,402.59
WA/ID NWP	5,947.60	3,492.81	182.27	9,622.68	6,146.50	3,612.44	184.79	9,943.73	6,310.56	3,713.62	186.86	10,211.04
WA/ID Sub-Total	**17,492.92**	**10,272.94**	**536.09**	**28,301.95**	**18,077.91**	**10,624.78**	**543.49**	**29,246.18**	**18,560.42**	**10,922.35**	**549.60**	**30,032.37**
High Case Total	**23,053.70**	**13,749.07**	**599.38**	**37,402.15**	**23,846.32**	**14,203.16**	**608.22**	**38,657.70**	**24,505.57**	**14,587.28**	**616.04**	**39,708.90**

Area	2018: Residential	2018: Commercial	2018: Ind FirmSale	2018 Total	2019: Residential	2019: Commercial	2019: Ind FirmSale	2019 Total	2020: Residential	2020: Commercial	2020: Ind FirmSale	2020 Total
Klam Falls	994.34	567.38	5.56	1,567.28	1,021.01	581.19	5.63	1,607.83	1,052.51	597.83	5.73	1,656.08
La Grande	475.70	327.22	2.79	805.72	482.95	334.05	2.83	819.83	492.45	342.52	2.87	837.84
Medford GTN	2,627.80	1,529.13	16.49	4,173.42	2,723.43	1,577.30	16.99	4,317.72	2,831.70	1,633.14	17.58	4,482.41
Medford NWP	1,180.60	687.00	7.41	1,875.02	1,223.57	708.64	7.63	1,939.84	1,272.21	733.73	7.90	2,013.84
Roseburg	866.31	655.66	36.22	1,558.19	894.90	668.95	37.58	1,601.44	928.44	685.66	39.16	1,653.26
OR Sub-Total	**6,144.76**	**3,766.39**	**68.47**	**9,979.63**	**6,345.87**	**3,870.12**	**70.66**	**10,286.66**	**6,577.31**	**3,992.88**	**73.25**	**10,643.44**
WA/ID Both	11,086.65	6,531.21	323.60	17,941.46	11,411.79	6,730.05	328.82	18,470.66	11,791.41	6,961.29	334.50	19,087.20
WA/ID GTN	1,529.20	900.86	44.63	2,474.69	1,574.04	928.29	45.36	2,547.68	1,626.40	960.18	46.14	2,632.72
WA/ID NWP	6,499.10	3,828.68	189.70	10,517.47	6,689.70	3,945.24	192.76	10,827.70	6,912.24	4,080.81	196.09	11,189.13
WA/ID Sub-Total	**19,114.95**	**11,260.74**	**557.93**	**30,933.63**	**19,675.53**	**11,603.58**	**566.94**	**31,846.05**	**20,330.06**	**12,002.28**	**576.72**	**32,909.06**
High Case Total	**25,259.71**	**15,027.14**	**626.40**	**40,913.25**	**26,021.40**	**15,473.70**	**637.60**	**42,132.71**	**26,907.36**	**15,995.16**	**649.97**	**43,552.49**

Area	2021: Residential	2021: Commercial	2021: Ind FirmSale	2021 Total	2022: Residential	2022: Commercial	2022: Ind FirmSale	2022 Total	2023: Residential	2023: Commercial	2023: Ind FirmSale	2023 Total
Klam Falls	1,076.35	610.66	5.82	1,692.82	1,105.21	626.54	5.93	1,737.68	1,135.28	643.47	6.07	1,784.82
La Grande	498.38	348.32	2.92	849.63	506.70	355.87	2.98	865.55	515.56	363.81	3.05	882.43
Medford GTN	2,919.45	1,678.34	18.14	4,615.93	3,021.34	1,732.25	18.81	4,772.40	3,128.96	1,790.21	19.57	4,938.74
Medford NWP	1,311.64	754.04	8.15	2,073.82	1,357.41	778.26	8.45	2,144.12	1,405.76	804.30	8.79	2,218.85
Roseburg	954.91	698.04	40.64	1,693.59	986.39	714.04	42.37	1,742.80	1,019.44	731.40	44.27	1,795.11
OR Sub-Total	**6,760.73**	**4,089.39**	**75.67**	**10,925.79**	**6,977.05**	**4,206.95**	**78.55**	**11,262.55**	**7,205.00**	**4,333.20**	**81.75**	**11,619.95**
WA/ID Both	12,085.96	7,142.67	340.40	19,569.03	12,439.48	7,359.29	346.59	20,145.36	12,811.71	7,587.77	353.91	20,753.38
WA/ID GTN	1,667.03	985.20	46.95	2,699.18	1,715.79	1,015.08	47.81	2,778.68	1,767.14	1,046.59	48.81	2,862.55
WA/ID NWP	7,084.91	4,187.14	199.55	11,471.60	7,292.16	4,314.12	203.18	11,809.46	7,510.36	4,448.06	207.46	12,165.89
WA/ID Sub-Total	**20,837.91**	**12,315.01**	**586.90**	**33,739.81**	**21,447.43**	**12,688.49**	**597.57**	**34,733.50**	**22,089.21**	**13,082.43**	**610.18**	**35,781.82**
High Case Total	**27,598.64**	**16,404.39**	**662.57**	**44,665.60**	**28,424.48**	**16,895.44**	**676.12**	**45,996.04**	**29,294.21**	**17,415.63**	**691.93**	**47,401.76**

APPENDIX 3.10 II DETAILED DEMAND DATA
HIGH GROWTH LOW PRICE

Area	2024: Residential	2024: Commercial	2024: Ind FirmSale	2024 Total	2025: Residential	2025: Commercial	2025: Ind FirmSale	2025 Total	2026: Residential	2026: Commercial	2026: Ind FirmSale	2026 Total
Klam Falls	1,171.60	664.24	6.25	1,842.09	1,200.64	681.72	6.42	1,888.79	1,236.67	703.66	6.65	1,946.99
La Grande	527.20	373.82	3.13	904.16	535.55	381.34	3.23	920.12	547.03	391.20	3.34	941.57
Medford GTN	3,254.92	1,859.37	20.48	5,134.77	3,362.79	1,919.99	21.40	5,304.18	3,491.33	1,993.71	22.52	5,507.56
Medford NWP	1,462.36	835.37	9.20	2,306.93	1,510.82	862.60	9.61	2,383.04	1,568.57	895.73	10.12	2,474.41
Roseburg	1,059.09	753.31	46.49	1,858.90	1,092.31	771.64	48.70	1,912.64	1,133.04	795.29	51.32	1,979.64
OR Sub-Total	**7,475.17**	**4,486.12**	**85.56**	**12,046.84**	**7,702.12**	**4,617.30**	**89.36**	**12,408.77**	**7,976.64**	**4,779.59**	**93.94**	**12,850.17**
WA/ID Both	13,255.79	7,859.74	362.52	21,478.05	13,618.27	8,086.49	373.01	22,077.77	14,061.21	8,362.70	383.76	22,807.67
WA/ID GTN	1,828.39	1,084.11	50.00	2,962.50	1,878.39	1,115.38	51.45	3,045.22	1,939.48	1,153.48	52.93	3,145.90
WA/ID NWP	7,770.70	4,607.50	212.51	12,590.71	7,983.19	4,740.43	218.66	12,942.28	8,242.85	4,902.35	224.97	13,370.16
WA/ID Sub-Total	**22,854.88**	**13,551.34**	**625.03**	**37,031.26**	**23,479.84**	**13,942.30**	**643.12**	**38,065.26**	**24,243.54**	**14,418.53**	**661.67**	**39,323.73**
High Case Total	**30,330.05**	**18,037.46**	**710.59**	**49,078.10**	**31,181.96**	**18,559.60**	**732.48**	**50,474.03**	**32,220.18**	**19,198.12**	**755.61**	**52,173.91**

Area	2027: Residential	2027: Commercial	2027: Ind FirmSale	2027 Total	2028: Residential	2028: Commercial	2028: Ind FirmSale	2028 Total	2029: Residential	2029: Commercial	2029: Ind FirmSale	2029 Total
Klam Falls	1,275.45	727.97	6.92	2,010.34	1,322.58	757.88	7.26	2,087.72	1,363.42	785.81	7.63	2,156.85
La Grande	559.94	402.17	3.48	965.59	577.01	416.36	3.64	997.01	591.82	428.85	3.84	1,024.50
Medford GTN	3,627.46	2,073.90	23.82	5,725.17	3,786.30	2,169.48	25.41	5,981.19	3,928.07	2,259.25	27.14	6,214.47
Medford NWP	1,629.73	931.75	10.70	2,572.18	1,701.09	974.70	11.42	2,687.20	1,764.79	1,015.03	12.20	2,792.01
Roseburg	1,177.64	822.07	54.29	2,054.00	1,226.50	853.60	57.86	2,137.96	1,267.90	882.41	61.63	2,211.94
OR Sub-Total	**8,270.22**	**4,957.86**	**99.21**	**13,327.28**	**8,613.47**	**5,172.02**	**105.59**	**13,891.08**	**8,915.99**	**5,371.34**	**112.44**	**14,399.76**
WA/ID Both	14,537.11	8,661.52	396.24	23,594.87	15,112.69	9,023.46	411.20	24,547.34	15,622.26	9,351.98	428.34	25,402.58
WA/ID GTN	2,005.13	1,194.70	54.65	3,254.48	2,084.52	1,244.62	56.72	3,385.85	2,154.80	1,289.94	59.08	3,503.82
WA/ID NWP	8,521.83	5,077.52	232.28	13,831.63	8,859.24	5,289.70	241.05	14,389.99	9,157.96	5,482.28	251.10	14,891.34
WA/ID Sub-Total	**25,064.07**	**14,933.75**	**683.17**	**40,680.98**	**26,056.45**	**15,557.78**	**708.96**	**42,323.19**	**26,935.02**	**16,124.20**	**738.52**	**43,797.75**
High Case Total	**33,334.29**	**19,891.60**	**782.37**	**54,008.27**	**34,669.92**	**20,729.80**	**814.55**	**56,214.27**	**35,851.01**	**21,495.54**	**850.95**	**58,197.51**

Area	2030: Residential	2030: Commercial	2030: Ind FirmSale	2030 Total	2031: Residential	2031: Commercial	2031: Ind FirmSale	2031 Total
Klam Falls	1,414.80	821.12	8.10	2,244.02	1,473.29	862.45	8.67	2,344.41
La Grande	611.46	445.01	4.07	1,060.54	634.36	463.63	4.36	1,102.35
Medford GTN	4,102.52	2,371.21	29.29	6,503.02	4,300.14	2,501.24	31.45	6,832.84
Medford NWP	1,843.16	1,065.33	13.16	2,921.65	1,931.95	1,123.75	14.13	3,069.83
Roseburg	1,320.56	919.82	66.25	2,306.64	1,381.23	964.23	70.15	2,415.62
OR Sub-Total	**9,292.50**	**5,622.49**	**120.88**	**15,035.87**	**9,720.98**	**5,915.30**	**128.76**	**15,765.04**
WA/ID Both	16,257.92	9,759.54	448.26	26,465.72	16,978.99	10,225.50	474.16	27,678.65
WA/ID GTN	2,242.48	1,346.15	61.83	3,650.46	2,341.94	1,410.42	65.40	3,817.76
WA/ID NWP	9,530.59	5,721.20	262.78	15,514.57	9,953.29	5,994.35	277.96	16,225.60
WA/ID Sub-Total	**28,030.99**	**16,826.89**	**772.86**	**45,630.75**	**29,274.22**	**17,630.27**	**817.53**	**47,722.01**
High Case Total	**37,323.49**	**22,449.38**	**893.74**	**60,666.62**	**38,995.20**	**23,545.57**	**946.29**	**63,487.05**

APPENDIX 3.10 II DETAILED DEMAND DATA
AVERAGE MIX

Area	2012: Residential	2012: Commercial	2012: Ind FirmSale	2012 Total	2013: Residential	2013: Commercial	2013: Ind FirmSale	2013 Total	2014: Residential	2014: Commercial	2014: Ind FirmSale	2014 Total
Klam Falls	805.65	467.19	5.02	1,277.85	811.18	471.99	5.01	1,288.18	807.27	471.76	5.01	1,284.04
La Grande	421.11	270.35	28.15	719.60	422.57	273.25	28.15	723.97	417.30	272.22	28.15	717.67
Medford GTN	2,048.56	1,281.69	27.83	3,358.08	2,069.78	1,285.43	28.25	3,383.46	2,073.41	1,278.15	28.25	3,379.82
Medford NWP	920.37	575.83	12.50	1,508.70	929.90	577.51	12.69	1,520.11	931.53	574.24	12.69	1,518.47
Roseburg	683.94	564.17	49.06	1,297.18	690.00	568.15	48.92	1,307.07	691.51	566.72	48.61	1,306.84
OR Sub-Total	**4,879.63**	**3,159.22**	**122.56**	**8,161.41**	**4,923.43**	**3,176.33**	**123.02**	**8,222.78**	**4,921.04**	**3,163.09**	**122.72**	**8,206.84**
Wa/Id Both	8,928.85	5,364.38	301.80	14,595.03	9,058.53	5,417.66	302.34	14,778.53	9,043.22	5,413.42	301.73	14,758.37
Wa/Id GTN	1,231.57	739.91	41.63	2,013.11	1,249.45	747.26	41.70	2,038.42	1,247.34	746.68	41.62	2,035.64
Wa/Id NWP	5,234.15	3,144.64	176.92	8,555.71	5,310.18	3,175.88	177.23	8,663.29	5,301.20	3,173.40	176.88	8,651.48
Wa/Id Sub-Total	**15,394.57**	**9,248.93**	**520.35**	**25,163.85**	**15,618.16**	**9,340.81**	**521.27**	**25,480.24**	**15,591.76**	**9,333.50**	**520.23**	**25,445.49**
Avg. Case Total	**20,274.20**	**12,408.15**	**642.91**	**33,325.26**	**20,541.59**	**12,517.14**	**644.29**	**33,703.02**	**20,512.80**	**12,496.59**	**642.95**	**33,652.33**

Area	2015: Residential	2015: Commercial	2015: Ind FirmSale	2015 Total	2016: Residential	2016: Commercial	2016: Ind FirmSale	2016 Total	2017: Residential	2017: Commercial	2017: Ind FirmSale	2017 Total
Klam Falls	816.55	477.38	5.01	1,298.94	833.47	485.77	5.02	1,324.25	843.93	490.33	5.01	1,339.27
La Grande	417.78	275.94	28.15	721.86	422.36	281.08	28.15	731.58	423.91	283.31	28.15	735.37
Medford GTN	2,110.51	1,292.41	29.61	3,432.54	2,165.94	1,319.14	30.22	3,515.30	2,206.45	1,337.16	31.49	3,575.10
Medford NWP	948.20	580.65	13.30	1,542.15	973.10	592.66	13.58	1,579.34	991.30	600.75	14.15	1,606.20
Roseburg	703.22	571.62	48.52	1,323.36	721.87	579.93	48.64	1,350.44	734.27	583.49	48.49	1,366.25
OR Sub-Total	**4,996.26**	**3,198.00**	**124.59**	**8,318.86**	**5,116.74**	**3,258.56**	**125.61**	**8,500.90**	**5,199.87**	**3,295.04**	**127.27**	**8,622.18**
Wa/Id Both	9,157.89	5,485.91	304.59	14,948.39	9,354.65	5,606.53	308.51	15,269.69	9,483.73	5,686.81	310.08	15,480.62
Wa/Id GTN	1,263.16	756.68	42.01	2,061.85	1,290.30	773.32	42.55	2,106.17	1,308.10	784.39	42.77	2,135.26
Wa/Id NWP	5,368.43	3,215.89	178.55	8,762.88	5,483.78	3,286.61	180.85	8,951.24	5,559.45	3,333.68	181.77	9,074.90
Wa/Id Sub-Total	**15,789.48**	**9,458.48**	**525.15**	**25,773.11**	**16,128.73**	**9,666.45**	**531.91**	**26,327.09**	**16,351.28**	**9,804.88**	**534.62**	**26,690.78**
Avg. Case Total	**20,785.75**	**12,656.48**	**649.74**	**34,091.97**	**21,245.47**	**12,925.01**	**657.52**	**34,828.00**	**21,551.15**	**13,099.92**	**661.89**	**35,312.96**

Area	2018: Residential	2018: Commercial	2018: Ind FirmSale	2018 Total	2019: Residential	2019: Commercial	2019: Ind FirmSale	2019 Total	2020: Residential	2020: Commercial	2020: Ind FirmSale	2020 Total
Klam Falls	856.95	496.43	5.01	1,358.38	867.46	501.32	5.01	1,373.79	882.29	508.52	5.02	1,395.83
La Grande	426.91	286.42	28.15	741.47	428.73	288.73	28.15	745.61	432.66	292.55	28.15	753.35
Medford GTN	2,255.22	1,359.92	32.00	3,647.14	2,297.58	1,379.59	32.00	3,709.17	2,350.69	1,405.41	32.15	3,788.25
Medford NWP	1,013.22	610.98	14.38	1,638.57	1,032.24	619.82	14.38	1,666.44	1,056.11	631.42	14.44	1,701.97
Roseburg	748.63	588.74	48.48	1,385.85	760.92	592.84	48.43	1,402.20	777.29	599.76	48.55	1,425.59
OR Sub-Total	**5,300.93**	**3,342.48**	**128.01**	**8,771.42**	**5,386.94**	**3,382.29**	**127.97**	**8,897.20**	**5,499.02**	**3,437.66**	**128.30**	**9,064.99**
Wa/Id Both	9,646.07	5,786.03	312.58	15,744.69	9,781.14	5,869.87	314.64	15,965.65	9,964.43	5,981.80	316.85	16,263.08
Wa/Id GTN	1,330.50	798.08	43.11	2,171.69	1,349.12	809.64	43.40	2,202.16	1,374.41	825.08	43.70	2,243.19
Wa/Id NWP	5,654.62	3,391.85	183.24	9,229.71	5,733.80	3,441.00	184.45	9,359.25	5,841.25	3,506.62	185.74	9,533.62
Wa/Id Sub-Total	**16,631.19**	**9,975.96**	**538.93**	**27,146.08**	**16,864.06**	**10,120.51**	**542.49**	**27,527.06**	**17,180.08**	**10,313.50**	**546.30**	**28,039.89**
Avg. Case Total	**21,932.12**	**13,318.44**	**666.94**	**35,917.50**	**22,251.00**	**13,502.80**	**670.46**	**36,424.26**	**22,679.11**	**13,751.16**	**674.61**	**37,104.88**

Area	2021: Residential	2021: Commercial	2021: Ind FirmSale	2021 Total	2022: Residential	2022: Commercial	2022: Ind FirmSale	2022 Total	2023: Residential	2023: Commercial	2023: Ind FirmSale	2023 Total
Klam Falls	890.86	512.25	5.01	1,408.12	900.41	516.71	5.01	1,422.13	909.64	521.04	5.01	1,435.69
La Grande	433.47	294.10	28.15	755.72	434.91	296.13	28.15	759.18	436.21	297.95	28.15	762.30
Medford GTN	2,386.67	1,421.25	33.36	3,841.28	2,425.54	1,439.41	33.88	3,898.83	2,464.49	1,457.60	33.92	3,956.00
Medford NWP	1,072.27	638.53	14.99	1,725.79	1,089.74	646.69	15.22	1,751.65	1,107.23	654.86	15.24	1,777.34
Roseburg	787.50	602.39	59.76	1,449.65	799.09	606.20	64.45	1,469.73	810.49	609.83	64.38	1,484.70
OR Sub-Total	**5,570.78**	**3,468.52**	**141.26**	**9,180.56**	**5,649.69**	**3,505.14**	**146.70**	**9,301.52**	**5,728.05**	**3,541.28**	**146.69**	**9,416.03**
Wa/Id Both	10,076.87	6,050.44	318.95	16,446.27	10,202.08	6,127.43	320.25	16,649.75	10,325.78	6,203.40	321.84	16,851.02
Wa/Id GTN	1,389.92	834.55	43.99	2,268.46	1,407.19	845.17	44.17	2,296.53	1,424.25	855.65	44.39	2,324.29
Wa/Id NWP	5,907.17	3,546.86	186.97	9,641.01	5,980.57	3,592.00	187.73	9,760.30	6,053.09	3,636.54	188.66	9,878.29
Wa/Id Sub-Total	**17,373.97**	**10,431.85**	**549.92**	**28,355.73**	**17,589.84**	**10,564.59**	**552.15**	**28,706.58**	**17,803.12**	**10,695.58**	**554.89**	**29,053.60**
Avg. Case Total	**22,944.74**	**13,900.37**	**691.18**	**37,536.29**	**23,239.52**	**14,069.73**	**698.85**	**38,008.11**	**23,531.18**	**14,236.87**	**701.58**	**38,469.63**

APPENDIX 3.10 II DETAILED DEMAND DATA
AVERAGE MIX

Area	2024: Residential	2024: Commercial	2024: Ind FirmSale	2024 Total	2025: Residential	2025: Commercial	2025: Ind FirmSale	2025 Total	2026: Residential	2026: Commercial	2026: Ind FirmSale	2026 Total
Klam Falls	923.71	527.89	5.02	1,456.62	929.68	530.47	5.01	1,465.16	940.31	535.49	5.01	1,480.81
La Grande	439.77	301.53	28.15	769.45	439.47	302.16	28.15	769.77	441.36	304.41	28.15	773.92
Medford GTN	2,516.41	1,482.86	35.35	4,034.62	2,546.80	1,496.18	35.75	4,078.73	2,589.67	1,516.32	35.80	4,141.78
Medford NWP	1,130.56	666.21	15.88	1,812.65	1,144.21	672.19	16.06	1,832.47	1,163.48	681.24	16.08	1,860.80
Roseburg	826.51	616.51	64.52	1,507.53	834.94	618.18	64.26	1,517.39	847.89	622.73	64.22	1,534.84
OR Sub-Total	**5,836.96**	**3,595.00**	**148.91**	**9,580.87**	**5,895.10**	**3,619.18**	**149.23**	**9,663.52**	**5,982.71**	**3,660.19**	**149.26**	**9,792.16**
Wa/Id Both	10,504.97	6,311.23	323.97	17,140.18	10,591.22	6,364.58	326.60	17,282.39	10,730.68	6,448.70	328.43	17,507.80
Wa/Id GTN	1,448.97	870.52	44.69	2,364.17	1,460.86	877.88	45.05	2,383.79	1,480.10	889.48	45.30	2,414.88
Wa/Id NWP	6,158.14	3,699.75	189.91	10,047.81	6,208.71	3,731.03	191.45	10,131.19	6,290.46	3,780.34	192.53	10,263.33
Wa/Id Sub-Total	**18,112.09**	**10,881.51**	**558.57**	**29,552.17**	**18,260.79**	**10,973.49**	**563.10**	**29,797.37**	**18,501.24**	**11,118.52**	**566.26**	**30,186.01**
Avg. Case Total	**23,949.04**	**14,476.51**	**707.48**	**39,133.04**	**24,155.89**	**14,592.67**	**712.33**	**39,460.90**	**24,483.95**	**14,778.71**	**715.51**	**39,978.17**

Area	2027: Residential	2027: Commercial	2027: Ind FirmSale	2027 Total	2028: Residential	2028: Commercial	2028: Ind FirmSale	2028 Total	2029: Residential	2029: Commercial	2029: Ind FirmSale	2029 Total
Klam Falls	949.16	539.65	5.01	1,493.82	962.67	546.27	5.02	1,513.95	967.90	548.52	5.01	1,521.43
La Grande	442.58	306.27	28.15	776.99	446.17	309.79	28.15	784.11	446.11	310.74	28.15	784.99
Medford GTN	2,626.91	1,533.81	37.11	4,197.84	2,675.27	1,557.42	37.79	4,270.49	2,699.94	1,568.18	37.67	4,305.79
Medford NWP	1,180.21	689.10	16.67	1,885.99	1,201.93	699.71	16.98	1,918.63	1,213.02	704.54	16.93	1,934.49
Roseburg	859.71	626.58	64.15	1,550.44	873.47	632.33	64.28	1,570.08	878.19	632.62	64.03	1,574.84
OR Sub-Total	**6,058.58**	**3,695.41**	**151.08**	**9,905.07**	**6,159.51**	**3,745.53**	**152.22**	**10,057.26**	**6,205.16**	**3,764.59**	**151.79**	**10,121.54**
Wa/Id Both	10,850.16	6,521.66	329.97	17,701.78	11,023.98	6,626.52	332.05	17,982.55	11,104.69	6,676.35	333.68	18,114.71
Wa/Id GTN	1,496.58	899.55	45.51	2,441.64	1,520.56	914.01	45.80	2,480.37	1,531.69	920.88	46.02	2,498.60
Wa/Id NWP	6,360.51	3,823.12	193.43	10,377.06	6,462.41	3,884.59	194.65	10,541.65	6,509.72	3,913.80	195.61	10,619.13
Wa/Id Sub-Total	**18,707.25**	**11,244.32**	**568.91**	**30,520.48**	**19,006.95**	**11,425.12**	**572.51**	**31,004.57**	**19,146.10**	**11,511.04**	**575.31**	**31,232.44**
Avg. Case Total	**24,765.82**	**14,939.73**	**720.00**	**40,425.55**	**25,166.46**	**15,170.65**	**724.72**	**41,061.83**	**25,351.26**	**15,275.63**	**727.09**	**41,353.98**

Area	2030: Residential	2030: Commercial	2030: Ind FirmSale	2030 Total	2031: Residential	2031: Commercial	2031: Ind FirmSale	2031 Total
Klam Falls	976.92	552.77	5.01	1,534.70	985.88	557.06	5.01	1,547.94
La Grande	447.87	313.04	28.15	789.06	449.61	315.20	28.15	792.95
Medford GTN	2,734.96	1,584.77	38.99	4,358.71	2,769.46	1,601.05	39.50	4,410.01
Medford NWP	1,228.75	712.00	17.52	1,958.26	1,244.25	719.31	17.75	1,981.31
Roseburg	886.70	635.36	75.26	1,597.32	895.18	638.13	79.90	1,613.21
OR Sub-Total	**6,275.21**	**3,797.93**	**164.91**	**10,238.05**	**6,344.37**	**3,830.75**	**170.30**	**10,345.42**
Wa/Id Both	11,229.90	6,751.56	335.01	18,316.48	11,354.47	6,826.19	337.65	18,518.31
Wa/Id GTN	1,548.96	931.26	46.21	2,526.43	1,566.14	941.55	46.57	2,554.27
Wa/Id NWP	6,583.13	3,957.90	196.39	10,737.42	6,656.16	4,001.65	197.93	10,855.74
Wa/Id Sub-Total	**19,361.99**	**11,640.72**	**577.61**	**31,580.33**	**19,576.77**	**11,769.39**	**582.16**	**31,928.32**
Avg. Case Total	**25,637.20**	**15,438.65**	**742.52**	**41,818.38**	**25,921.15**	**15,600.14**	**752.46**	**42,273.74**

APPENDIX 3.10 II DETAILED DEMAND DATA
COLDEST IN 20 YEARS

Area	2012: Residential	2012: Commercial	2012: Ind FirmSale	2012 Total	2013: Residential	2013: Commercial	2013: Ind FirmSale	2013 Total	2014: Residential	2014: Commercial	2014: Ind FirmSale	2014 Total
Klam Falls	827.99	477.61	5.02	1,310.62	833.75	482.56	5.01	1,321.32	821.08	478.23	5.01	1,304.32
La Grande	436.90	280.81	28.15	745.86	438.49	283.86	28.15	750.50	428.75	280.00	28.15	736.89
Medford GTN	2,105.83	1,310.93	27.83	3,444.58	2,127.79	1,314.84	28.25	3,470.88	2,110.43	1,296.73	28.25	3,435.42
Medford NWP	946.10	588.97	12.50	1,547.57	955.97	590.72	12.69	1,559.38	948.16	582.59	12.69	1,543.45
Roseburg	704.92	578.05	49.41	1,332.38	711.22	582.18	49.26	1,342.66	706.00	576.19	48.80	1,330.99
OR Sub-Total	**5,021.74**	**3,236.36**	**122.90**	**8,381.01**	**5,067.22**	**3,254.16**	**123.37**	**8,444.74**	**5,014.41**	**3,213.74**	**122.90**	**8,351.06**
WA/ID Both	9,181.27	5,506.37	305.87	14,993.51	9,315.65	5,561.50	306.42	15,183.57	9,204.35	5,503.95	304.05	15,012.34
WA/ID GTN	1,266.38	759.50	42.19	2,068.07	1,284.92	767.10	42.26	2,094.29	1,269.57	759.17	41.94	2,070.67
WA/ID NWP	5,382.13	3,227.88	179.30	8,789.31	5,460.90	3,260.20	179.62	8,900.73	5,395.66	3,226.47	178.23	8,800.36
WA/ID Sub-Total	**15,829.78**	**9,493.75**	**527.36**	**25,850.89**	**16,061.48**	**9,588.81**	**528.31**	**26,178.59**	**15,869.57**	**9,489.58**	**524.22**	**25,883.37**
Alt. Plan Case Total	**20,851.52**	**12,730.11**	**650.26**	**34,231.90**	**21,128.70**	**12,842.96**	**651.67**	**34,623.33**	**20,883.98**	**12,703.33**	**647.12**	**34,234.43**

Area	2015: Residential	2015: Commercial	2015: Ind FirmSale	2015 Total	2016: Residential	2016: Commercial	2016: Ind FirmSale	2016 Total	2017: Residential	2017: Commercial	2017: Ind FirmSale	2017 Total
Klam Falls	830.08	483.73	5.01	1,318.81	845.54	491.42	5.02	1,341.98	852.73	494.46	5.01	1,352.20
La Grande	429.01	283.67	28.15	740.83	432.86	288.38	28.15	749.39	432.86	289.61	28.15	750.61
Medford GTN	2,147.14	1,310.60	29.61	3,487.35	2,199.25	1,335.59	30.22	3,565.06	2,231.99	1,349.71	31.49	3,613.19
Medford NWP	964.66	588.82	13.30	1,566.78	988.07	600.05	13.58	1,601.69	1,002.78	606.39	14.15	1,623.32
Roseburg	717.60	580.94	48.70	1,347.24	735.25	588.49	48.79	1,372.53	745.23	590.41	48.58	1,384.21
OR Sub-Total	**5,088.49**	**3,247.76**	**124.77**	**8,461.01**	**5,200.96**	**3,303.93**	**125.76**	**8,630.65**	**5,265.59**	**3,330.58**	**127.37**	**8,723.53**
WA/ID Both	9,316.43	5,574.96	306.82	15,198.21	9,497.34	5,686.87	310.44	15,494.65	9,590.64	5,747.31	311.35	15,649.29
WA/ID GTN	1,285.03	768.96	42.32	2,096.31	1,309.98	784.40	42.82	2,137.20	1,322.85	792.73	42.94	2,158.53
WA/ID NWP	5,461.36	3,268.10	179.86	8,909.33	5,567.42	3,333.71	181.98	9,083.11	5,622.12	3,369.14	182.52	9,173.77
WA/ID Sub-Total	**16,062.81**	**9,612.02**	**529.01**	**26,203.84**	**16,374.74**	**9,804.98**	**535.24**	**26,714.96**	**16,535.60**	**9,909.18**	**536.81**	**26,981.59**
Alt. Plan Case Total	**21,151.30**	**12,859.78**	**653.77**	**34,664.86**	**21,575.70**	**13,108.91**	**661.00**	**35,345.61**	**21,801.19**	**13,239.76**	**664.18**	**35,705.13**

Area	2018: Residential	2018: Commercial	2018: Ind FirmSale	2018 Total	2019: Residential	2019: Commercial	2019: Ind FirmSale	2019 Total	2020: Residential	2020: Commercial	2020: Ind FirmSale	2020 Total
Klam Falls	862.64	499.11	5.01	1,366.76	871.92	503.42	5.01	1,380.34	885.96	510.27	5.02	1,401.25
La Grande	434.39	291.76	28.15	754.30	435.63	293.70	28.15	757.48	439.20	297.30	28.15	764.64
Medford GTN	2,273.29	1,368.77	32.00	3,674.06	2,312.71	1,386.97	32.00	3,731.69	2,364.03	1,411.90	32.15	3,808.07
Medford NWP	1,021.33	614.95	14.38	1,650.67	1,039.05	623.13	14.38	1,676.56	1,062.10	634.33	14.44	1,710.87
Roseburg	757.25	594.11	48.52	1,399.88	768.63	597.59	48.46	1,414.67	784.45	604.12	48.55	1,437.12
OR Sub-Total	**5,348.90**	**3,368.70**	**128.06**	**8,845.67**	**5,427.94**	**3,404.82**	**127.99**	**8,960.75**	**5,535.74**	**3,457.91**	**128.31**	**9,121.96**
WA/ID Both	9,719.02	5,827.62	313.23	15,859.87	9,840.50	5,903.97	315.05	16,059.51	10,015.43	6,011.22	317.11	16,343.76
WA/ID GTN	1,340.56	803.81	43.20	2,187.57	1,357.31	814.34	43.45	2,215.11	1,381.44	829.14	43.74	2,254.32
WA/ID NWP	5,697.38	3,416.23	183.62	9,297.23	5,768.60	3,460.99	184.68	9,414.27	5,871.15	3,523.87	185.89	9,580.91
WA/ID Sub-Total	**16,756.96**	**10,047.66**	**540.05**	**27,344.67**	**16,966.41**	**10,179.30**	**543.18**	**27,688.90**	**17,268.03**	**10,364.22**	**546.73**	**28,178.99**
Alt. Plan Case Total	**22,105.86**	**13,416.37**	**668.11**	**36,190.34**	**22,394.35**	**13,584.12**	**671.17**	**36,649.64**	**22,803.77**	**13,822.13**	**675.05**	**37,300.94**

Area	2021: Residential	2021: Commercial	2021: Ind FirmSale	2021 Total	2022: Residential	2022: Commercial	2022: Ind FirmSale	2022 Total	2023: Residential	2023: Commercial	2023: Ind FirmSale	2023 Total
Klam Falls	895.60	514.47	5.01	1,415.08	907.43	519.97	5.01	1,432.40	920.40	525.99	5.01	1,451.40
La Grande	440.51	299.20	28.15	767.86	442.98	301.96	28.15	773.08	445.94	304.94	28.15	779.03
Medford GTN	2,402.81	1,429.06	33.36	3,865.23	2,447.60	1,450.01	33.88	3,931.49	2,496.23	1,472.77	33.92	4,002.93
Medford NWP	1,079.52	642.04	14.99	1,736.55	1,099.65	651.45	15.22	1,766.32	1,121.49	661.68	15.24	1,798.42
Roseburg	795.62	607.28	59.76	1,462.66	809.10	612.20	64.52	1,485.82	823.57	617.63	64.52	1,505.73
OR Sub-Total	**5,614.07**	**3,492.05**	**141.27**	**9,247.39**	**5,706.75**	**3,535.58**	**146.78**	**9,389.11**	**5,807.64**	**3,583.01**	**146.84**	**9,537.49**
WA/ID Both	10,139.86	6,086.54	319.39	16,545.79	10,290.31	6,177.78	321.11	16,789.19	10,456.19	6,277.08	323.38	17,056.65
WA/ID GTN	1,398.60	839.53	44.05	2,282.19	1,419.36	852.11	44.29	2,315.76	1,442.24	865.81	44.60	2,352.65
WA/ID NWP	5,944.10	3,568.02	187.23	9,699.35	6,032.30	3,621.51	188.24	9,842.05	6,129.54	3,679.73	189.57	9,998.84
WA/ID Sub-Total	**17,482.56**	**10,494.09**	**550.68**	**28,527.32**	**17,741.96**	**10,651.40**	**553.64**	**28,947.00**	**18,027.97**	**10,822.62**	**557.56**	**29,408.15**
Alt. Plan Case Total	**23,096.63**	**13,986.14**	**691.94**	**37,774.71**	**23,448.71**	**14,186.98**	**700.41**	**38,336.11**	**23,835.61**	**14,405.63**	**704.40**	**38,945.64**

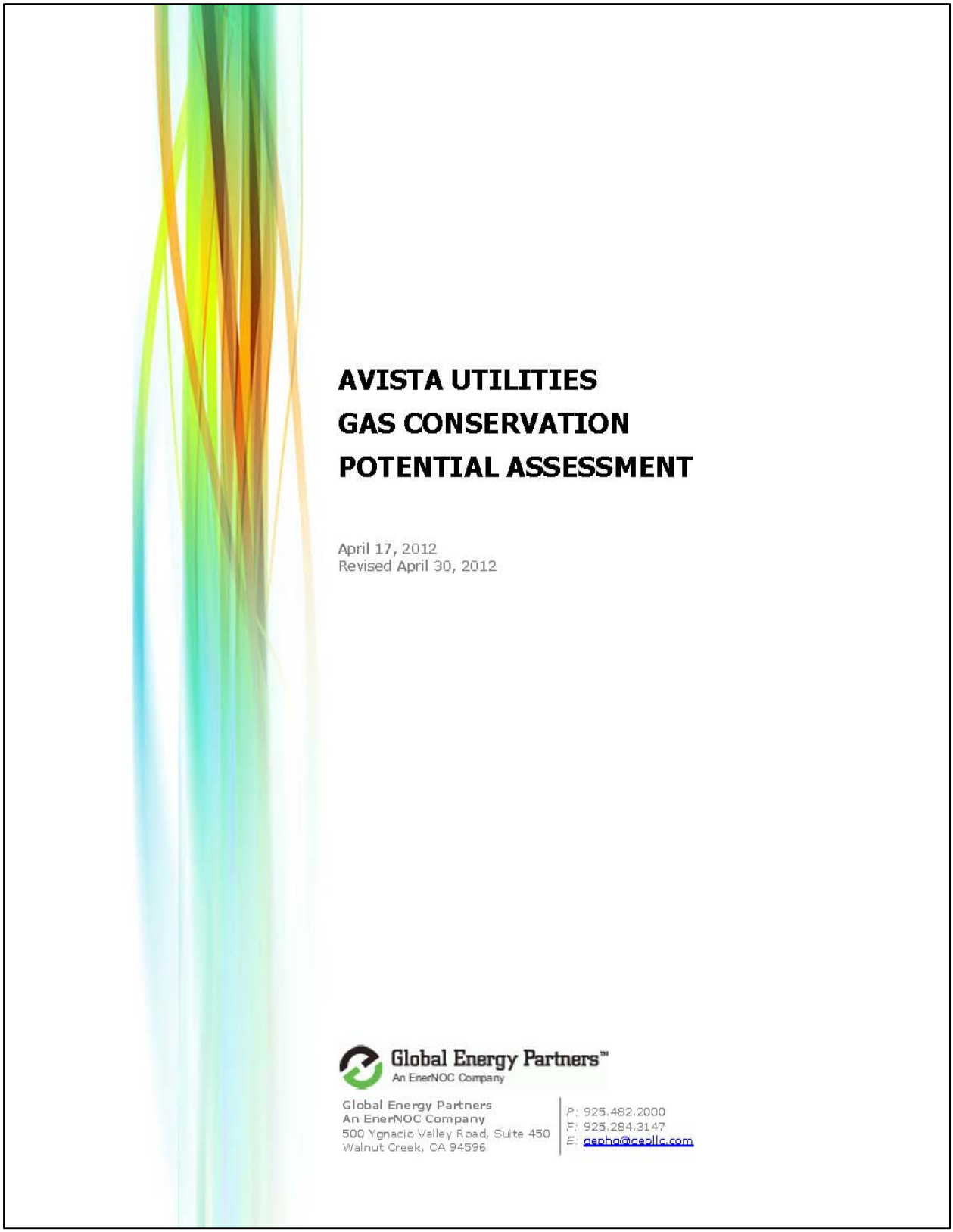
APPENDIX 3.10 II DETAILED DEMAND DATA COLDEST IN 20 YEARS

Area	2024: Residential	2024: Commercial	2024: Ind FirmSale	2024 Total	2025: Residential	2025: Commercial	2025: Ind FirmSale	2025 Total	2026: Residential	2026: Commercial	2026: Ind FirmSale	2026 Total
Klam Falls	935.29	533.19	5.02	1,473.50	944.61	537.27	5.01	1,486.90	957.14	543.14	5.01	1,505.28
La Grande	449.85	308.78	28.15	786.77	451.01	310.44	28.15	789.59	453.70	313.27	28.15	795.12
Medford GTN	2,550.45	1,499.07	35.35	4,084.87	2,589.70	1,516.51	35.75	4,141.97	2,637.76	1,539.02	35.80	4,212.58
Medford NWP	1,145.85	673.49	15.88	1,835.23	1,163.49	681.33	16.06	1,860.88	1,185.08	691.44	16.08	1,892.61
Roseburg	840.33	624.68	64.68	1,529.70	851.56	627.95	64.49	1,544.00	866.14	633.37	64.48	1,563.99
OR Sub-Total	**5,921.77**	**3,639.22**	**149.07**	**9,710.06**	**6,000.37**	**3,673.51**	**149.46**	**9,823.34**	**6,099.83**	**3,720.24**	**149.51**	**9,969.58**
WA/ID Both	10,644.70	6,390.16	325.65	17,360.51	10,768.97	6,464.59	328.88	17,562.44	10,929.98	6,560.73	331.05	17,821.76
WA/ID GTN	1,468.24	881.41	44.92	2,394.56	1,485.38	891.67	45.36	2,422.42	1,507.59	904.94	45.66	2,458.19
WA/ID NWP	6,240.05	3,746.02	190.90	10,176.97	6,312.91	3,789.66	192.80	10,295.36	6,407.30	3,846.02	194.06	10,447.38
WA/ID Sub-Total	**18,352.99**	**11,017.58**	**561.47**	**29,932.04**	**18,567.25**	**11,145.93**	**567.04**	**30,280.22**	**18,844.87**	**11,311.69**	**570.77**	**30,727.33**
Alt. Plan Case Total	**24,274.76**	**14,656.80**	**710.54**	**39,642.11**	**24,567.62**	**14,819.44**	**716.50**	**40,103.56**	**24,944.69**	**15,031.93**	**720.29**	**40,696.91**

Area	2027: Residential	2027: Commercial	2027: Ind FirmSale	2027 Total	2028: Residential	2028: Commercial	2028: Ind FirmSale	2028 Total	2029: Residential	2029: Commercial	2029: Ind FirmSale	2029 Total
Klam Falls	967.65	548.02	5.01	1,520.68	984.35	556.05	5.02	1,545.42	992.70	559.67	5.01	1,557.37
La Grande	455.60	315.63	28.15	799.37	460.54	320.12	28.15	808.81	461.78	322.02	28.15	811.94
Medford GTN	2,679.59	1,558.59	37.11	4,275.29	2,736.56	1,586.15	37.79	4,360.50	2,769.65	1,600.74	37.67	4,408.07
Medford NWP	1,203.87	700.24	16.67	1,920.78	1,229.47	712.62	16.98	1,959.07	1,244.34	719.17	16.93	1,980.44
Roseburg	879.43	637.98	64.43	1,581.84	895.87	645.21	64.62	1,605.70	903.17	646.89	64.43	1,614.49
OR Sub-Total	**6,186.15**	**3,760.46**	**151.37**	**10,097.98**	**6,306.79**	**3,820.14**	**152.56**	**10,279.49**	**6,371.64**	**3,848.49**	**152.18**	**10,372.30**
WA/ID Both	11,068.80	6,644.27	332.87	18,045.94	11,278.93	6,769.32	335.50	18,383.76	11,394.96	6,838.90	337.67	18,571.53
WA/ID GTN	1,526.74	916.46	45.91	2,489.11	1,555.72	933.71	46.28	2,535.70	1,571.73	943.30	46.57	2,561.61
WA/ID NWP	6,488.68	3,895.00	195.13	10,578.81	6,611.87	3,968.31	196.68	10,776.85	6,679.89	4,009.10	197.94	10,886.93
WA/ID Sub-Total	**19,084.22**	**11,455.73**	**573.91**	**31,113.86**	**19,446.52**	**11,671.33**	**578.45**	**31,696.31**	**19,646.58**	**11,791.31**	**582.18**	**32,020.07**
Alt. Plan Case Total	**25,270.37**	**15,216.19**	**725.28**	**41,211.84**	**25,753.32**	**15,491.48**	**731.01**	**41,975.80**	**26,018.22**	**15,639.80**	**734.36**	**42,392.38**

Area	2030: Residential	2030: Commercial	2030: Ind FirmSale	2030 Total	2031: Residential	2031: Commercial	2031: Ind FirmSale	2031 Total
Klam Falls	1,004.86	565.31	5.01	1,575.18	1,017.02	570.99	5.01	1,593.02
La Grande	464.85	325.27	28.15	818.26	467.90	328.39	28.15	824.44
Medford GTN	2,813.22	1,621.21	38.99	4,473.41	2,856.45	1,641.44	39.50	4,537.39
Medford NWP	1,263.91	728.37	17.52	2,009.79	1,283.33	737.46	17.75	2,038.54
Roseburg	914.27	651.04	75.75	1,641.06	925.41	655.23	80.52	1,661.15
OR Sub-Total	**6,461.11**	**3,891.19**	**165.40**	**10,517.70**	**6,550.11**	**3,933.50**	**170.92**	**10,654.53**
WA/ID Both	11,556.41	6,934.16	339.54	18,830.12	11,717.81	7,029.24	342.72	19,089.77
WA/ID GTN	1,594.00	956.44	46.83	2,597.27	1,616.26	969.56	47.27	2,633.09
WA/ID NWP	6,774.54	4,064.94	199.04	11,038.52	6,869.16	4,120.68	200.91	11,190.74
WA/ID Sub-Total	**19,924.94**	**11,955.55**	**585.42**	**32,465.91**	**20,203.22**	**12,119.47**	**590.90**	**32,913.60**
Alt. Plan Case Total	**26,386.05**	**15,846.74**	**750.82**	**42,983.62**	**26,753.33**	**16,052.98**	**761.83**	**43,568.14**

APPENDIX 4.1 II AVISTA GAS CPA REPORT 4/30/2012



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EXECUTIVE SUMMARY

Background

Avista Utilities (Avista) has contracted with Global Energy Partners (Global) to conduct a conservation potential assessment (CPA) to quantify the amount, the timing, and the cost of natural gas energy conservation resources available within the Avista service territory. The purpose of this study is to establish cost-effective and achievable energy conservation resources for the 2013–2032 period to support development of Avista's 2013 gas Integrated Resource Plan (IRP).

Key objectives for the study include:

- Determine the conservation potential for natural gas for Washington, Idaho, and Oregon, for the period 2013–2032, based on Avista's service territory characteristics.
- Develop energy conservation measure (ECM) data sets for each market sector and each appropriate market segment.
- Categorize the potential by market sector, segment, building type, and ECM.
- Using parameters provided by Avista, calculate the Total Resource Cost (TRC), and measure levelized cost of the ECMs.
- Provide supply curves of achievable potential.

Definitions of Potential

In this study, the conservation potential estimates represent gross savings[1] developed into three types of potential: technical potential, economic potential, and achievable potential. Technical and economic potential are both theoretical limits to efficiency savings. Achievable potential embodies a set of assumptions about the decisions consumers make regarding the efficiency of the equipment they purchase, the maintenance activities they undertake, the controls they use for energy-consuming equipment, and the elements of building construction. These levels are described below.

Technical potential is defined as the theoretical upper limit of conservation potential. It assumes that customers adopt all feasible measures regardless of cost. At the time of equipment failure, customers replace equipment with the most efficient option available. In new construction, customers and developers also choose the most efficient equipment option. Examples of measures that make up technical potential in the residential sector include:

- High efficiency furnaces and boilers
- High efficiency water heaters
- High efficiency clothes dryers

Technical potential also assumes the adoption of every available non-equipment measure, where applicable. For example, it includes installation of high-efficiency windows in all new construction opportunities and furnace maintenance in all existing buildings with furnace systems. The retrofit measures are phased in over a number of years, which is longer for higher-cost measures.

Economic potential represents the adoption of all ***cost-effective*** conservation measures. In this analysis, the total resources cost (TRC) test, which compares lifetime energy and capacity benefits to the incremental cost of the measure, is applied. Economic potential assumes that

[1] Savings in "gross" terms instead of "net" terms means that the baseline forecast does not include naturally occurring efficiency. In other words, the baseline assumes that energy efficiency levels remain fixed as they are today. This rule holds true except in cases where future codes and standards were on the books before November 2011, e.g. the effects of the upcoming furnace and water heater standards.

customers purchase the most cost-effective option at the time of equipment failure and also adopt every other cost-effective and applicable measure.

Achievable potential takes into account market maturity, customer preferences for energy-efficient technologies, and expected program participation. Achievable potential establishes a realistic target for the conservation savings that a utility can hope to achieve through its programs. It is determined by applying a series of annual factors to the economic potential for each ECM. These factors represent the ramp rates at which technologies will penetrate the market and were based upon the Northwest Power and Conservation Council Sixth Plan (NWPCC) ramp rates. Although Avista is not required to use the Sixth Plan ramp rates for its gas CPA, the project team chose to use those ramp rates for consistency with the Avista 2011 electricity CPA. Also, these ramp rates have been widely vetted and are accepted by regional stakeholders. Details regarding the ramp rate development appear in Appendix E.

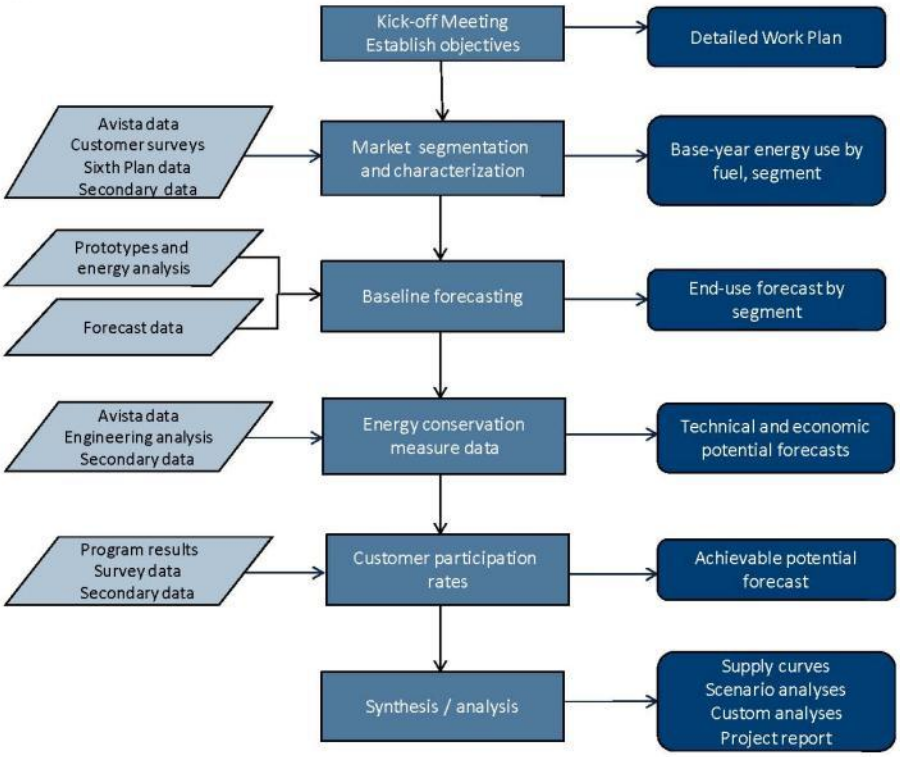
Analysis Approach

To perform the conservation analysis, Global used a bottom-up analysis approach as shown in Figure ES-1 and outlined below.

1. Met by phone with Avista staff to refine the objectives that were identified in the Avista RFP. This resulted in a work plan for the study.
2. Performed a market characterization to describe sector-level natural gas use for the residential, commercial, and industrial sectors for the base year, 2010. This included using utility data and secondary data from sources such as the American Community Survey (ACS), and the Energy Information Administration (EIA).
3. Utilized secondary sources including Northwest Energy Efficiency Alliance (NEAA) data and market reports to understand how customers in the Avista service territory currently use gas. Combining this information with the market characterization, we developed energy market profiles that describe energy use by sector, segment, and end use for 2010.
4. Developed a baseline gas forecast by sector, segment, and end use for 2013 through 2032.
5. Identified and analyzed energy conservations measures appropriate for the Avista service territory.
6. Estimated three levels of conservation potential, *Technical, Economic,* and *Achievable*.

The results from these steps are summarized below, with details provided in the body of the report.

Figure ES-1 Overview of Analysis Approach



Market Characterization

Avista Utilities, headquartered in Spokane, Washington is an investor-owned utility with annual revenues of more than $1.3 billion. Avista provides electric and natural gas service to about 481,000 customers in a service territory of more than 30,000 square miles. Avista uses a mix of hydro, natural gas, coal and biomass generation delivered over 2,100 miles of transmission line, 17,000 miles of distribution line, and 6,100 miles of natural gas distribution mains. Avista currently operates a portfolio of electric and natural gas conservation programs in Washington, Idaho, and Oregon for residential, low-income, and non-residential customers that is funded by a non-bypassable systems benefits charge.

Total natural gas use in 2010 for the residential, commercial, and industrial rate classes included in this potential assessment was 315,905,627 therms.[2] Table ES-1 shows detail by state and sector, including the rate classes included in each sector, number of meters, sales, and average use per meter. The largest sector is residential, accounting for 59.8% of system sales, followed by large commercial with 22.5% and small commercial with 16.0%. The gas transportation rate classes, which include relatively large commercial and industrial facilities, were excluded from the CPA analysis. Therefore, most of the remaining industrial customers, which represent only 1.6% of sales included in this CPA, are relatively small in terms of their gas usage per meter.

[2] Energy usage as measured "at-the-meter," i.e., does not include pipeline losses.

Table ES-1 2010 Gas Sales by State and Sector

All States Sector	Rate Class	Number of Meters	2010 Sales (1000 thm)	% of System Sales	Average Use per Meter (thm)
Residential	N/A	282,418	188,894	59.8%	669
Small Commercial	N/A	30,317	50,693	16.0%	1,672
Large Commercial	N/A	3,419	71,176	22.5%	20,818
Industrial	N/A	253	5,141	1.6%	20,322
Total		**316,407**	**315,906**	**100.0%**	**998**
Washington Sector	**Rate Class**	**Number of Meters**	**2010 Sales (1000 thm)**	**% of WA Sales**	**Average Use per Meter (thm)**
Residential	101	132,657	97,372	58.3%	734
Small Commercial	101	11,906	16,706	10.0%	1,403
Large Commercial	111, 112, 121, 122, 132	2,292	49,808	29.8%	21,731
Industrial	101, 111, 121, 122	132	3,135	1.9%	23,752
Washington total		**146,987**	**167,021**	**100.0%**	**1,136**
Idaho Sector	**Rate Class**	**Number of Meters**	**2010 Sales (1000 thm)**	**% of ID Sales**	**Average Use per Meter (thm)**
Residential	101	65,648	44,084	61.2%	672
Small Commercial	101	7,398	8,432	11.7%	1,140
Large Commercial	111, 132	1,050	17,820	24.7%	16,971
Industrial	101, 111, 112	99	1,681	2.3%	16,978
Idaho total		**74,195**	**72,017**	**100.0%**	**971**
Oregon Sector	**Rate Class**	**Number of Meters**	**2010 Sales (1000 thm)**	**% of OR Sales**	**Average Use per Meter (thm)**
Residential	410	84,114	47,438	61.7%	564
Small Commercial	420	11,013	25,556	33.2%	2,320
Large Commercial	424	77	3,548	4.6%	46,081
Industrial	420, 424	22	325	0.4%	14,787
Oregon total		**95,226**	**76,867**	**100.0%**	**807**

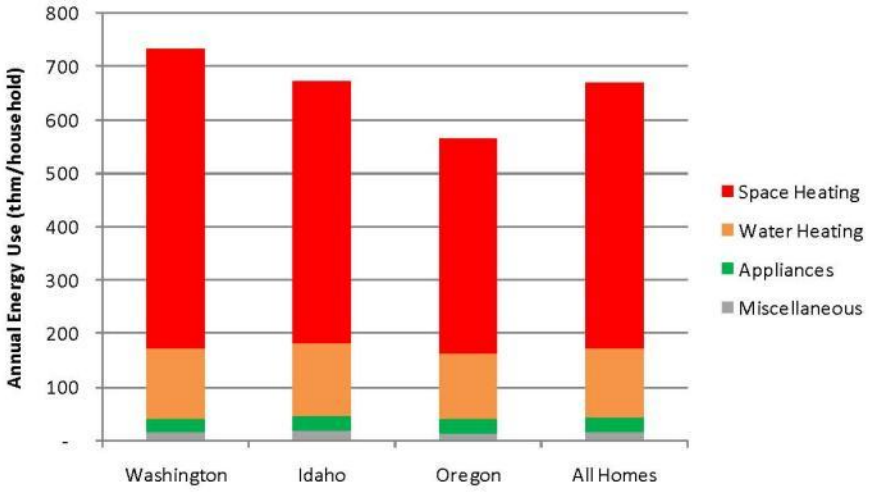
Total residential gas use in 2010 was 188.9 million therms. Customer information for each segment is shown in Table ES-2. System wide, the single-family segment consumed 84% of total residential sector gas in 2010 as a result of having the largest number of customers and the highest intensity.

Table ES-2 Residential Sector Gas Usage and Intensity by State and Segment Type

All States Residential Segment	Number of Meters	2010 Sales (1000 thm)	% of System Res. Sales	Intensity (thm/HH)
Single Family	222,934	157,830	84%	708
Multi Family	25,755	11,615	6%	451
Mobile Home	33,729	19,450	10%	577
Total	**282,418**	**188,894**	**100%**	**669**
WA Residential Segment	**Number of Meters**	**2010 Sales (1000 thm)**	**% of WA Res. Sales**	**Intensity (thm/HH)**
Single Family	107,230	83,143	85%	775
Multi Family	14,318	6,994	7%	488
Mobile Home	11,109	7,235	7%	651
Washington Total	**132,657**	**97,372**	**100%**	**734**
ID Residential Segment	**Number of Meters**	**2010 Sales (1000 thm)**	**% of ID Res. Sales**	**Intensity (thm/HH)**
Single Family	51,487	36,371	83%	706
Multi Family	4,648	2,068	5%	445
Mobile Home	9,513	5,645	13%	593
Idaho Total	**65,648**	**44,084**	**100%**	**672**
OR Residential Segment	**Number of Meters**	**2010 Sales (1000 thm)**	**% of OR Res. Sales**	**Intensity (thm/HH)**
Single Family	64,217	38,317	81%	597
Multi Family	6,789	2,552	5%	376
Mobile Home	13,107	6,570	14%	501
Oregon Total	**84,114**	**47,438**	**100%**	**564**

Figure ES-2 shows the breakdown of annual use by end use for the average home in each state and for the Avista residential sector as a whole. Space heating constitutes 77% of gas usage in Washington, 73% in Idaho, and from 71% in Oregon, reflecting the differences in climate among the states.

Figure ES-2 Annual Residential Natural Gas Use by End Use and State, 2010



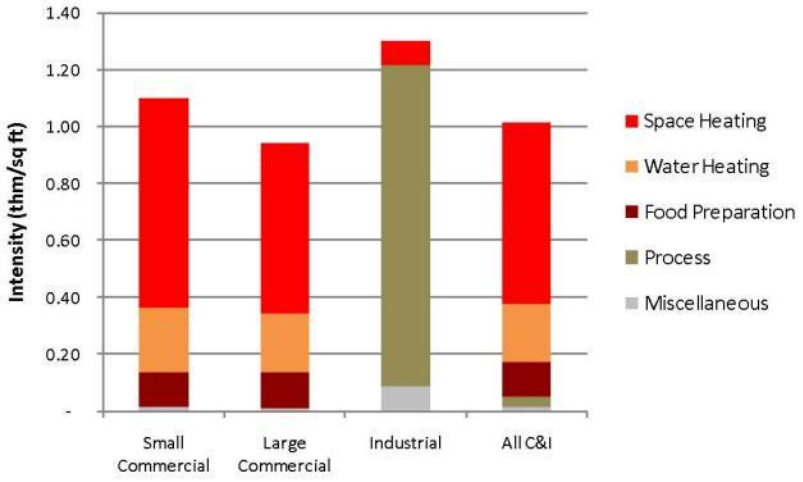
Total natural gas use in the commercial and industrial (C&I) sector in 2010 was 127.0 million therms. Avista rate classes were used to allocate this energy use to three segments per state. Intensity estimates in therms/sq. ft. were developed and then used to infer the segment size in floor space for each segment. Table ES-3 displays the resulting sales, intensity, and segment size. Due to the characteristics of the rate structures, a greater percentage of C&I customers in Oregon are classified as small commercial, as compared with Washington and Idaho.

Table ES-3 C&I Sector Gas Usage and Intensity by State and Segment, 2010

All States C&I		2010 Sales (1000 thm)	% of All C&I Sales	Intensity (thm/sq. ft.)	Segment Size (million sq. ft)
Small Commercial	N/A	50,693	40%	0.343	147.798
Large Commercial	N/A	71,176	56%	0.649	109.666
Industrial	N/A	5,141	4%	0.776	6.621
All States Total		**127,011**	**100%**	**0.481**	**264.085**
Washington Sector	**Rate Class**	**2010 Sales (1000 thm)**	**% of WA C&I Sales**	**Intensity (thm/sq. ft.)**	**Segment Size (million sq. ft)**
Small Commercial	101	16,706	24%	0.363	46.021
Large Commercial	111, 112, 121, 122, 132	49,808	72%	0.660	75.467
Industrial	101, 111, 121, 122	3,135	5%	0.792	3.959
Washington Total		**69,649**	**100%**	**0.555**	**125.447**
Idaho Sector	**Rate Class**	**2010 Sales (1000 thm)**	**% of ID C&I Sales**	**Intensity (thm/sq. ft.)**	**Segment Size (million sq. ft)**
Small Commercial	101	8,432	30%	0.347	24.335
Large Commercial	111, 132	17,820	64%	0.630	28.285
Industrial	101, 111, 112	1,681	6%	0.759	2.215
Idaho Total		**27,933**	**100%**	**0.509**	**54.835**
Oregon Sector	**Rate Class**	**2010 Sales (1000 thm)**	**% of OR C&I Sales**	**Intensity (thm/sq. ft.)**	**Segment Size (million sq. ft)**
Small Commercial	420	25,556	87%	0.330	77.441
Large Commercial	424	3,548	12%	0.600	5.914
Industrial	420, 424	325	1%	0.726	0.448
Oregon Total		**29,429**	**100%**	**0.351**	**83.803**

Figure ES-3 illustrates the distribution of gas consumption by end use for small commercial, large commercial, industrial, and C&I facilities as a whole. As one would expect, space heating is the predominant use, representing 63% of overall C&I gas consumption. For industrial facilities however, process heating represents the greatest share.

Figure ES-3 C&I End Use Intensities, 2010



Baseline Forecast

Prior to developing estimates of conservation potential, a baseline end-use forecast was developed to quantify how natural gas is used by end use in the base year and what the consumption is likely to be in the future in absence of new utility programs and naturally occurring conservation. The baseline forecast serves as the metric against which conservation potentials are measured.

Referring to Table ES-4, natural gas use across all three sectors is expected to increase by 28% between the base year 2010 and 2032, for an average annual growth rate of 1.1%. Overall, the forecast for the next 20 years grows steadily, dominated by growth in the residential sector.

Table ES-4 Baseline Forecast Summary (1000 therm)

Sector	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Residential	188,894	196,073	197,449	204,112	219,778	241,292	269,274	43%	1.5%
Sm. Commercial	50,693	50,130	50,530	51,271	52,378	53,494	55,120	9%	0.4%
Lg. Commercial	71,176	69,274	69,647	70,392	71,667	73,191	75,295	6%	0.2%
Industrial	5,141	5,026	5,067	5,156	5,274	5,409	5,560	8%	0.3%
Total	**315,906**	**320,503**	**322,693**	**330,932**	**349,097**	**373,385**	**405,250**	**28%**	**1.1%**

State	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Washington	167,021	168,616	169,523	173,064	180,908	191,260	205,302	23%	0.9%
Idaho	72,017	73,767	74,426	76,910	82,427	89,742	99,277	38%	1.4%
Oregon	76,867	78,120	78,744	80,958	85,762	92,383	100,671	31%	1.2%
Total	**315,906**	**320,503**	**322,693**	**330,932**	**349,097**	**373,385**	**405,250**	**28%**	**1.1%**

Figure ES-4 and Figure ES-5 present the baseline end-use forecasts for the residential and C&I sectors respectively, while Figure ES-6 displays growth system wide.

Figure ES-4 Residential Baseline Forecast by End Use

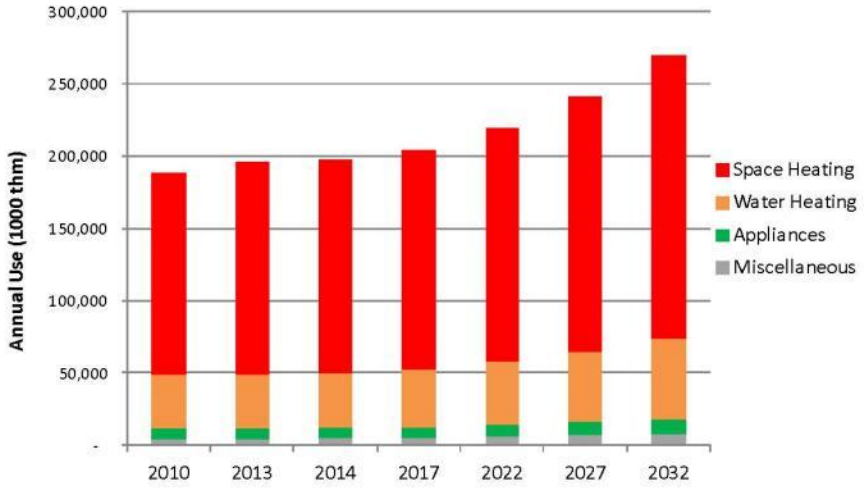


Figure ES-5 Commercial and Industrial Baseline Forecast by End Use

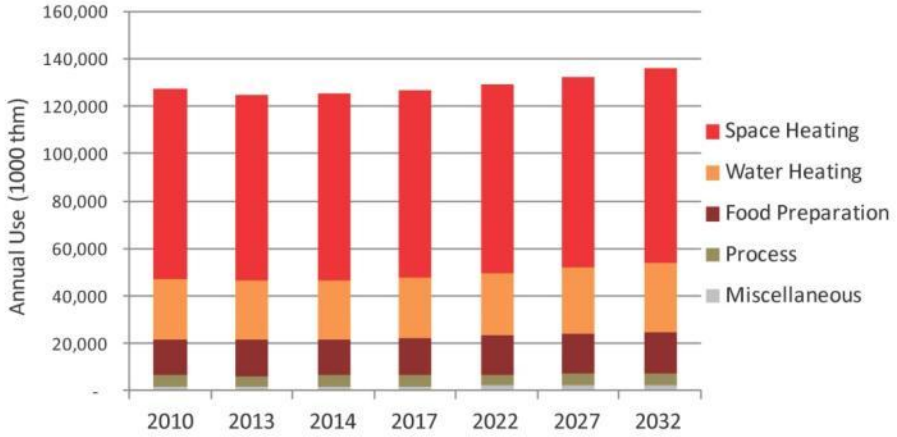
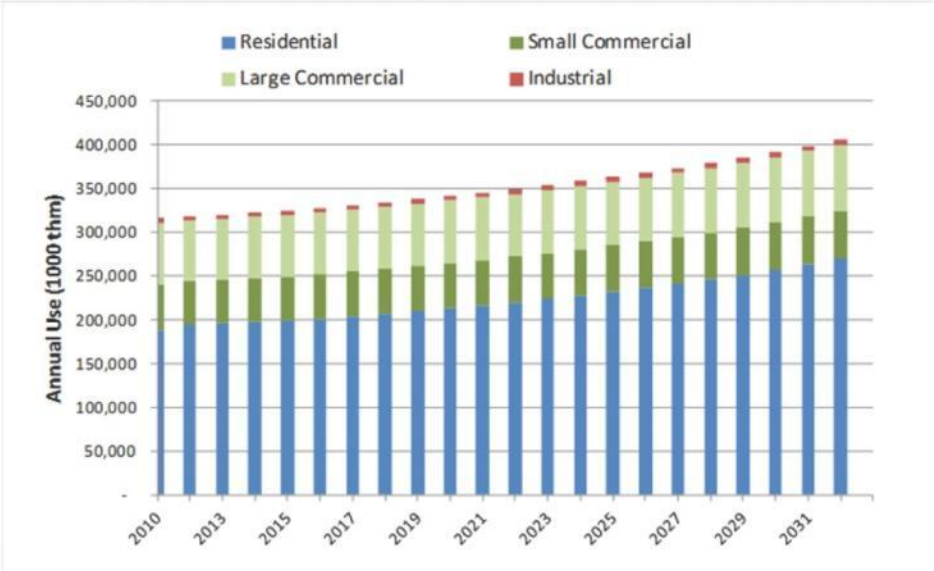


Figure ES-6 Baseline Forecast Summary (MWh)



Energy Conservation Measures

The first step of the energy conservation measure analysis is to identify the list of all relevant conservation measures that should be considered for the Avista CPA. The measures are categorized into two types according to the LoadMAP[3] taxonomy: equipment measures and non-equipment measures:

[3] Global's Load Management Analysis and Planning™ tool, which was used to perform the CPA analysis.

- ***Equipment measures,*** or efficient energy-consuming equipment, save energy by providing the same service with a lower energy requirement. For equipment measures, many efficiency levels are available for a specific technology that range from the baseline unit (often determined by code or standard) up to the most efficient product commercially available. For instance, in the case of residential furnaces, this list begins with the federal standard energy factor (EF) 0.78 unit and spans a broad spectrum of efficiency, with the highest efficiency level represented by an EF 0.96 unit.
- ***Non-equipment measures*** save energy by reducing the need for delivered energy but do not involve replacement or purchase of major end-use equipment (such as a furnace or water heater). An example would be a programmable thermostat that is pre-set to reduce the load on a furnace or boiler when the building is unoccupied. Non-equipment measures fall into one of the following categories:
  - Building shell (windows, insulation, roofing material)
  - Equipment controls (thermostat, occupancy sensors)
  - Equipment maintenance (cleaning filters, changing setpoints)
  - Whole-building design (natural ventilation, ENERGY STAR home)
  - Commissioning and retrocommissioning

Conservation Potential Results

Table ES-5 summarizes the achievable potential by state and by sector for selected years. As shown in Figure ES-7, initially, the large commercial sector provides a relatively higher percentage of the achievable savings compared with its share of sales, but over time this situation reverses so that the residential sector's share of savings is greatest, mainly due to growth in residential customer count.

Table ES-5 Cumulative Achievable Conservation Potential by State and by Sector

Cumulative Savings (1000 therm)	2013	2014	2017	2022	2027	2032
Washington	893	2,203	6,923	15,364	21,885	26,909
Idaho	364	821	2,734	5,601	8,758	11,914
Oregon	289	715	3,136	7,251	10,706	13,559
Total	**1,546**	**3,738**	**12,794**	**28,216**	**41,349**	**52,381**

Cumulative Savings (1000 therm)	2013	2014	2017	2022	2027	2032
Residential	515	1,567	6,507	14,903	22,278	29,960
Small Comercial	206	469	1,588	3,557	5,709	7,018
Large Commercial	801	1,654	4,548	9,436	13,007	15,027
Industrial	25	49	151	319	354	377
Total	**1,546**	**3,738**	**12,794**	**28,216**	**41,349**	**52,381**

Figure ES-7 Cumulative Achievable Conservation Potential Savings by Sector

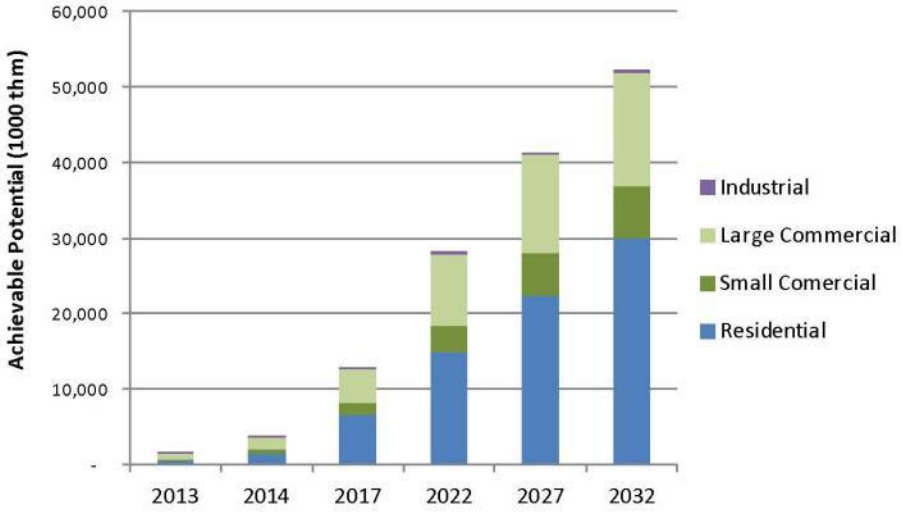


Table ES-6 and Figure ES-8 summarize the conservation savings for the different levels of potential relative to the baseline forecast. Figure ES-9 displays the baseline and potential forecasts.

- ***Achievable potential*** across the residential, commercial, and industrial sectors is 29.6 million therms in 2022 and increases to 53.8 million therms by 2032. These savings represent 8.5% of the baseline forecast in 2022 and 13.3% in 2032.
- ***Economic potential***, which reflects the savings when all cost-effective measures are taken, is 34.6 million therms in 2022. This represents 9.9% of the baseline energy forecast. By 2032, economic potential reaches 61.8 million therms, 15.3% of the baseline energy forecast. [4]
- ***Technical potential***, which reflects the adoption of all conservation measures regardless of cost-effectiveness, is a theoretical upper bound on savings. Technical potential is substantial, because measures such as solar thermal water heating could cut energy use dramatically. In 2022, energy savings are 103.5 million therms, equivalent to 29.7% of the baseline energy forecast. By 2032, technical potential reaches 169.4 million therms, 41.8% of the baseline energy forecast. The relatively wide gap between technical and economic potential reflects the low avoided costs, as well as the fact that Avista's long-running conservation programs have already achieved much of the cost-effective conservation. As a result, additional conservation measures are becoming relatively more costly, and many do not pass the cost-effectiveness screen based on Avista's current avoided costs.

[4] Note that economic and achievable potential for Oregon includes residential weatherization measures that are mandated to be included in utility DSM programs. Many of these measures did not pass the B/C test in the analysis model but were nonetheless included in economic and achievable potential.

Table ES-6 Summary of Cumulative Achievable, Economic, and Technical Conservation Potential

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 thm)						
	320,503	322,693	330,932	349,097	373,385	405,250
Cumulative Natural Gas Savings (1000 thm)						
Achievable	1,546	3,738	12,794	28,216	41,349	52,381
Economic	1,797	4,333	14,785	31,757	45,809	58,965
Technical	7,623	15,844	46,189	91,655	131,422	157,520
Cumulative Natural Gas Savings (% of Baseline)						
Achievable	0.5%	1.2%	3.9%	8.1%	11.1%	12.9%
Economic	0.6%	1.3%	4.5%	9.1%	12.3%	14.6%
Technical	2.4%	4.9%	14.0%	26.3%	35.2%	38.9%

Figure ES-8 Summary of Cumulative Conservation Potential Savings

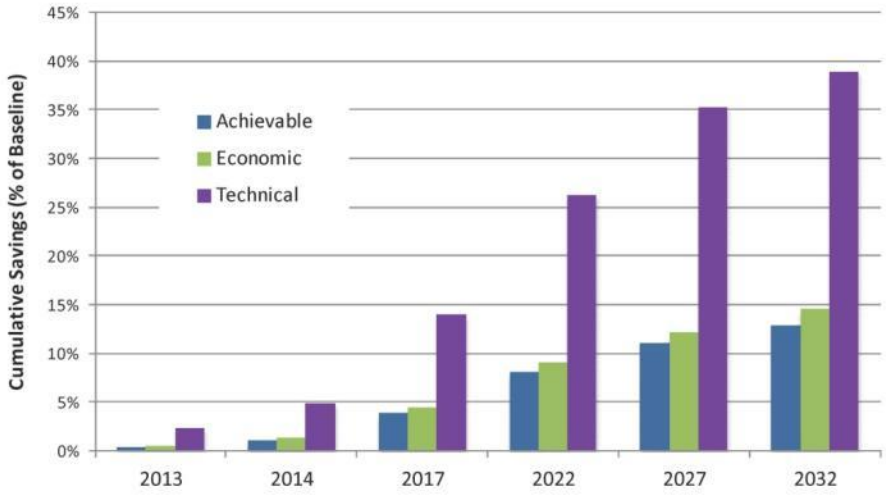
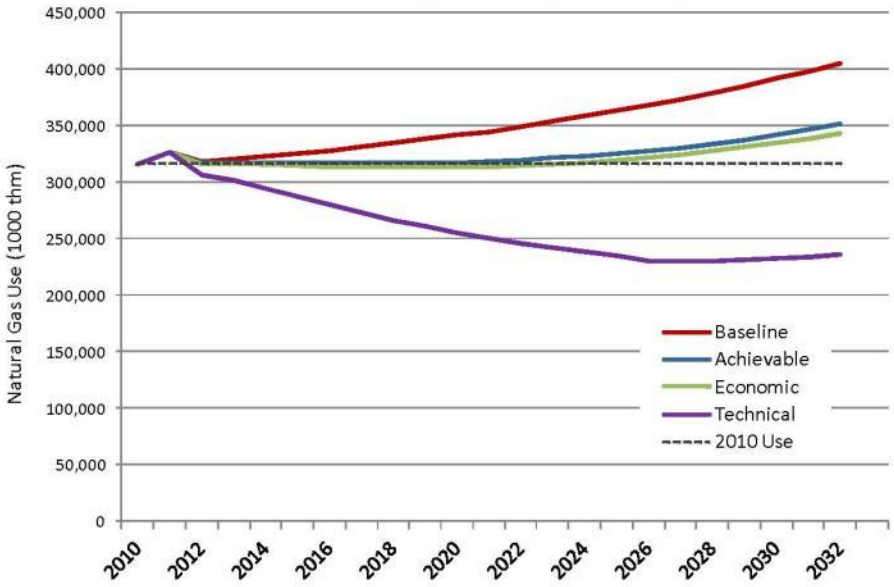


Figure ES-9 Conservation Potential Energy Forecasts (1000 therm)



The greatest sources of residential achievable potential in 2022, across all three states, are as follows:

- ***Shell measures and insulation***, which representing 6.4 million therms or 43% of all savings
- ***Thermostats and home energy monitoring systems***, which provide 3.5 million therms or 24% of all savings
- ***Water-saving devices***, including low-flow showerheads and faucet aerators, which combine for 3.2 million therms or 21% of achievable potential
- ***Water heater tank blankets and pipe insulation***, which provide an additional 1.3 million therms or nearly 9% of achievable potential

The primary sources of C&I achievable savings are as follows:

- ***Energy management systems and programmable thermostats***, because they can be readily installed, account for about 27% of achievable potential in 2014. These controls remain significant contributors to cumulative potential, with 2.5 million therms or 19% of potential in 2022.
- ***Boiler operating measures***, including maintenance, hot water reset, and efficient circulation, together can provide 4.3 million therms or about 29% of achievable potential in 2022.
- ***Equipment upgrades for furnaces, boilers, and unit heaters*** equal 2.0 million therms, or 15% of 2022 achievable potential.
- ***Foodservice equipment*** has an achievable potential by 2022 of 1.6 million therms, or 12% of achievable potential.

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CHAPTER | 1

INTRODUCTION

Background

Avista Utilities (Avista) has contracted with Global Energy Partners (Global) to conduct a conservation potential assessment (CPA) to quantify the amount, the timing, and the cost of natural gas energy conservation resources available within the Avista service territory. The purpose of this study is to establish cost-effective and achievable energy conservation resources for the 2013–2032 period to support development of Avista's 2013 gas Integrated Resource Plan (IRP).

Key objectives for the study include:

- Determine the conservation potential for natural gas for Washington, Idaho, and Oregon, for the period 2013–2032, based on Avista's service territory characteristics.
- Develop energy conservation measure (ECM) data sets for each market sector and each appropriate market segment.
- Categorize the potential by market sector, segment, building type, and ECM.
- Using parameters provided by Avista, calculate the Total Resource Cost (TRC), and measure levelized cost of the ECMs.
- Provide supply curves of achievable potential.

Report Organization

This report contains the following chapters:

1. Introduction
2. Analysis Approach and Data Development
3. Market Assessment and Market Profiles
4. Baseline Forecast
5. Conservation Potential

Definitions of Potential

In this study, the conservation potential estimates represent gross savings[5] developed into three types of potential: technical potential, economic potential, and achievable potential. Technical and economic potential are both theoretical limits to efficiency savings. Achievable potential embodies a set of assumptions about the decisions consumers make regarding the efficiency of the equipment they purchase, the maintenance activities they undertake, the controls they use for energy-consuming equipment, and the elements of building construction. These levels are described below.

Technical potential is defined as the theoretical upper limit of conservation potential. It assumes that customers adopt all feasible measures regardless of cost. At the time of equipment failure, customers replace equipment with the most efficient option available. In new

[5] Savings in "gross" terms instead of "net" terms means that the baseline forecast does not include naturally occurring efficiency. In other words, the baseline assumes that energy efficiency levels remain fixed as they are today. This rule holds true except in cases where future codes and standards were on the books before November 2011, e.g. the effects of the upcoming furnace and water heater standards.

construction, customers and developers also choose the most efficient equipment option. Examples of measures that make up technical potential in the residential sector include:

- High efficiency furnaces and boilers
- High efficiency water heaters
- High efficiency clothes dryers

Technical potential also assumes the adoption of every available non-equipment measure, where applicable. For example, it includes installation of high-efficiency windows in all new construction opportunities and furnace maintenance in all existing buildings with furnace systems. The retrofit measures are phased in over a number of years, which is longer for higher-cost measures.

Economic potential represents the adoption of all ***cost-effective*** conservation measures. In this analysis, the TRC test, which compares lifetime energy and capacity benefits to the incremental cost of the measure, is applied. Economic potential assumes that customers \urchase the most cost-effective option at the time of equipment failure and also adopt every other cost-effective and applicable measure.

Achievable potential takes into account market maturity, customer preferences for energy-efficient technologies, and expected program participation. Achievable potential establishes a realistic target for the conservation savings that a utility can hope to achieve through its programs. It is determined by applying a series of annual factors to the economic potential for each ECM. These factors represent the ramp rates at which technologies will penetrate the market and were based upon the Northwest Power and Conservation Council Sixth Plan (NWPCC) ramp rates. Although Avista is not required to use the Sixth Plan ramp rates for its gas CPA, the project team chose to use those ramp rates for consistency with the Avista 2011 electricity CPA. Also, these ramp rates have been widely vetted and are accepted by regional stakeholders. Details regarding the ramp rate development appear in Appendix E.

Abbreviations and Acronyms

Throughout the report we make reference to several abbreviations and acronyms. Table 1-1 shows the abbreviation or acronym, along with what it stands for.

Table 1-1 Explanation of Abbreviations and Acronyms

Acronym	Explanation
ACS	American Community Survey
AEO	Annual Energy Outlook
B/C Ratio	Benefit to Cost Ratio
BEST	Global's Building Energy Simulation Tool
C&I	Commercial and Industrial
CBSA	Northwest Energy Efficiency Alliance Commercial Building Stock Assessment
CPA	Conservation Potential Assessment
DEEM	Global's Database of Energy Efficiency Measures
DEER	Database for Energy-Efficient Resources
DSM	Demand side management
EE	Energy Efficiency
EIA	Energy Information Administration
EISA	Energy Efficiency and Security Act of 2007
EPACT	Energy Policy Act of 2005
EPRI	Electric Power Research Institute
EUEA	Efficient Use of Energy Act
EUI	Energy-use Index (energy use by end use)
HH	Household
I-937	Washington Initiative 937
LoadMAP	Global's Load Management Analysis and Planning™ tool
MAR	Market Acceptance Rate
NEEA	Northwest Energy Efficiency Alliance
NWPCC	Northwest Power and Conservation Council
RTF	Regional Technical Forum
Sq. ft.	Square feet
TRC	Total Resource Cost
UEC	Unit Energy Consumption

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CHAPTER | 2

ANALYSIS APPROACH AND DATA DEVELOPMENT

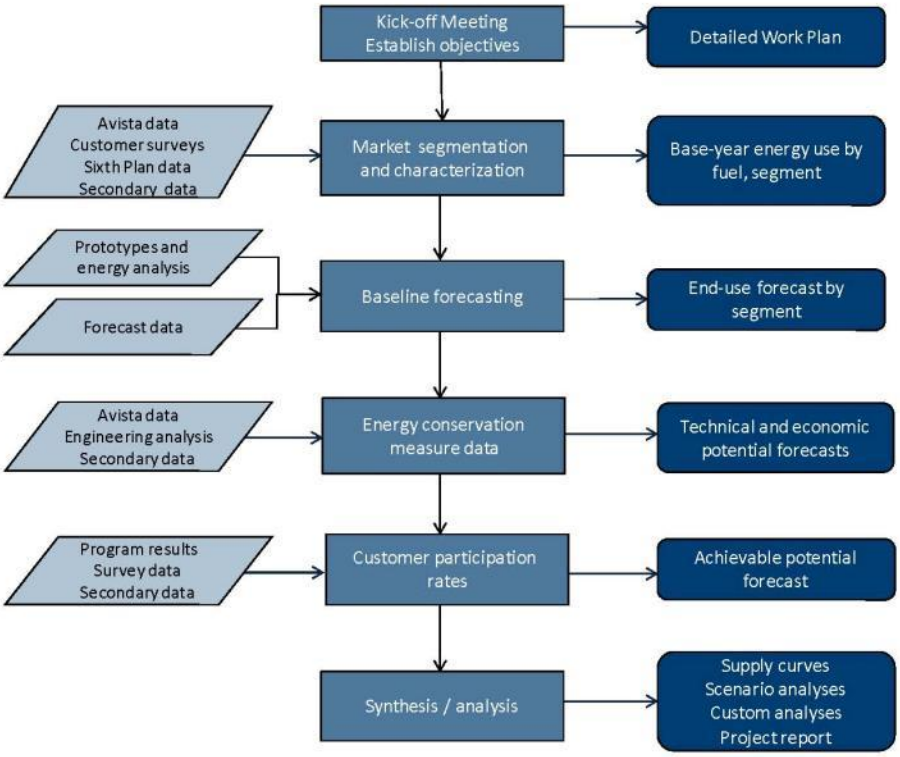
Introduction

To perform the conservation analysis, Global used a bottom-up analysis approach as shown in Figure 2-1 and summarized below.

1. Met by phone with Avista staff to refine the objectives that were identified in the Avista RFP. This resulted in a work plan for the study.
2. Performed a market characterization to describe sector-level natural gas use for the residential, commercial, and industrial sectors for the base year, 2010. This included using utility data and secondary data from sources such as the American Community Survey (ACS), and the Energy Information Administration (EIA).
3. Utilized secondary sources including Northwest Energy Efficiency Alliance (NEAA) data and market reports to understand how customers in the Avista service territory currently use gas. Combining this information with the market characterization, we developed energy market profiles that describe energy use by sector, segment, and end use for 2010.
4. Developed a baseline gas forecast by sector, segment, and end use for 2013 through 2032.
5. Identified and analyzed energy conservations measures appropriate for the Avista service territory.
6. Estimated three levels of conservation potential, *Technical, Economic,* and *Achievable*.

The steps are described in further detail throughout the remainder of this chapter.

Figure 2-1 Overview of Analysis Approach



LoadMAP Model

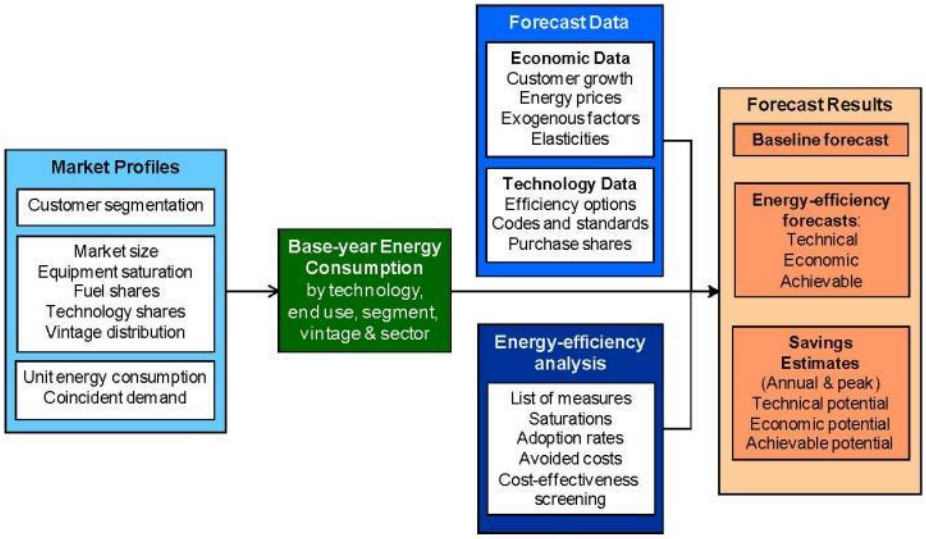
We used the Global Load Management Analysis and Planning tool (LoadMAP™) to develop the baseline forecast, as well as the estimates of conservation potential. Global developed LoadMAP in 2007 and has used it for the EPRI National Potential Study and numerous utility-specific forecasting and potential studies. Built in Excel, the LoadMAP framework (see Figure 2-2) is both accessible and transparent and has the following key features.

- Develops a bottom-up forecast based on energy use by end use of major energy-consuming equipment.
- Embodies the basic principles of rigorous end-use models (such as EPRI's REEPS and COMMEND) but in a more simplified, accessible form.
- Includes stock-accounting algorithms that treat older, less efficient appliance/equipment stock separately from newer, more efficient equipment. Equipment is replaced according to the measure life defined by the user.
- Balances the competing needs of simplicity and robustness by incorporating important modeling details related to equipment saturations, efficiencies, vintage, and the like, where market data are available, and treats end uses separately to account for varying importance and availability of data resources.
- Uses a simple logic for appliance and equipment decisions. Isolates new construction from existing equipment and buildings and treats purchase decisions for new construction and existing buildings separately.

- Includes appliance and equipment models customized by end use. For example, the logic for space heating is distinct from stoves and clothes dryers.
- Can accommodate various levels of segmentation. Analysis can be performed at the sector level (e.g., total residential) or for customized segments within sectors (e.g., housing type or income level).

Consistent with the segmentation scheme and the market profiles we describe below, the LoadMAP model provides forecasts of baseline natural gas use by sector, segment, end use and technology for existing and new buildings. It also provides forecasts of total natural gas use and conservation savings associated with the three types of potential.[6]

Figure 2-2 LoadMAP Analysis Framework



Market Characterization

Before assessing conservation potential, it is critical to develop a good understanding of where Avista is today in terms of natural gas use and customer behavior. The purpose of the market characterization is to develop market profiles that describe current natural gas use in terms of sector, customer segment, and end use. The base year for this study is 2010 because that was the most recent year for which utility sales data were available.

Segmentation for Modeling Purposes

The market assessment began by defining the market segments (building types, end uses, and other dimensions) that are relevant for Avista. The segmentation scheme employed for this project is presented in Table 2-1.

[6] The model computes energy and peak-demand forecasts for each type of potential for each end use as an intermediate calculation. Annual-energy and peak-demand savings are calculated as the difference between the value in the baseline forecast and the value in the potential forecast (e.g., technical potential).

Table 2-1 Overview of Segmentation Scheme for Potentials Modeling

Market Dimension	Segmentation Variable	Dimension Examples
Dimension 1	Sector	Residential, commercial, industrial
Dimension 2	Geographic Region	Washington, Idaho, Oregon
Dimension 3	Building type	Residential (Single family, Multi family, Mobile home) Commercial (Small commercial, Large commercial) Industrial (no further segmentation)
Dimension 4	Vintage	Existing and new construction (for residential and commercial sectors)
Dimension 5	End uses	Space heating, water heating, appliances, food preparation, etc. (as appropriate by sector)
Dimension 6	Appliances/end uses and technologies	Technologies such as space heating equipment, ovens, process equipment, etc.
Dimension 7	Equipment efficiency levels for new purchases	Baseline and higher-efficiency options as appropriate for each technology

For the residential sector, the CPA used the following segmentation.

- ***Single-family homes.*** This segment includes single-family detached homes, townhouses, and duplexes or row houses.
- ***Multi-family homes.*** The multi-family segment includes apartments or condos in buildings with more than two units.
- ***Mobile homes.*** This segment includes mobile homes and manufactured homes.

In addition to segmentation by housing type, we identified the set of end uses and technologies that are appropriate for Avista. These are shown in Table 2-2.

Table 2-2 Residential End Uses and Technologies

End Use	Technology
Space Heating	Furnace
Space Heating	Boiler
Space Heating	Other Heating
Water Heating	Water Heater
Appliances	Clothes Dryer
Appliances	Stove/Oven
Miscellaneous	Pool/Spa Heater
Miscellaneous	Miscellaneous

For the commercial sector, we used rate classes to identify the segments.

- ***Small Commercial.*** This segment includes commercial buildings under rate class 101 in Washington and Idaho, and 420 in Oregon.
- ***Large Commercial.*** This segment includes commercial buildings under rate classes 111, 112, 121, 122, and 132 in Washington and Idaho, and 424 in Oregon.

No further segmentation was applied to the industrial sector.

In addition to segmentation by rate class, we identified the set of commercial and industrial end uses and technologies that are appropriate for Avista's service territory, as shown in Table 2-3.

With the segmentation scheme defined, we then performed a high-level market characterization of natural gas sales in the base year to allocate sales to each customer segment. We used various data sources to identify the annual sales in each customer segment, as well as the number of customers for residential segments, and the square footage for the commercial and industrial segments. This information provided control totals (energy use and customers counts/square footage totals) for calibrating the LoadMAP model to known data for the base-year.

Table 2-3 Commercial & Industrial End Uses and Technologies

End Use	Technology
Space Heating	Furnace
Space Heating	Boiler
Space Heating	Other Heating
Water Heating	Water Heater
Food Preparation	Fryer
Food Preparation	Oven
Food Preparation	Broiler
Food Preparation	Griddle
Food Preparation	Range
Food Preparation	Steamer
Process	Process Heating
Process	Process Cooling
Process	Other Process
Miscellaneous	Pool/Spa Heater
Miscellaneous	Miscellaneous

Market Profiles

The next step was to develop market profiles for each sector, customer segment, end use, and technology. A market profile includes the following elements:

- ***Market size*** is a representation of the number of customers in the segment. For the residential sector, it is number of households. In the commercial and industrial sector, it is floor space measured in square feet.
- ***Saturations*** define the fraction of buildings with the natural gas technologies. (e.g., homes with natural gas water heating, commercial floor space with natural gas space heating, etc.).
- ***UEC (unit energy consumption) or EUI (energy-use index)*** describes the amount of natural gas consumed in 2010 by a specific technology in buildings that have the technology. We use UECs expressed in therms/household for the residential sector, and EUIs expressed in therms/square foot for the commercial and industrial sectors.
- ***Intensity*** for the residential sector represents the average use for the technology across all homes in 2010. It is computed as the product of the saturation and the UEC and is defined as therms/household. For the commercial and industrial sectors, intensity, computed as the product of the saturation and the EUI, represents the average use for the technology across all floor space in 2010.
- ***Usage*** is the annual gas use by a technology/end use in the segment. It is the product of the market size and intensity and is quantified in 1000 therm.

The market assessment results and the market profiles are presented in Chapter 3.

Baseline Forecast

The next step was to develop the baseline forecast of annual natural gas use for 2010 through 2032 by customer segment and end use without new utility programs or naturally occurring efficiency scenario. The end-use forecast does include the relatively certain impacts of codes and standards that will unfold over the study timeframe. All such mandates that were defined as of January 2011 are included in the baseline. The baseline forecast is the foundation for the analysis of savings from future EE efforts as well as the metric against which potential savings are measured.

Inputs to the baseline forecast include:

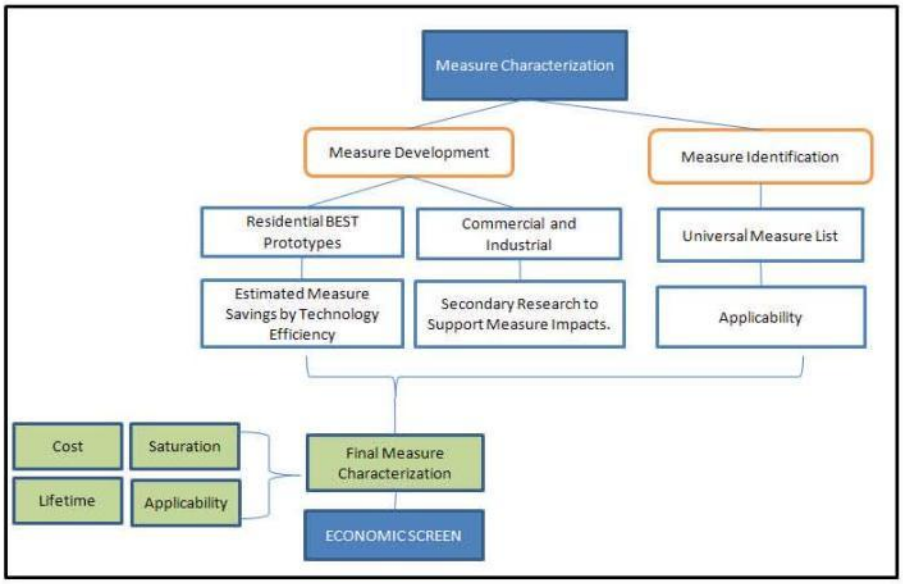
- Current economic growth forecasts (i.e., customer growth, income growth), provided by Avista
- Natural gas price forecasts, provided by Avista
- Trends in fuel shares and equipment saturations, developed by project team
- Existing and approved changes to building codes and equipment standards
- Avista's internally developed forecasts for natural gas sales

We present the results of the baseline forecast development in Chapter 4.

Conservation Measure Analysis

This section describes the framework used to assess the savings, costs, and other attributes of energy conservation measures. These characteristics form the basis for measure-level cost-effectiveness analyses as well as for determining measure-level savings. For all measures, Global assembled information to reflect equipment performance, incremental costs, and equipment lifetimes. We used this information, along with Avista's avoided costs, in the economic screen to determine economically feasible measures. Figure 2-3 outlines the framework for measure analysis.

Figure 2-3 Approach for Measure Assessment



The framework for assessing savings, costs, and other attributes of energy conservation measures involves identifying the list of conservation measures to include in the analysis, determining their applicability to each market sector and segment, fully characterizing each measure, and performing cost-effectiveness screening. Potential measures include the replacement of a unit that has failed or is at the end of its useful life with an efficient unit, retrofit/early replacement of equipment, improvements to the building envelope, the application of controls to optimize energy use, and other actions resulting in improved energy efficiency.

We compiled a robust list of conservation measures for each customer sector, drawing Avista's existing programs, as well as a variety of secondary sources. This universal list of energy conservation measures covers all major types of end-use equipment, as well as devices and actions to reduce energy consumption. If considered today, some of these measures would not pass the economic screens initially, but may pass in future years as a result of lower projected equipment costs or higher avoided costs.

The selected measures can be categorized into types, equipment measures and non-equipment measures, according to the LoadMAP taxonomy:

- ***Equipment measures,*** or efficient energy-consuming equipment, save energy by providing the same service with a lower energy requirement. For equipment measures, many efficiency levels are available for a specific technology that range from the baseline unit (often determined by code or standard) up to the most efficient product commercially available. For

instance, in the case of residential furnaces, this list begins with the federal standard energy factor (EF) 0.78 unit and spans a broad spectrum of efficiency, with the highest efficiency level represented by an EF 0.96 unit.

- ***Non-equipment measures*** save energy by reducing the need for delivered energy but do not involve replacement or purchase of major end-use equipment (such as a furnace or water heater). An example would be a programmable thermostat that is pre-set to reduce the load on a furnace or boiler when the building is unoccupied. Non-equipment measures fall into one of the following categories:
  - Building shell (windows, insulation, roofing material)
  - Equipment controls (thermostat, occupancy sensors)
  - Equipment maintenance (cleaning filters, changing setpoints)
  - Whole-building design (natural ventilation, ENERGY STAR home)
  - Commissioning and retrocommissioning

Global developed a preliminary list of energy conservation measures that included gas measures in Avista's existing DSM programs, as well as other measures that are typically included in gas utility conservation programs. The final list included in the study, which reflects feedback and additions from Avista, is presented in Appendices B, C, and D for the residential, commercial, and industrial sectors respectively.

Once we assembled the list of ECMs, the project team assessed their energy-saving characteristics. For each measure, we developed estimates of incremental cost, service life, and other performance factors, drawing upon data from Avista and from secondary sources. The project team also used data from Global's database of measure characteristics and simulation modeling. Following the measure characterization, we performed an economic screening of each measure, which serves as the basis for developing the economic potential.

Representative Measure Data Inputs

To provide an example of the measure data, Table 2-4 and Table 2-5 present samples of the detailed data inputs behind equipment and non-equipment measures, respectively, for the case of residential water heaters in single-family homes in Washington. Table 2-4 displays the various efficiency levels available as equipment measures, as well as the corresponding useful life, energy usage, and cost estimates. The columns labeled On Market and Off Market reflect equipment availability due to codes and standards or the entry of new products to the market.

Table 2-4 Sample Equipment Measures for Water Heaters – Single Family Home (WA)

Efficiency Level	Useful Life	Equipment Cost	Energy Usage(thm/yr)	On Market	Off Market
EF 0.59	15	$445	153.3	2010	2014
EF 0.62	15	$480	145.9	2010	2032
EF 0.64	15	$750	141.6	2010	2032
EF 0.67	15	$760	135.2	2010	2032
EF 0.70	15	$800	129.5	2010	2032
EF .86 (Condensing)	15	$2,500	105.3	2010	2032
Solar	15	$5,000	43.5	2010	2032

Table 2-5 lists some of the non-equipment measures affecting an existing single-family home in Washington with a gas water heater. These measures are also evaluated for cost effectiveness based on the lifetime benefits relative to the cost of the measure. The total savings are calculated for each year of the model and depend on the base year saturation of the measure, the applicability and feasibility[7] of the measure, and the savings as a percentage of the relevant energy end uses.

Table 2-5 Sample Non-Equipment Measures – Single Family Home (WA), Existing

End Use	Measure	Saturation in 2010[8]	Applica-bility	Lifetime (years)	Measure Installed Cost	Energy Savings (%)
Water Heating	Water Heating - Faucet Aerators	53%	90%	25	$24	3.70%
Water Heating	Water Heating - Low Flow Showerheads	42%	80%	10	$96	17.10%
Water Heating	Water Heating - Pipe Insulation	17%	75%	13	$10	2.00%
Water Heating	Water Heating - Tank Blanket/Insulation	54%	75%	10	$15	9.10%
Water Heating	Water Heating - Thermostat Setback	17%	75%	5	$40	9.10%
Water Heating	Water Heating - Timer	17%	40%	10	$194	8.00%
Water Heating	Water Heating - Hot Water Saver	5%	50%	5	$35	8.75%

Screening Measures for Cost-Effectiveness

Only measures that are cost-effective are included in economic and achievable potential. Therefore, for each individual measure, LoadMAP performs an economic screen. This study uses the total resource cost (TRC) test that compares the lifetime benefits (both energy and peak demand) of each applicable measure with its installed cost, which includes material, labor, and administration of a delivery mechanism, such as an energy efficiency program. The lifetime benefits are calculated by multiplying the annual energy and demand savings for each measure by all appropriate avoided costs for each year, and discounting the dollar savings to the present value equivalent. The analysis uses each measure's values for savings, costs, and lifetimes that were developed as part of the measure characterization process described above. For economic screening of measures, incentives are not included because they represent a simple transfer from one party to another, but have no effect on the overall measure cost.

The LoadMAP model performs this screening dynamically, taking into account changing savings and cost data over time. Thus, some measures pass the economic screen for some — but not all — of the years in the forecast.

It is important to note the following about the economic screen:

- The economic evaluation of every measure in the screen is conducted relative to a baseline condition. For instance, in order to determine the savings potential of a measure, consumption in therms with the measure applied must be compared to the consumption n therms of a baseline condition.

[7] The applicability factor takes into account whether the measure is applicable to a particular building type and whether it is feasible to install the measure. For instance, attic fans are not applicable to homes without attics, and in some homes with attics, it may not be feasible to install an attic fan because of lack of space.

[8] Note that saturation levels reflected for 2010 change over time as more measures are adopted.

- The economic screening was conducted only for measures that are applicable to each building type and vintage; thus if a measure is deemed to be irrelevant to a particular building type and vintage, it is excluded from the respective economic screen.

If the measure passes the screen (has a benefit-to-cost (B/C) ratio greater than or equal to 1.0), the measure is included in economic potential. Otherwise, it is screened out for that year. If multiple equipment measures have B/C ratios greater than or equal to 1.0, the most efficient technology with a B/C ration above 1.0 is selected by the economic screen.

Additional information on avoided costs appears later in this chapter, and detailed information on the measure analysis is presented in Appendices B, C, and D for the residential, commercial, and industrial sectors respectively.

Conservation Potential

The approach we used for this study adheres to the approaches and conventions outlined in the National Action Plan for Energy-Efficiency (NAPEE) Guide for Conducting Potential Studies (November 2007).[9] The NAPEE Guide represents the most credible and comprehensive industry practice for specifying energy-efficiency potential. Specifically, three types of potentials were developed as part of this study:

- ***Technical potential*** is a theoretical construct that assumes the highest efficiency measures that are technically feasible to install are adopted by customers, regardless of cost or customer preferences. Thus, determining the technical potential is relatively straightforward. LoadMAP "chooses" the most efficient equipment options for each technology at the time of equipment replacement. In addition, it installs all relevant non-equipment measures for each technology to calculate savings.

  For example, for water heating, as shown in Table 2-4, the most efficient option is solar water heating. The multiple non-equipment measures shown in Table 2-5 are then applied to the energy used by the solar water heater m to further reduce water heating energy use. LoadMAP applies the savings due to the non-equipment measures one-by-one to avoid double counting of savings. The measures are evaluated in order of their B/C ratio, with the measure with the highest B/C ratio applied first. Each time a measure is applied, the baseline energy use for the end use is reduced and the percentage savings for the next measure is applied to the revised (lower) usage.

- ***Economic potential*** results from the purchase of the most efficient *cost-effective* option available for a given equipment or non-equipment measure as determined in the cost-effectiveness screening process described above. As with technical potential, economic potential is a phased-in approach. Economic potential is still a hypothetical upper-boundary of savings potential as it represents only measures that are economic but does not yet consider customer acceptance and other factors.

- ***Achievable potential*** defines the range of savings that is very likely to occur. It accounts for customers' awareness of efficiency options, any barriers to customer adoption, limits to program design, and other factors that influence the rate at which conservation measures penetrate the market.

The calculation of technical and economic potential is straightforward as described above. To develop estimates for achievable potential, we specify adoption rates for each measure. For Avista, we began with the ramp rates specified in the Sixth Plan conservation workbooks. Although Avista is not required to use the Sixth Plan ramp rates for its gas CPA, the project team chose to use those ramp rates for consistency with the Avista 2011 electricity CPA. Also, these ramp rates have been widely vetted and are accepted by regional stakeholder. Details regarding the ramp rate development appear in Appendix E. Results of all the potentials analysis are presented in Chapter 5.

[9] National Action Plan for Energy Efficiency (2007). *National Action Plan for Energy Efficiency Vision for 2025: Developing a Framework for Change.* www.epa.gov/eeactionplan.

Data Development

This section begins with a description of the data sources used in this study, followed by a discussion of how these sources were applied.

Data Sources

The data sources are organized into the following categories:

- Utility-provided data
- Energy conservation measure data
- Global Energy Partners' databases and analysis tools
- Other secondary data and reports

Utility-provided Data

In order to enable the project team to appropriately characterize the market, Avista provide the following:

- Utility 2010 billing data — customers, usage, revenue
- Number of customers and gas sales by sector (residential, commercial, industrial)
- Energy and peak demand forecasts, at the sector level
- Forecasts of customer growth, persons per household, and income
- Price forecast
- Avoided costs forecast
- Discount rate
- Escalation rate
- Loss factors
- Description of existing conservation and demand side management programs and results from these programs
- Program administration expenses
- Recent conservation potential studies

Energy Conservation Measure Data

Several sources of data were used to characterize the energy conservation measures.

- ***Northwest Power and Conservation Council Sixth Plan Conservation Supply Curve Workbooks, 2010.*** To develop its Power Plan, the Council used workbooks with detailed information about measures, available at http://www.nwcouncil.org/energy/powerplan/6/supplycurves/default.htm. Although the Plan focuses on electricity and not gas conservation measures, it does provide useful information for a gas CPA, such as cost and savings estimates for weatherization measures.
- ***Regional Technical Forum Deemed Measures.*** The NWPCC Regional Technical Forum maintains databases of deemed measure savings data, available at http://www.nwcouncil.org/energy/rtf/measures/Default.asp . Although the Regional Technical Forum focuses on electricity and not gas conservation measures, it does provide useful information for a gas CPA, such as cost and savings estimates for weatherization measures.
- ***Database for Energy Efficient Resources (DEER).*** The California Energy Commission and California Public Utilities Commission (CPUC) sponsor this database, which is designed to

provide well-documented estimates of energy and peak demand savings values, measure costs, and effective useful life (EUL) for the state of California.

- ***Other cost data sources***
  - RS Means Facilities Maintenance and Repair Cost Data
  - RS Means Mechanical Construction Costs
  - RS Means Building Construction Cost Data
  - USGBC — LEED New Construction & Major Renovation (2008)
  - RS Means Green Buildings Project Planning & Cost Estimating Second Edition (2008)
  - Grainger Catalog Volume 398, (2007-2008)
  - EIA Technology Forecast Updates – Residential and Commercial Building Technologies – Reference Case, Navigant Consulting

Global Energy Partners Databases, Analysis Tools, and Reports

Global maintains several databases and modeling tools that we use for forecasting and potential studies.

- ***Energy Market Profiles Database.*** Since the late 1990s, Global staff has maintained a database of end-use profiles by sector, customer segment and region for electricity and natural gas. The database contains market size, fuel shares/saturations, UECs/EUIs, intensities, and total sales.
- ***Building Energy Simulation Tool (BEST)***. BEST is a derivative of the DOE 2.2 building simulation model, used to estimate base-year UECs and EUIs, as well as measure savings for the HVAC-related measures.
- ***Database of Energy Efficiency Measures (DEEM)***. Global maintains a database of energy efficiency measures for residential, commercial, and industrial segments across the U.S. This is analogous to the DEER database developed for California. Global updates the database on a regular basis as it conducts new conservation potential studies.
- ***EnergyShape™ Database***. This database contains end-use load shapes for residential and commercial segments for nine regions in the U.S. For the non-HVAC end uses, we used the EnergyShape data to develop the peak factors that represent the fraction of annual energy use that occurs during the peak hour. The peak factors were calibrated to available utility data for the system peak. The final peak factors were applied to annual energy savings to calculate the peak-demand savings from energy conservation measures.
- ***Recent Studies***. Global has conducted numerous studies of conservation potential in the last five years. We checked our input assumptions and analysis results against the results from these other studies which include AmerenUE, Los Angeles Department of Water and Power, Consolidated Edison of New York, State of New Mexico, and Tennessee Valley Authority. In addition, we used the information about impacts of building codes and appliance standards from a recent report for the Institute for Energy Efficiency.

Other Secondary Data and Reports

Finally, a variety of secondary data sources and reports were used for this study. The main sources are identified below.

- ***U.S. Census Data***:
  - The American Community Survey (ACS) is an ongoing survey that provides data every year on household characteristics. http://www.census.gov/acs/www/

  - Census Bureau's Economic Census, which is conducted every five years, collects details on business characteristics. We used the 2007 version. http://www.census.gov/econ/census07/

- ***Northwest Energy Efficiency Alliance, Single-Family Residential Existing Construction Stock Assessment***, Market Research Report, E07-179 (10/2007), http://neea.org/research/reportdetail.aspx?ID=194
- ***Northwest Energy Efficiency Alliance, Assessment of Multifamily Building Stock in the Pacific Northwest***, Market Research Report, 05-146, August, 2005. http://neea.org/research/reports/146.pdf
- ***Northwest Energy Efficiency Alliance, Long-Term Northwest Residential Lighting Tracking and Monitoring Study***, Market Research Report, 11-228, August, 2011. http://neea.org/research/reports/E11-231_Combinedv2.pdf
- ***Northwest Energy Efficiency Alliance, Multifamily Residential New Construction characteristics and practices Study, Market*** Research Report, 07-173, June, 2007. http://neea.org/research/reports/07%20173.pdf
- ***Northwest Energy Efficiency Alliance, 2009 Northwest Commercial Building Stock Assessment*** (10-211), http://neea.org/research/reportdetail.aspx?ID=546.
- ***California Statewide Surveys***. The Residential Appliance Saturation Survey (RASS) and the Commercial End Use Survey (CEUS) are comprehensive market research studies conducted by the California Energy Commission. These databases provide a wealth of information on appliance use in homes and businesses. RASS is based on information from almost 25,000 homes and CEUS is based on information from a stratified random sample of almost 3,000 businesses in California.
- ***Annual Energy Outlook***. The Annual Energy Outlook (AEO), conducted each year by the U.S. Energy Information Administration (EIA), presents yearly projections and analysis of energy topics. For this study, we used data from the 2011 AEO.
- ***Electric Power Research Institute – Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S.***, also known as the EPRI National Potential Study (2008). In 2008, Global conducted an assessment of the national potential for energy efficiency, with estimates derived for the four DOE regions (including the West region that includes Avista).
- ***EPRI End-Use Models (REEPS and COMMEND)***. These models provide the elasticities we apply to retail gas prices, household income, home size and heating and cooling.

Data Application

We now discuss how the data sources described above were used for each step of the study.

Data Application for Market Characterization

To construct the high-level market characterization of gas use and households/floor space for the residential, commercial, and industrial sectors, we applied sales data from Avista, the U.S. Census ACS, the NWPCC Sixth Plan, NEEA market characterization reports, and the Annual Energy Outlook.

To segment the residential customers into the three segments, we determined the housing type breakdown based on the U.S. Census ACS for and applied it to the number of customers reported in the 2010 Avista billing data. We then estimated the usage per household to calibrate total residential use for each state to the Avista sales data control totals. For commercial and industrial customers, we used the Sixth Plan, the NEEA CBSA, and our Energy Market Profiles to develop estimates of energy intensity. We then inferred the floor stock in square footage. As with the residential sector, total sales for C&I customers were calibrated to match to the Avista sales data control totals for each state.

Data Application for Market Profiles

To develop the market profiles for each segment, we used the following general approach:

1. Developed control totals for each segment as described above. These include market size, segment-level annual gas use, and annual intensity.
2. Used the Sixth Plan and NEEA studies to incorporate information on existing appliance and equipment saturations, appliance and equipment characteristics, building characteristics, customer behavior, operating characteristics, and energy-efficiency actions already taken.
3. Compared and cross-checked with secondary data sources, Energy Market Profiles, and other sources.
4. Ensured calibration to control totals for annual gas sales in each segment.
5. Worked with Avista staff to vet the data against their knowledge and experience.

The specific data elements for the market profiles, together with the key data sources, are shown in Table 2-6.

Table 2-6 Data Applied for the Market Profiles

Model Inputs	Description	Key Sources
Market size	Base-year residential dwellings and C&I floor space	• Utility billing data • American Community Survey • NWPCC Sixth Plan • NEEA Regional Surveys • Energy Market Profiles
Annual intensity	Residential: Annual energy use (kWh/household) C&I: Annual energy use (kWh/sq ft)	• Utility data • NWPCC Sixth Plan • NEEA CBSA • Energy Market Profiles • Previous studies
Appliance/equipment saturations	Fraction of dwellings with an appliance/technology Percentage of C&I floor space with equipment/technology	• NWPCC Sixth Plan • NEEA residential and commercial market studies • Energy Market Profiles
UEC/EUI for each end-use technology	UEC: Annual gas use for a technology in dwellings that have the technology EUI: Annual gas use per square foot for a technology in floor space that has the technology	• NWPCC Sixth Plan and RTF data • HVAC uses: BEST simulations using prototypes developed for Avista • Non HVAC uses: engineering analysis • Energy Market Profiles • California RASS and CEUS • Results from previous studies
Appliance/equipment vintage distribution	Age distribution for each technology	• NWPCC Sixth Plan and RTF data • NEEA regional survey data • Previous Global studies
Efficiency options for each technology	List of available efficiency options and annual energy use for each technology	• DEEM • DEER • Annual Energy Outlook • Previous studies
Peak factors	Share of technology energy use that occurs during the peak hour	• Utility data • EnergyShape database

Data Application for Baseline Forecast

Table 2-7 summarizes the LoadMAP model inputs required for the baseline forecast. These inputs are required for each segment within each sector, as well as for new construction and existing dwellings/buildings.

Table 2-7 Data Needs for the Baseline Forecast and Potentials Estimation in LoadMAP

Model Inputs	Description	Key Sources
Customer growth forecasts	Forecasts of residential customer growth and of C&I employment growth	• Data provided by Avista
Income growth forecasts	Forecast of per capita income	• Data provided by Avista
Equipment purchase shares for baseline forecast	For each equipment/technology, purchase shares for each efficiency level; specified separately for equipment replacement (replace-on-burnout) and new construction	• Shipments data • AEO 2011 forecast assumptions Appliance/efficiency standards analysis • NEEA studies
Gas prices	Forecast of average gas prices	• Avista price forecasts
Utilization model parameters	Price elasticities, elasticities for other variables (income, weather)	• EPRI's REEPS and COMMEND models

We developed initial baseline purchase shares based on the Energy Information Agency's *Annual Energy Outlook* report (2011). Beyond 2011, we assumed a frozen efficiency case in which the purchase shares for efficient equipment do not change during the study period, unless equipment standards remove a technology option from the market. Table 2-8 and Table 2-9 show the assumptions regarding upcoming standards, based on known standards as of January 2011. This approach removes any effects of naturally occurring conservation or effects of future conservation programs that may be embedded in the AEO forecasts. Thus the CPA's resulting forecasts of potential compared to this baseline are gross forecasts because naturally occurring conservation effects have been removed.

Table 2-8 Residential Gas Equipment Standards (Northern)

Today's Efficiency or Standard Assumption
Next Standard (relative to today's standard)
2nd Standard (relative to today's standard)

End Use	Technology	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Space Heating	Furnace	AFUE 80%		AFUE 90% -Non-weatherized		AFUE 90% -Weatherized										
	Boiler	EF 0.81		EF 0.82												
Water Heating	Water Heater (<=55 gallons)	EF 0.59				EF 0.62										
	Water Heater (>55 gallons)	EF 0.59				Condensing Technology										
Appliances	Clothes Dryer	Conventional				5% more efficient										
	Range/Oven	Conventional		No Standing Pilot Light												
Miscellaneous	Pool Heater	Conventional		EF 0.82												

Table 2-9 Commercial and Industrial Gas Equipment Standards

Today's Efficiency or Standard Assumption
Next Standard (relative to today's standard)

End Use	Technology	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Space Heating	Furnace	AFUE 76%														
	Boiler	EF 0.76		EF 0.82												
Water Heating	Water Heater	EF 0.80														
Miscellaneous	Pool Heater	Conventional		EF 0.82												

Energy Conservation Measure Data Application

Table 2-10 details the data sources used for measure characterization.

Table 2-10 Data Needs for the Measure Characteristics in LoadMAP

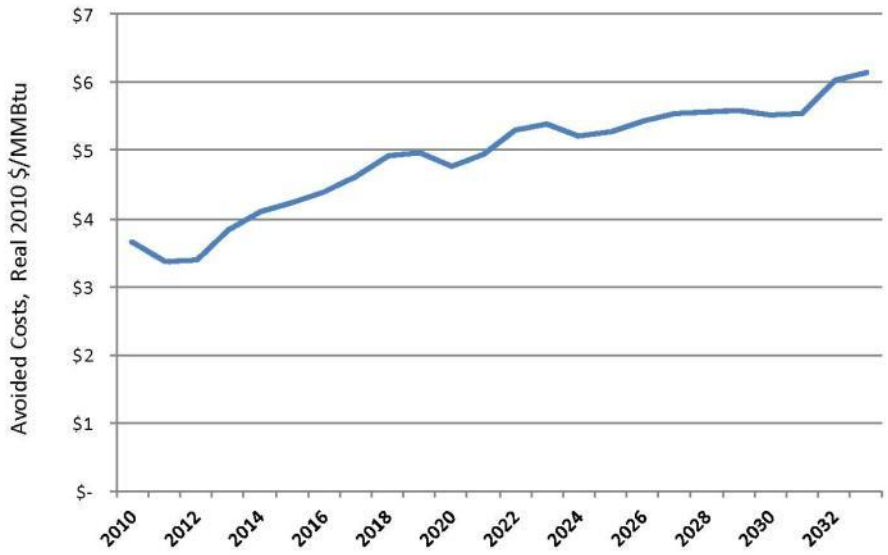
Model Inputs	Description	Key Sources
Energy Impacts	The annual reduction in consumption attributable to each specific measure. Savings were developed as a percentage of the energy end use that the measure affects.	• NWPCC Sixth Plan conservation workbooks • RTF deemed measure databases • BEST • EPRI National Study • DEEM • DEER • Other secondary sources
Costs	Equipment Measures: Includes the full cost of purchasing and installing the equipment on a per-unit or per-square-foot basis for the residential and C&I sectors, respectively Non-equipment measures: Existing buildings – full installed cost. New Construction - the costs may be either the full cost of the measure, or as appropriate, it may be the incremental cost of upgrading from a standard level to a higher efficiency level.	• NWPCC Sixth Plan conservation workbooks • RTF deemed measure databases • DEEM • DEER • Other secondary sources
Measure Lifetimes	Estimates derived from the technical data and secondary data sources that support the measure demand and energy savings analysis	• NWPCC Sixth Plan conservation workbooks • RTF deemed measure databases • DEEM • DEER • Other secondary sources
Applicability	Estimate of the percentage of either dwellings in the residential sector or square feet in the C&I sectors where the measures is applicable and where it is technically feasible to implement	• NWPCC Sixth Plan conservation workbooks • RTF deemed measure databases • DEEM • DEER • Other secondary sources
On Market and Off Market Availability	Expressed as years for equipment measures to reflect when the equipment technology is available or no longer available in the market	• Appliance, building codes, and standards analysis

Data Application for Cost-effectiveness Screening

To perform the cost-effectiveness screening, the following information was needed:

- Avoided cost of energy provided by Avista, as shown in Figure 2-4. The avoided costs are based on forecasted Henry Hub market costs.
- Line (pipeline) losses of 1.9%, provided by Avista
- Discount rate of 4%, provided by Avista
- Program administration costs. For this study, we used a value of 6% provided by Avista.

Figure 2-4 Avoided Costs of Energy Forecast



Potentials Estimation

To estimate potentials, two sets of parameters were required.

- ***Adoption rates for non-equipment measures***. Equipment is assumed to be replaced at the end of its useful life, but for non-equipment measures, a set of factors is required to model the gradual implementation over time. Rather than installing all non-equipment measures in the first year of the forecast (instantaneous potential), they are phased in according to adoption schedules that vary based on equipment cost and measure complexity. The adoption rates for the Avista study were bases on ramp rate curves specified in the NWPCC Sixth Power Plan. These adoption rates are used within LoadMAP to generate the technical and economic potentials.
- ***Market acceptance rates (MARs)***. These factors are applied to Economic potential to estimate Achievable potential. These rates were developed using the Council ramp rates. In some cases, the rates were adjusted to reflect Avista DSM program history.

Ramp rates and MARs are discussed in Appendix E.

CHAPTER | 3

MARKET CHARACTERIZATION AND MARKET PROFILES

Avista Utilities, headquartered in Spokane, Washington is an investor-owned utility with annual revenues of more than $1.3 billion. Avista provides electric and natural gas service to about 481,000 customers in a service territory of more than 30,000 square miles. Avista uses a mix of hydro, natural gas, coal and biomass generation delivered over 2,100 miles of transmission line, 17,000 miles of distribution line, and 6,100 miles of natural gas distribution mains. Avista currently operates a portfolio of electric and natural gas conservation programs in Washington, Idaho, and Oregon for residential, low-income, and non-residential customers that is funded by a non-bypassable systems benefits charge.

Total natural gas use in 2010 for the residential, commercial, and industrial rate classes included in this potential assessment was 315,905,627 therms.[10] As shown in Figure 3-1, the largest sector is residential, accounting for 59.8% of sales, followed by large commercial, with 22.5% of sales.

Figure 3-1 Sector-Level Gas Use, 2010 (percentage of sales)

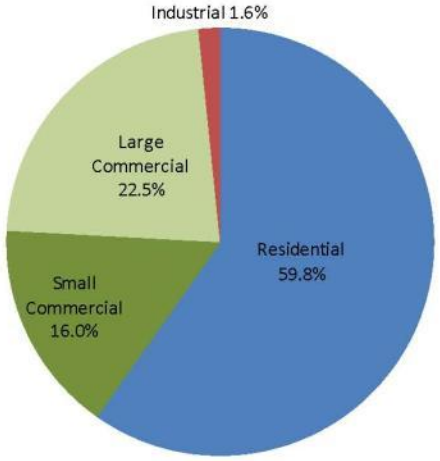


Table 3-1 shows additional detail by state and sector, including the rate classes included in each sector, number of meters, sales, and average use per meter. The gas transportation rate classes, which include relatively large commercial and industrial facilities, were excluded from the CPA analysis. Therefore, most of the remaining industrial customers are relatively small in terms of their gas usage per meter, especially in Oregon.

[10] Energy usage as measured "at-the-meter," i.e., does not include line losses.

Table 3-1 2010 Gas Sales by State and Sector

All States Sector	Rate Class	Number of Meters	2010 Sales (1000 thm)	% of System Sales	Average Use per Meter (thm)
Residential	N/A	282,418	188,894	59.8%	669
Small Commercial	N/A	30,317	50,693	16.0%	1,672
Large Commercial	N/A	3,419	71,176	22.5%	20,818
Industrial	N/A	253	5,141	1.6%	20,322
Total		**316,407**	**315,906**	**100.0%**	**998**
Washington Sector	**Rate Class**	**Number of Meters**	**2010 Sales (1000 thm)**	**% of WA Sales**	**Average Use per Meter (thm)**
Residential	101	132,657	97,372	58.3%	734
Small Commercial	101	11,906	16,706	10.0%	1,403
Large Commercial	111, 112, 121, 122, 132	2,292	49,808	29.8%	21,731
Industrial	101, 111, 121, 122	132	3,135	1.9%	23,752
Washington total		**146,987**	**167,021**	**100.0%**	**1,136**
Idaho Sector	**Rate Class**	**Number of Meters**	**2010 Sales (1000 thm)**	**% of ID Sales**	**Average Use per Meter (thm)**
Residential	101	65,648	44,084	61.2%	672
Small Commercial	101	7,398	8,432	11.7%	1,140
Large Commercial	111, 132	1,050	17,820	24.7%	16,971
Industrial	101, 111, 112	99	1,681	2.3%	16,978
Idaho total		**74,195**	**72,017**	**100.0%**	**971**
Oregon Sector	**Rate Class**	**Number of Meters**	**2010 Sales (1000 thm)**	**% of OR Sales**	**Average Use per Meter (thm)**
Residential	410	84,114	47,438	61.7%	564
Small Commercial	420	11,013	25,556	33.2%	2,320
Large Commercial	424	77	3,548	4.6%	46,081
Industrial	420, 424	22	325	0.4%	14,787
Oregon total		**95,226**	**76,867**	**100.0%**	**807**

Residential Sector

This section characterizes the residential market at a high level, and then provides a profile of how customers in each segment use gas by end use. Total residential gas use in 2010 was 188.9 million therms. Customer information for each segment is shown in Table 3-2. System wide, the single-family segment consumed 84% of total residential sector gas in 2010 as a result of having the largest number of customers and the highest intensity.

Table 3-2 Residential Sector Gas Usage and Intensity by State and Segment Type

All States Residential Segment	Number of Meters	2010 Sales (1000 thm)	% of System Res. Sales	Intensity (thm/HH)
Single Family	222,934	157,830	84%	708
Multi Family	25,755	11,615	6%	451
Mobile Home	33,729	19,450	10%	577
Total	**282,418**	**188,894**	**100%**	**669**
WA Residential Segment	**Number of Meters**	**2010 Sales (1000 thm)**	**% of WA Res. Sales**	**Intensity (thm/HH)**
Single Family	107,230	83,143	85%	775
Multi Family	14,318	6,994	7%	488
Mobile Home	11,109	7,235	7%	651
Washington Total	**132,657**	**97,372**	**100%**	**734**
ID Residential Segment	**Number of Meters**	**2010 Sales (1000 thm)**	**% of ID Res. Sales**	**Intensity (thm/HH)**
Single Family	51,487	36,371	83%	706
Multi Family	4,648	2,068	5%	445
Mobile Home	9,513	5,645	13%	593
Idaho Total	**65,648**	**44,084**	**100%**	**672**
OR Residential Segment	**Number of Meters**	**2010 Sales (1000 thm)**	**% of OR Res. Sales**	**Intensity (thm/HH)**
Single Family	64,217	38,317	81%	597
Multi Family	6,789	2,552	5%	376
Mobile Home	13,107	6,570	14%	501
Oregon Total	**84,114**	**47,438**	**100%**	**564**

As we describe in the previous chapter, the market profiles provide the foundation upon which we develop the baseline forecast. The market profile for the residential sector as a whole for the base year 2010 is presented in Table 3-3. The residential market profiles for each housing segment and state are presented in Appendix A. Bear in mind that the Avista residential customers included in this analysis all have natural gas service, and thus the percentages with

gas space heating and gas water heating, 96% and 77% respectively, are higher than they would be in the general population of all Avista residential customers.

Table 3-3 Market Profile for the Residential Sector

Average Market Profiles

End Use	Technology	Saturation	UEC (Thrm)	Intensity (Thrm/HH)	Usage (mmThrm)
Space Heating	Furnace	83%	535	446.08	125.98
Space Heating	Boiler	2%	415	10.15	2.87
Space Heating	Other Heating	9%	472	40.29	11.38
Water Heating	Water Heater	77%	170	130.41	36.83
Appliances	Clothes Dryer	24%	23	5.59	1.58
Appliances	Stove/Oven	56%	37	20.63	5.83
Miscellaneous	Pool Heater	4%	205	7.95	2.25
Miscellaneous	Miscellaneous	100%	8	7.75	2.19
Total				**668.85**	**188.89**

Figure 3-2 presents the end-use breakout for the average residential household, displaying both annual usage per household and percentage of use. Space heating accounts for the lion's share, with 74% of residential sector gas sales or about 497 therms for the average household in 2010.

Figure 3-2 Residential Gas Use by End Use, Average Therms/Household and Percentage of Sales, 2010

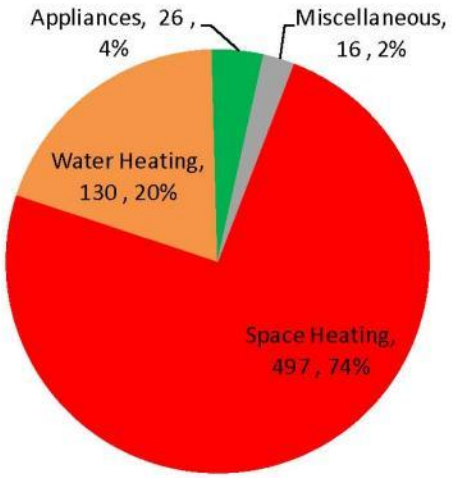
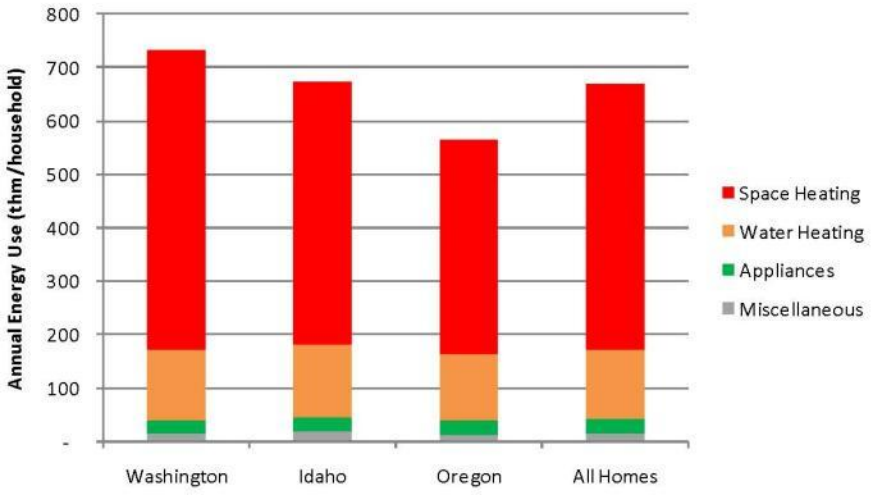


Figure 3-3 shows the breakdown of annual use by end use for the average home in each state and for the Avista residential sector as a whole. Space heating constitutes 77% of gas usage in Washington, 73% in Idaho, and from 71% in Oregon, reflecting the differences in climate among the states.

Figure 3-3 Annual Residential Natural Gas Use by End Use and State, 2010



Commercial and Industrial Sector

Total natural gas use in the commercial and industrial (C&I) sector in 2010 was 127.0 million therms. Avista rate classes were used to allocate this energy use to three segments per state. Intensity estimates in therms/sq. ft. were developed and then used to infer the segment size in floor space for each segment. Table 3-4 displays the resulting sales, intensity, and segment size. Due to the characteristics of the rate structures, a greater percentage of C&I customers in Oregon are classified as small commercial, as compared with Washington and Idaho.

Table 3-4 C&I Sector Gas Usage and Intensity by State and Segment, 2010

All States C&I		2010 Sales (1000 thm)	% of All C&I Sales	Intensity (thm/sq. ft.)	Segment Size (million sq. ft)
Small Commercial	N/A	50,693	40%	0.343	147.798
Large Commercial	N/A	71,176	56%	0.649	109.666
Industrial	N/A	5,141	4%	0.776	6.621
All States Total		**127,011**	**100%**	**0.481**	**264.085**
Washington Sector	**Rate Class**	**2010 Sales (1000 thm)**	**% of WA C&I Sales**	**Intensity (thm/sq. ft.)**	**Segment Size (million sq. ft)**
Small Commercial	101	16,706	24%	0.363	46.021
Large Commercial	111, 112, 121, 122, 132	49,808	72%	0.660	75.467
Industrial	101, 111, 121, 122	3,135	5%	0.792	3.959
Washington Total		**69,649**	**100%**	**0.555**	**125.447**
Idaho Sector	**Rate Class**	**2010 Sales (1000 thm)**	**% of ID C&I Sales**	**Intensity (thm/sq. ft.)**	**Segment Size (million sq. ft)**
Small Commercial	101	8,432	30%	0.347	24.335
Large Commercial	111, 132	17,820	64%	0.630	28.285
Industrial	101, 111, 112	1,681	6%	0.759	2.215
Idaho Total		**27,933**	**100%**	**0.509**	**54.835**
Oregon Sector	**Rate Class**	**2010 Sales (1000 thm)**	**% of OR C&I Sales**	**Intensity (thm/sq. ft.)**	**Segment Size (million sq. ft)**
Small Commercial	420	25,556	87%	0.330	77.441
Large Commercial	424	3,548	12%	0.600	5.914
Industrial	420, 424	325	1%	0.726	0.448
Oregon Total		**29,429**	**100%**	**0.351**	**83.803**

Table 3-5 shows the market profile for C&I customers as a whole, representing a composite of small commercial, large commercial, and industrial. Overall, about 94% of the floor space for these gas customers is heated with natural gas. Market profiles for each segment and state are presented in Appendix A.

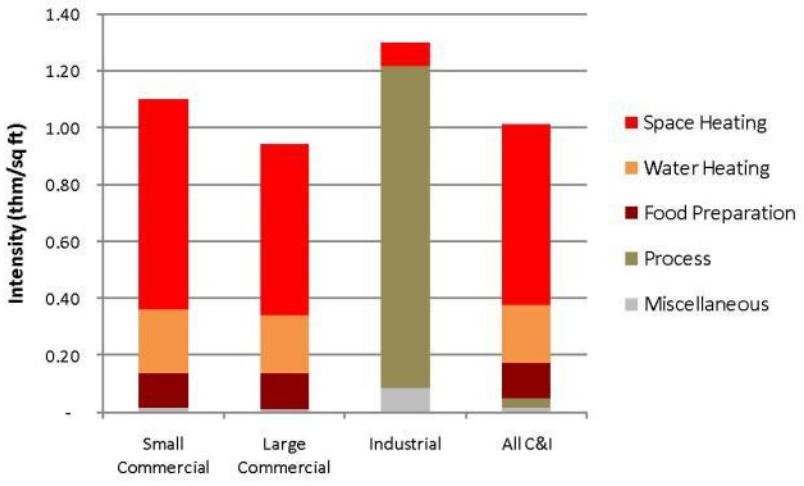
Table 3-5 Commercial Sector Composite Market Profile, 2010

Average Market Profiles

End Use	Technology	Saturation	EUI (Thrm)	Intensity (Thrm/Sqft.)	Usage (mmThrm)
Space Heating	Furnace	60%	0.222	0.133	35.103
Space Heating	Boiler	20%	0.697	0.140	37.098
Space Heating	Other Heating	14%	0.198	0.028	7.379
Water Heating	Water Heater	37%	0.264	0.098	25.816
Food Preparation	Oven	16%	0.042	0.007	1.734
Food Preparation	Fryer	16%	0.064	0.010	2.682
Food Preparation	Broiler	16%	0.064	0.010	2.679
Food Preparation	Griddle	16%	0.064	0.010	2.679
Food Preparation	Range	16%	0.047	0.007	1.978
Food Preparation	Steamer	16%	0.080	0.013	3.342
Process	Process Heating	3%	0.671	0.017	4.446
Process	Process Cooling	3%	0.001	0.000	0.008
Process	Other Process	3%	0.005	0.000	0.030
Miscellaneous	Pool Heater	1%	0.137	0.002	0.409
Miscellaneous	Miscellaneous	100%	0.006	0.006	1.627
Total				**0.481**	**127.011**

Figure 3-4 illustrates the distribution of gas consumption by end use for small commercial, large commercial, industrial, and C&I facilities as a whole. As one would expect, space heating is the predominant use, representing 63% of overall C&I gas consumption. For industrial facilities however, process heating represents the greatest share.

Figure 3-4 C&I End Use Intensities, 2010



CHAPTER | 4

BASELINE FORECAST

Prior to developing estimates of conservation potential, a baseline end-use forecast was developed to quantify how natural gas is used by end use in the base year and what the consumption is likely to be in the future in absence of new utility programs and naturally occurring conservation. The baseline forecast serves as the metric against which conservation potentials are measured.

Residential Sector

The baseline forecast incorporates assumptions about customer growth, economic growth, natural gas prices, and appliance/equipment standards and building codes already mandated. Figure 4-1 and Table 4-1 present the baseline forecast at the end-use level for the residential sector. Overall, residential use increases, from about 188.9 million therms in 2010 to 269.3 million therms in 2032, a 43% increase, translating to an average annual growth rate of 1.6%.

Figure 4-1 Residential Baseline Forecast by End Use

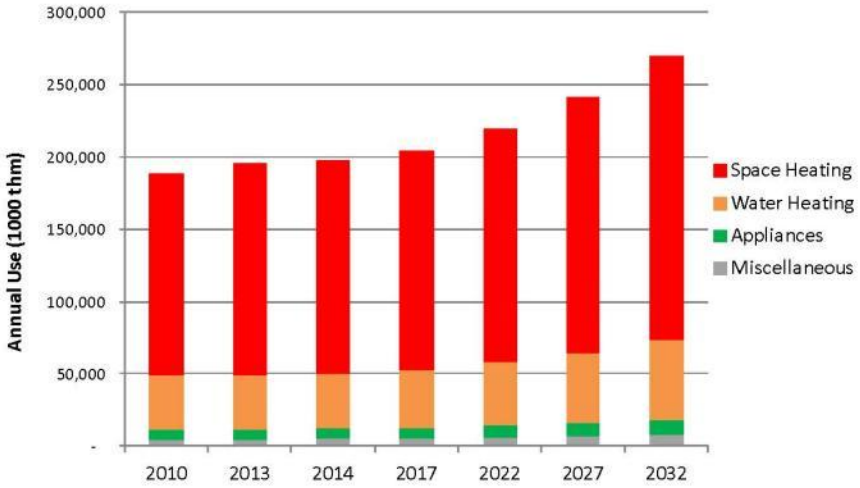


Table 4-1 Residential Baseline Forecast by End Use (1000 therm)

End Use	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Space Heating	140,227	147,112	147,684	151,812	162,067	176,430	196,022	40%	1.5%
Water Heating	36,830	36,943	37,540	39,382	43,315	48,652	55,025	49%	1.8%
Appliances	7,404	7,313	7,388	7,649	8,319	9,234	10,233	38%	1.5%
Miscellaneous	4,433	4,705	4,837	5,269	6,077	6,975	7,995	80%	2.7%
Total	**188,894**	**196,073**	**197,449**	**204,112**	**219,778**	**241,292**	**269,274**	**43%**	**1.6%**

Table 4-2 shows the end-use forecast at the technology level.

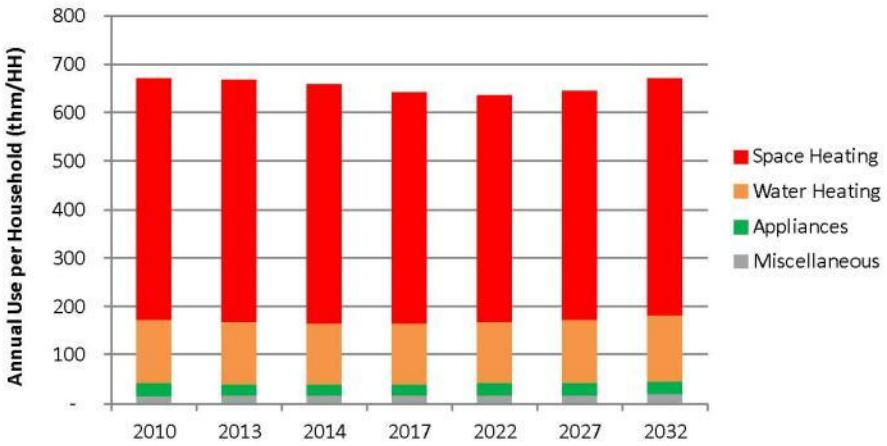
Table 4-2 Residential Baseline Forecast by End Use and Technology (1000 therm)

End Use	Technology	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Space Heating	Furnace	125,981	131,500	131,729	134,695	142,731	154,426	170,969	36%	1.4%
	Boiler	2,866	3,062	3,106	3,242	3,526	3,912	4,377	53%	1.9%
	Other Heating	11,380	12,549	12,849	13,876	15,810	18,093	20,677	82%	2.7%
Water Heating	Water Heater	36,830	36,943	37,540	39,382	43,315	48,652	55,025	49%	1.8%
Appliances	Clothes Dryer	1,579	1,363	1,328	1,199	1,113	1,180	1,294	-18%	-0.9%
	Stove/Oven	5,825	5,950	6,060	6,451	7,206	8,054	8,939	53%	1.9%
Miscellaneous	Miscellaneous	2,187	2,330	2,399	2,628	3,055	3,530	4,054	85%	2.8%
	Pool Heater	2,246	2,376	2,438	2,642	3,022	3,445	3,941	75%	2.6%
Grand Total		**188,894**	**196,073**	**197,449**	**204,112**	**219,778**	**241,292**	**269,274**	**43%**	**1.6%**

Gas consumption for all end uses and technologies increases, mainly due to the projected 1.7% annual growth in the number of households, but also due to slight increases in the average home physical size. Other heating, which includes unit wall heaters, and miscellaneous loads have a relatively high growth rate compared to other loads, but at the end of the study period these loads are still constitute only a small part of overall use.

Figure 4-2 presents the forecast of use per household. Most noticeable is that space heating, water heating, and appliance use all decrease slightly, due to new equipment standards that come into effect between 2014 and 2015. After 2022, however, total use begins to grow again, due to the assumption that average home size continues to grow slightly as older housing stock is replaced.

Figure 4-2 Residential Baseline Use per Household by End Use



Commercial and Industrial Sector

Natural gas use in the C&I sector continues to grow, albeit slowly, during the forecast horizon, as new C&I construction increases overall square footage in the commercial sector. In addition, existing buildings are renovated to incorporate additional amenities, such as full-scale kitchens. Consumption starts at 127 million therms in 2010 and increases to nearly 136 million therms in 2032, an overall growth of 7.1%.

Figure 4-3 and Table 4-3 present the baseline forecast at the end-use level for the C&I sector as a whole. All end uses show growth over the forecast period, with the exception of space heating with only 2% growth, which is attributed to upcoming equipment standards.

Figure 4-3 Commercial and Industrial Baseline Forecast by End Use

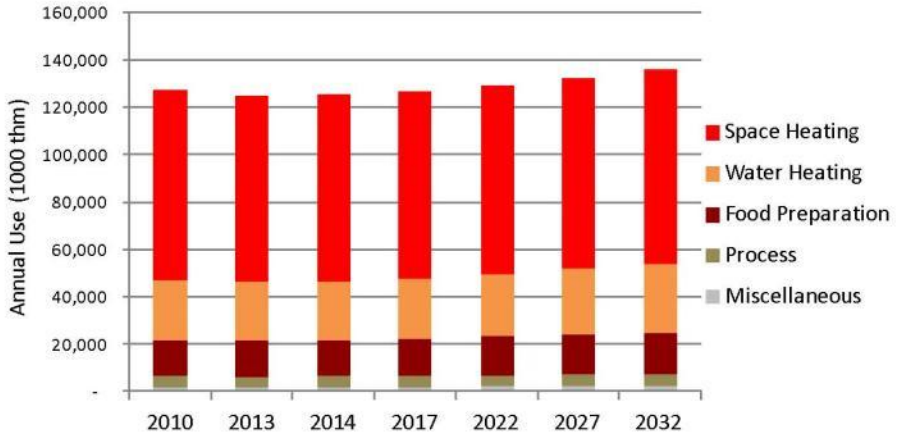


Table 4-3 Commercial Natural Gas Consumption by End Use (1000-therm)

End Use	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Space Heating	79,580	78,184	78,553	79,021	79,488	80,114	81,826	2.8%	0.1%
Water Heating	25,816	24,685	24,873	25,412	26,574	27,892	29,251	13.3%	0.6%
Food Preparation	15,095	15,122	15,312	15,724	16,374	16,969	17,527	16.1%	0.7%
Process	4,484	4,391	4,430	4,517	4,632	4,759	4,898	9.2%	0.4%
Miscellaneous	2,036	2,047	2,077	2,146	2,251	2,359	2,473	21.5%	0.9%
Total	**127,011**	**124,429**	**125,244**	**126,819**	**129,319**	**132,094**	**135,976**	**7.1%**	**0.3%**

Table 4-4 presents the commercial sector forecast by technology. Specific observations include:

- Growth in the HVAC and water heating end uses is moderate, commensurate with projected growth in floor space and employment, the two principal drivers of commercial sector consumption.
- Food preparation, though remaining a small percentage of total usage, grows at a higher rate than other end uses. This reflects the addition of kitchen facilities to commercial office buildings during new construction or renovation, as well as the expansion of food service offerings in other building types as well.
- Consumption by miscellaneous equipment also increases. This reflects the assumption that buildings in the commercial sector will increase use.
- Growth in process heating is also commensurate with projected industrial growth.

Table 4-4 C&I Baseline Natural Gas Forecast by End Use and Technology (MWh)

End Use	Technology	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Space Heating	Furnace	35,103	35,003	35,302	35,791	36,092	36,193	37,071	5.6%	0.2%
	Boiler	37,098	35,899	35,918	35,864	36,180	36,810	37,762	1.8%	0.1%
	Other Heating	7,379	7,282	7,332	7,366	7,216	7,111	6,993	-5.2%	-0.2%
Water Heating	Water Heater	25,816	24,685	24,873	25,412	26,574	27,892	29,251	13.3%	0.6%
Food Preparation	Fryer	2,682	2,695	2,732	2,814	2,942	3,062	3,178	18.5%	0.8%
	Oven	1,734	1,744	1,769	1,825	1,917	2,006	2,086	20.3%	0.8%
	Broiler	2,679	2,712	2,758	2,864	3,035	3,206	3,376	26.0%	1.1%
	Griddle	2,679	2,712	2,757	2,862	3,027	3,190	3,352	25.1%	1.0%
	Range	1,978	2,002	2,035	2,111	2,227	2,336	2,438	23.2%	0.9%
	Steamer	3,342	3,257	3,262	3,249	3,225	3,169	3,097	-7.3%	-0.3%
Process	Process Heating	4,446	4,353	4,392	4,478	4,593	4,719	4,857	9.2%	0.4%
	Process Cooling	8	8	8	8	8	8	9	9.2%	0.4%
	Other Process	30	30	30	30	31	32	33	9.2%	0.4%
Miscellaneous	Pool Heater	409	412	417	428	442	459	480	17.4%	0.7%
	Miscellaneous	1,627	1,635	1,660	1,718	1,809	1,900	1,993	22.5%	0.9%
Grand Total		**127,011**	**124,429**	**125,244**	**126,819**	**129,319**	**132,094**	**135,976**	**7.1%**	**0.3%**

System-wide Baseline Forecast

Table 4-5 and Figure 4-4 provide an overall summary of the baseline forecast by sector for Avista as a whole. Overall, the forecast for the next 20 years grows steadily, dominated by growth in the residential sector, as discussed above.

Table 4-5 Baseline Forecast Summary (1000 therm)

Sector	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Residential	188,894	196,073	197,449	204,112	219,778	241,292	269,274	43%	1.5%
Small Commercial	50,693	50,130	50,530	51,271	52,378	53,494	55,120	9%	0.4%
Large Commercial	71,176	69,274	69,647	70,392	71,667	73,191	75,295	6%	0.2%
Industrial	5,141	5,026	5,067	5,156	5,274	5,409	5,560	8%	0.3%
Total	**315,906**	**320,503**	**322,693**	**330,932**	**349,097**	**373,385**	**405,250**	**28%**	**1.1%**

Figure 4-4 Baseline Forecast Summary, by Sector

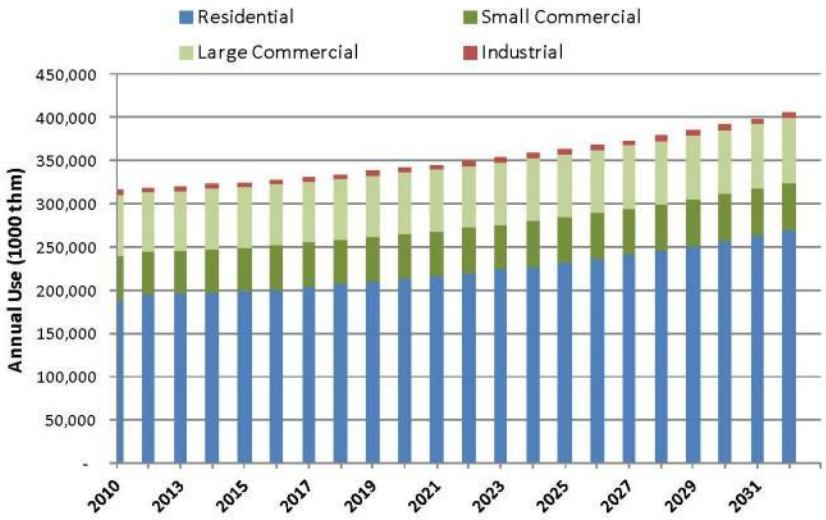


Table 4-6 and Figure 4-5 provide an overall summary of the baseline forecast by state. Growth is projected to be highest in Idaho, based on assumptions regarding customer growth, followed by Oregon.

Table 4-6 Baseline Forecast Summary, by State (1000-therm)

State	2010	2013	2014	2017	2022	2027	2032	% Change (2010-2032)	Avg. Growth Rate (2010-2032)
Washington	167,021	168,616	169,523	173,064	180,908	191,260	205,302	23%	0.9%
Idaho	72,017	73,767	74,426	76,910	82,427	89,742	99,277	38%	1.4%
Oregon	76,867	78,120	78,744	80,958	85,762	92,383	100,671	31%	1.2%
Total	**315,906**	**320,503**	**322,693**	**330,932**	**349,097**	**373,385**	**405,250**	**28%**	**1.1%**

Figure 4-5 Baseline Forecast Summary, By State

CHAPTER | 5

CONSERVATION POTENTIAL

This chapter presents the results of the potential analysis, with overall potential presented first, followed by results for each sector. All results show cumulative potential. Additional details for all years and incremental annual results appear in Appendix F.

Table 5-1 summarizes achievable potential by state and sector for selected years.

Table 5-1 Cumulative Achievable Conservation Potential by State and by Sector

Cumulative Savings (1000 therm)	2013	2014	2017	2022	2027	2032
Washington	893	2,203	6,923	15,364	21,885	26,909
Idaho	364	821	2,734	5,601	8,758	11,914
Oregon	289	715	3,136	7,251	10,706	13,559
Total	**1,546**	**3,738**	**12,794**	**28,216**	**41,349**	**52,381**

Cumulative Savings (1000 therm)	2013	2014	2017	2022	2027	2032
Residential	515	1,567	6,507	14,903	22,278	29,960
Small Comercial	206	469	1,588	3,557	5,709	7,018
Large Commercial	801	1,654	4,548	9,436	13,007	15,027
Industrial	25	49	151	319	354	377
Total	**1,546**	**3,738**	**12,794**	**28,216**	**41,349**	**52,381**

As shown in Figure 5-2, initially, the large commercial sector provides a relatively higher percentage of the achievable savings compared with its share of sales, but over time this situation changes, so that the residential sector's share of savings is greatest, mainly due to growth in residential customer count.

Figure 5-1 Cumulative Achievable Conservation Potential Savings by Sector

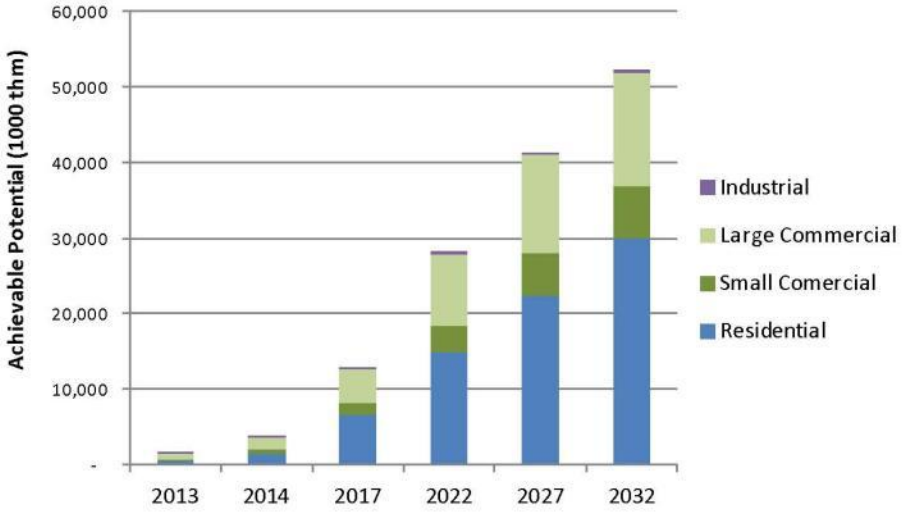


Table 5-2 presents the baseline forecasts of energy consumption, as well as the three levels of conservation potential for the residential, commercial, and industrial sectors. As discussed in detail in Chapter 4, the baseline forecast across all sectors increases over the 20-year time period. This is due largely to the growth in the residential sector, which is tempered somewhat due to appliance and equipment standards, building codes, and a sluggish economy in the initial years. Key findings related to potentials are summarized below.

- ***Achievable potential*** across the residential, commercial, and industrial sectors is 28.2 million therms in 2022 and increases to 52.4 million therms by 2032. These savings represent 8.1% of the baseline forecast in 2022 and 12.9% in 2032.
- ***Economic potential***, which reflects the savings when all cost-effective measures are taken, is 31.8 million therms in 2022. This represents 9.1% of the baseline energy forecast. By 2032, economic potential reaches 59.0 million therms, 14.6% of the baseline energy forecast.
- ***Technical potential***, which reflects the adoption of all conservation measures regardless of cost-effectiveness, is a theoretical upper bound on savings. Technical potential is substantial, because measures such as solar thermal water heating could cut energy use dramatically. In 2022, energy savings are 91.7 million therms, equivalent to 26.3% of the baseline energy forecast. By 2032, technical potential reaches 157.5 million therms, 38.9% of the baseline energy forecast. The relatively wide gap between technical and economic potential reflects the low avoided costs, as well as the fact that Avista's long-running conservation programs have already achieved much of the cost-effective conservation. As a result, additional conservation measures are becoming relatively more costly, and many do not pass the cost-effectiveness screen based on Avista's current avoided costs.

Table 5-2 Summary of Cumulative Achievable, Economic, and Technical Conservation Potential

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 thm)						
	320,503	322,693	330,932	349,097	373,385	405,250
Cumulative Natural Gas Savings (1000 thm)						
Achievable	1,546	3,738	12,794	28,216	41,349	52,381
Economic	1,797	4,333	14,785	31,757	45,809	58,965
Technical	7,623	15,844	46,189	91,655	131,422	157,520
Cumulative Natural Gas Savings (% of Baseline)						
Achievable	0.5%	1.2%	3.9%	8.1%	11.1%	12.9%
Economic	0.6%	1.3%	4.5%	9.1%	12.3%	14.6%
Technical	2.4%	4.9%	14.0%	26.3%	35.2%	38.9%

Figure 5-2 summarizes the energy-efficiency savings for the three levels of potential relative to the baseline forecast. Figure 5-3 displays the baseline and conservation potential forecasts. The dotted black line depicts the 2010 usage level. In 2022, Achievable potential, indicated by the blue line, offsets 89% of the growth in the baseline forecast since 2012. By 2032, Achievable potential offsets 60% of that growth.

Figure 5-2 Summary of Cumulative Conservation Potential Savings

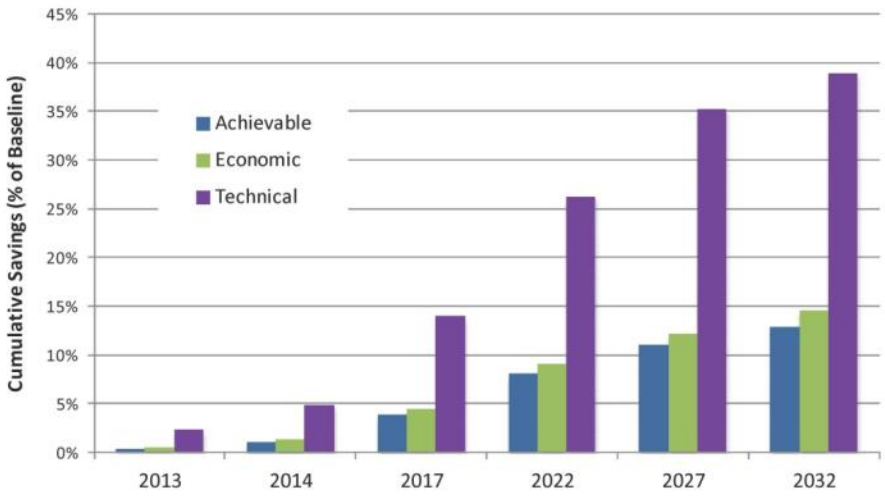
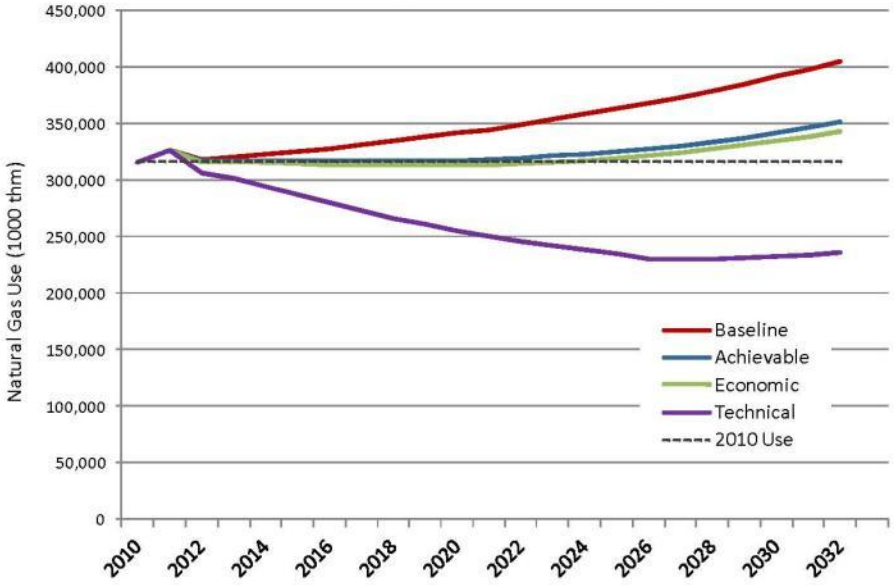


Figure 5-3 Conservation Potential Energy Forecasts (1000 therm)



Residential Sector

Table 5-3 presents estimates for the three types of potential for the residential sector. Note that we have included in the achievable and economic potential specific weatherization measures in Oregon, which although not cost-effective, are mandated to be included in residential DSM programs.

- ***Achievable potential*** is 14.9 million therms in 2022. This level of potential is equivalent to 6.8% of the residential baseline forecast for that year. By 2032, the cumulative achievable conservation savings are 30.0 million therms, 11.1% of the baseline forecast.
- ***Economic potential,*** which reflects the savings when all cost-effective measures are taken, is 16.8 million therms in 2022, or 7.6% of the baseline energy forecast. By 2032, economic potential reaches 34.4 million therms, 12.8% of the baseline energy forecast.
- ***Technical potential,*** which reflects the adoption of all energy conservation measures regardless of cost, is a theoretical upper bound on savings. The 10-year technical potential is 55.2 million therms, or 25.1% of the baseline energy forecast. By 2032, technical potential reaches 101.4 million therms, 37.6% of the baseline energy forecast.

Table 5-3 Residential Sector Cumulative Conservation Potential Summary

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 thm)						
	196,073	197,449	204,112	219,778	241,292	269,274
Cumulative Natural Gas Savings (1000 thm)						
Achievable	515	1,567	6,507	14,903	22,278	29,960
Economic	732	2,034	7,839	16,771	25,105	34,439
Technical	4,757	9,491	28,678	55,233	80,721	101,352
Cumulative Natural Gas Savings (% of Baseline)						
Achievable	0.3%	0.8%	3.2%	6.8%	9.2%	11.1%
Economic	0.4%	1.0%	3.8%	7.6%	10.4%	12.8%
Technical	2.4%	4.8%	14.0%	25.1%	33.5%	37.6%

Figure 5-4 summarizes the energy-efficiency savings for the three levels of potential relative to the baseline forecast. Figure 5-5 displays the baseline and conservation potential forecasts. The dotted black line depicts the 2010 usage level. In 2022, Achievable potential, indicated by the blue line, offsets 50% of the growth in the residential baseline forecast since 2012. By 2032, Achievable potential offsets 38% of that growth.

Figure 5-4 Residential Cumulative Conservation Potential Savings

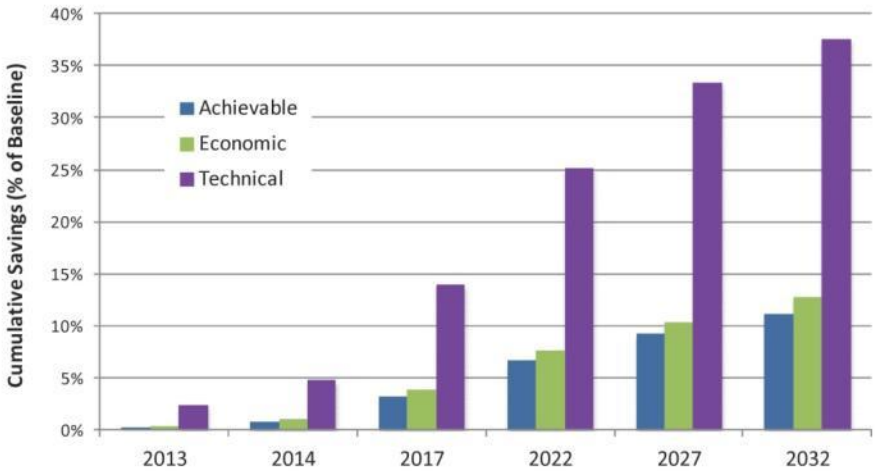
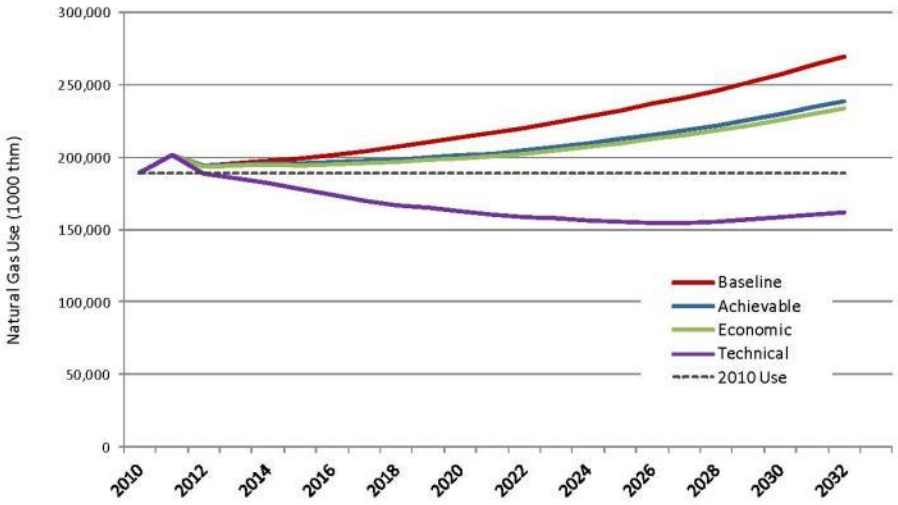


Figure 5-5 Residential Conservation Potential Forecast



Residential Potential by Housing Type and State

Single-family homes represent about 79% of Avista's residential gas customers, but accounted for 84% of the sector's consumption in 2010. The distribution of potential savings by segment is nearly the same as the distribution of consumption among the sectors, as shown in Table 5-4.

Table 5-4 Residential Cumulative Achievable Potential by Housing Type, Selected Years

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 therm)						
Single Family	163,823	164,914	170,332	183,163	200,847	223,978
Multi Family	12,108	12,234	12,736	13,824	15,255	17,033
Mobile Home	20,143	20,300	21,045	22,791	25,189	28,263
Total	**196,073**	**197,449**	**204,112**	**219,778**	**241,292**	**269,274**
Natural Gas Savings (1000 therm)						
Single Family	427	1,343	5,472	12,713	18,853	24,847
Multi Family	26	65	310	750	1,265	2,041
Mobile Home	61	158	724	1,441	2,161	3,072
Total	**515**	**1,567**	**6,507**	**14,903**	**22,278**	**29,960**
% of Total Residential Savings						
Single Family	83.0%	85.7%	84.1%	85.3%	84.6%	82.9%
Multi Family	5.1%	4.2%	4.8%	5.0%	5.7%	6.8%
Mobile Home	11.9%	10.1%	11.1%	9.7%	9.7%	10.3%

The distribution of achievable savings by state is shown in Table 5-5. Whereas Oregon represents only about one-quarter of the baseline forecast, it makes up between 28 and 35% of the achievable potential savings. This is due to the inclusion of mandated weatherization and insulation measures within Oregon's achievable potential.

Table 5-5 Residential Cumulative Achievable Potential by State, Selected Years

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 therm)						
Washington	100,894	101,415	104,274	110,964	119,962	132,043
Idaho	46,065	46,424	48,209	52,647	58,832	67,038
Oregon	49,114	49,609	51,629	56,167	62,498	70,193
Total	**196,073**	**197,449**	**204,112**	**219,778**	**241,292**	**269,274**
Natural Gas Savings (1000 therm)						
Washington	237	838	3,017	7,268	10,634	13,894
Idaho	121	306	1,248	2,337	4,002	6,246
Oregon	156	422	2,242	5,298	7,642	9,819
Total	**515**	**1,567**	**6,507**	**14,903**	**22,278**	**29,960**
% of Total Residential Savings						
Washington	46.2%	53.5%	46.4%	48.8%	47.7%	46.4%
Idaho	23.6%	19.6%	19.2%	15.7%	18.0%	20.8%
Oregon	30.3%	26.9%	34.5%	35.5%	34.3%	32.8%

Table 5-6 shows additional detail by state for 2022, including the cumulative economic and technical potential, as well as achievable potential. We note that technical potential savings as a percentage of baseline is roughly the same across the states. However, economic and achievable potential as a percentage of baseline use is highest in Oregon, again because of the inclusion of mandated weatherization and insulation measures.

Table 5-6 Residential Cumulative Potential Summary by State, 2022

	Washington	Idaho	Oregon[1]	All States
Baseline Forecast	110,964	52,647	56,167	219,778
Energy Savings (1000 thm)				
Achievable	7,268	2,337	5,298	14,903
Economic	8,322	2,723	5,726	16,771
Technical	27,441	13,235	14,557	55,233
Energy Savings (% of Baseline)				
Achievable	6.6%	4.4%	9.4%	6.8%
Economic	7.5%	5.2%	10.2%	7.6%
Technical	24.7%	25.1%	25.9%	25.1%

1. Oregon potential includes mandated residential weatherization and insulation measures.

Residential Potential by End Use, Technology and Measure Type

Table 5-7 provides estimates of savings for each end use and type of potential. Focusing first on technical potential, there are significant savings possible; however, due to low avoided costs, many of these measures are cost-ineffective and thus economic and achievable potential are much lower.

- ***Space heating***, which is the highest use in the residential sector, offers between 53% and 59% of the technical potential, depending on the year. This potential would be achieved if all furnaces, boilers, and unit heaters were replaced with the most efficient units available, and all insulation, weatherization, and controls measures were installed as well. However, in most cases, with the exception of boilers and unit heaters in selected housing types, the higher-efficiency units are not cost-effective compared with standard efficiency units. And many of the weatherization measures are likewise cost-ineffective, especially in the earlier years of the forecast. In 2022, space heating represents 69% of economic potential and 70% of achievable potential.
- ***Water Heating*** offers between 40% and 46% of technical potential depending on the year. This potential reflects the across the board-installation of solar water heating. However, solar water heating is not cost-effective, particularly in the Northwestern climate. In addition, higher-efficiency conventional equipment is not cost-effective compared with standard efficiency models. However, many of the water heating non-equipment measures, such as insulating tanks and pipes or flow-reducing devices, are cost-effective and thus do contribute to economic and achievable potential. In 2022, water heating represents 31% of economic potential and 30% of achievable potential.
- ***Appliances and Miscellaneous*** represent a small percentage of the technical potential in any given year — so small that even when combined they constitute less than 1% of the total technical potential. In any case, equipment upgrades were not found to be cost-effective, so economic and achievable potential for these two end uses are zero.

Table 5-7 Residential Cumulative Savings by End Use and Potential Type (1000-therm)

		2013	2014	2017	2022	2027	2032
Space Heating	Achievable	291	991	3,922	10,416	15,924	21,100
	Economic	455	1,314	4,808	11,535	17,696	24,187
	Technical	2,666	5,061	16,073	31,492	46,405	59,916
Water Heating	Achievable	223	576	2,585	4,488	6,354	8,859
	Economic	277	721	3,032	5,235	7,409	10,252
	Technical	2,042	4,332	12,396	23,354	33,787	40,830
Appliances	Achievable	0	0	0	0	0	0
	Economic	0	0	0	0	0	0
	Technical	32	63	114	182	221	240
Misc.	Achievable	0	0	0	0	0	0
	Economic	0	0	0	0	0	0
	Technical	17	36	95	205	308	365
Total	**Achievable**	**515**	**1,567**	**6,507**	**14,903**	**22,278**	**29,960**
	Economic	**732**	**2,034**	**7,839**	**16,771**	**25,105**	**34,439**
	Technical	**4,757**	**9,491**	**28,678**	**55,233**	**80,721**	**101,352**

As described in Chapter 2, using our LoadMAP model, we develop separate estimates of potential for equipment and non-equipment measures. Table 5-8 presents results for equipment at the technology level and Table 5-9 presents non-equipment measures in 2022. In any given year, at least 94% of the savings come from the non-equipment measures.

Table 5-8 Residential Cumulative Achievable Potential, Equipment Measures (1000 thm)

End Use	Technology	2012	2013	2014	2017	2022	2027	2032
Space Heating	Furnace	-	-	-	-	-	-	-
	Boiler	3	6	16	78	244	448	682
	Other Heating	12	20	34	91	257	506	748
Water Heating	Water Heater	7	10	24	24	26	24	-
Total Equipment Savings		22	**36**	**73**	**193**	**527**	**979**	**1,430**

Table 5-9 Residential Cumulative Achievable Potential, Non-equip. Measures (1000 thm)

Non-Equipment Measure	2012	2013	2014	2017	2022	2027	2032
Advanced New Construction Designs	-	-	-	-	-	-	-
Home Energy Management System	109	45	126	446	1,655	2,565	3,626
Doors - Storm and Thermal	-	-	-	-	-	-	-
Insulation - Ceiling	3	3	7	28	102	187	231
Insulation - Ducting	14	11	25	112	396	654	738
Insulation - Foundation	-	-	-	-	-	-	-
Insulation - Infiltration Control	36	46	139	918	3,035	4,227	5,784
Insulation - Wall Cavity	13	10	24	107	397	690	824
Thermostat - Clock/Programmable	96	125	320	1,377	1,875	1,953	2,164
ENERGY STAR Homes	-	-	-	-	-	-	-
Furnace - Maintenance	-	-	-	-	-	-	-
Boiler - Pipe Insulation	0	0	1	6	16	33	45
Insulation - Attic Hatch	1	1	2	8	30	54	80
Ducting - Repair and Sealing	33	25	297	750	2,409	4,607	6,178
Fireplace - Damper Control	-	-	-	-	-	-	-
Windows - ENERGY STAR	-	-	-	-	-	-	-
Water Heating - Faucet Aerators	18	25	66	302	474	541	610
Water Heating - Low Flow Showerheads	73	116	295	1,406	2,409	2,821	3,166
Water Heating - Pipe Insulation	30	40	107	497	794	895	1,000
Water Heating - Tank Blanket/Insulation	26	33	85	355	477	470	469
Water Heating - Thermostat Setback	-	-	-	-	-	374	1,953
Water Heating - Timer	-	-	-	-	-	-	-
Water Heating - Hot Water Saver	-	-	-	-	308	1,228	1,662
Water Heating - Drainwater Heat Recovery	-	-	-	-	-	-	-
Total, Non-equipment Measures	**452**	**478**	**1,493**	**6,314**	**14,376**	**21,299**	**28,531**
Total, All Measures	**475**	**515**	**1,567**	**6,507**	**14,903**	**22,278**	**29,960**

Based on the above measure-by measure findings, the greatest sources of residential achievable potential in 2022, across all three states, are as follows:

- ***Shell measures and insulation***, which representing 6.4 million therms or 43% of all savings
- ***Thermostats and home energy monitoring systems***, which provide 3.5 million therms or 24% of all savings
- ***Water-saving devices***, including low-flow showerheads and faucet aerators, which combine for 3.2 million therms or 21% of achievable potential
- ***Water heater tank blankets and pipe insulation***, which provide an additional 1.3 million therms or nearly 9% of achievable potential

Commercial and Industrial Sector Potential

The baseline forecast for the C&I sector grows steadily during the forecast period as the region emerges from the economic downturn. As a result, opportunities for energy-efficiency savings are significant for the commercial sector. However, as with the residential sector, many conservation opportunities are cost-ineffective, given current projections of gas avoided costs.

- ***Achievable potential*** projects 13.3 million therms of energy savings in 2022 and 22.4 million therms in 2032. This corresponds to 10.3% of the baseline forecast in 2022 and 16.5% in 2032.
- ***Economic potential,*** which reflects the savings when all cost-effective measures are taken, is 15.0 million therms in 2022. This represents 11.6% of the baseline energy forecast. By 2032, economic potential reaches 24.5 million therms, 18.0% of the baseline energy forecast.
- ***Technical potential,*** which reflects the adoption of all energy conservation measures regardless of cost, is a theoretical upper bound on savings. In 2022, technical potential energy savings are 36.4 million therms, or 28.2% of the baseline energy forecast. By 2032, technical potential reaches 56.1 million therms, 41.3% of the baseline energy forecast.

Table 5-10 and Figure 5-6 present the savings associated with each level of potential. Figure 5-7 shows the C&I sector baseline forecast and the three potential level forecasts, as well as the 2010 usage level.

Table 5-10 C&I Sector Cumulative Conservation Potential Summary

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 thm)						
	124,429	125,244	126,819	129,319	132,094	135,976
Cumulative Natural Gas Savings (1000 thm)						
Achievable	1,031	2,172	6,287	13,312	19,071	22,422
Economic	1,065	2,299	6,945	14,986	20,704	24,526
Technical	2,865	6,353	17,511	36,422	50,702	56,169
Cumulative Natural Gas Savings (% of Baseline)						
Achievable	0.8%	1.7%	5.0%	10.3%	14.4%	16.5%
Economic	0.9%	1.8%	5.5%	11.6%	15.7%	18.0%
Technical	2.3%	5.1%	13.8%	28.2%	38.4%	41.3%

Figure 5-6 C&I Cumulative Conservation Potential Savings

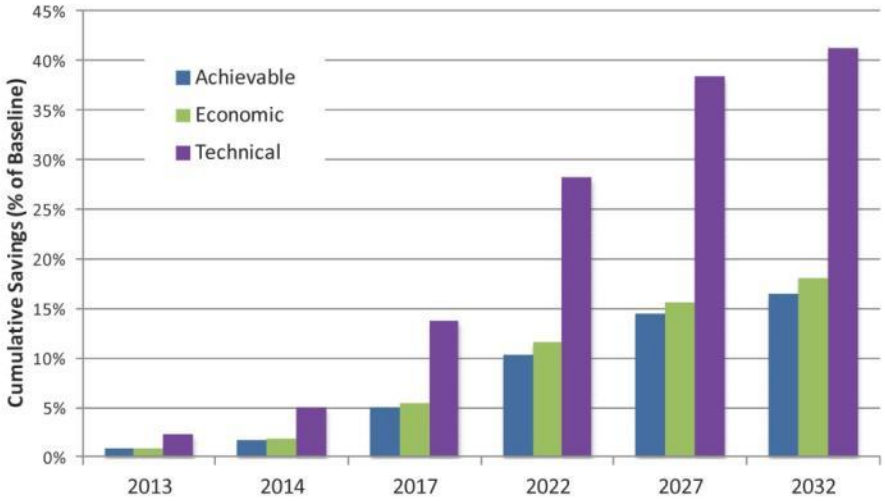
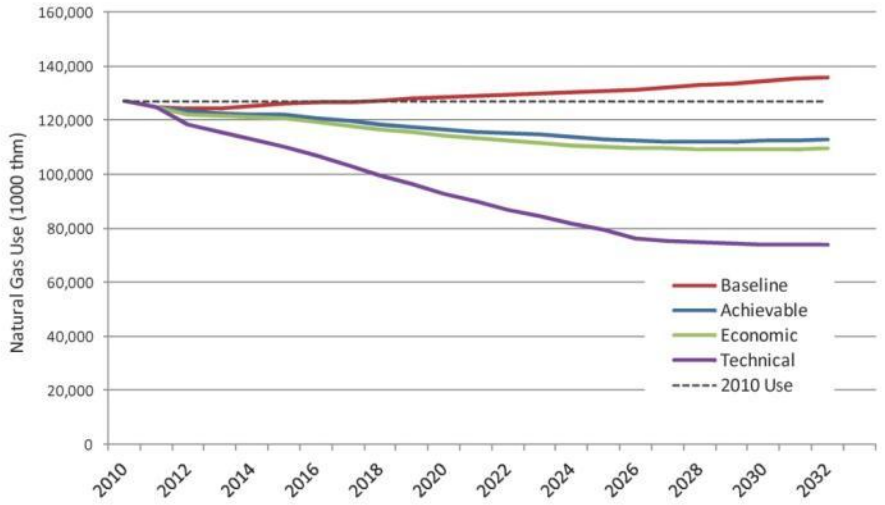


Figure 5-7 C&I Energy Efficiency Potential Forecast



C&I Potential by Segment and State

Table 5-11 and Table 5-12 provide additional detail on the cumulative achievable potential for selected years. As expected, the large commercial segment provides the greatest savings.

Table 5-11 C&I Cumulative Achievable Potential by Sector, Selected Years

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 therm)						
Sm. Commercial	50,130	50,530	51,271	52,378	53,494	55,120
Lg. Commercial	69,274	69,647	70,392	71,667	73,191	75,295
Industrial	5,026	5,067	5,156	5,274	5,409	5,560
Total	**124,429**	**125,244**	**126,819**	**129,319**	**132,094**	**135,976**
Natural Gas Savings (1000 therm)						
Sm. Commercial	206	469	1,588	3,557	5,709	7,018
Lg. Commercial	801	1,654	4,548	9,436	13,007	15,027
Industrial	25	49	151	319	354	377
Total	**1,031**	**2,172**	**6,287**	**13,312**	**19,071**	**22,422**
% of Total C&I Savings						
Sm. Commercial	20.0%	21.6%	25.3%	26.7%	29.9%	31.3%
Lg. Commercial	77.6%	76.2%	72.3%	70.9%	68.2%	67.0%
Industrial	2.4%	2.2%	2.4%	2.4%	1.9%	1.7%

Table 5-12 C&I Cumulative Achievable Potential by State, Selected Years

	2013	2014	2017	2022	2027	2032
Baseline Forecast (1000 therm)						
Washington	67,722	68,107	68,790	69,944	71,299	73,259
Idaho	27,702	28,002	28,700	29,780	30,910	32,239
Oregon	29,006	29,135	29,329	29,595	29,885	30,477
Total	**124,429**	**125,244**	**126,819**	**129,319**	**132,094**	**135,976**
Natural Gas Savings (1000 therm)						
Washington	655	1,365	3,906	8,096	11,251	13,015
Idaho	243	514	1,486	3,264	4,756	5,668
Oregon	133	293	895	1,953	3,064	3,739
Total	**1,031**	**2,172**	**6,287**	**13,312**	**19,071**	**22,422**
% of Total C&I Savings						
Washington	63.5%	62.8%	62.1%	60.8%	59.0%	58.0%
Idaho	23.6%	23.7%	23.6%	24.5%	24.9%	25.3%
Oregon	12.9%	13.5%	14.2%	14.7%	16.1%	16.7%

Table 5-13 shows additional detail by state and sector for 2022, including the cumulative economic and technical potential, as well as achievable potential. We note that although potential as a percentage of baseline use varies from one sector to the next, results do not vary greatly among the three states.

Table 5-13 C&I Cumulative Potential Summary by Sector and State, 2022

	Washington			Idaho			Oregon			Total C&I
	Small Comm.	Large Comm.	Ind.	Small Comm.	Large Comm.	Ind.	Small Comm.	Large Comm.	Ind.	
Baseline (1000 therm)										
	17,589	49,101	3,255	8,690	19,407	1,683	26,099	3,159	337	129,319
Cumulative Natural Gas Savings (1000 therm)										
Achievable	1,425	6,477	193	581	2,578	105	1,550	382	21	13,312
Economic	1,693	7,062	203	711	2,843	110	1,924	418	22	14,986
Technical	4,824	14,796	379	2,330	6,036	197	6,927	894	39	36,422
Cumulative Savings (% of Baseline)										
Achievable	8.1%	13.2%	5.9%	6.7%	13.3%	6.2%	5.9%	12.1%	6.1%	10.3%
Economic	9.6%	14.4%	6.2%	8.2%	14.7%	6.6%	7.4%	13.2%	6.4%	11.6%
Technical	27.4%	30.1%	11.6%	26.8%	31.1%	11.7%	26.5%	28.3%	11.7%	28.2%

Potential by End Use, Technology, and Measure Type

Table 5-14 presents the C&I sector savings by end use and potential type.

- ***Space heating*** has the highest savings for technical potential at 20.0 million therms in 2022. These savings would result from installation of high-efficiency equipment and numerous thermal shell measures, HVAC control strategies, and retrocommissioning. Many of these measures are cost-effective, resulting in economic potential savings of 10.7 million therms in 2022, or 53% of technical potential savings.
- ***Food service equipment*** offers technical potential savings at 2.9 million therms in 2022, and because these equipment upgrades are mostly cost-effective, economic potential in that year is 2.7 million therms.
- ***Water heating***, including equipment upgrades, hot water saving fixtures, and controls, has 2022 technical potential of 12.9 million therms, but because the equipment upgrades are cost-ineffective, economic potential of 1.3 million therms is only 10% of the technical potential.
- ***Process equipment*** for industrial uses has technical potential savings of 0.5 million therms in 2022, and economic potential in that year is 0.3 million therms.

Table 5-14 C&I Cumulative Potential by End Use and Potential Type (1000 therm)

		2013	2014	2017	2022	2027	2032
Space Heating	Achievable	859	1,752	4,896	10,328	14,766	17,424
	Economic	662	1,442	4,636	10,728	15,579	18,895
	Technical	1,306	2,877	8,952	20,071	27,393	31,405
Water Heating	Achievable	88	221	675	1,113	1,647	2,133
	Economic	75	193	699	1,257	1,821	2,398
	Technical	1,210	2,766	6,795	12,917	19,307	20,723
Food Preparation	Achievable	63	158	583	1,585	2,351	2,540
	Economic	314	629	1,479	2,697	2,953	2,859
	Technical	321	646	1,540	2,879	3,277	3,253
Process	Achievable	21	41	133	286	307	325
	Economic	14	34	131	304	351	374
	Technical	25	57	211	518	671	731
Miscellaneous	Achievable	0	0	0	0	0	0
	Economic	1	1	1	1	0	0
	Technical	3	6	13	36	54	57
Total	**Achievable**	**1,031**	**1,279**	**6,287**	**13,312**	**19,071**	**22,422**
	Economic	**1,065**	**2,299**	**6,945**	**14,986**	**20,704**	**24,527**
	Technical	**2,865**	**6,353**	**17,511**	**36,422**	**50,702**	**56,169**

Table 5-15 and Table 5-16 present achievable potential savings for equipment measures and non-equipment measures, respectively.

Table 5-15 C&I Cumulative Achievable Potential, Equipment Measures (1000 thm)

End Use	Technology	2013	2014	2017	2022	2027	2032
Space Heating	Furnace	32	84	361	1,031	1,959	2,385
	Boiler	60	149	472	928	1,419	2,114
	Other Heating	4	4	4	4	12	48
Water Heating	Water Heater	-	-	-	-	-	-
Food Preparation	Fryer	15	37	137	381	583	654
	Oven	9	23	88	250	387	436
	Broiler	-	-	-	-	-	-
	Griddle	6	16	59	168	264	306
	Range	8	20	75	212	328	370
	Steamer	25	62	223	574	789	758
Total Equipment Savings		**158**	**395**	**1,419**	**3,548**	**5,741**	**7,071**

Table 5-16 C&I Cumulative Achievable Potential, Non-equip. Measures (1000 thm)

Non-Equipment Measure	2013	2014	2017	2022	2027	2032
Advanced New Construction Designs	17	52	234	971	2,338	3,456
Custom Measures	-	-	-	-	-	133
Energy Management System	252	497	1,100	2,056	2,812	2,927
Insulation - Ceiling	8	23	89	286	589	854
Insulation - Ducting	-	-	-	-	-	-
Insulation - Wall Cavity	4	8	135	326	703	959
Thermostat - Clock/Programmable	50	98	218	412	564	592
Windows - High Efficiency	-	-	-	-	-	-
Furnace - Maintenance	-	-	-	-	-	52
Ducting - Repair and Sealing	-	-	-	-	-	-
Water Heating - Faucet Aerators	75	184	540	701	740	774
Water Heating - Pipe Insulation	-	-	-	-	-	-
Water Heating - Tank Blanket/Insulation	8	19	54	69	73	76
Water Heating - Hot Water Saver	-	-	-	-	-	-
Boiler - Maintenance	140	273	876	1,832	1,898	1,876
Boiler - Hot Water Reset	122	235	729	1,428	1,428	1,384
Boiler - High Eff. Hot Water Circulation	65	127	276	507	683	699
Space Heating - Heat Recovery Vent.	112	220	484	888	1,193	1,243
Comprehensive Retrocommissioning	-	-	-	-	-	-
Comprehensive Commissioning	-	-	-	-	-	-
Process - Boiler Hot Water Reset	21	41	133	286	307	325
Total, Non-equipment Measures	**873**	**1,777**	**4,868**	**9,764**	**13,329**	**15,350**
Total, All Measures	**1,031**	**2,172**	**6,287**	**13,312**	**19,071**	**22,422**

Based on the above, the primary sources of commercial sector achievable savings are as follows:

- ***Energy management systems and programmable thermostats***, because they can be readily installed, account for about 27% of achievable potential in 2014. These controls remain significant contributors to cumulative potential, with 2.5 million therms or 19% of potential in 2022.
- ***Boiler operating measures***, including maintenance, hot water reset, and efficient circulation, together can provide 4.3 million therms or about 29% of achievable potential in 2022.
- ***Equipment upgrades for furnaces, boilers, and unit heaters*** equal 2.0 million therms, or 15% of 2022 achievable potential.
- ***Foodservice equipment*** has an achievable potential by 2022 of 1.6 million therms, or 12% of achievable potential.

ABOUT GLOBAL

Global Energy Partners is a premier provider of energy and environmental engineering and technical services to utilities, energy companies, research organizations, government/regulatory agencies and private industry.

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APPENDIX 4.2 II ENVIRONMENTAL EXTERNALITIES OVERVIEW (OREGON JURISDICTION ONLY)

The methodology for determining avoided costs from reduced incremental natural gas usage considers commodity and variable transportation costs only. These avoided cost streams do not include environmental externality costs related to the gathering, transmission, distribution or end-use of natural gas.

Per traditional economic theory and industry practice, an environmental externality factor is typically added to the avoided cost when there is an opportunity to displace traditional supply-side resources with an alternative resource with no adverse environmental impact.

REGULATORY GUIDANCE

The Oregon Public Utility Commission (OPUC) issued Order 93-965 (UM-424) to address how utilities should consider the impact of environmental externalities in planning for future energy resources. The Order required analysis on the potential natural gas cost impacts from emitting carbon dioxide (CO_2) and nitric-oxide (NOx).

The OPUC's Order No. 07-002 in Docket UM 1056 (Investigation Into Integrated Resource Planning) established the following guideline for the treatment of environmental costs used by energy utilities that evaluate demand-side and supply-side energy choices:

> UM 1056, Guideline 8 - Environmental Costs
>
> *"Utilities should include, in their base-case analyses, the regulatory compliance costs they expect for carbon dioxide (CO_2), nitrogen oxides (NOx), sulfur oxides (SO_2), and mercury (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 nitrogen oxides (NOx), sulfur dioxide (SO2), and mercury (Hg), if applicable.*

In June 2008, the OPUC issued Order 08-338 (UM1302) which revised UM1056, Guideline 8. The revised guideline requires the utility should construct a base case portfolio to reflect what it considers to be the most likely regulatory compliance future for the various emissions. Additionally the guideline requires the utility to develop several compliance scenarios ranging from the present CO2 regulatory level to the upper reaches of credible proposals and each scenario should include a time profile of CO2 costs. The utility is also required to include a "trigger point" analysis in which the utility must determine at what level of carbon costs its selection of portfolio resources would be significantly different.

ANALYSIS

Unlike electric utilities, environmental cost issues rarely impact a natural gas utility's supply-side resource options. This is because the only supply-side energy resource is natural gas. The utility cannot choose between say "dirty" coal-fired generation and "clean" wind energy sources. The supply-side implication of environmental externalities generally relates to combustion of fuel to move or compress natural gas. Avista's direct gas distribution system infrastructure relies solely on the upstream line pressure of the

interstate pipeline transportation network to distribute natural gas to its customers and thus does not directly combust fuels that result in any CO_2, NOx, SO2, or Hg emissions.

Upstream gas system infrastructure (pipelines, storage facilities, and gathering systems), however, do produce CO_2 emissions via compressors used to pressurize and move natural gas. Accessing CO_2 emissions data on these upstream activities to perform detailed meaningful analysis is challenging. In the 2009 Natural Gas IRP there was significant momentum regarding GHG legislation and the movement towards the creation of carbon cap and trade markets or tax structure. Since then, the momentum has slowed significantly. Where there is still a focus on reducing GHG emissions and improving the nation's carbon footprint, the timing of implementing a carbon cap and trade/tax framework has been delayed. Additionally, the pricing level of the framework has been greatly reduced.. Whichever structure ultimately gets implemented, Avista believes the cost pass through mechanisms for upstream gas system infrastructure will not make a difference in supply-side resource selection although the amount of cost pass through could differ widely.

Table 4.2.1 summarizes a range of environmental cost adders we believe capture several compliance futures including our expected scenario. The CO2 cost adders reflect outlooks we obtained from one of our consultants, and following discussion and feedback from the TAC, have been incorporated into our Expected, Low Growth/High Price, and Alternate Planning Standard portfolios.

The guidelines also call for a trigger point analysis that reflects a "turning point" at which an alternate resource portfolio would be selected at different carbon cost adders levels. Because natural gas is the only supply resource applicable to LDC's any alternate resource portfolio selection would be a result of delivery methods of natural gas to customers. Conceptually, there could be differing levels of cost adders applicable to pipeline transported supply versus in service territory LNG storage gas. From a practical standpoint however, the differences in these relative cost adders would be very minor and would not change supply-side resource selection regardless of various carbon cost adder levels. We do acknowledge there is influence to the avoided costs which would impact the cost effectiveness of demand-side measures in the DSM business planning process.

CONSERVATON COST ADVANTAGE

For this IRP, we also incorporated a 10 percent environmental externality factor into our assessment of the cost-effectiveness of existing demand-side management programs. Our assessment of prospective demand-side management opportunities is based on an avoided cost stream that includes this 10 percent factor.

Environmental externalities were evaluated in the IRP by adding the cost per therm equivalent of the externality cost values to supply-side resources as described in OPUC Order No. 93-965. Avista found that the environmental cost adders had no impact on the company's supply-side choices, although they did impact the level of demand-side measures that could be cost-effective to acquire.

REGULATORY FILING

Avista will file revised cost-effectiveness limits (CELs) based upon the updated avoided costs available from this IRP process within the prescribed regulatory timetable.

Table 4.2.1 Environmental Externalities Cost Adder Analysis (2010$)

			2020	2025	2030	2035
Expected Carbon Case	NOx	$/ton	$ 2,500	$ 2,500	$ 2,500	$ 2,500
		$/lb	$ 1.25	$ 1.25	$ 1.25	$ 1.25
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder $/therm	$ 0.01	$ 0.01	$ 0.01	$ 0.01
	CO2	$/ton	$ -	$ 16.67	$ 21.05	$ 22.31
		$/lb	$ -	$ 0.0079	$ 0.0105	$ 0.0112
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder $/therm	$ -	$ 0.10	$ 0.12	$ 0.13
	Total	**Total Adders $/therm**	**$ 0.01**	**$ 0.10**	**$ 0.13**	**$ 0.14**
			2020	**2025**	**2030**	**2035**
High Carbon Case	NOx	$/ton	$ 2,500	$ 2,500	$ 2,500	$ 2,500
		$/lb	$ 1.25	$ 1.25	$ 1.25	$ 1.25
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder $/therm	$ 0.01	$ 0.01	$ 0.01	$ 0.01
	CO2	$/ton	$ 40.00	$ 60.00	$ 85.00	$ 100.00
		$/lb	$ 0.0200	$ 0.0300	$ 0.0425	$ 0.0500
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder $/therm	$ 0.23	$ 0.35	$ 0.49	$ 0.58
	Total	**Total Adders $/therm**	**$ 0.24**	**$ 0.36**	**$ 0.50**	**$ 0.59**
			2020	**2025**	**2030**	**2035**
Expected Carbon Low Nox	NOx	$/ton	$ 500	$ 500	$ 500	$ 500
		$/lb	$ 0.25	$ 0.25	$ 0.25	$ 0.25
		lbs/therm	0.008	0.008	0.008	0.008
		NOx Adder $/therm	$ 0.00	$ 0.00	$ 0.00	$ 0.00
	CO2	$/ton	$ -	$ 15.73	$ 21.05	$ 22.31
		$/lb	$ -	$ 0.0079	$ 0.0105	$ 0.0112
		lbs/therm	11.64	11.64	11.64	11.64
		CO2 Adder $/therm	$ -	$ 0.09	$ 0.12	$ 0.13
	Total	**Total Adders $/therm**	**$ 0.00**	**$ 0.09**	**$ 0.12**	**$ 0.13**

APPENDIX 5.1 II CURRENT TRANSPORTATION/STORAGE RATES AND ASSUMPTIONS

Rates in US$/Dth/Day

	Reservation	Commodity	Fuel Rate 3/	Rate Change Assumptions
TransCanada Alberta System Firm Rates -				
Postage Stamp Rates				
AECo/NIT to ABC	0.1910	-	0.00%	Changes every three years
AECo/NIT to ABC Winter Only	0.2388	-	0.00%	Changes every three years
TransCanada BC System Firm Rates -				
Postage Stamp Rates				
ABC to Kingsgate	0.0990	0.0300	1.10%	Changes every three years
GTN FTS-1 Rates				
Mileage Based - Representative Example				
Kingsgate to Spokane	0.0931	0.0017	0.25%	Changes every five years
Kingsgate to Medford	0.3376	0.0096	1.38%	Changes every five years
Meford Lateral	0.8244	-	0.00%	Changes every five years
Spectra Energy/Westcoast System Firm Rates -				
Postage Stamp Rates				
Station 2 to Huntington/Sumas	0.4112	-	0.80%	Changes every three years
Williams NWP 4/				
Postage Stamp Rates				
TF-1 1/	0.4100	0.03000	1.30%	Changes every five years
TF-2 1/	0.4100	0.03000	1.30%	Changes every five years
SGS-2F 2/	0.4751	0.01734	0.52%	Changes every five years

1/ TF-1 based upon annual delivery capability. TF-2 based upon approximately 32 days of delivery capability
2/ Not applicable for WA/ID Customers
3/ Fuel retained in-kind
4/ New rate effective January 2013

APPENDIX 5.2 II ALTERNATE SUPPLY SCENARIOS

	Existing Resources	Existing + Expected Available	GTN Fully Subscribed
INPUT ASSUMPTIONS			
Resources	Currently contracted capacity net of long term releases	Currently contracted capacity net of long term releases Currently available GTN Capacity Release Recalls NWP Expansions Satellite LNG	Currently contracted capacity net of long term releases Capacity Release Recalls NWP Expansions Satellite LNG
Rates	Current Rates	Current Rates	Current Rates

APPENDIX 6.1 II MONTHLY PRICE DATA BY BASIN

EXPECTED PRICE

			2010$											
Scenario	Index	Gas Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Expected Case	AECo	2011-2012	$ 2.90	$ 2.73	$ 2.29	$ 2.82	$ 2.88	$ 2.38	$ 2.49	$ 2.63	$ 2.69	$ 2.57	$ 2.47	$ 2.59
Expected Case	AECo	2012-2013	$ 3.04	$ 3.13	$ 3.37	$ 3.51	$ 3.58	$ 3.52	$ 3.50	$ 3.51	$ 3.54	$ 3.54	$ 3.54	$ 3.57
Expected Case	AECo	2013-2014	$ 3.76	$ 3.84	$ 3.85	$ 3.85	$ 3.86	$ 3.70	$ 3.65	$ 3.68	$ 3.71	$ 3.71	$ 3.72	$ 3.74
Expected Case	AECo	2014-2015	$ 3.93	$ 3.93	$ 3.97	$ 3.98	$ 3.99	$ 3.85	$ 3.84	$ 3.89	$ 3.92	$ 3.91	$ 3.88	$ 3.89
Expected Case	AECo	2015-2016	$ 4.06	$ 4.06	$ 4.09	$ 4.10	$ 4.16	$ 4.01	$ 4.02	$ 4.06	$ 4.08	$ 4.08	$ 4.07	$ 4.08
Expected Case	AECo	2016-2017	$ 4.25	$ 4.24	$ 4.27	$ 4.29	$ 4.31	$ 4.14	$ 4.19	$ 4.22	$ 4.25	$ 4.25	$ 4.25	$ 4.26
Expected Case	AECo	2017-2018	$ 4.40	$ 4.44	$ 4.49	$ 4.52	$ 4.52	$ 4.35	$ 4.39	$ 4.43	$ 4.46	$ 4.47	$ 4.46	$ 4.47
Expected Case	AECo	2018-2019	$ 4.58	$ 4.65	$ 4.67	$ 4.70	$ 4.69	$ 4.52	$ 4.56	$ 4.59	$ 4.63	$ 4.64	$ 4.57	$ 4.58
Expected Case	AECo	2019-2020	$ 4.67	$ 4.72	$ 4.78	$ 4.81	$ 4.75	$ 4.61	$ 4.64	$ 4.68	$ 4.72	$ 4.73	$ 4.66	$ 4.67
Expected Case	AECo	2020-2021	$ 4.79	$ 4.85	$ 4.88	$ 4.91	$ 4.89	$ 4.73	$ 4.77	$ 4.81	$ 4.85	$ 4.87	$ 4.68	$ 4.69
Expected Case	AECo	2021-2022	$ 4.80	$ 4.84	$ 4.87	$ 4.90	$ 4.74	$ 4.62	$ 4.66	$ 4.69	$ 4.72	$ 4.74	$ 4.70	$ 4.69
Expected Case	AECo	2022-2023	$ 4.84	$ 4.87	$ 4.89	$ 4.92	$ 4.91	$ 4.79	$ 4.84	$ 4.89	$ 4.92	$ 4.94	$ 4.78	$ 4.78
Expected Case	AECo	2023-2024	$ 4.89	$ 4.92	$ 4.94	$ 4.97	$ 4.77	$ 4.65	$ 4.67	$ 4.74	$ 4.77	$ 4.79	$ 4.74	$ 4.75
Expected Case	AECo	2024-2025	$ 4.86	$ 4.89	$ 4.91	$ 4.94	$ 4.87	$ 4.74	$ 4.76	$ 4.81	$ 4.87	$ 4.89	$ 4.79	$ 4.80
Expected Case	AECo	2025-2026	$ 4.98	$ 5.00	$ 5.03	$ 5.06	$ 4.90	$ 4.77	$ 4.80	$ 4.86	$ 4.89	$ 4.91	$ 4.87	$ 4.87
Expected Case	AECo	2026-2027	$ 5.00	$ 5.03	$ 5.05	$ 5.08	$ 4.85	$ 4.71	$ 4.74	$ 4.79	$ 4.82	$ 4.84	$ 4.82	$ 4.82
Expected Case	AECo	2027-2028	$ 4.97	$ 5.00	$ 5.03	$ 5.06	$ 4.89	$ 4.75	$ 4.80	$ 4.83	$ 4.87	$ 4.89	$ 4.85	$ 4.86
Expected Case	AECo	2028-2029	$ 5.02	$ 5.05	$ 5.08	$ 5.11	$ 4.96	$ 4.79	$ 4.82	$ 4.86	$ 4.90	$ 4.92	$ 4.91	$ 4.91
Expected Case	AECo	2029-2030	$ 5.06	$ 5.10	$ 5.13	$ 5.15	$ 4.91	$ 4.76	$ 4.79	$ 4.84	$ 4.90	$ 4.91	$ 4.91	$ 4.92
Expected Case	AECo	2030-2031	$ 5.06	$ 5.13	$ 5.16	$ 5.19	$ 5.01	$ 4.86	$ 4.89	$ 4.96	$ 5.00	$ 5.02	$ 5.01	$ 5.02
Expected Case	Malin	2011-2012	$ 3.01	$ 2.97	$ 2.48	$ 3.00	$ 3.06	$ 2.52	$ 2.80	$ 2.94	$ 3.01	$ 2.89	$ 2.78	$ 2.91
Expected Case	Malin	2012-2013	$ 3.34	$ 3.45	$ 3.69	$ 3.83	$ 3.87	$ 3.79	$ 3.82	$ 3.82	$ 3.86	$ 3.87	$ 3.86	$ 3.89
Expected Case	Malin	2013-2014	$ 4.06	$ 4.18	$ 4.18	$ 4.19	$ 4.15	$ 3.98	$ 3.99	$ 4.02	$ 4.05	$ 4.07	$ 4.09	$ 4.12
Expected Case	Malin	2014-2015	$ 4.28	$ 4.31	$ 4.34	$ 4.34	$ 4.29	$ 4.15	$ 4.17	$ 4.19	$ 4.21	$ 4.24	$ 4.26	$ 4.29
Expected Case	Malin	2015-2016	$ 4.44	$ 4.48	$ 4.51	$ 4.52	$ 4.47	$ 4.37	$ 4.38	$ 4.40	$ 4.45	$ 4.47	$ 4.48	$ 4.51
Expected Case	Malin	2016-2017	$ 4.67	$ 4.69	$ 4.71	$ 4.74	$ 4.62	$ 4.55	$ 4.58	$ 4.61	$ 4.64	$ 4.66	$ 4.69	$ 4.71
Expected Case	Malin	2017-2018	$ 4.88	$ 4.93	$ 4.95	$ 4.98	$ 4.87	$ 4.80	$ 4.82	$ 4.85	$ 4.90	$ 4.92	$ 4.94	$ 4.97
Expected Case	Malin	2018-2019	$ 5.08	$ 5.15	$ 5.15	$ 5.18	$ 5.05	$ 4.95	$ 4.95	$ 4.98	$ 5.07	$ 5.10	$ 5.07	$ 5.09
Expected Case	Malin	2019-2020	$ 5.15	$ 5.24	$ 5.19	$ 5.22	$ 5.10	$ 4.97	$ 5.01	$ 5.04	$ 5.13	$ 5.16	$ 5.13	$ 5.15
Expected Case	Malin	2020-2021	$ 5.25	$ 5.32	$ 5.33	$ 5.36	$ 5.23	$ 5.07	$ 5.12	$ 5.15	$ 5.23	$ 5.26	$ 5.19	$ 5.21
Expected Case	Malin	2021-2022	$ 5.30	$ 5.36	$ 5.33	$ 5.36	$ 5.09	$ 5.01	$ 5.05	$ 5.08	$ 5.12	$ 5.16	$ 5.17	$ 5.19
Expected Case	Malin	2022-2023	$ 5.32	$ 5.36	$ 5.38	$ 5.41	$ 5.26	$ 5.19	$ 5.22	$ 5.25	$ 5.31	$ 5.33	$ 5.26	$ 5.29
Expected Case	Malin	2023-2024	$ 5.44	$ 5.48	$ 5.44	$ 5.47	$ 5.16	$ 5.10	$ 5.05	$ 5.12	$ 5.19	$ 5.23	$ 5.18	$ 5.24
Expected Case	Malin	2024-2025	$ 5.40	$ 5.46	$ 5.44	$ 5.47	$ 5.30	$ 5.20	$ 5.14	$ 5.19	$ 5.28	$ 5.31	$ 5.26	$ 5.31
Expected Case	Malin	2025-2026	$ 5.52	$ 5.57	$ 5.55	$ 5.58	$ 5.31	$ 5.22	$ 5.23	$ 5.28	$ 5.32	$ 5.35	$ 5.37	$ 5.40
Expected Case	Malin	2026-2027	$ 5.54	$ 5.59	$ 5.57	$ 5.61	$ 5.26	$ 5.17	$ 5.18	$ 5.23	$ 5.27	$ 5.29	$ 5.32	$ 5.35
Expected Case	Malin	2027-2028	$ 5.49	$ 5.55	$ 5.53	$ 5.56	$ 5.30	$ 5.20	$ 5.23	$ 5.27	$ 5.31	$ 5.34	$ 5.37	$ 5.40
Expected Case	Malin	2028-2029	$ 5.55	$ 5.60	$ 5.59	$ 5.63	$ 5.37	$ 5.24	$ 5.26	$ 5.30	$ 5.35	$ 5.38	$ 5.41	$ 5.44
Expected Case	Malin	2029-2030	$ 5.56	$ 5.64	$ 5.62	$ 5.66	$ 5.33	$ 5.24	$ 5.26	$ 5.30	$ 5.35	$ 5.38	$ 5.41	$ 5.47
Expected Case	Malin	2030-2031	$ 5.60	$ 5.66	$ 5.68	$ 5.72	$ 5.42	$ 5.33	$ 5.36	$ 5.41	$ 5.46	$ 5.49	$ 5.52	$ 5.57
Expected Case	Rockies	2011-2012	$ 2.92	$ 2.94	$ 2.44	$ 2.96	$ 3.03	$ 2.49	$ 2.73	$ 2.86	$ 2.93	$ 2.81	$ 2.71	$ 2.83
Expected Case	Rockies	2012-2013	$ 3.25	$ 3.36	$ 3.61	$ 3.75	$ 3.79	$ 3.71	$ 3.74	$ 3.75	$ 3.79	$ 3.79	$ 3.79	$ 3.81
Expected Case	Rockies	2013-2014	$ 3.98	$ 4.09	$ 4.09	$ 4.10	$ 4.07	$ 3.90	$ 3.92	$ 3.94	$ 3.97	$ 3.99	$ 4.01	$ 4.04
Expected Case	Rockies	2014-2015	$ 4.19	$ 4.22	$ 4.25	$ 4.26	$ 4.21	$ 4.07	$ 4.09	$ 4.11	$ 4.13	$ 4.16	$ 4.18	$ 4.21
Expected Case	Rockies	2015-2016	$ 4.35	$ 4.39	$ 4.42	$ 4.43	$ 4.38	$ 4.29	$ 4.30	$ 4.32	$ 4.37	$ 4.39	$ 4.39	$ 4.42
Expected Case	Rockies	2016-2017	$ 4.58	$ 4.59	$ 4.62	$ 4.64	$ 4.53	$ 4.47	$ 4.50	$ 4.52	$ 4.56	$ 4.58	$ 4.60	$ 4.63
Expected Case	Rockies	2017-2018	$ 4.79	$ 4.84	$ 4.86	$ 4.89	$ 4.77	$ 4.72	$ 4.74	$ 4.76	$ 4.81	$ 4.84	$ 4.85	$ 4.88
Expected Case	Rockies	2018-2019	$ 4.98	$ 5.05	$ 5.06	$ 5.08	$ 4.96	$ 4.87	$ 4.87	$ 4.90	$ 4.97	$ 4.99	$ 4.98	$ 5.00
Expected Case	Rockies	2019-2020	$ 5.01	$ 5.07	$ 5.06	$ 5.09	$ 4.98	$ 4.86	$ 4.84	$ 4.86	$ 4.91	$ 4.93	$ 4.91	$ 4.96
Expected Case	Rockies	2020-2021	$ 5.08	$ 5.16	$ 5.15	$ 5.18	$ 5.09	$ 4.95	$ 4.94	$ 4.97	$ 5.04	$ 5.05	$ 4.90	$ 4.94
Expected Case	Rockies	2021-2022	$ 5.06	$ 5.13	$ 5.11	$ 5.14	$ 4.92	$ 4.79	$ 4.80	$ 4.83	$ 4.88	$ 4.90	$ 4.86	$ 4.89
Expected Case	Rockies	2022-2023	$ 5.04	$ 5.11	$ 5.11	$ 5.14	$ 5.04	$ 4.89	$ 4.91	$ 4.93	$ 4.98	$ 5.01	$ 4.90	$ 4.93
Expected Case	Rockies	2023-2024	$ 5.04	$ 5.11	$ 5.06	$ 5.09	$ 4.81	$ 4.74	$ 4.69	$ 4.71	$ 4.80	$ 4.83	$ 4.80	$ 4.85
Expected Case	Rockies	2024-2025	$ 4.95	$ 5.05	$ 5.05	$ 5.08	$ 4.89	$ 4.70	$ 4.64	$ 4.66	$ 4.76	$ 4.79	$ 4.78	$ 4.84
Expected Case	Rockies	2025-2026	$ 5.17	$ 5.27	$ 5.29	$ 5.32	$ 5.06	$ 4.96	$ 4.97	$ 5.00	$ 5.07	$ 5.10	$ 5.08	$ 5.10
Expected Case	Rockies	2026-2027	$ 5.21	$ 5.29	$ 5.28	$ 5.30	$ 4.98	$ 4.87	$ 4.90	$ 4.92	$ 4.99	$ 5.01	$ 5.00	$ 5.02
Expected Case	Rockies	2027-2028	$ 5.14	$ 5.22	$ 5.22	$ 5.23	$ 4.96	$ 4.88	$ 4.90	$ 4.93	$ 5.00	$ 5.03	$ 4.99	$ 5.01
Expected Case	Rockies	2028-2029	$ 5.13	$ 5.23	$ 5.22	$ 5.25	$ 4.97	$ 4.89	$ 4.89	$ 4.92	$ 5.01	$ 5.04	$ 5.02	$ 5.04
Expected Case	Rockies	2029-2030	$ 5.13	$ 5.22	$ 5.21	$ 5.24	$ 4.89	$ 4.83	$ 4.85	$ 4.88	$ 4.95	$ 4.97	$ 4.99	$ 5.02
Expected Case	Rockies	2030-2031	$ 5.10	$ 5.21	$ 5.21	$ 5.25	$ 4.94	$ 4.90	$ 4.93	$ 4.96	$ 5.03	$ 5.05	$ 5.05	$ 5.08

APPENDIX 6.1 ‖ MONTHLY PRICE DATA BY BASIN
EXPECTED PRICE

								2010$						
Scenario	**Index**	**Gas Year**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**
Expected Case	Stanfield	2011-2012	$ 2.95	$ 2.97	$ 2.45	$ 2.97	$ 2.95	$ 2.48	$ 2.72	$ 2.86	$ 2.93	$ 2.81	$ 2.67	$ 2.79
Expected Case	Stanfield	2012-2013	$ 3.24	$ 3.34	$ 3.58	$ 3.72	$ 3.78	$ 3.71	$ 3.74	$ 3.74	$ 3.78	$ 3.79	$ 3.75	$ 3.77
Expected Case	Stanfield	2013-2014	$ 3.97	$ 4.07	$ 4.07	$ 4.08	$ 4.06	$ 3.89	$ 3.89	$ 3.92	$ 3.95	$ 3.97	$ 3.97	$ 3.99
Expected Case	Stanfield	2014-2015	$ 4.16	$ 4.18	$ 4.22	$ 4.23	$ 4.20	$ 4.04	$ 4.04	$ 4.08	$ 4.11	$ 4.12	$ 4.13	$ 4.16
Expected Case	Stanfield	2015-2016	$ 4.31	$ 4.34	$ 4.37	$ 4.39	$ 4.37	$ 4.23	$ 4.24	$ 4.27	$ 4.31	$ 4.33	$ 4.34	$ 4.37
Expected Case	Stanfield	2016-2017	$ 4.54	$ 4.54	$ 4.57	$ 4.60	$ 4.53	$ 4.41	$ 4.44	$ 4.47	$ 4.50	$ 4.52	$ 4.54	$ 4.56
Expected Case	Stanfield	2017-2018	$ 4.73	$ 4.77	$ 4.80	$ 4.83	$ 4.74	$ 4.64	$ 4.67	$ 4.70	$ 4.74	$ 4.77	$ 4.77	$ 4.80
Expected Case	Stanfield	2018-2019	$ 4.92	$ 4.98	$ 5.12	$ 5.15	$ 4.92	$ 4.80	$ 4.81	$ 4.83	$ 4.90	$ 4.92	$ 4.90	$ 5.04
Expected Case	Stanfield	2019-2020	$ 5.11	$ 5.07	$ 5.18	$ 5.21	$ 4.98	$ 4.84	$ 4.86	$ 4.90	$ 4.96	$ 4.98	$ 4.95	$ 4.97
Expected Case	Stanfield	2020-2021	$ 5.11	$ 5.30	$ 5.33	$ 5.36	$ 5.12	$ 4.96	$ 4.98	$ 5.02	$ 5.08	$ 5.10	$ 5.00	$ 5.03
Expected Case	Stanfield	2021-2022	$ 5.27	$ 5.34	$ 5.32	$ 5.36	$ 4.98	$ 4.86	$ 4.89	$ 4.92	$ 4.96	$ 4.99	$ 4.98	$ 5.01
Expected Case	Stanfield	2022-2023	$ 5.30	$ 5.33	$ 5.37	$ 5.40	$ 5.15	$ 5.04	$ 5.07	$ 5.10	$ 5.13	$ 5.16	$ 5.07	$ 5.10
Expected Case	Stanfield	2023-2024	$ 5.39	$ 5.43	$ 5.44	$ 5.47	$ 5.03	$ 4.93	$ 4.90	$ 4.96	$ 5.02	$ 5.05	$ 5.00	$ 5.05
Expected Case	Stanfield	2024-2025	$ 5.35	$ 5.41	$ 5.42	$ 5.45	$ 5.16	$ 5.04	$ 4.99	$ 5.04	$ 5.11	$ 5.14	$ 5.08	$ 5.11
Expected Case	Stanfield	2025-2026	$ 5.47	$ 5.52	$ 5.54	$ 5.57	$ 5.30	$ 5.06	$ 5.06	$ 5.11	$ 5.15	$ 5.17	$ 5.18	$ 5.21
Expected Case	Stanfield	2026-2027	$ 5.51	$ 5.56	$ 5.57	$ 5.60	$ 5.25	$ 5.01	$ 5.01	$ 5.06	$ 5.09	$ 5.11	$ 5.13	$ 5.16
Expected Case	Stanfield	2027-2028	$ 5.46	$ 5.53	$ 5.52	$ 5.56	$ 5.29	$ 5.05	$ 5.06	$ 5.10	$ 5.14	$ 5.16	$ 5.18	$ 5.20
Expected Case	Stanfield	2028-2029	$ 5.52	$ 5.58	$ 5.59	$ 5.62	$ 5.37	$ 5.09	$ 5.10	$ 5.13	$ 5.17	$ 5.20	$ 5.22	$ 5.25
Expected Case	Stanfield	2029-2030	$ 5.55	$ 5.62	$ 5.62	$ 5.65	$ 5.32	$ 5.08	$ 5.09	$ 5.13	$ 5.17	$ 5.20	$ 5.22	$ 5.28
Expected Case	Stanfield	2030-2031	$ 5.58	$ 5.65	$ 5.67	$ 5.71	$ 5.42	$ 5.17	$ 5.31	$ 5.24	$ 5.28	$ 5.31	$ 5.33	$ 5.38
Expected Case	Sumas	2011-2012	$ 3.10	$ 2.97	$ 2.48	$ 3.00	$ 2.95	$ 2.43	$ 2.59	$ 2.69	$ 2.79	$ 2.67	$ 2.53	$ 2.73
Expected Case	Sumas	2012-2013	$ 3.44	$ 3.55	$ 3.79	$ 3.93	$ 3.87	$ 3.62	$ 3.58	$ 3.59	$ 3.63	$ 3.64	$ 3.61	$ 3.68
Expected Case	Sumas	2013-2014	$ 4.17	$ 4.28	$ 4.29	$ 4.30	$ 4.15	$ 3.75	$ 3.73	$ 3.77	$ 3.79	$ 3.80	$ 3.76	$ 3.80
Expected Case	Sumas	2014-2015	$ 4.38	$ 4.41	$ 4.45	$ 4.46	$ 4.29	$ 3.89	$ 3.88	$ 3.93	$ 3.96	$ 3.95	$ 3.92	$ 3.94
Expected Case	Sumas	2015-2016	$ 4.54	$ 4.57	$ 4.61	$ 4.63	$ 4.46	$ 4.06	$ 4.06	$ 4.10	$ 4.13	$ 4.13	$ 4.12	$ 4.13
Expected Case	Sumas	2016-2017	$ 4.77	$ 4.78	$ 4.81	$ 4.84	$ 4.62	$ 4.20	$ 4.24	$ 4.27	$ 4.30	$ 4.31	$ 4.31	$ 4.32
Expected Case	Sumas	2017-2018	$ 4.98	$ 5.02	$ 5.05	$ 5.08	$ 4.59	$ 4.41	$ 4.45	$ 4.49	$ 4.52	$ 4.54	$ 4.53	$ 4.54
Expected Case	Sumas	2018-2019	$ 4.94	$ 5.24	$ 5.27	$ 5.30	$ 4.88	$ 4.69	$ 4.70	$ 4.66	$ 4.69	$ 4.69	$ 4.62	$ 4.65
Expected Case	Sumas	2019-2020	$ 4.77	$ 4.83	$ 5.33	$ 5.36	$ 4.98	$ 4.75	$ 4.73	$ 4.74	$ 4.81	$ 4.82	$ 4.76	$ 4.78
Expected Case	Sumas	2020-2021	$ 5.14	$ 5.34	$ 5.38	$ 5.41	$ 5.26	$ 4.85	$ 4.78	$ 4.80	$ 4.93	$ 4.90	$ 4.70	$ 4.81
Expected Case	Sumas	2021-2022	$ 5.32	$ 5.39	$ 5.42	$ 5.46	$ 5.13	$ 4.74	$ 4.68	$ 4.68	$ 4.79	$ 4.79	$ 4.71	$ 4.84
Expected Case	Sumas	2022-2023	$ 5.35	$ 5.38	$ 5.42	$ 5.45	$ 5.30	$ 4.92	$ 4.87	$ 4.88	$ 4.99	$ 4.96	$ 4.78	$ 4.88
Expected Case	Sumas	2023-2024	$ 5.44	$ 5.48	$ 5.51	$ 5.52	$ 5.18	$ 4.79	$ 4.70	$ 4.73	$ 4.84	$ 4.82	$ 4.74	$ 4.87
Expected Case	Sumas	2024-2025	$ 5.40	$ 5.46	$ 5.49	$ 5.53	$ 5.31	$ 4.89	$ 4.79	$ 4.80	$ 4.99	$ 4.92	$ 4.81	$ 4.94
Expected Case	Sumas	2025-2026	$ 5.52	$ 5.57	$ 5.61	$ 5.64	$ 5.35	$ 4.92	$ 4.84	$ 4.74	$ 5.02	$ 4.96	$ 4.90	$ 5.04
Expected Case	Sumas	2026-2027	$ 5.56	$ 5.63	$ 5.67	$ 5.70	$ 5.30	$ 4.86	$ 4.80	$ 4.67	$ 4.96	$ 4.91	$ 4.86	$ 4.98
Expected Case	Sumas	2027-2028	$ 5.51	$ 5.59	$ 5.62	$ 5.66	$ 5.34	$ 4.90	$ 4.86	$ 4.71	$ 5.01	$ 4.97	$ 4.88	$ 5.03
Expected Case	Sumas	2028-2029	$ 5.57	$ 5.76	$ 5.80	$ 5.83	$ 5.42	$ 4.94	$ 4.89	$ 4.74	$ 5.04	$ 5.06	$ 4.97	$ 5.08
Expected Case	Sumas	2029-2030	$ 5.60	$ 5.81	$ 5.84	$ 5.87	$ 5.37	$ 4.92	$ 4.86	$ 4.72	$ 5.04	$ 5.05	$ 5.03	$ 5.09
Expected Case	Sumas	2030-2031	$ 5.63	$ 5.97	$ 6.01	$ 6.04	$ 5.47	$ 5.02	$ 4.96	$ 4.84	$ 5.15	$ 5.16	$ 5.13	$ 5.20

APPENDIX 6.1 II MONTHLY PRICE DATA BY BASIN
HIGH GROWTH LOW PRICE

							2010$						
Scenario	**Index**	**Gas Year**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**
High Growth Low Price	AECo	2011-2012	$ 2.90	$ 2.73	$ 2.29	$ 2.82	$ 2.88	$ 2.38	$ 2.49	$ 2.63	$ 2.69	$ 2.57	$ 2.47	$ 2.59
High Growth Low Price	AECo	2012-2013	$ 3.04	$ 3.13	$ 3.37	$ 3.51	$ 3.58	$ 3.52	$ 3.50	$ 3.51	$ 3.54	$ 3.54	$ 3.54	$ 3.57
High Growth Low Price	AECo	2013-2014	$ 3.76	$ 3.84	$ 3.85	$ 3.85	$ 3.86	$ 3.70	$ 3.65	$ 3.68	$ 3.71	$ 3.71	$ 3.72	$ 3.74
High Growth Low Price	AECo	2014-2015	$ 3.93	$ 3.93	$ 3.97	$ 3.98	$ 3.99	$ 3.85	$ 3.84	$ 3.89	$ 3.92	$ 3.91	$ 3.88	$ 3.89
High Growth Low Price	AECo	2015-2016	$ 4.06	$ 4.06	$ 4.09	$ 4.10	$ 4.16	$ 4.01	$ 4.02	$ 4.06	$ 4.08	$ 4.08	$ 4.07	$ 4.08
High Growth Low Price	AECo	2016-2017	$ 4.25	$ 4.24	$ 4.27	$ 4.29	$ 4.31	$ 4.14	$ 4.19	$ 4.22	$ 4.25	$ 4.25	$ 4.25	$ 4.26
High Growth Low Price	AECo	2017-2018	$ 4.40	$ 4.44	$ 4.49	$ 4.52	$ 4.52	$ 4.35	$ 4.39	$ 4.43	$ 4.46	$ 4.47	$ 4.46	$ 4.47
High Growth Low Price	AECo	2018-2019	$ 4.58	$ 4.65	$ 4.67	$ 4.70	$ 4.69	$ 4.52	$ 4.56	$ 4.59	$ 4.63	$ 4.64	$ 4.57	$ 4.58
High Growth Low Price	AECo	2019-2020	$ 4.67	$ 4.72	$ 4.78	$ 4.81	$ 4.75	$ 4.61	$ 4.64	$ 4.68	$ 4.72	$ 4.73	$ 4.66	$ 4.67
High Growth Low Price	AECo	2020-2021	$ 4.79	$ 4.85	$ 4.88	$ 4.91	$ 4.89	$ 4.73	$ 4.77	$ 4.81	$ 4.85	$ 4.87	$ 4.68	$ 4.69
High Growth Low Price	AECo	2021-2022	$ 4.80	$ 4.84	$ 4.87	$ 4.90	$ 4.74	$ 4.62	$ 4.66	$ 4.69	$ 4.72	$ 4.74	$ 4.70	$ 4.69
High Growth Low Price	AECo	2022-2023	$ 4.84	$ 4.87	$ 4.89	$ 4.92	$ 4.91	$ 4.79	$ 4.84	$ 4.89	$ 4.92	$ 4.94	$ 4.78	$ 4.78
High Growth Low Price	AECo	2023-2024	$ 4.89	$ 4.92	$ 4.94	$ 4.97	$ 4.77	$ 4.65	$ 4.67	$ 4.74	$ 4.77	$ 4.79	$ 4.74	$ 4.75
High Growth Low Price	AECo	2024-2025	$ 4.86	$ 4.89	$ 4.91	$ 4.94	$ 4.87	$ 4.74	$ 4.76	$ 4.81	$ 4.87	$ 4.89	$ 4.79	$ 4.80
High Growth Low Price	AECo	2025-2026	$ 4.98	$ 5.00	$ 5.03	$ 5.06	$ 4.90	$ 4.77	$ 4.80	$ 4.86	$ 4.89	$ 4.91	$ 4.87	$ 4.87
High Growth Low Price	AECo	2026-2027	$ 5.00	$ 5.03	$ 5.05	$ 5.08	$ 4.85	$ 4.71	$ 4.74	$ 4.79	$ 4.82	$ 4.84	$ 4.82	$ 4.82
High Growth Low Price	AECo	2027-2028	$ 4.97	$ 5.00	$ 5.03	$ 5.06	$ 4.89	$ 4.75	$ 4.80	$ 4.83	$ 4.87	$ 4.89	$ 4.85	$ 4.86
High Growth Low Price	AECo	2028-2029	$ 5.02	$ 5.05	$ 5.08	$ 5.11	$ 4.96	$ 4.79	$ 4.82	$ 4.86	$ 4.90	$ 4.92	$ 4.91	$ 4.91
High Growth Low Price	AECo	2029-2030	$ 5.06	$ 5.10	$ 5.13	$ 5.15	$ 4.91	$ 4.76	$ 4.79	$ 4.84	$ 4.90	$ 4.91	$ 4.91	$ 4.92
High Growth Low Price	AECo	2030-2031	$ 5.06	$ 5.13	$ 5.16	$ 5.19	$ 5.01	$ 4.86	$ 4.89	$ 4.96	$ 5.00	$ 5.02	$ 5.01	$ 5.02
High Growth Low Price	Malin	2011-2012	$ 3.01	$ 2.97	$ 2.48	$ 3.00	$ 3.06	$ 2.52	$ 2.80	$ 2.94	$ 3.01	$ 2.89	$ 2.78	$ 2.91
High Growth Low Price	Malin	2012-2013	$ 3.34	$ 3.45	$ 3.69	$ 3.83	$ 3.87	$ 3.79	$ 3.82	$ 3.82	$ 3.86	$ 3.87	$ 3.86	$ 3.89
High Growth Low Price	Malin	2013-2014	$ 4.06	$ 4.18	$ 4.18	$ 4.19	$ 4.15	$ 3.98	$ 3.99	$ 4.02	$ 4.05	$ 4.07	$ 4.09	$ 4.12
High Growth Low Price	Malin	2014-2015	$ 4.28	$ 4.31	$ 4.34	$ 4.34	$ 4.29	$ 4.15	$ 4.17	$ 4.19	$ 4.21	$ 4.24	$ 4.26	$ 4.29
High Growth Low Price	Malin	2015-2016	$ 4.44	$ 4.48	$ 4.51	$ 4.52	$ 4.47	$ 4.37	$ 4.38	$ 4.40	$ 4.45	$ 4.47	$ 4.48	$ 4.51
High Growth Low Price	Malin	2016-2017	$ 4.67	$ 4.69	$ 4.71	$ 4.74	$ 4.62	$ 4.55	$ 4.58	$ 4.61	$ 4.64	$ 4.66	$ 4.69	$ 4.71
High Growth Low Price	Malin	2017-2018	$ 4.88	$ 4.93	$ 4.95	$ 4.98	$ 4.87	$ 4.80	$ 4.82	$ 4.85	$ 4.90	$ 4.92	$ 4.94	$ 4.97
High Growth Low Price	Malin	2018-2019	$ 5.08	$ 5.15	$ 5.15	$ 5.18	$ 5.05	$ 4.95	$ 4.95	$ 4.98	$ 5.07	$ 5.10	$ 5.07	$ 5.09
High Growth Low Price	Malin	2019-2020	$ 5.15	$ 5.24	$ 5.19	$ 5.22	$ 5.10	$ 4.97	$ 5.01	$ 5.04	$ 5.13	$ 5.16	$ 5.13	$ 5.15
High Growth Low Price	Malin	2020-2021	$ 5.25	$ 5.32	$ 5.33	$ 5.36	$ 5.23	$ 5.07	$ 5.12	$ 5.15	$ 5.23	$ 5.26	$ 5.19	$ 5.21
High Growth Low Price	Malin	2021-2022	$ 5.30	$ 5.36	$ 5.33	$ 5.36	$ 5.09	$ 5.01	$ 5.05	$ 5.08	$ 5.12	$ 5.16	$ 5.17	$ 5.19
High Growth Low Price	Malin	2022-2023	$ 5.32	$ 5.36	$ 5.38	$ 5.41	$ 5.26	$ 5.19	$ 5.22	$ 5.25	$ 5.31	$ 5.33	$ 5.26	$ 5.29
High Growth Low Price	Malin	2023-2024	$ 5.44	$ 5.48	$ 5.44	$ 5.47	$ 5.16	$ 5.10	$ 5.05	$ 5.12	$ 5.19	$ 5.23	$ 5.18	$ 5.24
High Growth Low Price	Malin	2024-2025	$ 5.40	$ 5.46	$ 5.44	$ 5.47	$ 5.30	$ 5.20	$ 5.14	$ 5.19	$ 5.28	$ 5.31	$ 5.26	$ 5.31
High Growth Low Price	Malin	2025-2026	$ 5.52	$ 5.57	$ 5.55	$ 5.58	$ 5.31	$ 5.22	$ 5.23	$ 5.28	$ 5.32	$ 5.35	$ 5.37	$ 5.40
High Growth Low Price	Malin	2026-2027	$ 5.54	$ 5.59	$ 5.57	$ 5.61	$ 5.26	$ 5.17	$ 5.18	$ 5.23	$ 5.27	$ 5.29	$ 5.32	$ 5.35
High Growth Low Price	Malin	2027-2028	$ 5.49	$ 5.55	$ 5.53	$ 5.56	$ 5.30	$ 5.20	$ 5.23	$ 5.27	$ 5.31	$ 5.34	$ 5.37	$ 5.40
High Growth Low Price	Malin	2028-2029	$ 5.55	$ 5.60	$ 5.59	$ 5.63	$ 5.37	$ 5.24	$ 5.26	$ 5.30	$ 5.35	$ 5.38	$ 5.41	$ 5.44
High Growth Low Price	Malin	2029-2030	$ 5.56	$ 5.64	$ 5.62	$ 5.66	$ 5.33	$ 5.24	$ 5.26	$ 5.30	$ 5.35	$ 5.38	$ 5.41	$ 5.47
High Growth Low Price	Malin	2030-2031	$ 5.60	$ 5.66	$ 5.68	$ 5.72	$ 5.42	$ 5.33	$ 5.36	$ 5.41	$ 5.46	$ 5.49	$ 5.52	$ 5.57
High Growth Low Price	Rockies	2011-2012	$ 2.92	$ 2.94	$ 2.44	$ 2.96	$ 3.03	$ 2.49	$ 2.73	$ 2.86	$ 2.93	$ 2.81	$ 2.71	$ 2.83
High Growth Low Price	Rockies	2012-2013	$ 3.25	$ 3.36	$ 3.61	$ 3.75	$ 3.79	$ 3.71	$ 3.74	$ 3.75	$ 3.79	$ 3.79	$ 3.79	$ 3.81
High Growth Low Price	Rockies	2013-2014	$ 3.98	$ 4.09	$ 4.09	$ 4.10	$ 4.07	$ 3.90	$ 3.92	$ 3.94	$ 3.97	$ 3.99	$ 4.01	$ 4.04
High Growth Low Price	Rockies	2014-2015	$ 4.19	$ 4.22	$ 4.25	$ 4.26	$ 4.21	$ 4.07	$ 4.09	$ 4.11	$ 4.13	$ 4.16	$ 4.18	$ 4.21
High Growth Low Price	Rockies	2015-2016	$ 4.35	$ 4.39	$ 4.42	$ 4.43	$ 4.38	$ 4.29	$ 4.30	$ 4.32	$ 4.37	$ 4.39	$ 4.39	$ 4.42
High Growth Low Price	Rockies	2016-2017	$ 4.58	$ 4.59	$ 4.62	$ 4.64	$ 4.53	$ 4.47	$ 4.50	$ 4.52	$ 4.56	$ 4.58	$ 4.60	$ 4.63
High Growth Low Price	Rockies	2017-2018	$ 4.79	$ 4.84	$ 4.86	$ 4.89	$ 4.77	$ 4.72	$ 4.74	$ 4.76	$ 4.81	$ 4.84	$ 4.85	$ 4.88
High Growth Low Price	Rockies	2018-2019	$ 4.98	$ 5.05	$ 5.06	$ 5.08	$ 4.96	$ 4.87	$ 4.87	$ 4.90	$ 4.97	$ 4.99	$ 4.98	$ 5.00
High Growth Low Price	Rockies	2019-2020	$ 5.01	$ 5.07	$ 5.06	$ 5.09	$ 4.98	$ 4.86	$ 4.84	$ 4.86	$ 4.91	$ 4.93	$ 4.91	$ 4.96
High Growth Low Price	Rockies	2020-2021	$ 5.08	$ 5.16	$ 5.15	$ 5.18	$ 5.09	$ 4.95	$ 4.94	$ 4.97	$ 5.04	$ 5.05	$ 4.90	$ 4.94
High Growth Low Price	Rockies	2021-2022	$ 5.06	$ 5.13	$ 5.11	$ 5.14	$ 4.92	$ 4.79	$ 4.80	$ 4.83	$ 4.88	$ 4.90	$ 4.86	$ 4.89
High Growth Low Price	Rockies	2022-2023	$ 5.04	$ 5.11	$ 5.11	$ 5.14	$ 5.04	$ 4.89	$ 4.91	$ 4.93	$ 4.98	$ 5.01	$ 4.90	$ 4.93
High Growth Low Price	Rockies	2023-2024	$ 5.04	$ 5.11	$ 5.06	$ 5.09	$ 4.81	$ 4.74	$ 4.69	$ 4.71	$ 4.80	$ 4.83	$ 4.80	$ 4.85
High Growth Low Price	Rockies	2024-2025	$ 4.95	$ 5.05	$ 5.05	$ 5.08	$ 4.89	$ 4.70	$ 4.64	$ 4.66	$ 4.76	$ 4.79	$ 4.78	$ 4.84
High Growth Low Price	Rockies	2025-2026	$ 5.17	$ 5.27	$ 5.29	$ 5.32	$ 5.06	$ 4.96	$ 4.97	$ 5.00	$ 5.07	$ 5.10	$ 5.08	$ 5.10
High Growth Low Price	Rockies	2026-2027	$ 5.21	$ 5.29	$ 5.28	$ 5.30	$ 4.98	$ 4.87	$ 4.90	$ 4.92	$ 4.99	$ 5.01	$ 5.00	$ 5.02
High Growth Low Price	Rockies	2027-2028	$ 5.14	$ 5.22	$ 5.22	$ 5.23	$ 4.96	$ 4.88	$ 4.90	$ 4.93	$ 5.00	$ 5.03	$ 4.99	$ 5.01
High Growth Low Price	Rockies	2028-2029	$ 5.13	$ 5.23	$ 5.22	$ 5.25	$ 4.97	$ 4.89	$ 4.89	$ 4.92	$ 5.01	$ 5.04	$ 5.02	$ 5.04
High Growth Low Price	Rockies	2029-2030	$ 5.13	$ 5.22	$ 5.21	$ 5.24	$ 4.89	$ 4.83	$ 4.85	$ 4.88	$ 4.95	$ 4.97	$ 4.99	$ 5.02
High Growth Low Price	Rockies	2030-2031	$ 5.10	$ 5.21	$ 5.21	$ 5.25	$ 4.94	$ 4.90	$ 4.93	$ 4.96	$ 5.03	$ 5.05	$ 5.05	$ 5.08

APPENDIX 6.1 II MONTHLY PRICE DATA BY BASIN
HIGH GROWTH LOW PRICE

							2010$						
Scenario	**Index**	**Gas Year**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**
High Growth Low Price	Stanfield	2011-2012	$ 2.95	$ 2.97	$ 2.45	$ 2.97	$ 2.95	$ 2.48	$ 2.72	$ 2.86	$ 2.93	$ 2.81	$ 2.67	$ 2.79
High Growth Low Price	Stanfield	2012-2013	$ 3.24	$ 3.34	$ 3.58	$ 3.72	$ 3.78	$ 3.71	$ 3.74	$ 3.74	$ 3.78	$ 3.79	$ 3.75	$ 3.77
High Growth Low Price	Stanfield	2013-2014	$ 3.97	$ 4.07	$ 4.07	$ 4.08	$ 4.06	$ 3.89	$ 3.89	$ 3.92	$ 3.95	$ 3.97	$ 3.97	$ 3.99
High Growth Low Price	Stanfield	2014-2015	$ 4.16	$ 4.18	$ 4.22	$ 4.23	$ 4.20	$ 4.04	$ 4.04	$ 4.08	$ 4.11	$ 4.12	$ 4.13	$ 4.16
High Growth Low Price	Stanfield	2015-2016	$ 4.31	$ 4.34	$ 4.37	$ 4.39	$ 4.37	$ 4.23	$ 4.24	$ 4.27	$ 4.31	$ 4.33	$ 4.34	$ 4.37
High Growth Low Price	Stanfield	2016-2017	$ 4.54	$ 4.54	$ 4.57	$ 4.60	$ 4.53	$ 4.41	$ 4.44	$ 4.47	$ 4.50	$ 4.52	$ 4.54	$ 4.56
High Growth Low Price	Stanfield	2017-2018	$ 4.73	$ 4.77	$ 4.80	$ 4.83	$ 4.74	$ 4.64	$ 4.67	$ 4.70	$ 4.74	$ 4.77	$ 4.77	$ 4.80
High Growth Low Price	Stanfield	2018-2019	$ 4.92	$ 4.98	$ 5.12	$ 5.15	$ 4.92	$ 4.80	$ 4.81	$ 4.83	$ 4.90	$ 4.92	$ 4.90	$ 5.04
High Growth Low Price	Stanfield	2019-2020	$ 5.11	$ 5.07	$ 5.18	$ 5.21	$ 4.98	$ 4.84	$ 4.86	$ 4.90	$ 4.96	$ 4.98	$ 4.95	$ 4.97
High Growth Low Price	Stanfield	2020-2021	$ 5.11	$ 5.30	$ 5.33	$ 5.36	$ 5.12	$ 4.96	$ 4.98	$ 5.02	$ 5.08	$ 5.10	$ 5.00	$ 5.03
High Growth Low Price	Stanfield	2021-2022	$ 5.27	$ 5.34	$ 5.32	$ 5.36	$ 4.98	$ 4.86	$ 4.89	$ 4.92	$ 4.96	$ 4.99	$ 4.98	$ 5.01
High Growth Low Price	Stanfield	2022-2023	$ 5.30	$ 5.33	$ 5.37	$ 5.40	$ 5.15	$ 5.04	$ 5.07	$ 5.10	$ 5.13	$ 5.16	$ 5.07	$ 5.10
High Growth Low Price	Stanfield	2023-2024	$ 5.39	$ 5.43	$ 5.44	$ 5.47	$ 5.03	$ 4.93	$ 4.90	$ 4.96	$ 5.02	$ 5.05	$ 5.00	$ 5.05
High Growth Low Price	Stanfield	2024-2025	$ 5.35	$ 5.41	$ 5.42	$ 5.45	$ 5.16	$ 5.04	$ 4.99	$ 5.04	$ 5.11	$ 5.14	$ 5.08	$ 5.11
High Growth Low Price	Stanfield	2025-2026	$ 5.47	$ 5.52	$ 5.54	$ 5.57	$ 5.30	$ 5.06	$ 5.06	$ 5.11	$ 5.15	$ 5.17	$ 5.18	$ 5.21
High Growth Low Price	Stanfield	2026-2027	$ 5.51	$ 5.56	$ 5.57	$ 5.60	$ 5.25	$ 5.01	$ 5.01	$ 5.06	$ 5.09	$ 5.11	$ 5.13	$ 5.16
High Growth Low Price	Stanfield	2027-2028	$ 5.46	$ 5.53	$ 5.52	$ 5.56	$ 5.29	$ 5.05	$ 5.06	$ 5.10	$ 5.14	$ 5.16	$ 5.18	$ 5.20
High Growth Low Price	Stanfield	2028-2029	$ 5.52	$ 5.58	$ 5.59	$ 5.62	$ 5.37	$ 5.09	$ 5.10	$ 5.13	$ 5.17	$ 5.20	$ 5.22	$ 5.25
High Growth Low Price	Stanfield	2029-2030	$ 5.55	$ 5.62	$ 5.62	$ 5.65	$ 5.32	$ 5.08	$ 5.09	$ 5.13	$ 5.17	$ 5.20	$ 5.22	$ 5.28
High Growth Low Price	Stanfield	2030-2031	$ 5.58	$ 5.65	$ 5.67	$ 5.71	$ 5.42	$ 5.17	$ 5.31	$ 5.24	$ 5.28	$ 5.31	$ 5.33	$ 5.38
High Growth Low Price	Sumas	2011-2012	$ 3.10	$ 2.97	$ 2.48	$ 3.00	$ 2.95	$ 2.43	$ 2.59	$ 2.69	$ 2.79	$ 2.67	$ 2.53	$ 2.73
High Growth Low Price	Sumas	2012-2013	$ 3.44	$ 3.55	$ 3.79	$ 3.93	$ 3.87	$ 3.62	$ 3.58	$ 3.59	$ 3.63	$ 3.64	$ 3.61	$ 3.68
High Growth Low Price	Sumas	2013-2014	$ 4.17	$ 4.28	$ 4.29	$ 4.30	$ 4.15	$ 3.75	$ 3.73	$ 3.77	$ 3.79	$ 3.80	$ 3.76	$ 3.80
High Growth Low Price	Sumas	2014-2015	$ 4.38	$ 4.41	$ 4.45	$ 4.46	$ 4.29	$ 3.89	$ 3.88	$ 3.93	$ 3.96	$ 3.95	$ 3.92	$ 3.94
High Growth Low Price	Sumas	2015-2016	$ 4.54	$ 4.57	$ 4.61	$ 4.63	$ 4.46	$ 4.06	$ 4.06	$ 4.10	$ 4.13	$ 4.13	$ 4.12	$ 4.13
High Growth Low Price	Sumas	2016-2017	$ 4.77	$ 4.78	$ 4.81	$ 4.84	$ 4.62	$ 4.20	$ 4.24	$ 4.27	$ 4.30	$ 4.31	$ 4.31	$ 4.32
High Growth Low Price	Sumas	2017-2018	$ 4.98	$ 5.02	$ 5.05	$ 5.08	$ 4.59	$ 4.41	$ 4.45	$ 4.49	$ 4.52	$ 4.54	$ 4.53	$ 4.54
High Growth Low Price	Sumas	2018-2019	$ 4.94	$ 5.24	$ 5.27	$ 5.30	$ 4.88	$ 4.69	$ 4.70	$ 4.66	$ 4.69	$ 4.69	$ 4.62	$ 4.65
High Growth Low Price	Sumas	2019-2020	$ 4.77	$ 4.83	$ 5.33	$ 5.36	$ 4.98	$ 4.75	$ 4.73	$ 4.74	$ 4.81	$ 4.82	$ 4.76	$ 4.78
High Growth Low Price	Sumas	2020-2021	$ 5.14	$ 5.34	$ 5.38	$ 5.41	$ 5.26	$ 4.85	$ 4.78	$ 4.80	$ 4.93	$ 4.90	$ 4.70	$ 4.81
High Growth Low Price	Sumas	2021-2022	$ 5.32	$ 5.39	$ 5.42	$ 5.46	$ 5.13	$ 4.74	$ 4.68	$ 4.68	$ 4.79	$ 4.79	$ 4.71	$ 4.84
High Growth Low Price	Sumas	2022-2023	$ 5.35	$ 5.38	$ 5.42	$ 5.45	$ 5.30	$ 4.92	$ 4.87	$ 4.88	$ 4.99	$ 4.96	$ 4.78	$ 4.88
High Growth Low Price	Sumas	2023-2024	$ 5.44	$ 5.48	$ 5.51	$ 5.52	$ 5.18	$ 4.79	$ 4.70	$ 4.73	$ 4.84	$ 4.82	$ 4.74	$ 4.87
High Growth Low Price	Sumas	2024-2025	$ 5.40	$ 5.46	$ 5.49	$ 5.53	$ 5.31	$ 4.89	$ 4.79	$ 4.80	$ 4.99	$ 4.92	$ 4.81	$ 4.94
High Growth Low Price	Sumas	2025-2026	$ 5.52	$ 5.57	$ 5.61	$ 5.64	$ 5.35	$ 4.92	$ 4.84	$ 4.74	$ 5.02	$ 4.96	$ 4.90	$ 5.04
High Growth Low Price	Sumas	2026-2027	$ 5.56	$ 5.63	$ 5.67	$ 5.70	$ 5.30	$ 4.86	$ 4.80	$ 4.67	$ 4.96	$ 4.91	$ 4.86	$ 4.98
High Growth Low Price	Sumas	2027-2028	$ 5.51	$ 5.59	$ 5.62	$ 5.66	$ 5.34	$ 4.90	$ 4.86	$ 4.71	$ 5.01	$ 4.97	$ 4.88	$ 5.03
High Growth Low Price	Sumas	2028-2029	$ 5.57	$ 5.76	$ 5.80	$ 5.83	$ 5.42	$ 4.94	$ 4.89	$ 4.74	$ 5.04	$ 5.06	$ 4.97	$ 5.08
High Growth Low Price	Sumas	2029-2030	$ 5.60	$ 5.81	$ 5.84	$ 5.87	$ 5.37	$ 4.92	$ 4.86	$ 4.72	$ 5.04	$ 5.05	$ 5.03	$ 5.09
High Growth Low Price	Sumas	2030-2031	$ 5.63	$ 5.97	$ 6.01	$ 6.04	$ 5.47	$ 5.02	$ 4.96	$ 4.84	$ 5.15	$ 5.16	$ 5.13	$ 5.20

APPENDIX 6.1 II MONTHLY PRICE DATA BY BASIN
LOW GROWTH HIGH PRICE

							2010$						
Scenario	**Index**	**Gas Year**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**
Low Growth High Price	AECo	2011-2012	$ 3.13	$ 2.97	$ 2.49	$ 2.59	$ 3.99	$ 3.92	$ 3.87	$ 3.94	$ 3.98	$ 3.99	$ 4.04	$ 4.08
Low Growth High Price	AECo	2012-2013	$ 4.39	$ 4.63	$ 5.08	$ 5.05	$ 5.04	$ 4.81	$ 4.78	$ 4.80	$ 4.83	$ 4.86	$ 4.89	$ 4.94
Low Growth High Price	AECo	2013-2014	$ 5.24	$ 5.46	$ 6.02	$ 5.99	$ 6.00	$ 5.66	$ 5.60	$ 5.65	$ 5.67	$ 5.69	$ 5.71	$ 5.76
Low Growth High Price	AECo	2014-2015	$ 6.11	$ 6.36	$ 7.14	$ 7.10	$ 7.05	$ 6.69	$ 6.67	$ 6.73	$ 6.76	$ 6.77	$ 6.76	$ 6.80
Low Growth High Price	AECo	2015-2016	$ 7.21	$ 7.46	$ 7.57	$ 7.53	$ 7.50	$ 7.10	$ 7.10	$ 7.12	$ 7.15	$ 7.17	$ 7.21	$ 7.26
Low Growth High Price	AECo	2016-2017	$ 7.63	$ 7.93	$ 8.15	$ 8.10	$ 8.06	$ 7.58	$ 7.60	$ 7.61	$ 7.62	$ 7.64	$ 7.73	$ 7.78
Low Growth High Price	AECo	2017-2018	$ 7.79	$ 8.11	$ 8.35	$ 8.30	$ 8.25	$ 7.78	$ 7.80	$ 7.83	$ 7.79	$ 7.83	$ 7.91	$ 7.99
Low Growth High Price	AECo	2018-2019	$ 8.00	$ 8.37	$ 8.58	$ 8.54	$ 8.51	$ 8.00	$ 8.02	$ 8.05	$ 7.99	$ 8.03	$ 8.11	$ 8.25
Low Growth High Price	AECo	2019-2020	$ 8.23	$ 8.61	$ 8.85	$ 8.80	$ 8.73	$ 8.23	$ 8.24	$ 8.24	$ 8.21	$ 8.25	$ 8.37	$ 8.49
Low Growth High Price	AECo	2020-2021	$ 8.48	$ 8.89	$ 9.10	$ 9.05	$ 9.00	$ 8.50	$ 8.51	$ 8.49	$ 8.48	$ 8.52	$ 8.66	$ 8.78
Low Growth High Price	AECo	2021-2022	$ 8.77	$ 9.16	$ 9.36	$ 9.31	$ 9.22	$ 8.72	$ 8.74	$ 8.76	$ 8.73	$ 8.78	$ 8.94	$ 9.02
Low Growth High Price	AECo	2022-2023	$ 9.05	$ 9.35	$ 9.55	$ 9.49	$ 9.44	$ 8.95	$ 8.98	$ 8.96	$ 8.95	$ 9.01	$ 9.15	$ 9.23
Low Growth High Price	AECo	2023-2024	$ 9.21	$ 9.61	$ 9.90	$ 9.84	$ 9.82	$ 9.33	$ 9.33	$ 9.36	$ 9.32	$ 9.38	$ 9.46	$ 9.59
Low Growth High Price	AECo	2024-2025	$ 9.58	$ 9.94	$ 10.13	$ 10.07	$ 10.06	$ 9.54	$ 9.53	$ 9.56	$ 9.55	$ 9.60	$ 9.68	$ 9.82
Low Growth High Price	AECo	2025-2026	$ 9.89	$ 10.28	$ 10.78	$ 10.71	$ 10.67	$ 10.13	$ 10.15	$ 10.15	$ 10.14	$ 10.20	$ 10.35	$ 10.48
Low Growth High Price	AECo	2026-2027	$ 10.48	$ 10.91	$ 11.29	$ 11.24	$ 11.19	$ 10.64	$ 10.65	$ 10.65	$ 10.62	$ 10.69	$ 10.88	$ 10.99
Low Growth High Price	AECo	2027-2028	$ 11.00	$ 11.45	$ 11.93	$ 11.88	$ 11.81	$ 11.20	$ 11.22	$ 11.23	$ 11.19	$ 11.26	$ 11.51	$ 11.60
Low Growth High Price	AECo	2028-2029	$ 11.62	$ 12.08	$ 12.56	$ 12.48	$ 12.46	$ 11.80	$ 11.81	$ 11.81	$ 11.80	$ 11.87	$ 12.00	$ 12.18
Low Growth High Price	AECo	2029-2030	$ 12.20	$ 12.69	$ 13.27	$ 13.20	$ 13.16	$ 12.50	$ 12.51	$ 12.51	$ 12.50	$ 12.57	$ 12.73	$ 12.89
Low Growth High Price	AECo	2030-2031	$ 12.90	$ 13.45	$ 13.30	$ 13.23	$ 13.17	$ 12.50	$ 12.51	$ 12.55	$ 12.51	$ 12.59	$ 12.76	$ 12.94
Low Growth High Price	Malin	2011-2012	$ 3.24	$ 3.22	$ 2.67	$ 2.77	$ 4.16	$ 4.06	$ 4.17	$ 4.25	$ 4.29	$ 4.31	$ 4.36	$ 4.40
Low Growth High Price	Malin	2012-2013	$ 4.69	$ 4.95	$ 5.39	$ 5.37	$ 5.33	$ 5.09	$ 5.09	$ 5.12	$ 5.15	$ 5.18	$ 5.21	$ 5.27
Low Growth High Price	Malin	2013-2014	$ 5.54	$ 5.80	$ 6.36	$ 6.33	$ 6.29	$ 5.95	$ 5.95	$ 5.98	$ 6.01	$ 6.05	$ 6.08	$ 6.14
Low Growth High Price	Malin	2014-2015	$ 6.46	$ 6.73	$ 7.51	$ 7.46	$ 7.35	$ 7.00	$ 7.00	$ 7.03	$ 7.05	$ 7.10	$ 7.14	$ 7.21
Low Growth High Price	Malin	2015-2016	$ 7.58	$ 7.88	$ 7.99	$ 7.95	$ 7.81	$ 7.47	$ 7.46	$ 7.46	$ 7.51	$ 7.56	$ 7.62	$ 7.69
Low Growth High Price	Malin	2016-2017	$ 8.05	$ 8.37	$ 8.59	$ 8.55	$ 8.38	$ 7.99	$ 7.99	$ 8.00	$ 8.01	$ 8.06	$ 8.16	$ 8.23
Low Growth High Price	Malin	2017-2018	$ 8.27	$ 8.60	$ 8.81	$ 8.77	$ 8.60	$ 8.23	$ 8.23	$ 8.24	$ 8.23	$ 8.28	$ 8.39	$ 8.49
Low Growth High Price	Malin	2018-2019	$ 8.49	$ 8.87	$ 9.06	$ 9.01	$ 8.87	$ 8.44	$ 8.41	$ 8.44	$ 8.44	$ 8.49	$ 8.61	$ 8.76
Low Growth High Price	Malin	2019-2020	$ 8.72	$ 9.12	$ 9.25	$ 9.21	$ 9.07	$ 8.59	$ 8.61	$ 8.59	$ 8.62	$ 8.68	$ 8.84	$ 8.97
Low Growth High Price	Malin	2020-2021	$ 8.95	$ 9.35	$ 9.54	$ 9.49	$ 9.34	$ 8.84	$ 8.86	$ 8.83	$ 8.86	$ 8.91	$ 9.17	$ 9.31
Low Growth High Price	Malin	2021-2022	$ 9.26	$ 9.68	$ 9.82	$ 9.77	$ 9.57	$ 9.11	$ 9.13	$ 9.14	$ 9.12	$ 9.20	$ 9.41	$ 9.52
Low Growth High Price	Malin	2022-2023	$ 9.53	$ 9.85	$ 10.03	$ 9.98	$ 9.79	$ 9.35	$ 9.35	$ 9.32	$ 9.34	$ 9.40	$ 9.63	$ 9.75
Low Growth High Price	Malin	2023-2024	$ 9.76	$ 10.17	$ 10.40	$ 10.35	$ 10.21	$ 9.78	$ 9.71	$ 9.74	$ 9.75	$ 9.81	$ 9.90	$ 10.08
Low Growth High Price	Malin	2024-2025	$ 10.12	$ 10.51	$ 10.65	$ 10.60	$ 10.48	$ 10.00	$ 9.92	$ 9.94	$ 9.96	$ 10.02	$ 10.15	$ 10.33
Low Growth High Price	Malin	2025-2026	$ 10.43	$ 10.84	$ 11.29	$ 11.23	$ 11.08	$ 10.58	$ 10.58	$ 10.56	$ 10.57	$ 10.64	$ 10.84	$ 11.00
Low Growth High Price	Malin	2026-2027	$ 11.02	$ 11.47	$ 11.81	$ 11.76	$ 11.61	$ 11.10	$ 11.09	$ 11.08	$ 11.07	$ 11.14	$ 11.38	$ 11.52
Low Growth High Price	Malin	2027-2028	$ 11.52	$ 12.00	$ 12.43	$ 12.38	$ 12.21	$ 11.64	$ 11.65	$ 11.66	$ 11.62	$ 11.70	$ 12.03	$ 12.14
Low Growth High Price	Malin	2028-2029	$ 12.14	$ 12.62	$ 13.07	$ 13.00	$ 12.87	$ 12.26	$ 12.26	$ 12.26	$ 12.25	$ 12.33	$ 12.50	$ 12.71
Low Growth High Price	Malin	2029-2030	$ 12.70	$ 13.24	$ 13.77	$ 13.71	$ 13.58	$ 12.98	$ 12.98	$ 12.97	$ 12.95	$ 13.04	$ 13.23	$ 13.44
Low Growth High Price	Malin	2030-2031	$ 13.43	$ 13.98	$ 13.82	$ 13.75	$ 13.58	$ 12.97	$ 12.98	$ 12.99	$ 12.98	$ 13.06	$ 13.28	$ 13.48
Low Growth High Price	Rockies	2011-2012	$ 3.14	$ 3.18	$ 2.63	$ 2.73	$ 4.13	$ 4.03	$ 4.10	$ 4.18	$ 4.21	$ 4.24	$ 4.28	$ 4.33
Low Growth High Price	Rockies	2012-2013	$ 4.61	$ 4.86	$ 5.31	$ 5.29	$ 5.24	$ 5.01	$ 5.02	$ 5.04	$ 5.08	$ 5.10	$ 5.13	$ 5.19
Low Growth High Price	Rockies	2013-2014	$ 5.46	$ 5.72	$ 6.27	$ 6.24	$ 6.21	$ 5.87	$ 5.87	$ 5.91	$ 5.93	$ 5.97	$ 6.00	$ 6.05
Low Growth High Price	Rockies	2014-2015	$ 6.37	$ 6.64	$ 7.42	$ 7.37	$ 7.26	$ 6.92	$ 6.92	$ 6.95	$ 6.97	$ 7.02	$ 7.06	$ 7.12
Low Growth High Price	Rockies	2015-2016	$ 7.49	$ 7.79	$ 7.90	$ 7.86	$ 7.72	$ 7.38	$ 7.38	$ 7.38	$ 7.43	$ 7.48	$ 7.53	$ 7.61
Low Growth High Price	Rockies	2016-2017	$ 7.96	$ 8.28	$ 8.50	$ 8.46	$ 8.29	$ 7.91	$ 7.91	$ 7.92	$ 7.93	$ 7.97	$ 8.08	$ 8.15
Low Growth High Price	Rockies	2017-2018	$ 8.18	$ 8.51	$ 8.72	$ 8.67	$ 8.51	$ 8.15	$ 8.14	$ 8.16	$ 8.14	$ 8.19	$ 8.30	$ 8.40
Low Growth High Price	Rockies	2018-2019	$ 8.40	$ 8.77	$ 8.96	$ 8.91	$ 8.78	$ 8.35	$ 8.33	$ 8.35	$ 8.33	$ 8.39	$ 8.52	$ 8.67
Low Growth High Price	Rockies	2019-2020	$ 8.57	$ 8.96	$ 9.13	$ 9.07	$ 8.95	$ 8.48	$ 8.44	$ 8.42	$ 8.41	$ 8.45	$ 8.62	$ 8.78
Low Growth High Price	Rockies	2020-2021	$ 8.77	$ 9.20	$ 9.37	$ 9.31	$ 9.21	$ 8.72	$ 8.69	$ 8.65	$ 8.67	$ 8.71	$ 8.89	$ 9.03
Low Growth High Price	Rockies	2021-2022	$ 9.03	$ 9.45	$ 9.61	$ 9.55	$ 9.39	$ 8.89	$ 8.88	$ 8.89	$ 8.88	$ 8.94	$ 9.10	$ 9.22
Low Growth High Price	Rockies	2022-2023	$ 9.25	$ 9.60	$ 9.77	$ 9.71	$ 9.57	$ 9.05	$ 9.05	$ 9.00	$ 9.01	$ 9.07	$ 9.27	$ 9.38
Low Growth High Price	Rockies	2023-2024	$ 9.36	$ 9.80	$ 10.02	$ 9.96	$ 9.86	$ 9.42	$ 9.35	$ 9.33	$ 9.36	$ 9.42	$ 9.51	$ 9.69
Low Growth High Price	Rockies	2024-2025	$ 9.67	$ 10.10	$ 10.27	$ 10.21	$ 10.07	$ 9.50	$ 9.41	$ 9.41	$ 9.44	$ 9.50	$ 9.67	$ 9.87
Low Growth High Price	Rockies	2025-2026	$ 10.08	$ 10.55	$ 11.04	$ 10.97	$ 10.83	$ 10.32	$ 10.32	$ 10.28	$ 10.32	$ 10.39	$ 10.55	$ 10.71
Low Growth High Price	Rockies	2026-2027	$ 10.70	$ 11.17	$ 11.52	$ 11.46	$ 11.33	$ 10.80	$ 10.81	$ 10.78	$ 10.79	$ 10.86	$ 11.06	$ 11.20
Low Growth High Price	Rockies	2027-2028	$ 11.16	$ 11.67	$ 12.12	$ 12.05	$ 11.87	$ 11.33	$ 11.33	$ 11.32	$ 11.32	$ 11.39	$ 11.64	$ 11.75
Low Growth High Price	Rockies	2028-2029	$ 11.73	$ 12.25	$ 12.70	$ 12.62	$ 12.47	$ 11.91	$ 11.88	$ 11.88	$ 11.91	$ 11.98	$ 12.11	$ 12.31
Low Growth High Price	Rockies	2029-2030	$ 12.27	$ 12.82	$ 13.35	$ 13.29	$ 13.13	$ 12.56	$ 12.57	$ 12.55	$ 12.55	$ 12.63	$ 12.81	$ 12.99
Low Growth High Price	Rockies	2030-2031	$ 12.93	$ 13.53	$ 13.35	$ 13.28	$ 13.10	$ 12.54	$ 12.55	$ 12.54	$ 12.54	$ 12.62	$ 12.80	$ 13.00

APPENDIX 6.1 II MONTHLY PRICE DATA BY BASIN
LOW GROWTH HIGH PRICE

2010$

Scenario	Index	Gas Year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Low Growth High Price	Stanfield	2011-2012	$ 3.18	$ 3.22	$ 2.64	$ 2.74	$ 4.05	$ 4.03	$ 4.10	$ 4.17	$ 4.21	$ 4.23	$ 4.25	$ 4.29
Low Growth High Price	Stanfield	2012-2013	$ 4.59	$ 4.85	$ 5.28	$ 5.26	$ 5.24	$ 5.00	$ 5.01	$ 5.04	$ 5.07	$ 5.10	$ 5.10	$ 5.15
Low Growth High Price	Stanfield	2013-2014	$ 5.45	$ 5.69	$ 6.25	$ 6.22	$ 6.20	$ 5.86	$ 5.84	$ 5.89	$ 5.91	$ 5.95	$ 5.95	$ 6.01
Low Growth High Price	Stanfield	2014-2015	$ 6.34	$ 6.60	$ 7.39	$ 7.35	$ 7.26	$ 6.89	$ 6.88	$ 6.92	$ 6.95	$ 6.98	$ 7.01	$ 7.07
Low Growth High Price	Stanfield	2015-2016	$ 7.45	$ 7.74	$ 7.86	$ 7.82	$ 7.72	$ 7.33	$ 7.33	$ 7.33	$ 7.38	$ 7.42	$ 7.48	$ 7.55
Low Growth High Price	Stanfield	2016-2017	$ 7.91	$ 8.23	$ 8.45	$ 8.41	$ 8.28	$ 7.85	$ 7.85	$ 7.86	$ 7.87	$ 7.91	$ 8.01	$ 8.08
Low Growth High Price	Stanfield	2017-2018	$ 8.12	$ 8.44	$ 8.66	$ 8.62	$ 8.48	$ 8.07	$ 8.07	$ 8.09	$ 8.07	$ 8.12	$ 8.22	$ 8.31
Low Growth High Price	Stanfield	2018-2019	$ 8.33	$ 8.71	$ 9.03	$ 8.99	$ 8.74	$ 8.28	$ 8.27	$ 8.29	$ 8.27	$ 8.32	$ 8.43	$ 8.70
Low Growth High Price	Stanfield	2019-2020	$ 8.67	$ 8.95	$ 9.24	$ 9.20	$ 8.95	$ 8.46	$ 8.46	$ 8.45	$ 8.46	$ 8.50	$ 8.66	$ 8.79
Low Growth High Price	Stanfield	2020-2021	$ 8.80	$ 9.33	$ 9.54	$ 9.49	$ 9.23	$ 8.72	$ 8.73	$ 8.70	$ 8.71	$ 8.75	$ 8.99	$ 9.12
Low Growth High Price	Stanfield	2021-2022	$ 9.24	$ 9.66	$ 9.82	$ 9.77	$ 9.46	$ 8.96	$ 8.97	$ 8.99	$ 8.97	$ 9.03	$ 9.23	$ 9.34
Low Growth High Price	Stanfield	2022-2023	$ 9.51	$ 9.82	$ 10.02	$ 9.97	$ 9.67	$ 9.20	$ 9.20	$ 9.17	$ 9.17	$ 9.22	$ 9.44	$ 9.56
Low Growth High Price	Stanfield	2023-2024	$ 9.71	$ 10.11	$ 10.39	$ 10.34	$ 10.08	$ 9.61	$ 9.56	$ 9.58	$ 9.58	$ 9.64	$ 9.72	$ 9.89
Low Growth High Price	Stanfield	2024-2025	$ 10.07	$ 10.46	$ 10.64	$ 10.58	$ 10.35	$ 9.83	$ 9.76	$ 9.79	$ 9.79	$ 9.85	$ 9.96	$ 10.14
Low Growth High Price	Stanfield	2025-2026	$ 10.38	$ 10.80	$ 11.28	$ 11.22	$ 11.07	$ 10.43	$ 10.41	$ 10.40	$ 10.40	$ 10.46	$ 10.65	$ 10.81
Low Growth High Price	Stanfield	2026-2027	$ 10.99	$ 11.44	$ 11.81	$ 11.76	$ 11.60	$ 10.94	$ 10.92	$ 10.91	$ 10.89	$ 10.96	$ 11.19	$ 11.33
Low Growth High Price	Stanfield	2027-2028	$ 11.49	$ 11.97	$ 12.43	$ 12.37	$ 12.20	$ 11.49	$ 11.48	$ 11.49	$ 11.45	$ 11.52	$ 11.84	$ 11.95
Low Growth High Price	Stanfield	2028-2029	$ 12.11	$ 12.60	$ 13.06	$ 12.99	$ 12.87	$ 12.10	$ 12.09	$ 12.09	$ 12.07	$ 12.15	$ 12.31	$ 12.52
Low Growth High Price	Stanfield	2029-2030	$ 12.69	$ 13.22	$ 13.76	$ 13.70	$ 13.57	$ 12.82	$ 12.81	$ 12.80	$ 12.77	$ 12.85	$ 13.04	$ 13.25
Low Growth High Price	Stanfield	2030-2031	$ 13.41	$ 13.97	$ 13.81	$ 13.74	$ 13.58	$ 12.81	$ 12.93	$ 12.83	$ 12.80	$ 12.88	$ 13.08	$ 13.29
Low Growth High Price	Sumas	2011-2012	$ 3.32	$ 3.21	$ 2.67	$ 2.77	$ 4.06	$ 3.97	$ 3.97	$ 4.01	$ 4.08	$ 4.09	$ 4.10	$ 4.22
Low Growth High Price	Sumas	2012-2013	$ 4.79	$ 5.05	$ 5.49	$ 5.47	$ 5.32	$ 4.92	$ 4.86	$ 4.88	$ 4.92	$ 4.95	$ 4.96	$ 5.06
Low Growth High Price	Sumas	2013-2014	$ 5.64	$ 5.90	$ 6.47	$ 6.44	$ 6.29	$ 5.72	$ 5.69	$ 5.73	$ 5.76	$ 5.78	$ 5.74	$ 5.82
Low Growth High Price	Sumas	2014-2015	$ 6.56	$ 6.83	$ 7.62	$ 7.58	$ 7.35	$ 6.74	$ 6.71	$ 6.77	$ 6.80	$ 6.82	$ 6.80	$ 6.85
Low Growth High Price	Sumas	2015-2016	$ 7.68	$ 7.97	$ 8.09	$ 8.05	$ 7.81	$ 7.16	$ 7.14	$ 7.17	$ 7.20	$ 7.22	$ 7.26	$ 7.32
Low Growth High Price	Sumas	2016-2017	$ 8.15	$ 8.47	$ 8.69	$ 8.65	$ 8.37	$ 7.64	$ 7.65	$ 7.67	$ 7.67	$ 7.70	$ 7.78	$ 7.84
Low Growth High Price	Sumas	2017-2018	$ 8.37	$ 8.69	$ 8.91	$ 8.87	$ 8.33	$ 7.84	$ 7.86	$ 7.88	$ 7.85	$ 7.89	$ 7.98	$ 8.06
Low Growth High Price	Sumas	2018-2019	$ 8.36	$ 8.96	$ 9.18	$ 9.13	$ 8.70	$ 8.17	$ 8.16	$ 8.11	$ 8.05	$ 8.08	$ 8.16	$ 8.32
Low Growth High Price	Sumas	2019-2020	$ 8.34	$ 8.72	$ 9.39	$ 9.35	$ 8.95	$ 8.37	$ 8.33	$ 8.30	$ 8.31	$ 8.34	$ 8.47	$ 8.61
Low Growth High Price	Sumas	2020-2021	$ 8.83	$ 9.38	$ 9.59	$ 9.54	$ 9.38	$ 8.62	$ 8.52	$ 8.48	$ 8.56	$ 8.56	$ 8.68	$ 8.91
Low Growth High Price	Sumas	2021-2022	$ 9.29	$ 9.71	$ 9.92	$ 9.87	$ 9.61	$ 8.85	$ 8.77	$ 8.75	$ 8.80	$ 8.83	$ 8.96	$ 9.18
Low Growth High Price	Sumas	2022-2023	$ 9.56	$ 9.87	$ 10.07	$ 10.02	$ 9.82	$ 9.08	$ 9.01	$ 8.95	$ 9.02	$ 9.02	$ 9.14	$ 9.34
Low Growth High Price	Sumas	2023-2024	$ 9.76	$ 10.16	$ 10.47	$ 10.39	$ 10.23	$ 9.47	$ 9.36	$ 9.35	$ 9.40	$ 9.41	$ 9.46	$ 9.71
Low Growth High Price	Sumas	2024-2025	$ 10.12	$ 10.51	$ 10.71	$ 10.65	$ 10.50	$ 9.69	$ 9.57	$ 9.55	$ 9.66	$ 9.63	$ 9.70	$ 9.97
Low Growth High Price	Sumas	2025-2026	$ 10.43	$ 10.85	$ 11.35	$ 11.29	$ 11.12	$ 10.28	$ 10.19	$ 10.03	$ 10.27	$ 10.25	$ 10.38	$ 10.64
Low Growth High Price	Sumas	2026-2027	$ 11.04	$ 11.51	$ 11.91	$ 11.85	$ 11.65	$ 10.79	$ 10.71	$ 10.52	$ 10.76	$ 10.76	$ 10.92	$ 11.16
Low Growth High Price	Sumas	2027-2028	$ 11.54	$ 12.03	$ 12.52	$ 12.47	$ 12.25	$ 11.35	$ 11.28	$ 11.11	$ 11.33	$ 11.33	$ 11.54	$ 11.77
Low Growth High Price	Sumas	2028-2029	$ 12.16	$ 12.79	$ 13.27	$ 13.21	$ 12.92	$ 11.95	$ 11.88	$ 11.69	$ 11.94	$ 12.00	$ 12.06	$ 12.35
Low Growth High Price	Sumas	2029-2030	$ 12.74	$ 13.40	$ 13.98	$ 13.92	$ 13.62	$ 12.66	$ 12.58	$ 12.39	$ 12.64	$ 12.70	$ 12.85	$ 13.07
Low Growth High Price	Sumas	2030-2031	$ 13.46	$ 14.29	$ 14.15	$ 14.08	$ 13.63	$ 12.66	$ 12.58	$ 12.43	$ 12.66	$ 12.73	$ 12.88	$ 13.11

APPENDIX 6.2 ▮ WEIGHTED AVERAGE COST OF CAPITAL

Avista Corporation Capital Structure and Overall Rate of Return

OREGON

Cost of Capital as of	Amount	Percent of Total	Cost	Component	After Tax Component
L/T Debt		50.00%	5.90%	2.95%	1.92%
Trust Preferred Securities		0.00%	0.00%	0.00%	
Common Equity		50.00%	10.10%	5.05%	5.05%
TOTAL		**100.00%**		**8.00%**	**6.97%**

WASHINGTON

Agreed-upon Cost of Capital		Percent of Total Capital	Cost	Component	After Tax Component
L/T Debt		53.50%	5.93%	3.17%	2.06%
Trust Preferred Securities				0.00%	
Common Equity		46.50%	10.20%	4.74%	4.74%
TOTAL		**100.00%**		**7.92%**	**6.81%**

IDAHO

Agreed-upon Cost of Capital	Amount	Percent of Total Capital	Cost	Component	After Tax Component
L/T Debt (1)		50.00%	6.60%	3.30%	2.15%
Trust Preferred Securities				0.00%	
Preferred Stock				0.00%	0.00%
Common Equity		50.00%	10.50%	5.25%	5.25%
TOTAL		**100.00%**		**8.55%**	**7.40%**

Rate Base from Commission Basis Reports

OR	$	141,728,000	31%
WA	$	205,507,000	45%
ID	$	107,759,000	24%
	$	454,994,000	

System Weighted Average Cost of Capital (Nominal$)*	8.09%	7.00%
GDP price deflator	1.56%	1.56%
After Tax WACC	6.43%	**5.35%**

*Weighting based on Commission Basis Reports
**Tax rate applied to L/T Debt 35%

APPENDIX 6.2 II AUTHORIZED RATES OF RETURN

Washington Electric
General Case Settlement in 2008 (UE-080416)
effective 1/1/2009

Component	Capital Structure	ProForma Cost	ProForma Weighted Cost
L/T Debt (1)	53.70%	6.51%	3.50%
Pref Trust			0.00%
Common	46.30%	10.20%	4.72%
Total	100.00%		8.22%

(1) includes short-term debt

Washington Gas
General Case Settlement in 2008 (UG-080417)
effective 1/1/2009

Component	Capital Structure	ProForma Cost	ProForma Weighted Cost
L/T Debt (1)	53.70%	6.51%	3.50%
Pref Trust			0.00%
Common	46.30%	10.20%	4.72%
Total	100.00%		8.22%

(1) includes short-term debt

Idaho Electric
Case Decided in 2008-AVU-E-08-01
effective 10/1/2008

Component	Capital Structure	ProForma Cost	ProForma Weighted Cost
L/T Debt	52.06%	6.84%	3.56%
Pref Trust			0.00%
Pref Stock			0.00%
Common	47.94%	10.20%	4.89%
Total	100.00%		8.45%

(excludes short-term debt)

Idaho Gas
Case Decided in 2008-AVU-G-08-01
effective 10/1/2008

Component	Capital Structure	ProForma Cost	ProForma Weighted Cost
L/T Debt	52.06%	6.84%	3.56%
Pref Trust			0.00%
Pref Stock			0.00%
Common	47.94%	10.20%	4.89%
Total	100.00%		8.45%

(excludes short-term debt)

Oregon Gas
General Case Settlement in 2007 (UG-181)
effective 4/1/2008

Component	Capital Structure	ProForma Cost	ProForma Weighted Cost
L/T Debt	45.00%	6.40%	2.88%
Pref Trust	5.00%	6.57%	0.33%
Common	50.00%	10.00%	5.00%
Total	100.00%		8.21%

(excludes short-term debt)

APPENDIX 6.2 II ESCALATION/INFLATION FORECASTS

Implicit Price Deflators — U. S. Average 5/20/2011
Source: Randy Barcus, Finance--Analysis, Budget & Forecasting
Discount Rate: Levelizing is Not Applicable to Escalation Rates

Year	E1 Gross Domestic Product (% change)	E2 Personal Consumption Expenditures (% change)	E3 Power Equipment Investment (% change)	E4 Consumer Price Index-Urban (% change)
1996	1.9	2.2	1.6	2.9
1997	1.7	1.7	2.1	2.3
1998	1.1	0.9	1.9	1.5
1999	1.4	1.7	1.6	2.2
2000	2.2	2.5	4.1	3.4
2001	2.3	1.9	2.8	2.8
2002	1.6	1.4	2.7	1.6
2003	2.2	2.0	2.3	2.3
2004	2.8	2.6	8.3	2.7
2005	3.3	3.0	9.3	3.4
2006	3.3	2.7	6.1	3.2
2007	2.9	2.7	4.7	2.9
2008	2.2	3.3	9.4	3.8
2009	0.9	0.2	-0.7	-0.3
2010	1.0	1.7	1.0	1.6
2011	1.3	1.4	3.5	1.9
2012	1.3	1.5	1.6	1.7
2013	1.6	1.7	2.2	1.9
2014	1.8	2.0	3.0	2.2
2015	1.8	2.1	3.0	2.2
2016	1.8	2.0	2.8	2.1
2017	1.8	2.0	2.9	2.1
2018	1.8	2.1	2.9	2.1
2019	1.8	1.9	2.8	2.0
2020	1.8	1.9	2.8	1.9
2021	1.8	1.9	2.7	1.9
2022	1.7	1.8	2.6	1.9
2023	1.7	1.8	2.4	1.9
2024	1.7	1.9	2.5	2.0
2025	1.7	1.9	2.5	2.0
2026	1.8	2.0	2.5	2.0
2027	1.8	2.0	2.6	2.1
2028	1.8	2.0	2.6	2.1
2029	1.8	2.0	2.6	2.1
2030	1.8	2.0	2.5	2.1
2031	1.8	2.0	2.6	2.0
2032	1.8	2.0	2.6	2.0
2033	1.8	2.0	2.6	2.0
2034	1.8	2.0	2.5	2.0
2035	1.7	2.0	2.5	1.9
2036	1.7	2.0	2.4	2.0
2037	1.8	2.0	2.5	2.0
2038	1.8	2.1	2.6	2.1
2039	1.9	2.1	2.6	2.1
2040	1.8	2.1	2.5	2.1
2010-2040 Avg.	1.7	1.9	2.6	2.0
5 Year Avg.	1.6	1.7	2.6	2.0
10 Year Avg.	1.7	1.9	2.7	2.0
20 Year Avg.	1.7	1.9	2.6	2.0
25 Year Avg.	1.7	1.9	2.6	2.0
30 Year Avg.	1.7	1.9	2.6	2.0
Std. Dev.	1.0	1.0	1.5	1.0
	0.5	0.5	1.9	0.6

E1 Applies to inflation of all good & services produced & consumed in the U.S.
E2 Applies to inflation of goods & services consumed by individuals.
E3 Applies to inflation of non-residential power equipment
E4 For all urban consumers, applies to inflation of a fixed market basket of typical goods & services.

Reference: Global Insight's Review of the U.S. Economy First Quarter 2011

APPENDIX 6.2 II COST OF CAPITAL

Source: Damien Lysiak, Treasury Department 6/20/2011

Projected Long-Term Cost of Capital – Avista Utilities for Net Present Value Analysis

	Target Capital Structure	Component Cost		
Debt	50%	5.85%		2.93%
Common Equity	50%	10.90%	1	5.45%
Weighted Cost of Capital				8.38%

1: Based on Avista's WUTC 2011 rate case

Authorized Cost of Capital – Avista Utilities for Revenue Requirements Analysis Washington Elec/Gas Decided 2010

	Authorized Capital Structure	Component Cost	Component Return
Debt	53.50%	5.92%	3.17%
Common Equity	46.50%	10.20%	4.74%
Rate of Return			7.91%

Authorized Cost of Capital – Avista Utilities for Revenue Requirements Analysis Idaho Elec/Gas Decided

	Authorized Capital Structure	Component Cost	Component Return
Debt	50.00%	6.60%	3.30%
Common Equity	50.00%	10.50%	5.25%
Rate of Return			8.55%

APPENDIX 6.3 II POTENTIAL SUPPLY SIDE RESOURCE ADDITIONS

Additional Resources	Jurisdiction	Size	Cost/Rates	Availability	Modeled	Case(s)	Notes
Pipeline							
Capacity Release Recalls	WA/ID	28,000 Dth/d	NWPL fixed rate	2018	Yes	Expected/High	Recall prewously released capacity
		25,000 - 75,000					Currently available unsubscribed capacity from Kingsgate to
GTN Capacity	WA/ID	Dth/d	GTN rate	2013	Yes	Expected/High	Spokane
		25,000 - 50,000					Currently available unsubscribed capacity; requires expansion of
GTN Capacity	OR	Dth/d	GTN rate	2013	Yes	Expected/High	Medford Lateral
		25,000 - 50,000					Additional compression to allow more gas to flow from GTN mailine
GTN Medford Lateral Expansion	OR	Dth/d	GTN rate	2014	Yes	Expected/High	to the lateral
NWP Expansion	WA/ID	75,000 Dth/d	NWPL fixed rate x 3	2018	Yes	Expected/High	Transport expansion from Sumas/JP to WA/ID
NWP Expansion	OR	50,000 Dth/d	NWPL fixed rate x 5	2018	Yes	Expected/High	Transport expansion from Sumas/JP to Oregon
Statellite LNG							
		270,000 capacity;					
		90,000 delivery for					
WA/ID Satellite LNG	WA/ID	3 days	$132 million capital cost $1 million annual O&M	November 2018	Yes	Expected/High	
		135,000 capacity;					
		45,000 delivery for					
Medford/Roseburg Satellite LNG	OR	3 days	$66 million capital cost $850,000 annual O&M	November 2018	Yes	Expected/High	
		45,000 capacity;					
		15,000 delivery for					
Klamath Falls Satellite LNG	OR	3 days	$22 million capital cost $850,000 annual O&M	November 2018	Yes	Expected/High	
		45,000 capacity;					
		15,000 delivery for					
La Grande Satellite LNG	OR	3 days	$22 million capital cost $850,000 annual O&M	November 2018	Yes	Expected/High	
Company Owned Liquifaction LNG							
		600 MMcf					
		capacity; 150,000					
WA/ID	WA	delivery for 4 days	$75 million capital cost, $2 million annual O&M	November 2018	No		Considered and discussed but not taken to full cycle modeling.
Export LNG							
An Oregon Export LNG Facility plus pipeline build through Avista service territory	OR	25,000 Dth/d	Pipeline charge $1.00/Dth/d	November 2018	No		Considered and discussed but not taken to full cycle modeling.
Other Resources Considered							
Citygate deliveries	WA/ID/OR				No		Represents the ability to buy a delivered product fron another utility or marketer. Limited counterparties to structure transaction
Inground Storage							
California					No		Dependent on GTN backhaul or convert to bidirectional pipeline
							Dependent on NWP Expansion or other Tport arrangements back to
JP Expansion					No		service territory
							Dependent on NWP Expansion or other Tport arrangements back to
Mist					No		service territory; Long term subscription may not be available

APPENDIX 6.4 II EXPECTED CASE AVOIDED COST

Annual Avoided Costs 1/
2010$

Scenario	Gas Year	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Expected	2011-2012	$ 2.69	$ 2.84	$ 2.69	$ 2.69	$ 2.69	$ 2.69	$ 2.65	$ 2.87	$ 2.74	$ 2.72
Expected	2012-2013	$ 3.54	$ 3.77	$ 3.54	$ 3.54	$ 3.54	$ 3.58	$ 3.48	$ 3.77	$ 3.61	$ 3.58
Expected	2013-2014	$ 3.85	$ 4.07	$ 3.85	$ 3.85	$ 3.85	$ 3.86	$ 3.80	$ 4.08	$ 3.91	$ 3.90
Expected	2014-2015	$ 4.01	$ 4.24	$ 4.01	$ 4.01	$ 4.01	$ 4.03	$ 3.96	$ 4.25	$ 4.08	$ 4.06
Expected	2015-2016	$ 4.18	$ 4.45	$ 4.18	$ 4.18	$ 4.18	$ 4.21	$ 4.12	$ 4.47	$ 4.26	$ 4.23
Expected	2016-2017	$ 4.35	$ 4.64	$ 4.35	$ 4.35	$ 4.35	$ 4.39	$ 4.29	$ 4.65	$ 4.44	$ 4.41
Expected	2017-2018	$ 4.56	$ 4.88	$ 4.56	$ 4.56	$ 4.56	$ 4.60	$ 4.50	$ 4.89	$ 4.67	$ 4.63
Expected	2018-2019	$ 4.73	$ 5.06	$ 4.73	$ 4.73	$ 4.73	$ 4.78	$ 4.67	$ 5.08	$ 4.84	$ 4.80
Expected	2019-2020	$ 4.82	$ 5.03	$ 4.83	$ 4.83	$ 4.83	$ 4.84	$ 4.76	$ 5.05	$ 4.88	$ 4.87
Expected	2020-2021	$ 4.93	$ 5.10	$ 4.93	$ 4.93	$ 4.93	$ 4.94	$ 4.86	$ 5.11	$ 4.97	$ 4.96
Expected	2021-2022	$ 4.87	$ 5.01	$ 4.88	$ 4.88	$ 4.88	$ 4.87	$ 4.80	$ 5.02	$ 4.90	$ 4.90
Expected	2022-2023	$ 4.99	$ 5.08	$ 4.99	$ 4.99	$ 4.99	$ 4.99	$ 4.92	$ 5.09	$ 5.00	$ 5.01
Expected	2023-2024	$ 4.92	$ 4.98	$ 4.93	$ 4.93	$ 4.93	$ 4.91	$ 4.85	$ 4.99	$ 4.92	$ 4.94
Expected	2024-2025	$ 4.96	$ 4.98	$ 4.95	$ 4.95	$ 4.95	$ 4.94	$ 4.90	$ 4.97	$ 4.94	$ 4.96
Expected	2025-2026	$ 5.04	$ 5.20	$ 5.05	$ 5.05	$ 5.05	$ 5.01	$ 4.98	$ 5.22	$ 5.07	$ 5.08
Expected	2026-2027	$ 5.01	$ 5.15	$ 5.02	$ 5.02	$ 5.02	$ 4.97	$ 4.94	$ 5.16	$ 5.03	$ 5.04
Expected	2027-2028	$ 5.03	$ 5.13	$ 5.04	$ 5.04	$ 5.04	$ 5.00	$ 4.96	$ 5.14	$ 5.04	$ 5.06
Expected	2028-2029	$ 5.07	$ 5.14	$ 5.08	$ 5.08	$ 5.08	$ 5.04	$ 5.00	$ 5.16	$ 5.07	$ 5.09
Expected	2029-2030	$ 5.08	$ 5.12	$ 5.08	$ 5.08	$ 5.08	$ 5.03	$ 5.00	$ 5.14	$ 5.06	$ 5.09
Expected	2030-2031	$ 5.15	$ 5.17	$ 5.16	$ 5.16	$ 5.16	$ 5.11	$ 5.08	$ 5.19	$ 5.13	$ 5.16

Winter Avoided Costs 1/
2010$

Scenario	Gas Year	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Winter	OR Winter
Expected	2011-2012	$ 2.80	$ 2.88	$ 2.80	$ 2.80	$ 2.80	$ 2.86	$ 2.75	$ 2.87	$ 2.83	$ 2.81
Expected	2012-2013	$ 3.42	$ 3.68	$ 3.43	$ 3.43	$ 3.43	$ 3.59	$ 3.36	$ 3.68	$ 3.55	$ 3.48
Expected	2013-2014	$ 3.94	$ 4.11	$ 3.94	$ 3.94	$ 3.94	$ 4.03	$ 3.88	$ 4.11	$ 4.00	$ 3.97
Expected	2014-2015	$ 4.07	$ 4.28	$ 4.07	$ 4.07	$ 4.07	$ 4.19	$ 4.00	$ 4.27	$ 4.15	$ 4.11
Expected	2015-2016	$ 4.21	$ 4.47	$ 4.21	$ 4.21	$ 4.21	$ 4.36	$ 4.14	$ 4.47	$ 4.32	$ 4.26
Expected	2016-2017	$ 4.39	$ 4.67	$ 4.39	$ 4.39	$ 4.39	$ 4.55	$ 4.32	$ 4.67	$ 4.51	$ 4.44
Expected	2017-2018	$ 4.60	$ 4.91	$ 4.60	$ 4.60	$ 4.60	$ 4.77	$ 4.52	$ 4.91	$ 4.73	$ 4.66
Expected	2018-2019	$ 4.79	$ 5.11	$ 4.79	$ 4.79	$ 4.79	$ 4.97	$ 4.71	$ 5.11	$ 4.93	$ 4.85
Expected	2019-2020	$ 4.88	$ 5.10	$ 4.88	$ 4.88	$ 4.88	$ 5.00	$ 4.80	$ 5.10	$ 4.97	$ 4.92
Expected	2020-2021	$ 5.00	$ 5.18	$ 5.00	$ 5.00	$ 5.00	$ 5.11	$ 4.92	$ 5.18	$ 5.07	$ 5.03
Expected	2021-2022	$ 4.97	$ 5.12	$ 4.97	$ 4.97	$ 4.97	$ 5.05	$ 4.88	$ 5.12	$ 5.02	$ 5.00
Expected	2022-2023	$ 5.02	$ 5.15	$ 5.02	$ 5.02	$ 5.02	$ 5.10	$ 4.94	$ 5.15	$ 5.06	$ 5.05
Expected	2023-2024	$ 5.04	$ 5.13	$ 5.04	$ 5.04	$ 5.04	$ 5.08	$ 4.95	$ 5.11	$ 5.05	$ 5.06
Expected	2024-2025	$ 5.03	$ 5.09	$ 5.03	$ 5.03	$ 5.03	$ 5.06	$ 4.95	$ 5.07	$ 5.02	$ 5.04
Expected	2025-2026	$ 5.14	$ 5.29	$ 5.14	$ 5.14	$ 5.14	$ 5.15	$ 5.07	$ 5.28	$ 5.17	$ 5.17
Expected	2026-2027	$ 5.15	$ 5.28	$ 5.15	$ 5.15	$ 5.15	$ 5.16	$ 5.08	$ 5.27	$ 5.17	$ 5.18
Expected	2027-2028	$ 5.14	$ 5.23	$ 5.14	$ 5.14	$ 5.14	$ 5.15	$ 5.07	$ 5.22	$ 5.15	$ 5.16
Expected	2028-2029	$ 5.19	$ 5.24	$ 5.19	$ 5.19	$ 5.19	$ 5.19	$ 5.10	$ 5.23	$ 5.18	$ 5.20
Expected	2029-2030	$ 5.21	$ 5.24	$ 5.22	$ 5.22	$ 5.22	$ 5.20	$ 5.13	$ 5.23	$ 5.18	$ 5.22
Expected	2030-2031	$ 5.25	$ 5.26	$ 5.26	$ 5.26	$ 5.26	$ 5.23	$ 5.17	$ 5.26	$ 5.22	$ 5.26

1/ Avoided costs are before Environmental Externalities adder.

APPENDIX 6.4 II LOW GROWTH CASE AVOIDED COST

Annual Avoided Costs 1/
2010$

Scenario	Gas Year	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Low Growth	2011-2012	$ 3.68	$ 3.82	$ 3.68	$ 3.68	$ 3.68	$ 3.71	$ 3.63	$ 3.82	$ 3.72	$ 3.71
Low Growth	2012-2013	$ 4.96	$ 5.13	$ 4.96	$ 4.96	$ 4.96	$ 4.95	$ 4.90	$ 5.13	$ 4.99	$ 5.00
Low Growth	2013-2014	$ 5.84	$ 6.02	$ 5.84	$ 5.84	$ 5.84	$ 5.80	$ 5.77	$ 6.01	$ 5.86	$ 5.88
Low Growth	2014-2015	$ 6.91	$ 7.07	$ 6.91	$ 6.91	$ 6.91	$ 6.85	$ 6.82	$ 7.05	$ 6.91	$ 6.94
Low Growth	2015-2016	$ 7.45	$ 7.65	$ 7.45	$ 7.45	$ 7.45	$ 7.42	$ 7.36	$ 7.65	$ 7.48	$ 7.49
Low Growth	2016-2017	$ 7.97	$ 8.18	$ 7.97	$ 7.97	$ 7.97	$ 7.92	$ 7.87	$ 8.16	$ 7.99	$ 8.01
Low Growth	2017-2018	$ 8.17	$ 8.41	$ 8.17	$ 8.17	$ 8.17	$ 8.12	$ 8.06	$ 8.39	$ 8.19	$ 8.21
Low Growth	2018-2019	$ 8.40	$ 8.64	$ 8.40	$ 8.40	$ 8.40	$ 8.35	$ 8.29	$ 8.62	$ 8.42	$ 8.45
Low Growth	2019-2020	$ 8.64	$ 8.78	$ 8.64	$ 8.64	$ 8.64	$ 8.58	$ 8.53	$ 8.78	$ 8.63	$ 8.67
Low Growth	2020-2021	$ 8.91	$ 9.03	$ 8.90	$ 8.90	$ 8.90	$ 8.84	$ 8.80	$ 9.02	$ 8.89	$ 8.93
Low Growth	2021-2022	$ 9.17	$ 9.26	$ 9.16	$ 9.16	$ 9.16	$ 9.10	$ 9.06	$ 9.25	$ 9.13	$ 9.18
Low Growth	2022-2023	$ 9.39	$ 9.43	$ 9.38	$ 9.38	$ 9.38	$ 9.31	$ 9.28	$ 9.42	$ 9.34	$ 9.39
Low Growth	2023-2024	$ 9.74	$ 9.75	$ 9.72	$ 9.72	$ 9.72	$ 9.64	$ 9.62	$ 9.75	$ 9.67	$ 9.73
Low Growth	2024-2025	$ 9.98	$ 9.97	$ 9.96	$ 9.96	$ 9.96	$ 9.89	$ 9.86	$ 9.98	$ 9.91	$ 9.97
Low Growth	2025-2026	$ 10.57	$ 10.65	$ 10.56	$ 10.56	$ 10.56	$ 10.47	$ 10.44	$ 10.64	$ 10.52	$ 10.58
Low Growth	2026-2027	$ 11.10	$ 11.18	$ 11.10	$ 11.10	$ 11.10	$ 11.00	$ 10.97	$ 11.16	$ 11.04	$ 11.12
Low Growth	2027-2028	$ 11.71	$ 11.74	$ 11.70	$ 11.70	$ 11.70	$ 11.59	$ 11.57	$ 11.72	$ 11.63	$ 11.71
Low Growth	2028-2029	$ 12.32	$ 12.33	$ 12.31	$ 12.31	$ 12.31	$ 12.19	$ 12.17	$ 12.33	$ 12.23	$ 12.32
Low Growth	2029-2030	$ 13.02	$ 13.01	$ 13.01	$ 13.01	$ 13.01	$ 12.89	$ 12.87	$ 13.02	$ 12.93	$ 13.01
Low Growth	2030-2031	$ 13.16	$ 13.12	$ 13.14	$ 13.14	$ 13.14	$ 13.03	$ 13.01	$ 13.16	$ 13.06	$ 13.14

Winter Avoided Costs 1/
2010$

Scenario	Gas Year	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Winter	OR Winter
Low Growth	2011-2012	$ 3.13	$ 3.32	$ 3.13	$ 3.13	$ 3.13	$ 3.28	$ 3.07	$ 3.32	$ 3.23	$ 3.17
Low Growth	2012-2013	$ 4.96	$ 5.09	$ 4.97	$ 4.97	$ 4.97	$ 5.03	$ 4.89	$ 5.07	$ 5.00	$ 4.99
Low Growth	2013-2014	$ 5.88	$ 5.99	$ 5.89	$ 5.89	$ 5.89	$ 5.89	$ 5.80	$ 5.94	$ 5.88	$ 5.91
Low Growth	2014-2015	$ 6.92	$ 7.03	$ 6.92	$ 6.92	$ 6.92	$ 6.91	$ 6.82	$ 6.97	$ 6.90	$ 6.94
Low Growth	2015-2016	$ 7.64	$ 7.78	$ 7.64	$ 7.64	$ 7.64	$ 7.68	$ 7.54	$ 7.74	$ 7.65	$ 7.67
Low Growth	2016-2017	$ 8.17	$ 8.31	$ 8.17	$ 8.17	$ 8.17	$ 8.19	$ 8.06	$ 8.26	$ 8.17	$ 8.20
Low Growth	2017-2018	$ 8.36	$ 8.53	$ 8.36	$ 8.36	$ 8.36	$ 8.38	$ 8.25	$ 8.48	$ 8.37	$ 8.39
Low Growth	2018-2019	$ 8.60	$ 8.78	$ 8.60	$ 8.60	$ 8.60	$ 8.63	$ 8.49	$ 8.73	$ 8.62	$ 8.64
Low Growth	2019-2020	$ 8.85	$ 8.99	$ 8.85	$ 8.85	$ 8.85	$ 8.85	$ 8.74	$ 8.93	$ 8.84	$ 8.88
Low Growth	2020-2021	$ 9.12	$ 9.23	$ 9.12	$ 9.12	$ 9.12	$ 9.11	$ 9.00	$ 9.17	$ 9.09	$ 9.14
Low Growth	2021-2022	$ 9.38	$ 9.48	$ 9.38	$ 9.38	$ 9.38	$ 9.36	$ 9.26	$ 9.42	$ 9.35	$ 9.40
Low Growth	2022-2023	$ 9.60	$ 9.67	$ 9.60	$ 9.60	$ 9.60	$ 9.57	$ 9.48	$ 9.62	$ 9.55	$ 9.62
Low Growth	2023-2024	$ 9.91	$ 9.94	$ 9.91	$ 9.91	$ 9.91	$ 9.84	$ 9.78	$ 9.88	$ 9.83	$ 9.92
Low Growth	2024-2025	$ 10.19	$ 10.21	$ 10.19	$ 10.19	$ 10.19	$ 10.13	$ 10.07	$ 10.16	$ 10.12	$ 10.20
Low Growth	2025-2026	$ 10.72	$ 10.78	$ 10.72	$ 10.72	$ 10.72	$ 10.65	$ 10.58	$ 10.70	$ 10.64	$ 10.73
Low Growth	2026-2027	$ 11.28	$ 11.35	$ 11.28	$ 11.28	$ 11.28	$ 11.22	$ 11.14	$ 11.27	$ 11.21	$ 11.30
Low Growth	2027-2028	$ 11.89	$ 11.93	$ 11.89	$ 11.89	$ 11.89	$ 11.79	$ 11.74	$ 11.84	$ 11.79	$ 11.90
Low Growth	2028-2029	$ 12.53	$ 12.54	$ 12.53	$ 12.53	$ 12.53	$ 12.43	$ 12.37	$ 12.46	$ 12.42	$ 12.53
Low Growth	2029-2030	$ 13.20	$ 13.19	$ 13.20	$ 13.20	$ 13.20	$ 13.10	$ 13.04	$ 13.13	$ 13.09	$ 13.20
Low Growth	2030-2031	$ 13.51	$ 13.45	$ 13.50	$ 13.50	$ 13.50	$ 13.40	$ 13.36	$ 13.42	$ 13.39	$ 13.49

1/ Avoided costs are before Environmental Externalities adder.

APPENDIX 6.4 II HIGH GROWTH CASE AVOIDED COST

Annual Avoided Costs 1/
2010$

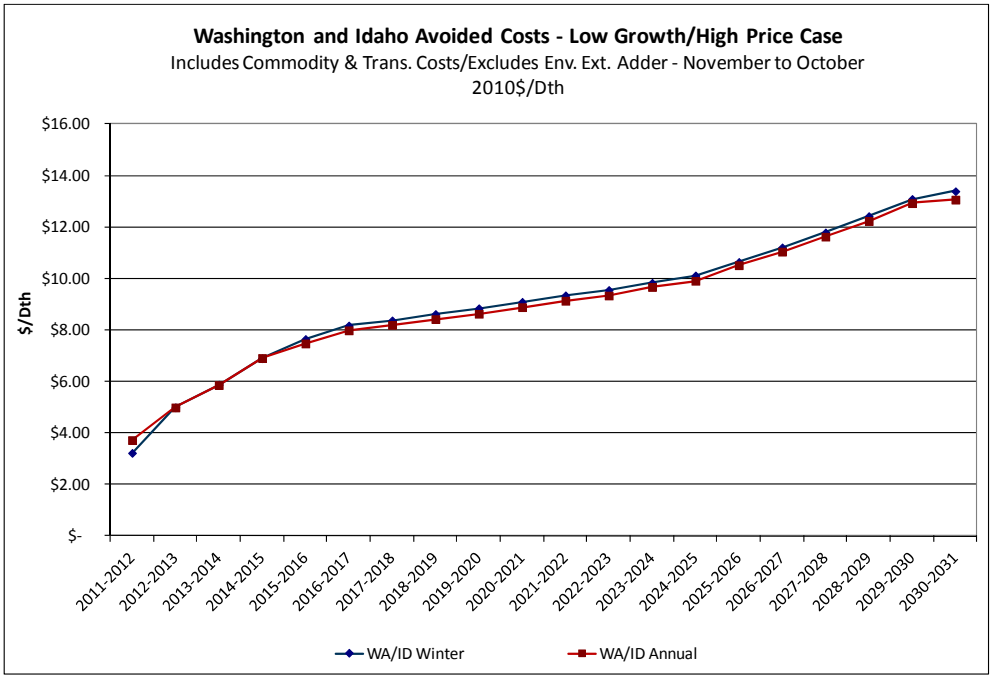
Scenario	Gas Year	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
High Growth	2011-2012	$ 2.69	$ 2.84	$ 2.69	$ 2.69	$ 2.69	$ 2.65	$ 2.65	$ 2.87	$ 2.72	$ 2.72
High Growth	2012-2013	$ 3.54	$ 3.74	$ 3.54	$ 3.54	$ 3.54	$ 3.49	$ 3.49	$ 3.76	$ 3.58	$ 3.58
High Growth	2013-2014	$ 3.85	$ 4.07	$ 3.85	$ 3.85	$ 3.85	$ 3.80	$ 3.80	$ 4.08	$ 3.89	$ 3.90
High Growth	2014-2015	$ 4.02	$ 4.23	$ 4.02	$ 4.02	$ 4.02	$ 3.96	$ 3.96	$ 4.24	$ 4.05	$ 4.06
High Growth	2015-2016	$ 4.18	$ 4.45	$ 4.18	$ 4.18	$ 4.18	$ 4.12	$ 4.12	$ 4.46	$ 4.23	$ 4.23
High Growth	2016-2017	$ 4.87	$ 5.15	$ 4.87	$ 4.87	$ 4.87	$ 4.80	$ 4.80	$ 5.16	$ 4.92	$ 4.93
High Growth	2017-2018	$ 5.08	$ 5.39	$ 5.09	$ 5.09	$ 5.09	$ 5.01	$ 5.01	$ 5.40	$ 5.14	$ 5.15
High Growth	2018-2019	$ 5.25	$ 5.57	$ 5.25	$ 5.25	$ 5.25	$ 5.18	$ 5.18	$ 5.59	$ 5.31	$ 5.32
High Growth	2019-2020	$ 5.34	$ 5.54	$ 5.35	$ 5.35	$ 5.35	$ 5.27	$ 5.27	$ 5.55	$ 5.36	$ 5.39
High Growth	2020-2021	$ 5.45	$ 5.63	$ 5.46	$ 5.46	$ 5.46	$ 5.38	$ 5.38	$ 5.66	$ 5.47	$ 5.49
High Growth	2021-2022	$ 5.39	$ 5.53	$ 5.40	$ 5.40	$ 5.40	$ 5.31	$ 5.31	$ 5.54	$ 5.39	$ 5.42
High Growth	2022-2023	$ 5.52	$ 5.59	$ 5.52	$ 5.52	$ 5.52	$ 5.43	$ 5.43	$ 5.61	$ 5.49	$ 5.53
High Growth	2023-2024	$ 5.44	$ 5.48	$ 5.45	$ 5.45	$ 5.45	$ 5.36	$ 5.36	$ 5.50	$ 5.41	$ 5.45
High Growth	2024-2025	$ 5.50	$ 5.50	$ 5.50	$ 5.50	$ 5.50	$ 5.41	$ 5.41	$ 5.50	$ 5.44	$ 5.50
High Growth	2025-2026	$ 5.62	$ 5.72	$ 5.63	$ 5.63	$ 5.63	$ 5.48	$ 5.48	$ 5.74	$ 5.57	$ 5.65
High Growth	2026-2027	$ 5.58	$ 5.67	$ 5.60	$ 5.60	$ 5.60	$ 5.45	$ 5.45	$ 5.68	$ 5.52	$ 5.61
High Growth	2027-2028	$ 5.59	$ 5.65	$ 5.61	$ 5.61	$ 5.61	$ 5.47	$ 5.47	$ 5.67	$ 5.54	$ 5.61
High Growth	2028-2029	$ 5.65	$ 5.68	$ 5.66	$ 5.66	$ 5.66	$ 5.52	$ 5.52	$ 5.71	$ 5.59	$ 5.66
High Growth	2029-2030	$ 5.69	$ 5.70	$ 5.70	$ 5.70	$ 5.70	$ 5.54	$ 5.54	$ 5.76	$ 5.61	$ 5.70
High Growth	2030-2031	$ 5.78	$ 5.78	$ 5.79	$ 5.79	$ 5.79	$ 5.62	$ 5.62	$ 5.82	$ 5.69	$ 5.79

Winter Avoided Costs 1/
2010$

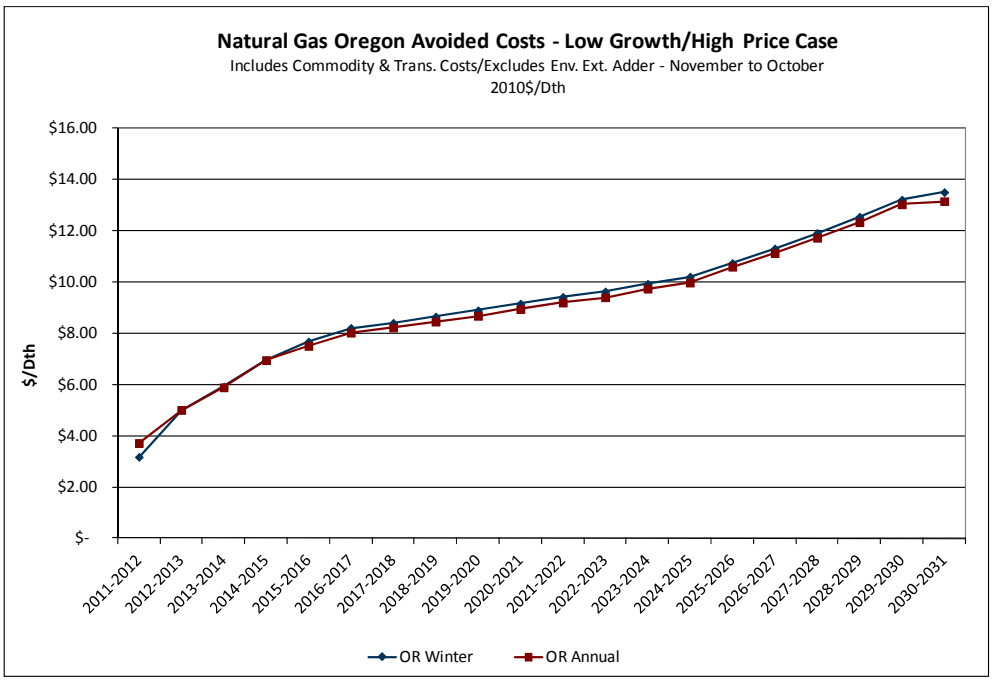
Scenario	Gas Year	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Winter	OR Winter
High Growth	2011-2012	$ 2.80	$ 2.87	$ 2.80	$ 2.80	$ 2.80	$ 2.75	$ 2.75	$ 2.85	$ 2.79	$ 2.81
High Growth	2012-2013	$ 3.42	$ 3.61	$ 3.42	$ 3.42	$ 3.42	$ 3.36	$ 3.36	$ 3.65	$ 3.46	$ 3.46
High Growth	2013-2014	$ 3.94	$ 4.11	$ 3.94	$ 3.94	$ 3.94	$ 3.88	$ 3.88	$ 4.10	$ 3.95	$ 3.97
High Growth	2014-2015	$ 4.07	$ 4.27	$ 4.07	$ 4.07	$ 4.07	$ 4.01	$ 4.01	$ 4.27	$ 4.09	$ 4.11
High Growth	2015-2016	$ 4.21	$ 4.46	$ 4.21	$ 4.21	$ 4.21	$ 4.14	$ 4.14	$ 4.46	$ 4.25	$ 4.26
High Growth	2016-2017	$ 4.91	$ 5.17	$ 4.91	$ 4.91	$ 4.91	$ 4.83	$ 4.83	$ 5.17	$ 4.94	$ 4.96
High Growth	2017-2018	$ 5.12	$ 5.41	$ 5.12	$ 5.12	$ 5.12	$ 5.04	$ 5.04	$ 5.41	$ 5.16	$ 5.18
High Growth	2018-2019	$ 5.31	$ 5.61	$ 5.31	$ 5.31	$ 5.31	$ 5.23	$ 5.23	$ 5.61	$ 5.36	$ 5.37
High Growth	2019-2020	$ 5.41	$ 5.60	$ 5.41	$ 5.41	$ 5.41	$ 5.32	$ 5.32	$ 5.60	$ 5.41	$ 5.45
High Growth	2020-2021	$ 5.53	$ 5.71	$ 5.53	$ 5.53	$ 5.53	$ 5.44	$ 5.44	$ 5.71	$ 5.53	$ 5.57
High Growth	2021-2022	$ 5.49	$ 5.64	$ 5.49	$ 5.49	$ 5.49	$ 5.41	$ 5.41	$ 5.63	$ 5.48	$ 5.52
High Growth	2022-2023	$ 5.58	$ 5.67	$ 5.58	$ 5.58	$ 5.58	$ 5.47	$ 5.47	$ 5.67	$ 5.53	$ 5.60
High Growth	2023-2024	$ 5.57	$ 5.61	$ 5.57	$ 5.57	$ 5.57	$ 5.47	$ 5.47	$ 5.60	$ 5.51	$ 5.58
High Growth	2024-2025	$ 5.61	$ 5.60	$ 5.61	$ 5.61	$ 5.61	$ 5.47	$ 5.47	$ 5.59	$ 5.51	$ 5.61
High Growth	2025-2026	$ 5.81	$ 5.84	$ 5.81	$ 5.81	$ 5.81	$ 5.58	$ 5.58	$ 5.82	$ 5.66	$ 5.81
High Growth	2026-2027	$ 5.81	$ 5.82	$ 5.81	$ 5.81	$ 5.81	$ 5.58	$ 5.58	$ 5.80	$ 5.65	$ 5.81
High Growth	2027-2028	$ 5.77	$ 5.77	$ 5.77	$ 5.77	$ 5.77	$ 5.57	$ 5.57	$ 5.76	$ 5.63	$ 5.77
High Growth	2028-2029	$ 5.84	$ 5.84	$ 5.84	$ 5.84	$ 5.84	$ 5.63	$ 5.63	$ 5.84	$ 5.70	$ 5.84
High Growth	2029-2030	$ 5.94	$ 5.93	$ 5.94	$ 5.94	$ 5.94	$ 5.68	$ 5.68	$ 5.95	$ 5.77	$ 5.94
High Growth	2030-2031	$ 6.01	$ 5.99	$ 6.01	$ 6.01	$ 6.01	$ 5.73	$ 5.73	$ 6.04	$ 5.84	$ 6.01

1/ Avoided costs are before Environmental Externalities adder.

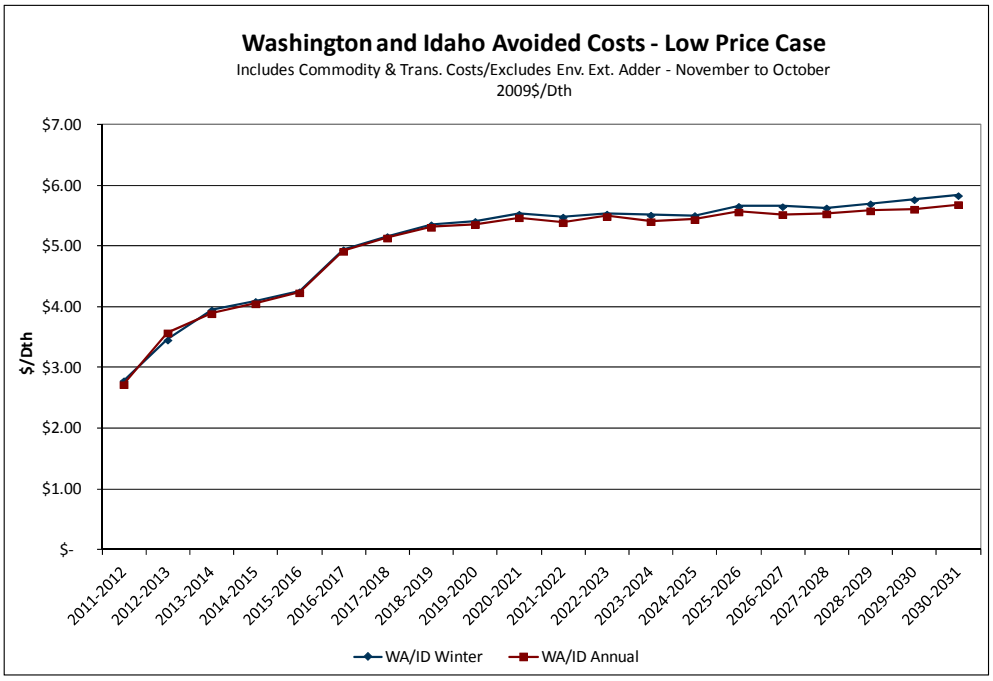
APPENDIX 6.4 II WASHINGTON AND IDAHO AVOIDED COSTS - LOW GROWTH/HIGH PRICE CASE



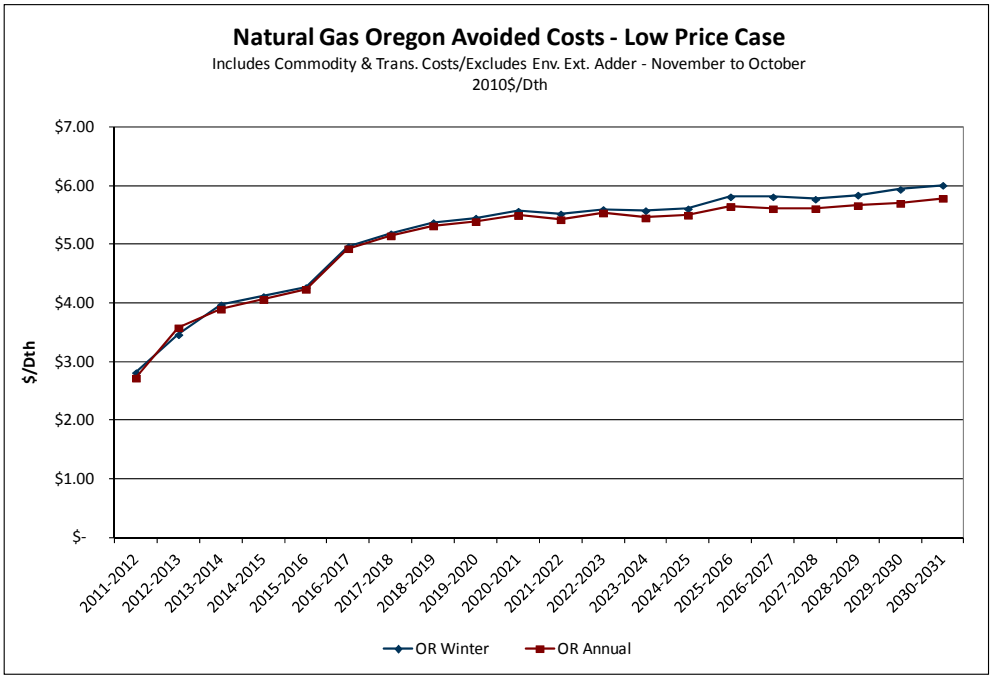
APPENDIX 6.4 II NATURAL GAS OREGON AVOIDED COSTS - LOW GROWTH/HIGH PRICE CASE



APPENDIX 6.4 II WASHINGTON AND IDAHO AVOIDED COSTS - LOW PRICE CASE



APPENDIX 6.4 II NATURAL GAS OREGON AVOIDED COSTS - LOW PRICE CASE



APPENDIX 6.4 II LOW GROWTH – HIGH PRICE MONTHLY DETAIL

Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Low Growth & High Price	2011-2012	Nov	$ 3.21	$ 3.21	$ 3.21	$ 3.21	$ 3.21	$ 3.18	$ 3.17	$ 3.21	$ 3.19	$ 3.21
Low Growth & High Price	2011-2012	Dec	$ 3.07	$ 3.48	$ 3.11	$ 3.11	$ 3.11	$ 3.48	$ 3.00	$ 3.48	$ 3.32	$ 3.18
Low Growth & High Price	2011-2012	Jan	$ 2.55	$ 2.74	$ 2.55	$ 2.55	$ 2.55	$ 2.74	$ 2.52	$ 2.75	$ 2.67	$ 2.59
Low Growth & High Price	2011-2012	Feb	$ 2.68	$ 3.03	$ 2.68	$ 2.68	$ 2.68	$ 2.95	$ 2.62	$ 3.03	$ 2.87	$ 2.75
Low Growth & High Price	2011-2012	Mar	$ 4.09	$ 4.11	$ 4.09	$ 4.09	$ 4.09	$ 4.03	$ 4.03	$ 4.11	$ 4.06	$ 4.09
Low Growth & High Price	2011-2012	Apr	$ 4.02	$ 4.11	$ 4.02	$ 4.02	$ 4.02	$ 3.96	$ 3.96	$ 4.11	$ 4.01	$ 4.04
Low Growth & High Price	2011-2012	May	$ 3.97	$ 4.12	$ 3.97	$ 3.97	$ 3.97	$ 3.91	$ 3.91	$ 4.12	$ 3.98	$ 4.00
Low Growth & High Price	2011-2012	Jun	$ 4.04	$ 4.12	$ 4.04	$ 4.04	$ 4.04	$ 3.98	$ 3.98	$ 4.12	$ 4.03	$ 4.05
Low Growth & High Price	2011-2012	Jul	$ 4.08	$ 4.16	$ 4.08	$ 4.08	$ 4.08	$ 4.02	$ 4.02	$ 4.16	$ 4.07	$ 4.09
Low Growth & High Price	2011-2012	Aug	$ 4.09	$ 4.17	$ 4.09	$ 4.09	$ 4.09	$ 4.03	$ 4.03	$ 4.17	$ 4.08	$ 4.10
Low Growth & High Price	2011-2012	Sep	$ 4.14	$ 4.18	$ 4.14	$ 4.14	$ 4.14	$ 4.09	$ 4.09	$ 4.18	$ 4.12	$ 4.15
Low Growth & High Price	2011-2012	Oct	$ 4.18	$ 4.42	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.42	$ 4.22	$ 4.23
Low Growth & High Price	2012-2013	Nov	$ 4.50	$ 4.70	$ 4.50	$ 4.50	$ 4.50	$ 4.52	$ 4.44	$ 4.70	$ 4.55	$ 4.54
Low Growth & High Price	2012-2013	Dec	$ 4.78	$ 5.13	$ 4.82	$ 4.82	$ 4.82	$ 5.13	$ 4.68	$ 5.13	$ 4.98	$ 4.87
Low Growth & High Price	2012-2013	Jan	$ 5.20	$ 5.23	$ 5.20	$ 5.20	$ 5.20	$ 5.23	$ 5.14	$ 5.23	$ 5.20	$ 5.21
Low Growth & High Price	2012-2013	Feb	$ 5.17	$ 5.21	$ 5.17	$ 5.17	$ 5.17	$ 5.15	$ 5.11	$ 5.16	$ 5.14	$ 5.18
Low Growth & High Price	2012-2013	Mar	$ 5.16	$ 5.16	$ 5.16	$ 5.16	$ 5.16	$ 5.10	$ 5.10	$ 5.14	$ 5.11	$ 5.16
Low Growth & High Price	2012-2013	Apr	$ 4.93	$ 5.11	$ 4.93	$ 4.93	$ 4.93	$ 4.86	$ 4.86	$ 5.14	$ 4.95	$ 4.96
Low Growth & High Price	2012-2013	May	$ 4.90	$ 5.12	$ 4.90	$ 4.90	$ 4.90	$ 4.83	$ 4.83	$ 5.14	$ 4.94	$ 4.94
Low Growth & High Price	2012-2013	Jun	$ 4.92	$ 5.14	$ 4.92	$ 4.92	$ 4.92	$ 4.85	$ 4.85	$ 5.14	$ 4.95	$ 4.96
Low Growth & High Price	2012-2013	Jul	$ 4.95	$ 5.14	$ 4.95	$ 4.95	$ 4.95	$ 4.88	$ 4.88	$ 5.14	$ 4.97	$ 4.99
Low Growth & High Price	2012-2013	Aug	$ 4.98	$ 5.15	$ 4.98	$ 4.98	$ 4.98	$ 4.91	$ 4.91	$ 5.15	$ 4.99	$ 5.01
Low Growth & High Price	2012-2013	Sep	$ 5.01	$ 5.15	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.15	$ 5.01	$ 5.04
Low Growth & High Price	2012-2013	Oct	$ 5.06	$ 5.29	$ 5.06	$ 5.06	$ 5.06	$ 5.00	$ 5.00	$ 5.29	$ 5.09	$ 5.10
Low Growth & High Price	2013-2014	Nov	$ 5.37	$ 5.56	$ 5.37	$ 5.37	$ 5.37	$ 5.30	$ 5.30	$ 5.56	$ 5.39	$ 5.40
Low Growth & High Price	2013-2014	Dec	$ 5.62	$ 5.90	$ 5.66	$ 5.66	$ 5.66	$ 5.90	$ 5.52	$ 5.90	$ 5.77	$ 5.70
Low Growth & High Price	2013-2014	Jan	$ 6.16	$ 6.16	$ 6.16	$ 6.16	$ 6.16	$ 6.10	$ 6.09	$ 6.10	$ 6.09	$ 6.16
Low Growth & High Price	2013-2014	Feb	$ 6.13	$ 6.17	$ 6.13	$ 6.13	$ 6.13	$ 6.08	$ 6.06	$ 6.08	$ 6.07	$ 6.14
Low Growth & High Price	2013-2014	Mar	$ 6.14	$ 6.14	$ 6.14	$ 6.14	$ 6.14	$ 6.07	$ 6.07	$ 6.07	$ 6.07	$ 6.14
Low Growth & High Price	2013-2014	Apr	$ 5.79	$ 5.98	$ 5.79	$ 5.79	$ 5.79	$ 5.72	$ 5.72	$ 6.03	$ 5.83	$ 5.83
Low Growth & High Price	2013-2014	May	$ 5.73	$ 5.98	$ 5.73	$ 5.73	$ 5.73	$ 5.66	$ 5.66	$ 6.03	$ 5.79	$ 5.78
Low Growth & High Price	2013-2014	Jun	$ 5.78	$ 6.02	$ 5.78	$ 5.78	$ 5.78	$ 5.71	$ 5.71	$ 6.04	$ 5.82	$ 5.83
Low Growth & High Price	2013-2014	Jul	$ 5.80	$ 6.04	$ 5.80	$ 5.80	$ 5.80	$ 5.73	$ 5.73	$ 6.04	$ 5.83	$ 5.85
Low Growth & High Price	2013-2014	Aug	$ 5.83	$ 6.04	$ 5.83	$ 5.83	$ 5.83	$ 5.75	$ 5.75	$ 6.04	$ 5.85	$ 5.87
Low Growth & High Price	2013-2014	Sep	$ 5.85	$ 6.04	$ 5.85	$ 5.85	$ 5.85	$ 5.77	$ 5.77	$ 6.04	$ 5.86	$ 5.88
Low Growth & High Price	2013-2014	Oct	$ 5.90	$ 6.16	$ 5.90	$ 5.90	$ 5.90	$ 5.82	$ 5.82	$ 6.16	$ 5.94	$ 5.95
Low Growth & High Price	2014-2015	Nov	$ 6.25	$ 6.48	$ 6.25	$ 6.25	$ 6.25	$ 6.18	$ 6.18	$ 6.48	$ 6.28	$ 6.30
Low Growth & High Price	2014-2015	Dec	$ 6.55	$ 6.83	$ 6.58	$ 6.58	$ 6.58	$ 6.83	$ 6.43	$ 6.84	$ 6.70	$ 6.62
Low Growth & High Price	2014-2015	Jan	$ 7.31	$ 7.31	$ 7.31	$ 7.31	$ 7.31	$ 7.22	$ 7.22	$ 7.22	$ 7.22	$ 7.31
Low Growth & High Price	2014-2015	Feb	$ 7.27	$ 7.31	$ 7.27	$ 7.27	$ 7.27	$ 7.19	$ 7.18	$ 7.19	$ 7.19	$ 7.27
Low Growth & High Price	2014-2015	Mar	$ 7.22	$ 7.22	$ 7.22	$ 7.22	$ 7.22	$ 7.13	$ 7.13	$ 7.13	$ 7.13	$ 7.22
Low Growth & High Price	2014-2015	Apr	$ 6.85	$ 7.04	$ 6.85	$ 6.85	$ 6.85	$ 6.76	$ 6.76	$ 7.09	$ 6.87	$ 6.89
Low Growth & High Price	2014-2015	May	$ 6.83	$ 7.04	$ 6.83	$ 6.83	$ 6.83	$ 6.74	$ 6.74	$ 7.09	$ 6.86	$ 6.87
Low Growth & High Price	2014-2015	Jun	$ 6.89	$ 7.07	$ 6.89	$ 6.89	$ 6.89	$ 6.80	$ 6.80	$ 7.09	$ 6.90	$ 6.92
Low Growth & High Price	2014-2015	Jul	$ 6.92	$ 7.09	$ 6.92	$ 6.92	$ 6.92	$ 6.83	$ 6.83	$ 7.09	$ 6.92	$ 6.95
Low Growth & High Price	2014-2015	Aug	$ 6.93	$ 7.09	$ 6.93	$ 6.93	$ 6.93	$ 6.84	$ 6.84	$ 7.09	$ 6.93	$ 6.96
Low Growth & High Price	2014-2015	Sep	$ 6.92	$ 7.10	$ 6.92	$ 6.92	$ 6.92	$ 6.83	$ 6.83	$ 7.10	$ 6.92	$ 6.95
Low Growth & High Price	2014-2015	Oct	$ 6.96	$ 7.24	$ 6.96	$ 6.96	$ 6.96	$ 6.88	$ 6.88	$ 7.24	$ 7.00	$ 7.02
Low Growth & High Price	2015-2016	Nov	$ 7.38	$ 7.62	$ 7.38	$ 7.38	$ 7.38	$ 7.29	$ 7.29	$ 7.62	$ 7.40	$ 7.43
Low Growth & High Price	2015-2016	Dec	$ 7.67	$ 7.93	$ 7.67	$ 7.67	$ 7.67	$ 7.93	$ 7.54	$ 7.93	$ 7.80	$ 7.72
Low Growth & High Price	2015-2016	Jan	$ 7.75	$ 7.93	$ 7.75	$ 7.75	$ 7.75	$ 7.93	$ 7.65	$ 7.93	$ 7.84	$ 7.78
Low Growth & High Price	2015-2016	Feb	$ 7.71	$ 7.76	$ 7.71	$ 7.71	$ 7.71	$ 7.64	$ 7.61	$ 7.64	$ 7.63	$ 7.72
Low Growth & High Price	2015-2016	Mar	$ 7.68	$ 7.68	$ 7.68	$ 7.68	$ 7.68	$ 7.58	$ 7.58	$ 7.58	$ 7.58	$ 7.68
Low Growth & High Price	2015-2016	Apr	$ 7.27	$ 7.51	$ 7.27	$ 7.27	$ 7.27	$ 7.18	$ 7.18	$ 7.55	$ 7.30	$ 7.31
Low Growth & High Price	2015-2016	May	$ 7.27	$ 7.51	$ 7.27	$ 7.27	$ 7.27	$ 7.18	$ 7.18	$ 7.55	$ 7.30	$ 7.31
Low Growth & High Price	2015-2016	Jun	$ 7.29	$ 7.51	$ 7.29	$ 7.29	$ 7.29	$ 7.20	$ 7.20	$ 7.56	$ 7.32	$ 7.33
Low Growth & High Price	2015-2016	Jul	$ 7.32	$ 7.56	$ 7.32	$ 7.32	$ 7.32	$ 7.23	$ 7.23	$ 7.56	$ 7.34	$ 7.37
Low Growth & High Price	2015-2016	Aug	$ 7.34	$ 7.56	$ 7.34	$ 7.34	$ 7.34	$ 7.25	$ 7.25	$ 7.56	$ 7.35	$ 7.38
Low Growth & High Price	2015-2016	Sep	$ 7.38	$ 7.56	$ 7.38	$ 7.38	$ 7.38	$ 7.29	$ 7.29	$ 7.56	$ 7.38	$ 7.42
Low Growth & High Price	2015-2016	Oct	$ 7.43	$ 7.74	$ 7.43	$ 7.43	$ 7.43	$ 7.34	$ 7.34	$ 7.74	$ 7.47	$ 7.49
Low Growth & High Price	2016-2017	Nov	$ 7.81	$ 8.09	$ 7.81	$ 7.81	$ 7.81	$ 7.71	$ 7.71	$ 8.09	$ 7.84	$ 7.87
Low Growth & High Price	2016-2017	Dec	$ 8.15	$ 8.42	$ 8.15	$ 8.15	$ 8.15	$ 8.42	$ 8.02	$ 8.42	$ 8.29	$ 8.21
Low Growth & High Price	2016-2017	Jan	$ 8.34	$ 8.43	$ 8.34	$ 8.34	$ 8.34	$ 8.43	$ 8.24	$ 8.43	$ 8.37	$ 8.36
Low Growth & High Price	2016-2017	Feb	$ 8.29	$ 8.34	$ 8.29	$ 8.29	$ 8.29	$ 8.20	$ 8.19	$ 8.20	$ 8.20	$ 8.30
Low Growth & High Price	2016-2017	Mar	$ 8.25	$ 8.25	$ 8.25	$ 8.25	$ 8.25	$ 8.15	$ 8.15	$ 8.15	$ 8.15	$ 8.25
Low Growth & High Price	2016-2017	Apr	$ 7.76	$ 8.04	$ 7.76	$ 7.76	$ 7.76	$ 7.66	$ 7.66	$ 8.06	$ 7.80	$ 7.81
Low Growth & High Price	2016-2017	May	$ 7.78	$ 8.04	$ 7.78	$ 7.78	$ 7.78	$ 7.68	$ 7.68	$ 8.06	$ 7.81	$ 7.83
Low Growth & High Price	2016-2017	Jun	$ 7.79	$ 8.05	$ 7.79	$ 7.79	$ 7.79	$ 7.69	$ 7.69	$ 8.06	$ 7.82	$ 7.84
Low Growth & High Price	2016-2017	Jul	$ 7.80	$ 8.06	$ 7.80	$ 7.80	$ 7.80	$ 7.70	$ 7.70	$ 8.06	$ 7.82	$ 7.85
Low Growth & High Price	2016-2017	Aug	$ 7.82	$ 8.07	$ 7.82	$ 7.82	$ 7.82	$ 7.72	$ 7.72	$ 8.07	$ 7.84	$ 7.87
Low Growth & High Price	2016-2017	Sep	$ 7.91	$ 8.07	$ 7.91	$ 7.91	$ 7.91	$ 7.82	$ 7.82	$ 8.07	$ 7.90	$ 7.94
Low Growth & High Price	2016-2017	Oct	$ 7.96	$ 8.29	$ 7.96	$ 7.96	$ 7.96	$ 7.87	$ 7.87	$ 8.29	$ 8.01	$ 8.03
Low Growth & High Price	2017-2018	Nov	$ 7.97	$ 8.32	$ 7.97	$ 7.97	$ 7.97	$ 7.88	$ 7.88	$ 8.32	$ 8.02	$ 8.04
Low Growth & High Price	2017-2018	Dec	$ 8.34	$ 8.65	$ 8.34	$ 8.34	$ 8.34	$ 8.62	$ 8.20	$ 8.65	$ 8.49	$ 8.40
Low Growth & High Price	2017-2018	Jan	$ 8.54	$ 8.66	$ 8.54	$ 8.54	$ 8.54	$ 8.66	$ 8.44	$ 8.66	$ 8.59	$ 8.57
Low Growth & High Price	2017-2018	Feb	$ 8.49	$ 8.55	$ 8.49	$ 8.49	$ 8.49	$ 8.41	$ 8.39	$ 8.41	$ 8.40	$ 8.50
Low Growth & High Price	2017-2018	Mar	$ 8.44	$ 8.44	$ 8.44	$ 8.44	$ 8.44	$ 8.34	$ 8.34	$ 8.34	$ 8.34	$ 8.44
Low Growth & High Price	2017-2018	Apr	$ 7.96	$ 8.29	$ 7.96	$ 7.96	$ 7.96	$ 7.87	$ 7.87	$ 8.29	$ 8.01	$ 8.03
Low Growth & High Price	2017-2018	May	$ 7.98	$ 8.28	$ 7.98	$ 7.98	$ 7.98	$ 7.89	$ 7.89	$ 8.30	$ 8.02	$ 8.04
Low Growth & High Price	2017-2018	Jun	$ 8.01	$ 8.30	$ 8.01	$ 8.01	$ 8.01	$ 7.92	$ 7.92	$ 8.30	$ 8.04	$ 8.07
Low Growth & High Price	2017-2018	Jul	$ 7.97	$ 8.28	$ 7.97	$ 7.97	$ 7.97	$ 7.88	$ 7.88	$ 8.30	$ 8.02	$ 8.03
Low Growth & High Price	2017-2018	Aug	$ 8.01	$ 8.30	$ 8.01	$ 8.01	$ 8.01	$ 7.92	$ 7.92	$ 8.30	$ 8.04	$ 8.07
Low Growth & High Price	2017-2018	Sep	$ 8.09	$ 8.30	$ 8.09	$ 8.09	$ 8.09	$ 8.00	$ 8.00	$ 8.30	$ 8.10	$ 8.14
Low Growth & High Price	2017-2018	Oct	$ 8.18	$ 8.54	$ 8.18	$ 8.18	$ 8.18	$ 8.08	$ 8.08	$ 8.54	$ 8.23	$ 8.25
Low Growth & High Price	2018-2019	Nov	$ 8.19	$ 8.54	$ 8.19	$ 8.19	$ 8.19	$ 8.09	$ 8.09	$ 8.54	$ 8.24	$ 8.26
Low Growth & High Price	2018-2019	Dec	$ 8.61	$ 8.92	$ 8.61	$ 8.61	$ 8.61	$ 8.88	$ 8.46	$ 8.92	$ 8.75	$ 8.67
Low Growth & High Price	2018-2019	Jan	$ 8.78	$ 8.94	$ 8.78	$ 8.78	$ 8.78	$ 8.94	$ 8.67	$ 8.94	$ 8.85	$ 8.81
Low Growth & High Price	2018-2019	Feb	$ 8.74	$ 8.80	$ 8.74	$ 8.74	$ 8.74	$ 8.65	$ 8.63	$ 8.65	$ 8.64	$ 8.75
Low Growth & High Price	2018-2019	Mar	$ 8.71	$ 8.71	$ 8.71	$ 8.71	$ 8.71	$ 8.60	$ 8.60	$ 8.60	$ 8.60	$ 8.71
Low Growth & High Price	2018-2019	Apr	$ 8.19	$ 8.49	$ 8.19	$ 8.19	$ 8.19	$ 8.09	$ 8.09	$ 8.50	$ 8.22	$ 8.25
Low Growth & High Price	2018-2019	May	$ 8.21	$ 8.47	$ 8.21	$ 8.21	$ 8.21	$ 8.11	$ 8.11	$ 8.50	$ 8.24	$ 8.26
Low Growth & High Price	2018-2019	Jun	$ 8.24	$ 8.49	$ 8.24	$ 8.24	$ 8.24	$ 8.14	$ 8.14	$ 8.50	$ 8.26	$ 8.29
Low Growth & High Price	2018-2019	Jul	$ 8.18	$ 8.47	$ 8.18	$ 8.18	$ 8.18	$ 8.08	$ 8.08	$ 8.50	$ 8.22	$ 8.23
Low Growth & High Price	2018-2019	Aug	$ 8.22	$ 8.50	$ 8.22	$ 8.22	$ 8.22	$ 8.12	$ 8.12	$ 8.50	$ 8.25	$ 8.27

APPENDIX 6.4 II LOW GROWTH – HIGH PRICE MONTHLY DETAIL

Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Low Growth & High Price	2018-2019	Sep	$ 8.30	$ 8.51	$ 8.30	$ 8.30	$ 8.30	$ 8.20	$ 8.20	$ 8.51	$ 8.30	$ 8.34
Low Growth & High Price	2018-2019	Oct	$ 8.44	$ 8.81	$ 8.44	$ 8.44	$ 8.44	$ 8.34	$ 8.34	$ 8.81	$ 8.50	$ 8.52
Low Growth & High Price	2019-2020	Nov	$ 8.42	$ 8.71	$ 8.42	$ 8.42	$ 8.42	$ 8.32	$ 8.32	$ 8.71	$ 8.45	$ 8.48
Low Growth & High Price	2019-2020	Dec	$ 8.86	$ 9.11	$ 8.86	$ 8.86	$ 8.86	$ 9.11	$ 8.70	$ 9.11	$ 8.97	$ 8.91
Low Growth & High Price	2019-2020	Jan	$ 9.06	$ 9.13	$ 9.06	$ 9.06	$ 9.06	$ 9.13	$ 8.95	$ 9.13	$ 9.07	$ 9.07
Low Growth & High Price	2019-2020	Feb	$ 9.00	$ 9.04	$ 9.00	$ 9.00	$ 9.00	$ 8.87	$ 8.90	$ 8.87	$ 8.88	$ 9.01
Low Growth & High Price	2019-2020	Mar	$ 8.93	$ 8.93	$ 8.93	$ 8.93	$ 8.93	$ 8.83	$ 8.83	$ 8.83	$ 8.83	$ 8.93
Low Growth & High Price	2019-2020	Apr	$ 8.42	$ 8.62	$ 8.42	$ 8.42	$ 8.42	$ 8.32	$ 8.32	$ 8.62	$ 8.42	$ 8.46
Low Growth & High Price	2019-2020	May	$ 8.43	$ 8.58	$ 8.43	$ 8.43	$ 8.43	$ 8.33	$ 8.33	$ 8.62	$ 8.43	$ 8.46
Low Growth & High Price	2019-2020	Jun	$ 8.43	$ 8.56	$ 8.43	$ 8.43	$ 8.43	$ 8.33	$ 8.33	$ 8.63	$ 8.43	$ 8.46
Low Growth & High Price	2019-2020	Jul	$ 8.40	$ 8.55	$ 8.40	$ 8.40	$ 8.40	$ 8.30	$ 8.30	$ 8.63	$ 8.41	$ 8.43
Low Growth & High Price	2019-2020	Aug	$ 8.44	$ 8.59	$ 8.44	$ 8.44	$ 8.44	$ 8.34	$ 8.34	$ 8.63	$ 8.44	$ 8.47
Low Growth & High Price	2019-2020	Sep	$ 8.56	$ 8.63	$ 8.56	$ 8.56	$ 8.56	$ 8.46	$ 8.46	$ 8.63	$ 8.52	$ 8.58
Low Growth & High Price	2019-2020	Oct	$ 8.69	$ 8.93	$ 8.69	$ 8.69	$ 8.69	$ 8.58	$ 8.58	$ 8.93	$ 8.70	$ 8.73
Low Growth & High Price	2020-2021	Nov	$ 8.68	$ 8.92	$ 8.68	$ 8.68	$ 8.68	$ 8.57	$ 8.57	$ 8.92	$ 8.69	$ 8.72
Low Growth & High Price	2020-2021	Dec	$ 9.14	$ 9.35	$ 9.14	$ 9.14	$ 9.14	$ 9.35	$ 8.99	$ 9.35	$ 9.23	$ 9.18
Low Growth & High Price	2020-2021	Jan	$ 9.31	$ 9.37	$ 9.31	$ 9.31	$ 9.31	$ 9.37	$ 9.20	$ 9.37	$ 9.32	$ 9.32
Low Growth & High Price	2020-2021	Feb	$ 9.26	$ 9.30	$ 9.26	$ 9.26	$ 9.26	$ 9.12	$ 9.15	$ 9.12	$ 9.13	$ 9.27
Low Growth & High Price	2020-2021	Mar	$ 9.21	$ 9.21	$ 9.21	$ 9.21	$ 9.21	$ 9.10	$ 9.10	$ 9.10	$ 9.10	$ 9.21
Low Growth & High Price	2020-2021	Apr	$ 8.70	$ 8.86	$ 8.70	$ 8.70	$ 8.70	$ 8.59	$ 8.59	$ 8.86	$ 8.68	$ 8.73
Low Growth & High Price	2020-2021	May	$ 8.71	$ 8.83	$ 8.70	$ 8.70	$ 8.70	$ 8.60	$ 8.60	$ 8.87	$ 8.69	$ 8.73
Low Growth & High Price	2020-2021	Jun	$ 8.69	$ 8.79	$ 8.69	$ 8.69	$ 8.69	$ 8.58	$ 8.58	$ 8.87	$ 8.68	$ 8.71
Low Growth & High Price	2020-2021	Jul	$ 8.68	$ 8.81	$ 8.68	$ 8.68	$ 8.68	$ 8.57	$ 8.57	$ 8.87	$ 8.67	$ 8.70
Low Growth & High Price	2020-2021	Aug	$ 8.72	$ 8.85	$ 8.71	$ 8.71	$ 8.71	$ 8.61	$ 8.61	$ 8.87	$ 8.70	$ 8.74
Low Growth & High Price	2020-2021	Sep	$ 8.86	$ 8.88	$ 8.82	$ 8.82	$ 8.82	$ 8.76	$ 8.76	$ 8.88	$ 8.80	$ 8.84
Low Growth & High Price	2020-2021	Oct	$ 8.98	$ 9.18	$ 8.98	$ 8.98	$ 8.98	$ 8.88	$ 8.88	$ 9.18	$ 8.98	$ 9.02
Low Growth & High Price	2021-2022	Nov	$ 8.97	$ 9.18	$ 8.97	$ 8.97	$ 8.97	$ 8.87	$ 8.87	$ 9.18	$ 8.97	$ 9.01
Low Growth & High Price	2021-2022	Dec	$ 9.41	$ 9.61	$ 9.41	$ 9.41	$ 9.41	$ 9.61	$ 9.26	$ 9.61	$ 9.49	$ 9.45
Low Growth & High Price	2021-2022	Jan	$ 9.58	$ 9.63	$ 9.58	$ 9.58	$ 9.58	$ 9.63	$ 9.46	$ 9.63	$ 9.58	$ 9.59
Low Growth & High Price	2021-2022	Feb	$ 9.53	$ 9.56	$ 9.53	$ 9.53	$ 9.53	$ 9.35	$ 9.41	$ 9.35	$ 9.37	$ 9.53
Low Growth & High Price	2021-2022	Mar	$ 9.43	$ 9.43	$ 9.43	$ 9.43	$ 9.43	$ 9.32	$ 9.32	$ 9.32	$ 9.32	$ 9.43
Low Growth & High Price	2021-2022	Apr	$ 8.92	$ 9.04	$ 8.92	$ 8.92	$ 8.92	$ 8.82	$ 8.82	$ 9.08	$ 8.90	$ 8.95
Low Growth & High Price	2021-2022	May	$ 8.94	$ 9.03	$ 8.94	$ 8.94	$ 8.94	$ 8.84	$ 8.84	$ 9.08	$ 8.92	$ 8.96
Low Growth & High Price	2021-2022	Jun	$ 8.96	$ 9.04	$ 8.95	$ 8.95	$ 8.95	$ 8.86	$ 8.86	$ 9.08	$ 8.93	$ 8.97
Low Growth & High Price	2021-2022	Jul	$ 8.93	$ 9.03	$ 8.93	$ 8.93	$ 8.93	$ 8.83	$ 8.83	$ 9.09	$ 8.91	$ 8.95
Low Growth & High Price	2021-2022	Aug	$ 8.98	$ 9.09	$ 8.98	$ 8.98	$ 8.98	$ 8.88	$ 8.88	$ 9.09	$ 8.95	$ 9.00
Low Growth & High Price	2021-2022	Sep	$ 9.15	$ 9.11	$ 9.11	$ 9.11	$ 9.11	$ 9.04	$ 9.04	$ 9.11	$ 9.06	$ 9.12
Low Growth & High Price	2021-2022	Oct	$ 9.23	$ 9.37	$ 9.23	$ 9.23	$ 9.23	$ 9.12	$ 9.12	$ 9.37	$ 9.20	$ 9.26
Low Growth & High Price	2022-2023	Nov	$ 9.26	$ 9.40	$ 9.26	$ 9.26	$ 9.26	$ 9.15	$ 9.15	$ 9.40	$ 9.23	$ 9.29
Low Growth & High Price	2022-2023	Dec	$ 9.61	$ 9.77	$ 9.61	$ 9.61	$ 9.61	$ 9.77	$ 9.45	$ 9.77	$ 9.66	$ 9.64
Low Growth & High Price	2022-2023	Jan	$ 9.77	$ 9.80	$ 9.77	$ 9.77	$ 9.77	$ 9.79	$ 9.65	$ 9.79	$ 9.75	$ 9.78
Low Growth & High Price	2022-2023	Feb	$ 9.71	$ 9.74	$ 9.71	$ 9.71	$ 9.71	$ 9.56	$ 9.59	$ 9.56	$ 9.57	$ 9.71
Low Growth & High Price	2022-2023	Mar	$ 9.66	$ 9.66	$ 9.66	$ 9.66	$ 9.66	$ 9.54	$ 9.54	$ 9.55	$ 9.54	$ 9.66
Low Growth & High Price	2022-2023	Apr	$ 9.16	$ 9.20	$ 9.16	$ 9.16	$ 9.16	$ 9.05	$ 9.05	$ 9.23	$ 9.11	$ 9.17
Low Growth & High Price	2022-2023	May	$ 9.19	$ 9.20	$ 9.16	$ 9.16	$ 9.16	$ 9.08	$ 9.08	$ 9.23	$ 9.13	$ 9.17
Low Growth & High Price	2022-2023	Jun	$ 9.17	$ 9.16	$ 9.16	$ 9.16	$ 9.16	$ 9.06	$ 9.06	$ 9.23	$ 9.12	$ 9.16
Low Growth & High Price	2022-2023	Jul	$ 9.16	$ 9.17	$ 9.16	$ 9.16	$ 9.16	$ 9.05	$ 9.05	$ 9.24	$ 9.11	$ 9.16
Low Growth & High Price	2022-2023	Aug	$ 9.22	$ 9.22	$ 9.17	$ 9.17	$ 9.17	$ 9.11	$ 9.11	$ 9.24	$ 9.15	$ 9.19
Low Growth & High Price	2022-2023	Sep	$ 9.36	$ 9.29	$ 9.29	$ 9.29	$ 9.29	$ 9.25	$ 9.25	$ 9.29	$ 9.26	$ 9.30
Low Growth & High Price	2022-2023	Oct	$ 9.44	$ 9.53	$ 9.44	$ 9.44	$ 9.44	$ 9.33	$ 9.33	$ 9.53	$ 9.40	$ 9.46
Low Growth & High Price	2023-2024	Nov	$ 9.42	$ 9.51	$ 9.42	$ 9.42	$ 9.42	$ 9.31	$ 9.31	$ 9.51	$ 9.38	$ 9.44
Low Growth & High Price	2023-2024	Dec	$ 9.88	$ 9.98	$ 9.88	$ 9.88	$ 9.88	$ 9.98	$ 9.72	$ 9.98	$ 9.89	$ 9.90
Low Growth & High Price	2023-2024	Jan	$ 10.13	$ 10.13	$ 10.13	$ 10.13	$ 10.13	$ 10.03	$ 10.01	$ 10.03	$ 10.03	$ 10.13
Low Growth & High Price	2023-2024	Feb	$ 10.07	$ 10.08	$ 10.07	$ 10.07	$ 10.07	$ 9.94	$ 9.95	$ 9.94	$ 9.94	$ 10.07
Low Growth & High Price	2023-2024	Mar	$ 10.05	$ 10.02	$ 10.05	$ 10.05	$ 10.05	$ 9.93	$ 9.93	$ 9.93	$ 9.93	$ 10.04
Low Growth & High Price	2023-2024	Apr	$ 9.55	$ 9.57	$ 9.55	$ 9.55	$ 9.55	$ 9.43	$ 9.43	$ 9.62	$ 9.50	$ 9.55
Low Growth & High Price	2023-2024	May	$ 9.55	$ 9.53	$ 9.53	$ 9.53	$ 9.53	$ 9.43	$ 9.43	$ 9.63	$ 9.50	$ 9.53
Low Growth & High Price	2023-2024	Jun	$ 9.58	$ 9.53	$ 9.53	$ 9.53	$ 9.53	$ 9.46	$ 9.46	$ 9.63	$ 9.52	$ 9.54
Low Growth & High Price	2023-2024	Jul	$ 9.54	$ 9.54	$ 9.54	$ 9.54	$ 9.54	$ 9.42	$ 9.42	$ 9.63	$ 9.49	$ 9.54
Low Growth & High Price	2023-2024	Aug	$ 9.60	$ 9.57	$ 9.56	$ 9.56	$ 9.56	$ 9.48	$ 9.48	$ 9.63	$ 9.53	$ 9.57
Low Growth & High Price	2023-2024	Sep	$ 9.68	$ 9.64	$ 9.61	$ 9.61	$ 9.61	$ 9.56	$ 9.56	$ 9.64	$ 9.59	$ 9.63
Low Growth & High Price	2023-2024	Oct	$ 9.81	$ 9.85	$ 9.81	$ 9.81	$ 9.81	$ 9.70	$ 9.70	$ 9.85	$ 9.75	$ 9.82
Low Growth & High Price	2024-2025	Nov	$ 9.80	$ 9.83	$ 9.80	$ 9.80	$ 9.80	$ 9.69	$ 9.69	$ 9.83	$ 9.73	$ 9.81
Low Growth & High Price	2024-2025	Dec	$ 10.21	$ 10.28	$ 10.21	$ 10.21	$ 10.21	$ 10.28	$ 10.05	$ 10.28	$ 10.21	$ 10.22
Low Growth & High Price	2024-2025	Jan	$ 10.36	$ 10.38	$ 10.36	$ 10.36	$ 10.36	$ 10.32	$ 10.24	$ 10.32	$ 10.30	$ 10.37
Low Growth & High Price	2024-2025	Feb	$ 10.30	$ 10.31	$ 10.30	$ 10.30	$ 10.30	$ 10.18	$ 10.18	$ 10.18	$ 10.18	$ 10.30
Low Growth & High Price	2024-2025	Mar	$ 10.29	$ 10.23	$ 10.29	$ 10.29	$ 10.29	$ 10.17	$ 10.17	$ 10.18	$ 10.17	$ 10.28
Low Growth & High Price	2024-2025	Apr	$ 9.76	$ 9.76	$ 9.76	$ 9.76	$ 9.76	$ 9.64	$ 9.64	$ 9.82	$ 9.70	$ 9.76
Low Growth & High Price	2024-2025	May	$ 9.75	$ 9.74	$ 9.74	$ 9.74	$ 9.74	$ 9.63	$ 9.63	$ 9.82	$ 9.70	$ 9.74
Low Growth & High Price	2024-2025	Jun	$ 9.78	$ 9.74	$ 9.74	$ 9.74	$ 9.74	$ 9.66	$ 9.66	$ 9.82	$ 9.72	$ 9.75
Low Growth & High Price	2024-2025	Jul	$ 9.77	$ 9.74	$ 9.74	$ 9.74	$ 9.74	$ 9.65	$ 9.65	$ 9.82	$ 9.71	$ 9.75
Low Growth & High Price	2024-2025	Aug	$ 9.82	$ 9.74	$ 9.74	$ 9.74	$ 9.74	$ 9.71	$ 9.71	$ 9.83	$ 9.75	$ 9.76
Low Growth & High Price	2024-2025	Sep	$ 9.90	$ 9.83	$ 9.83	$ 9.83	$ 9.83	$ 9.79	$ 9.79	$ 9.83	$ 9.80	$ 9.84
Low Growth & High Price	2024-2025	Oct	$ 10.05	$ 10.03	$ 10.03	$ 10.03	$ 10.03	$ 9.93	$ 9.93	$ 10.03	$ 9.96	$ 10.03
Low Growth & High Price	2025-2026	Nov	$ 10.12	$ 10.24	$ 10.12	$ 10.12	$ 10.12	$ 10.00	$ 10.00	$ 10.24	$ 10.08	$ 10.14
Low Growth & High Price	2025-2026	Dec	$ 10.57	$ 10.73	$ 10.57	$ 10.57	$ 10.57	$ 10.73	$ 10.39	$ 10.73	$ 10.62	$ 10.60
Low Growth & High Price	2025-2026	Jan	$ 11.03	$ 11.03	$ 11.03	$ 11.03	$ 11.03	$ 10.90	$ 10.90	$ 10.90	$ 10.90	$ 11.03
Low Growth & High Price	2025-2026	Feb	$ 10.96	$ 10.99	$ 10.96	$ 10.96	$ 10.96	$ 10.83	$ 10.83	$ 10.83	$ 10.83	$ 10.96
Low Growth & High Price	2025-2026	Mar	$ 10.92	$ 10.92	$ 10.92	$ 10.92	$ 10.92	$ 10.79	$ 10.79	$ 10.79	$ 10.79	$ 10.92
Low Growth & High Price	2025-2026	Apr	$ 10.36	$ 10.49	$ 10.36	$ 10.36	$ 10.36	$ 10.24	$ 10.24	$ 10.55	$ 10.34	$ 10.39
Low Growth & High Price	2025-2026	May	$ 10.38	$ 10.49	$ 10.38	$ 10.38	$ 10.38	$ 10.26	$ 10.26	$ 10.55	$ 10.36	$ 10.40
Low Growth & High Price	2025-2026	Jun	$ 10.38	$ 10.45	$ 10.38	$ 10.38	$ 10.38	$ 10.26	$ 10.26	$ 10.55	$ 10.36	$ 10.40
Low Growth & High Price	2025-2026	Jul	$ 10.37	$ 10.49	$ 10.37	$ 10.37	$ 10.37	$ 10.25	$ 10.25	$ 10.55	$ 10.35	$ 10.40
Low Growth & High Price	2025-2026	Aug	$ 10.43	$ 10.56	$ 10.42	$ 10.42	$ 10.42	$ 10.31	$ 10.31	$ 10.56	$ 10.39	$ 10.45
Low Growth & High Price	2025-2026	Sep	$ 10.59	$ 10.56	$ 10.55	$ 10.55	$ 10.55	$ 10.46	$ 10.46	$ 10.56	$ 10.50	$ 10.56
Low Growth & High Price	2025-2026	Oct	$ 10.72	$ 10.88	$ 10.72	$ 10.72	$ 10.72	$ 10.59	$ 10.59	$ 10.88	$ 10.69	$ 10.75
Low Growth & High Price	2026-2027	Nov	$ 10.72	$ 10.87	$ 10.72	$ 10.72	$ 10.72	$ 10.59	$ 10.59	$ 10.87	$ 10.69	$ 10.75
Low Growth & High Price	2026-2027	Dec	$ 11.21	$ 11.36	$ 11.21	$ 11.21	$ 11.21	$ 11.36	$ 11.03	$ 11.36	$ 11.25	$ 11.24
Low Growth & High Price	2026-2027	Jan	$ 11.55	$ 11.55	$ 11.55	$ 11.55	$ 11.55	$ 11.47	$ 11.41	$ 11.47	$ 11.45	$ 11.55

APPENDIX 6.4 II LOW GROWTH – HIGH PRICE MONTHLY DETAIL

Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Low Growth & High Price	2026-2027	Feb	$ 11.50	$ 11.52	$ 11.50	$ 11.50	$ 11.50	$ 11.34	$ 11.36	$ 11.34	$ 11.35	$ 11.50
Low Growth & High Price	2026-2027	Mar	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.31	$ 11.31	$ 11.31	$ 11.31	$ 11.45
Low Growth & High Price	2026-2027	Apr	$ 10.88	$ 10.97	$ 10.88	$ 10.88	$ 10.88	$ 10.76	$ 10.76	$ 11.02	$ 10.85	$ 10.90
Low Growth & High Price	2026-2027	May	$ 10.89	$ 10.98	$ 10.89	$ 10.89	$ 10.89	$ 10.77	$ 10.77	$ 11.03	$ 10.85	$ 10.91
Low Growth & High Price	2026-2027	Jun	$ 10.89	$ 10.95	$ 10.89	$ 10.89	$ 10.89	$ 10.77	$ 10.77	$ 11.03	$ 10.85	$ 10.91
Low Growth & High Price	2026-2027	Jul	$ 10.86	$ 10.96	$ 10.86	$ 10.86	$ 10.86	$ 10.74	$ 10.74	$ 11.03	$ 10.83	$ 10.88
Low Growth & High Price	2026-2027	Aug	$ 10.94	$ 11.03	$ 10.93	$ 10.93	$ 10.93	$ 10.81	$ 10.81	$ 11.03	$ 10.88	$ 10.95
Low Growth & High Price	2026-2027	Sep	$ 11.13	$ 11.09	$ 11.09	$ 11.09	$ 11.09	$ 11.00	$ 11.00	$ 11.09	$ 11.03	$ 11.10
Low Growth & High Price	2026-2027	Oct	$ 11.24	$ 11.38	$ 11.24	$ 11.24	$ 11.24	$ 11.11	$ 11.11	$ 11.38	$ 11.20	$ 11.27
Low Growth & High Price	2027-2028	Nov	$ 11.25	$ 11.34	$ 11.25	$ 11.25	$ 11.25	$ 11.12	$ 11.12	$ 11.34	$ 11.19	$ 11.27
Low Growth & High Price	2027-2028	Dec	$ 11.76	$ 11.88	$ 11.76	$ 11.76	$ 11.76	$ 11.88	$ 11.58	$ 11.88	$ 11.78	$ 11.78
Low Growth & High Price	2027-2028	Jan	$ 12.20	$ 12.20	$ 12.20	$ 12.20	$ 12.20	$ 12.06	$ 12.06	$ 12.06	$ 12.06	$ 12.20
Low Growth & High Price	2027-2028	Feb	$ 12.15	$ 12.17	$ 12.15	$ 12.15	$ 12.15	$ 11.96	$ 12.01	$ 11.96	$ 11.98	$ 12.16
Low Growth & High Price	2027-2028	Mar	$ 12.08	$ 12.06	$ 12.08	$ 12.08	$ 12.08	$ 11.94	$ 11.94	$ 11.95	$ 11.94	$ 12.08
Low Growth & High Price	2027-2028	Apr	$ 11.46	$ 11.51	$ 11.46	$ 11.46	$ 11.46	$ 11.32	$ 11.32	$ 11.56	$ 11.40	$ 11.47
Low Growth & High Price	2027-2028	May	$ 11.48	$ 11.51	$ 11.48	$ 11.48	$ 11.48	$ 11.34	$ 11.34	$ 11.56	$ 11.42	$ 11.48
Low Growth & High Price	2027-2028	Jun	$ 11.49	$ 11.50	$ 11.49	$ 11.49	$ 11.49	$ 11.35	$ 11.35	$ 11.57	$ 11.42	$ 11.49
Low Growth & High Price	2027-2028	Jul	$ 11.45	$ 11.50	$ 11.45	$ 11.45	$ 11.45	$ 11.31	$ 11.31	$ 11.57	$ 11.40	$ 11.46
Low Growth & High Price	2027-2028	Aug	$ 11.52	$ 11.57	$ 11.51	$ 11.51	$ 11.51	$ 11.38	$ 11.38	$ 11.57	$ 11.45	$ 11.52
Low Growth & High Price	2027-2028	Sep	$ 11.77	$ 11.72	$ 11.72	$ 11.72	$ 11.72	$ 11.64	$ 11.64	$ 11.72	$ 11.66	$ 11.73
Low Growth & High Price	2027-2028	Oct	$ 11.87	$ 11.93	$ 11.87	$ 11.87	$ 11.87	$ 11.73	$ 11.73	$ 11.93	$ 11.80	$ 11.88
Low Growth & High Price	2028-2029	Nov	$ 11.89	$ 11.91	$ 11.89	$ 11.89	$ 11.89	$ 11.75	$ 11.75	$ 11.91	$ 11.80	$ 11.89
Low Growth & High Price	2028-2029	Dec	$ 12.40	$ 12.49	$ 12.40	$ 12.40	$ 12.40	$ 12.49	$ 12.21	$ 12.49	$ 12.40	$ 12.42
Low Growth & High Price	2028-2029	Jan	$ 12.85	$ 12.85	$ 12.85	$ 12.85	$ 12.85	$ 12.70	$ 12.70	$ 12.70	$ 12.70	$ 12.85
Low Growth & High Price	2028-2029	Feb	$ 12.77	$ 12.77	$ 12.77	$ 12.77	$ 12.77	$ 12.61	$ 12.62	$ 12.61	$ 12.61	$ 12.77
Low Growth & High Price	2028-2029	Mar	$ 12.74	$ 12.66	$ 12.74	$ 12.74	$ 12.74	$ 12.60	$ 12.60	$ 12.61	$ 12.60	$ 12.73
Low Growth & High Price	2028-2029	Apr	$ 12.07	$ 12.10	$ 12.07	$ 12.07	$ 12.07	$ 11.93	$ 11.93	$ 12.18	$ 12.01	$ 12.08
Low Growth & High Price	2028-2029	May	$ 12.08	$ 12.08	$ 12.08	$ 12.08	$ 12.08	$ 11.94	$ 11.94	$ 12.18	$ 12.02	$ 12.08
Low Growth & High Price	2028-2029	Jun	$ 12.08	$ 12.08	$ 12.08	$ 12.08	$ 12.08	$ 11.94	$ 11.94	$ 12.18	$ 12.02	$ 12.08
Low Growth & High Price	2028-2029	Jul	$ 12.07	$ 12.10	$ 12.07	$ 12.07	$ 12.07	$ 11.93	$ 11.93	$ 12.19	$ 12.01	$ 12.08
Low Growth & High Price	2028-2029	Aug	$ 12.14	$ 12.17	$ 12.14	$ 12.14	$ 12.14	$ 12.00	$ 12.00	$ 12.19	$ 12.06	$ 12.15
Low Growth & High Price	2028-2029	Sep	$ 12.27	$ 12.25	$ 12.25	$ 12.25	$ 12.25	$ 12.13	$ 12.13	$ 12.25	$ 12.17	$ 12.25
Low Growth & High Price	2028-2029	Oct	$ 12.46	$ 12.50	$ 12.46	$ 12.46	$ 12.46	$ 12.31	$ 12.31	$ 12.50	$ 12.38	$ 12.47
Low Growth & High Price	2029-2030	Nov	$ 12.48	$ 12.46	$ 12.48	$ 12.48	$ 12.48	$ 12.33	$ 12.33	$ 12.46	$ 12.38	$ 12.48
Low Growth & High Price	2029-2030	Dec	$ 13.02	$ 13.13	$ 13.02	$ 13.02	$ 13.02	$ 13.13	$ 12.83	$ 13.13	$ 13.03	$ 13.04
Low Growth & High Price	2029-2030	Jan	$ 13.57	$ 13.56	$ 13.56	$ 13.56	$ 13.56	$ 13.41	$ 13.41	$ 13.41	$ 13.41	$ 13.56
Low Growth & High Price	2029-2030	Feb	$ 13.50	$ 13.50	$ 13.50	$ 13.50	$ 13.50	$ 13.31	$ 13.34	$ 13.31	$ 13.32	$ 13.50
Low Growth & High Price	2029-2030	Mar	$ 13.44	$ 13.33	$ 13.44	$ 13.44	$ 13.44	$ 13.30	$ 13.30	$ 13.31	$ 13.30	$ 13.42
Low Growth & High Price	2029-2030	Apr	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.64	$ 12.64	$ 12.89	$ 12.72	$ 12.79
Low Growth & High Price	2029-2030	May	$ 12.80	$ 12.78	$ 12.78	$ 12.78	$ 12.78	$ 12.65	$ 12.65	$ 12.89	$ 12.73	$ 12.78
Low Growth & High Price	2029-2030	Jun	$ 12.80	$ 12.78	$ 12.78	$ 12.78	$ 12.78	$ 12.65	$ 12.65	$ 12.89	$ 12.73	$ 12.79
Low Growth & High Price	2029-2030	Jul	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.64	$ 12.64	$ 12.90	$ 12.72	$ 12.79
Low Growth & High Price	2029-2030	Aug	$ 12.86	$ 12.83	$ 12.83	$ 12.83	$ 12.83	$ 12.71	$ 12.71	$ 12.90	$ 12.77	$ 12.83
Low Growth & High Price	2029-2030	Sep	$ 13.02	$ 13.01	$ 13.01	$ 13.01	$ 13.01	$ 12.87	$ 12.87	$ 13.01	$ 12.92	$ 13.01
Low Growth & High Price	2029-2030	Oct	$ 13.18	$ 13.19	$ 13.18	$ 13.18	$ 13.18	$ 13.03	$ 13.03	$ 13.19	$ 13.08	$ 13.19
Low Growth & High Price	2030-2031	Nov	$ 13.19	$ 13.13	$ 13.19	$ 13.19	$ 13.19	$ 13.04	$ 13.04	$ 13.13	$ 13.07	$ 13.18
Low Growth & High Price	2030-2031	Dec	$ 13.76	$ 13.74	$ 13.75	$ 13.75	$ 13.75	$ 13.74	$ 13.60	$ 13.74	$ 13.69	$ 13.75
Low Growth & High Price	2030-2031	Jan	$ 13.60	$ 13.56	$ 13.59	$ 13.59	$ 13.59	$ 13.56	$ 13.45	$ 13.56	$ 13.52	$ 13.58
Low Growth & High Price	2030-2031	Feb	$ 13.53	$ 13.48	$ 13.53	$ 13.53	$ 13.53	$ 13.33	$ 13.37	$ 13.33	$ 13.34	$ 13.52
Low Growth & High Price	2030-2031	Mar	$ 13.43	$ 13.31	$ 13.43	$ 13.43	$ 13.43	$ 13.31	$ 13.31	$ 13.31	$ 13.31	$ 13.41
Low Growth & High Price	2030-2031	Apr	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.64	$ 12.64	$ 12.92	$ 12.73	$ 12.79
Low Growth & High Price	2030-2031	May	$ 12.80	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.65	$ 12.65	$ 12.92	$ 12.74	$ 12.79
Low Growth & High Price	2030-2031	Jun	$ 12.84	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.69	$ 12.69	$ 12.92	$ 12.77	$ 12.80
Low Growth & High Price	2030-2031	Jul	$ 12.80	$ 12.79	$ 12.79	$ 12.79	$ 12.79	$ 12.65	$ 12.65	$ 12.93	$ 12.74	$ 12.79
Low Growth & High Price	2030-2031	Aug	$ 12.88	$ 12.82	$ 12.82	$ 12.82	$ 12.82	$ 12.73	$ 12.73	$ 12.93	$ 12.79	$ 12.83
Low Growth & High Price	2030-2031	Sep	$ 13.05	$ 13.00	$ 13.00	$ 13.00	$ 13.00	$ 12.90	$ 12.90	$ 13.00	$ 12.93	$ 13.01
Low Growth & High Price	2030-2031	Oct	$ 13.24	$ 13.20	$ 13.20	$ 13.20	$ 13.20	$ 13.08	$ 13.08	$ 13.20	$ 13.12	$ 13.21

1/ Avoided costs shown before Environmental Externalities adder.

APPENDIX 6.4 II EXPECTED MONTHLY DETAIL

Appendix 6.4 - Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Expected	2011-2012	Nov	$ 2.97	$ 2.99	$ 2.97	$ 2.97	$ 2.97	$ 2.95	$ 2.93	$ 2.99	$ 2.96	$ 2.98
Expected	2011-2012	Dec	$ 2.83	$ 3.02	$ 2.83	$ 2.83	$ 2.83	$ 3.02	$ 2.76	$ 3.02	$ 2.93	$ 2.87
Expected	2011-2012	Jan	$ 2.35	$ 2.55	$ 2.35	$ 2.35	$ 2.35	$ 2.55	$ 2.32	$ 2.55	$ 2.47	$ 2.39
Expected	2011-2012	Feb	$ 2.89	$ 2.92	$ 2.89	$ 2.89	$ 2.89	$ 2.88	$ 2.85	$ 2.89	$ 2.87	$ 2.90
Expected	2011-2012	Mar	$ 2.95	$ 2.95	$ 2.95	$ 2.95	$ 2.95	$ 2.91	$ 2.91	$ 2.91	$ 2.91	$ 2.95
Expected	2011-2012	Apr	$ 2.44	$ 2.59	$ 2.44	$ 2.44	$ 2.44	$ 2.41	$ 2.41	$ 2.87	$ 2.56	$ 2.47
Expected	2011-2012	May	$ 2.55	$ 2.80	$ 2.55	$ 2.55	$ 2.55	$ 2.52	$ 2.52	$ 2.87	$ 2.64	$ 2.60
Expected	2011-2012	Jun	$ 2.70	$ 2.87	$ 2.70	$ 2.70	$ 2.70	$ 2.66	$ 2.66	$ 2.87	$ 2.73	$ 2.73
Expected	2011-2012	Jul	$ 2.76	$ 2.88	$ 2.76	$ 2.76	$ 2.76	$ 2.72	$ 2.72	$ 2.88	$ 2.77	$ 2.78
Expected	2011-2012	Aug	$ 2.64	$ 2.88	$ 2.64	$ 2.64	$ 2.64	$ 2.60	$ 2.60	$ 2.88	$ 2.69	$ 2.68
Expected	2011-2012	Sep	$ 2.53	$ 2.78	$ 2.53	$ 2.53	$ 2.53	$ 2.50	$ 2.50	$ 2.88	$ 2.63	$ 2.58
Expected	2011-2012	Oct	$ 2.66	$ 2.90	$ 2.66	$ 2.66	$ 2.66	$ 2.62	$ 2.62	$ 2.90	$ 2.71	$ 2.70
Expected	2012-2013	Nov	$ 3.12	$ 3.32	$ 3.12	$ 3.12	$ 3.12	$ 3.15	$ 3.07	$ 3.32	$ 3.18	$ 3.16
Expected	2012-2013	Dec	$ 3.26	$ 3.66	$ 3.29	$ 3.29	$ 3.29	$ 3.66	$ 3.17	$ 3.66	$ 3.50	$ 3.36
Expected	2012-2013	Jan	$ 3.45	$ 3.79	$ 3.45	$ 3.45	$ 3.45	$ 3.79	$ 3.41	$ 3.79	$ 3.67	$ 3.52
Expected	2012-2013	Feb	$ 3.61	$ 3.83	$ 3.61	$ 3.61	$ 3.61	$ 3.74	$ 3.55	$ 3.83	$ 3.71	$ 3.65
Expected	2012-2013	Mar	$ 3.67	$ 3.82	$ 3.67	$ 3.67	$ 3.67	$ 3.62	$ 3.62	$ 3.82	$ 3.69	$ 3.70
Expected	2012-2013	Apr	$ 3.61	$ 3.79	$ 3.61	$ 3.61	$ 3.61	$ 3.56	$ 3.56	$ 3.82	$ 3.65	$ 3.64
Expected	2012-2013	May	$ 3.59	$ 3.82	$ 3.59	$ 3.59	$ 3.59	$ 3.54	$ 3.54	$ 3.82	$ 3.63	$ 3.63
Expected	2012-2013	Jun	$ 3.60	$ 3.82	$ 3.60	$ 3.60	$ 3.60	$ 3.55	$ 3.55	$ 3.82	$ 3.64	$ 3.64
Expected	2012-2013	Jul	$ 3.63	$ 3.82	$ 3.63	$ 3.63	$ 3.63	$ 3.58	$ 3.58	$ 3.82	$ 3.66	$ 3.67
Expected	2012-2013	Aug	$ 3.63	$ 3.82	$ 3.63	$ 3.63	$ 3.63	$ 3.58	$ 3.58	$ 3.82	$ 3.66	$ 3.67
Expected	2012-2013	Sep	$ 3.63	$ 3.83	$ 3.63	$ 3.63	$ 3.63	$ 3.58	$ 3.58	$ 3.83	$ 3.66	$ 3.67
Expected	2012-2013	Oct	$ 3.66	$ 3.89	$ 3.66	$ 3.66	$ 3.66	$ 3.61	$ 3.61	$ 3.89	$ 3.70	$ 3.70
Expected	2013-2014	Nov	$ 3.85	$ 4.06	$ 3.85	$ 3.85	$ 3.85	$ 3.88	$ 3.80	$ 4.06	$ 3.92	$ 3.89
Expected	2013-2014	Dec	$ 3.97	$ 4.18	$ 3.97	$ 3.97	$ 3.97	$ 4.18	$ 3.88	$ 4.18	$ 4.08	$ 4.02
Expected	2013-2014	Jan	$ 3.94	$ 4.17	$ 3.94	$ 3.94	$ 3.94	$ 4.17	$ 3.89	$ 4.17	$ 4.08	$ 3.99
Expected	2013-2014	Feb	$ 3.95	$ 4.07	$ 3.95	$ 3.95	$ 3.95	$ 4.00	$ 3.89	$ 4.06	$ 3.99	$ 3.98
Expected	2013-2014	Mar	$ 3.95	$ 4.05	$ 3.95	$ 3.95	$ 3.95	$ 3.90	$ 3.90	$ 4.05	$ 3.95	$ 3.97
Expected	2013-2014	Apr	$ 3.79	$ 3.98	$ 3.79	$ 3.79	$ 3.79	$ 3.74	$ 3.74	$ 4.05	$ 3.84	$ 3.83
Expected	2013-2014	May	$ 3.74	$ 4.00	$ 3.74	$ 3.74	$ 3.74	$ 3.69	$ 3.69	$ 4.05	$ 3.81	$ 3.79
Expected	2013-2014	Jun	$ 3.77	$ 4.02	$ 3.77	$ 3.77	$ 3.77	$ 3.72	$ 3.72	$ 4.05	$ 3.83	$ 3.82
Expected	2013-2014	Jul	$ 3.80	$ 4.05	$ 3.80	$ 3.80	$ 3.80	$ 3.75	$ 3.75	$ 4.05	$ 3.85	$ 3.85
Expected	2013-2014	Aug	$ 3.80	$ 4.05	$ 3.80	$ 3.80	$ 3.80	$ 3.75	$ 3.75	$ 4.05	$ 3.85	$ 3.85
Expected	2013-2014	Sep	$ 3.81	$ 4.06	$ 3.81	$ 3.81	$ 3.81	$ 3.76	$ 3.76	$ 4.06	$ 3.86	$ 3.86
Expected	2013-2014	Oct	$ 3.83	$ 4.12	$ 3.83	$ 3.83	$ 3.83	$ 3.78	$ 3.78	$ 4.12	$ 3.90	$ 3.89
Expected	2014-2015	Nov	$ 4.03	$ 4.28	$ 4.03	$ 4.03	$ 4.03	$ 4.06	$ 3.97	$ 4.28	$ 4.10	$ 4.08
Expected	2014-2015	Dec	$ 4.07	$ 4.32	$ 4.07	$ 4.07	$ 4.07	$ 4.32	$ 3.97	$ 4.32	$ 4.20	$ 4.12
Expected	2014-2015	Jan	$ 4.07	$ 4.34	$ 4.07	$ 4.07	$ 4.07	$ 4.34	$ 4.01	$ 4.34	$ 4.23	$ 4.12
Expected	2014-2015	Feb	$ 4.08	$ 4.23	$ 4.08	$ 4.08	$ 4.08	$ 4.17	$ 4.02	$ 4.23	$ 4.14	$ 4.11
Expected	2014-2015	Mar	$ 4.09	$ 4.21	$ 4.09	$ 4.09	$ 4.09	$ 4.03	$ 4.03	$ 4.21	$ 4.09	$ 4.11
Expected	2014-2015	Apr	$ 3.94	$ 4.15	$ 3.94	$ 3.94	$ 3.94	$ 3.89	$ 3.89	$ 4.21	$ 4.00	$ 3.99
Expected	2014-2015	May	$ 3.93	$ 4.17	$ 3.93	$ 3.93	$ 3.93	$ 3.88	$ 3.88	$ 4.21	$ 3.99	$ 3.98
Expected	2014-2015	Jun	$ 3.99	$ 4.19	$ 3.99	$ 3.99	$ 3.99	$ 3.93	$ 3.93	$ 4.21	$ 4.03	$ 4.03
Expected	2014-2015	Jul	$ 4.02	$ 4.21	$ 4.02	$ 4.02	$ 4.02	$ 3.96	$ 3.96	$ 4.21	$ 4.05	$ 4.06
Expected	2014-2015	Aug	$ 4.01	$ 4.22	$ 4.01	$ 4.01	$ 4.01	$ 3.95	$ 3.95	$ 4.22	$ 4.04	$ 4.05
Expected	2014-2015	Sep	$ 3.98	$ 4.22	$ 3.98	$ 3.98	$ 3.98	$ 3.92	$ 3.92	$ 4.22	$ 4.02	$ 4.02
Expected	2014-2015	Oct	$ 3.99	$ 4.30	$ 3.99	$ 3.99	$ 3.99	$ 3.93	$ 3.93	$ 4.30	$ 4.05	$ 4.05
Expected	2015-2016	Nov	$ 4.16	$ 4.44	$ 4.16	$ 4.16	$ 4.16	$ 4.21	$ 4.11	$ 4.44	$ 4.25	$ 4.21
Expected	2015-2016	Dec	$ 4.21	$ 4.49	$ 4.21	$ 4.21	$ 4.21	$ 4.49	$ 4.11	$ 4.49	$ 4.36	$ 4.27
Expected	2015-2016	Jan	$ 4.19	$ 4.51	$ 4.19	$ 4.19	$ 4.19	$ 4.51	$ 4.14	$ 4.51	$ 4.38	$ 4.25
Expected	2015-2016	Feb	$ 4.20	$ 4.47	$ 4.20	$ 4.20	$ 4.20	$ 4.37	$ 4.15	$ 4.47	$ 4.33	$ 4.25
Expected	2015-2016	Mar	$ 4.26	$ 4.45	$ 4.26	$ 4.26	$ 4.26	$ 4.21	$ 4.21	$ 4.45	$ 4.29	$ 4.30
Expected	2015-2016	Apr	$ 4.11	$ 4.38	$ 4.11	$ 4.11	$ 4.11	$ 4.06	$ 4.06	$ 4.45	$ 4.19	$ 4.16
Expected	2015-2016	May	$ 4.12	$ 4.39	$ 4.12	$ 4.12	$ 4.12	$ 4.07	$ 4.07	$ 4.45	$ 4.19	$ 4.17
Expected	2015-2016	Jun	$ 4.16	$ 4.41	$ 4.16	$ 4.16	$ 4.16	$ 4.11	$ 4.11	$ 4.46	$ 4.22	$ 4.21
Expected	2015-2016	Jul	$ 4.18	$ 4.46	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.46	$ 4.24	$ 4.24
Expected	2015-2016	Aug	$ 4.18	$ 4.46	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.46	$ 4.24	$ 4.24
Expected	2015-2016	Sep	$ 4.17	$ 4.46	$ 4.17	$ 4.17	$ 4.17	$ 4.12	$ 4.12	$ 4.46	$ 4.23	$ 4.23
Expected	2015-2016	Oct	$ 4.18	$ 4.51	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.51	$ 4.25	$ 4.25
Expected	2016-2017	Nov	$ 4.35	$ 4.67	$ 4.35	$ 4.35	$ 4.35	$ 4.41	$ 4.30	$ 4.67	$ 4.46	$ 4.42
Expected	2016-2017	Dec	$ 4.40	$ 4.69	$ 4.40	$ 4.40	$ 4.40	$ 4.69	$ 4.29	$ 4.69	$ 4.56	$ 4.46
Expected	2016-2017	Jan	$ 4.37	$ 4.71	$ 4.37	$ 4.37	$ 4.37	$ 4.71	$ 4.32	$ 4.71	$ 4.58	$ 4.44
Expected	2016-2017	Feb	$ 4.39	$ 4.64	$ 4.39	$ 4.39	$ 4.39	$ 4.58	$ 4.34	$ 4.64	$ 4.52	$ 4.44
Expected	2016-2017	Mar	$ 4.41	$ 4.62	$ 4.41	$ 4.41	$ 4.41	$ 4.36	$ 4.36	$ 4.62	$ 4.45	$ 4.46
Expected	2016-2017	Apr	$ 4.24	$ 4.56	$ 4.24	$ 4.24	$ 4.24	$ 4.19	$ 4.19	$ 4.62	$ 4.33	$ 4.30
Expected	2016-2017	May	$ 4.29	$ 4.59	$ 4.29	$ 4.29	$ 4.29	$ 4.24	$ 4.24	$ 4.62	$ 4.37	$ 4.35
Expected	2016-2017	Jun	$ 4.32	$ 4.61	$ 4.32	$ 4.32	$ 4.32	$ 4.27	$ 4.27	$ 4.62	$ 4.39	$ 4.38
Expected	2016-2017	Jul	$ 4.35	$ 4.63	$ 4.35	$ 4.35	$ 4.35	$ 4.30	$ 4.30	$ 4.63	$ 4.41	$ 4.41
Expected	2016-2017	Aug	$ 4.35	$ 4.63	$ 4.35	$ 4.35	$ 4.35	$ 4.30	$ 4.30	$ 4.63	$ 4.41	$ 4.41
Expected	2016-2017	Sep	$ 4.35	$ 4.63	$ 4.35	$ 4.35	$ 4.35	$ 4.30	$ 4.30	$ 4.63	$ 4.41	$ 4.41
Expected	2016-2017	Oct	$ 4.36	$ 4.72	$ 4.36	$ 4.36	$ 4.36	$ 4.31	$ 4.31	$ 4.72	$ 4.45	$ 4.44
Expected	2017-2018	Nov	$ 4.51	$ 4.88	$ 4.51	$ 4.51	$ 4.51	$ 4.58	$ 4.45	$ 4.88	$ 4.64	$ 4.58
Expected	2017-2018	Dec	$ 4.62	$ 4.94	$ 4.62	$ 4.62	$ 4.62	$ 4.94	$ 4.49	$ 4.94	$ 4.79	$ 4.68
Expected	2017-2018	Jan	$ 4.60	$ 4.95	$ 4.60	$ 4.60	$ 4.60	$ 4.95	$ 4.54	$ 4.95	$ 4.82	$ 4.67
Expected	2017-2018	Feb	$ 4.63	$ 4.89	$ 4.63	$ 4.63	$ 4.63	$ 4.83	$ 4.57	$ 4.89	$ 4.76	$ 4.68
Expected	2017-2018	Mar	$ 4.63	$ 4.86	$ 4.63	$ 4.63	$ 4.63	$ 4.57	$ 4.57	$ 4.86	$ 4.67	$ 4.68
Expected	2017-2018	Apr	$ 4.46	$ 4.81	$ 4.46	$ 4.46	$ 4.46	$ 4.40	$ 4.40	$ 4.86	$ 4.55	$ 4.53
Expected	2017-2018	May	$ 4.50	$ 4.83	$ 4.50	$ 4.50	$ 4.50	$ 4.44	$ 4.44	$ 4.87	$ 4.58	$ 4.56
Expected	2017-2018	Jun	$ 4.54	$ 4.85	$ 4.54	$ 4.54	$ 4.54	$ 4.48	$ 4.48	$ 4.87	$ 4.61	$ 4.60
Expected	2017-2018	Jul	$ 4.57	$ 4.87	$ 4.57	$ 4.57	$ 4.57	$ 4.51	$ 4.51	$ 4.87	$ 4.63	$ 4.63
Expected	2017-2018	Aug	$ 4.58	$ 4.87	$ 4.58	$ 4.58	$ 4.58	$ 4.52	$ 4.52	$ 4.87	$ 4.64	$ 4.64
Expected	2017-2018	Sep	$ 4.57	$ 4.87	$ 4.57	$ 4.57	$ 4.57	$ 4.51	$ 4.51	$ 4.87	$ 4.63	$ 4.63

APPENDIX 6.4 II EXPECTED MONTHLY DETAIL

Appendix 6.4 - Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Expected	2017-2018	Oct	$ 4.58	$ 4.97	$ 4.58	$ 4.58	$ 4.58	$ 4.52	$ 4.52	$ 4.97	$ 4.67	$ 4.66
Expected	2018-2019	Nov	$ 4.69	$ 5.08	$ 4.69	$ 4.69	$ 4.69	$ 4.76	$ 4.63	$ 5.08	$ 4.82	$ 4.77
Expected	2018-2019	Dec	$ 4.84	$ 5.15	$ 4.84	$ 4.84	$ 4.84	$ 5.15	$ 4.70	$ 5.15	$ 5.00	$ 4.90
Expected	2018-2019	Jan	$ 4.78	$ 5.16	$ 4.78	$ 4.78	$ 4.78	$ 5.16	$ 4.72	$ 5.16	$ 5.01	$ 4.86
Expected	2018-2019	Feb	$ 4.81	$ 5.09	$ 4.81	$ 4.81	$ 4.81	$ 5.05	$ 4.75	$ 5.08	$ 4.96	$ 4.87
Expected	2018-2019	Mar	$ 4.80	$ 5.06	$ 4.80	$ 4.80	$ 4.80	$ 4.74	$ 4.74	$ 5.06	$ 4.85	$ 4.85
Expected	2018-2019	Apr	$ 4.63	$ 4.96	$ 4.63	$ 4.63	$ 4.63	$ 4.57	$ 4.57	$ 5.06	$ 4.73	$ 4.70
Expected	2018-2019	May	$ 4.67	$ 4.96	$ 4.67	$ 4.67	$ 4.67	$ 4.61	$ 4.61	$ 5.06	$ 4.76	$ 4.73
Expected	2018-2019	Jun	$ 4.70	$ 4.99	$ 4.70	$ 4.70	$ 4.70	$ 4.64	$ 4.64	$ 5.06	$ 4.78	$ 4.76
Expected	2018-2019	Jul	$ 4.74	$ 5.06	$ 4.74	$ 4.74	$ 4.74	$ 4.68	$ 4.68	$ 5.06	$ 4.81	$ 4.81
Expected	2018-2019	Aug	$ 4.75	$ 5.06	$ 4.75	$ 4.75	$ 4.75	$ 4.69	$ 4.69	$ 5.06	$ 4.82	$ 4.81
Expected	2018-2019	Sep	$ 4.68	$ 5.06	$ 4.68	$ 4.68	$ 4.68	$ 4.62	$ 4.62	$ 5.06	$ 4.77	$ 4.76
Expected	2018-2019	Oct	$ 4.69	$ 5.10	$ 4.69	$ 4.69	$ 4.69	$ 4.63	$ 4.63	$ 5.10	$ 4.79	$ 4.77
Expected	2019-2020	Nov	$ 4.78	$ 5.11	$ 4.78	$ 4.78	$ 4.78	$ 4.84	$ 4.72	$ 5.11	$ 4.89	$ 4.85
Expected	2019-2020	Dec	$ 4.92	$ 5.18	$ 4.92	$ 4.92	$ 4.92	$ 5.18	$ 4.77	$ 5.18	$ 5.04	$ 4.97
Expected	2019-2020	Jan	$ 4.90	$ 5.16	$ 4.90	$ 4.90	$ 4.90	$ 5.16	$ 4.83	$ 5.16	$ 5.05	$ 4.95
Expected	2019-2020	Feb	$ 4.93	$ 5.06	$ 4.93	$ 4.93	$ 4.93	$ 5.04	$ 4.86	$ 5.05	$ 4.98	$ 4.96
Expected	2019-2020	Mar	$ 4.86	$ 5.00	$ 4.86	$ 4.86	$ 4.86	$ 4.80	$ 4.80	$ 5.00	$ 4.87	$ 4.89
Expected	2019-2020	Apr	$ 4.72	$ 4.95	$ 4.72	$ 4.72	$ 4.72	$ 4.66	$ 4.66	$ 5.00	$ 4.77	$ 4.77
Expected	2019-2020	May	$ 4.75	$ 4.93	$ 4.75	$ 4.75	$ 4.75	$ 4.69	$ 4.69	$ 5.00	$ 4.79	$ 4.79
Expected	2019-2020	Jun	$ 4.79	$ 4.95	$ 4.79	$ 4.79	$ 4.79	$ 4.73	$ 4.73	$ 5.00	$ 4.82	$ 4.83
Expected	2019-2020	Jul	$ 4.83	$ 5.00	$ 4.83	$ 4.83	$ 4.83	$ 4.77	$ 4.77	$ 5.00	$ 4.85	$ 4.87
Expected	2019-2020	Aug	$ 4.84	$ 5.00	$ 4.84	$ 4.84	$ 4.84	$ 4.78	$ 4.78	$ 5.00	$ 4.86	$ 4.88
Expected	2019-2020	Sep	$ 4.77	$ 5.00	$ 4.77	$ 4.77	$ 4.77	$ 4.71	$ 4.71	$ 5.00	$ 4.81	$ 4.82
Expected	2019-2020	Oct	$ 4.78	$ 5.06	$ 4.78	$ 4.78	$ 4.78	$ 4.72	$ 4.72	$ 5.06	$ 4.83	$ 4.84
Expected	2020-2021	Nov	$ 4.91	$ 5.18	$ 4.91	$ 4.91	$ 4.91	$ 4.94	$ 4.84	$ 5.18	$ 4.99	$ 4.96
Expected	2020-2021	Dec	$ 5.04	$ 5.27	$ 5.04	$ 5.04	$ 5.04	$ 5.27	$ 4.90	$ 5.27	$ 5.15	$ 5.09
Expected	2020-2021	Jan	$ 5.00	$ 5.25	$ 5.00	$ 5.00	$ 5.00	$ 5.25	$ 4.93	$ 5.25	$ 5.14	$ 5.05
Expected	2020-2021	Feb	$ 5.03	$ 5.13	$ 5.03	$ 5.03	$ 5.03	$ 5.12	$ 4.96	$ 5.12	$ 5.07	$ 5.05
Expected	2020-2021	Mar	$ 5.01	$ 5.06	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.06	$ 4.98	$ 5.02
Expected	2020-2021	Apr	$ 4.84	$ 5.05	$ 4.84	$ 4.84	$ 4.84	$ 4.78	$ 4.78	$ 5.06	$ 4.88	$ 4.88
Expected	2020-2021	May	$ 4.88	$ 5.04	$ 4.88	$ 4.88	$ 4.88	$ 4.82	$ 4.82	$ 5.06	$ 4.90	$ 4.92
Expected	2020-2021	Jun	$ 4.93	$ 5.07	$ 4.89	$ 4.89	$ 4.89	$ 4.86	$ 4.86	$ 5.07	$ 4.93	$ 4.93
Expected	2020-2021	Jul	$ 4.97	$ 5.07	$ 4.97	$ 4.97	$ 4.97	$ 4.90	$ 4.90	$ 5.07	$ 4.96	$ 4.99
Expected	2020-2021	Aug	$ 4.99	$ 5.07	$ 4.99	$ 4.99	$ 4.99	$ 4.92	$ 4.92	$ 5.07	$ 4.97	$ 5.00
Expected	2020-2021	Sep	$ 4.79	$ 4.99	$ 4.79	$ 4.79	$ 4.79	$ 4.73	$ 4.73	$ 5.07	$ 4.85	$ 4.83
Expected	2020-2021	Oct	$ 4.80	$ 5.04	$ 4.80	$ 4.80	$ 4.80	$ 4.74	$ 4.74	$ 5.04	$ 4.84	$ 4.85
Expected	2021-2022	Nov	$ 4.92	$ 5.16	$ 4.92	$ 4.92	$ 4.92	$ 4.97	$ 4.85	$ 5.16	$ 5.00	$ 4.96
Expected	2021-2022	Dec	$ 5.02	$ 5.24	$ 5.02	$ 5.02	$ 5.02	$ 5.24	$ 4.89	$ 5.24	$ 5.12	$ 5.06
Expected	2021-2022	Jan	$ 4.99	$ 5.21	$ 4.99	$ 4.99	$ 4.99	$ 5.21	$ 4.92	$ 5.21	$ 5.11	$ 5.03
Expected	2021-2022	Feb	$ 5.06	$ 5.07	$ 5.06	$ 5.06	$ 5.06	$ 5.03	$ 4.95	$ 5.03	$ 5.00	$ 5.06
Expected	2021-2022	Mar	$ 4.85	$ 4.95	$ 4.85	$ 4.85	$ 4.85	$ 4.80	$ 4.79	$ 4.95	$ 4.85	$ 4.87
Expected	2021-2022	Apr	$ 4.73	$ 4.88	$ 4.73	$ 4.73	$ 4.73	$ 4.67	$ 4.67	$ 4.95	$ 4.76	$ 4.76
Expected	2021-2022	May	$ 4.77	$ 4.89	$ 4.77	$ 4.77	$ 4.77	$ 4.71	$ 4.71	$ 4.95	$ 4.79	$ 4.80
Expected	2021-2022	Jun	$ 4.80	$ 4.92	$ 4.80	$ 4.80	$ 4.80	$ 4.74	$ 4.74	$ 4.95	$ 4.81	$ 4.82
Expected	2021-2022	Jul	$ 4.83	$ 4.95	$ 4.83	$ 4.83	$ 4.83	$ 4.77	$ 4.77	$ 4.95	$ 4.83	$ 4.86
Expected	2021-2022	Aug	$ 4.85	$ 4.95	$ 4.85	$ 4.85	$ 4.85	$ 4.79	$ 4.79	$ 4.95	$ 4.85	$ 4.87
Expected	2021-2022	Sep	$ 4.81	$ 4.95	$ 4.80	$ 4.80	$ 4.80	$ 4.75	$ 4.75	$ 4.95	$ 4.82	$ 4.83
Expected	2021-2022	Oct	$ 4.80	$ 4.98	$ 4.93	$ 4.93	$ 4.93	$ 4.74	$ 4.74	$ 4.98	$ 4.82	$ 4.92
Expected	2022-2023	Nov	$ 4.96	$ 5.14	$ 4.96	$ 4.96	$ 4.96	$ 5.00	$ 4.89	$ 5.14	$ 5.01	$ 4.99
Expected	2022-2023	Dec	$ 5.06	$ 5.22	$ 5.06	$ 5.06	$ 5.06	$ 5.22	$ 4.92	$ 5.22	$ 5.12	$ 5.09
Expected	2022-2023	Jan	$ 5.01	$ 5.21	$ 5.01	$ 5.01	$ 5.01	$ 5.21	$ 4.94	$ 5.21	$ 5.12	$ 5.05
Expected	2022-2023	Feb	$ 5.05	$ 5.13	$ 5.05	$ 5.05	$ 5.05	$ 5.13	$ 4.97	$ 5.13	$ 5.08	$ 5.07
Expected	2022-2023	Mar	$ 5.03	$ 5.05	$ 5.03	$ 5.03	$ 5.03	$ 4.97	$ 4.96	$ 5.05	$ 4.99	$ 5.03
Expected	2022-2023	Apr	$ 4.91	$ 4.98	$ 4.91	$ 4.91	$ 4.91	$ 4.84	$ 4.84	$ 5.05	$ 4.91	$ 4.92
Expected	2022-2023	May	$ 4.96	$ 5.00	$ 4.96	$ 4.96	$ 4.96	$ 4.89	$ 4.89	$ 5.05	$ 4.95	$ 4.97
Expected	2022-2023	Jun	$ 5.01	$ 5.02	$ 4.97	$ 4.97	$ 4.97	$ 4.94	$ 4.94	$ 5.05	$ 4.98	$ 4.99
Expected	2022-2023	Jul	$ 5.04	$ 5.08	$ 5.04	$ 5.04	$ 5.04	$ 4.97	$ 4.97	$ 5.08	$ 5.01	$ 5.05
Expected	2022-2023	Aug	$ 5.06	$ 5.06	$ 5.06	$ 5.06	$ 5.06	$ 5.00	$ 5.00	$ 5.06	$ 5.02	$ 5.06
Expected	2022-2023	Sep	$ 4.90	$ 4.99	$ 4.87	$ 4.87	$ 4.87	$ 4.83	$ 4.83	$ 5.06	$ 4.91	$ 4.90
Expected	2022-2023	Oct	$ 4.90	$ 5.02	$ 4.97	$ 4.97	$ 4.97	$ 4.83	$ 4.83	$ 5.03	$ 4.90	$ 4.97
Expected	2023-2024	Nov	$ 5.01	$ 5.16	$ 5.01	$ 5.01	$ 5.01	$ 5.06	$ 4.94	$ 5.16	$ 5.05	$ 5.04
Expected	2023-2024	Dec	$ 5.10	$ 5.22	$ 5.10	$ 5.10	$ 5.10	$ 5.22	$ 4.97	$ 5.22	$ 5.14	$ 5.13
Expected	2023-2024	Jan	$ 5.06	$ 5.21	$ 5.06	$ 5.06	$ 5.06	$ 5.21	$ 5.00	$ 5.21	$ 5.14	$ 5.09
Expected	2023-2024	Feb	$ 5.14	$ 5.15	$ 5.14	$ 5.14	$ 5.14	$ 5.08	$ 5.03	$ 5.08	$ 5.06	$ 5.14
Expected	2023-2024	Mar	$ 4.88	$ 4.89	$ 4.88	$ 4.88	$ 4.88	$ 4.83	$ 4.82	$ 4.89	$ 4.85	$ 4.89
Expected	2023-2024	Apr	$ 4.76	$ 4.83	$ 4.76	$ 4.76	$ 4.76	$ 4.70	$ 4.70	$ 4.89	$ 4.76	$ 4.78
Expected	2023-2024	May	$ 4.78	$ 4.82	$ 4.78	$ 4.78	$ 4.78	$ 4.72	$ 4.72	$ 4.89	$ 4.78	$ 4.79
Expected	2023-2024	Jun	$ 4.85	$ 4.82	$ 4.82	$ 4.82	$ 4.82	$ 4.79	$ 4.79	$ 4.89	$ 4.83	$ 4.83
Expected	2023-2024	Jul	$ 4.88	$ 4.89	$ 4.88	$ 4.88	$ 4.88	$ 4.82	$ 4.82	$ 4.89	$ 4.85	$ 4.89
Expected	2023-2024	Aug	$ 4.91	$ 4.91	$ 4.91	$ 4.91	$ 4.91	$ 4.84	$ 4.84	$ 4.91	$ 4.87	$ 4.91
Expected	2023-2024	Sep	$ 4.85	$ 4.89	$ 4.83	$ 4.83	$ 4.83	$ 4.79	$ 4.79	$ 4.90	$ 4.83	$ 4.85
Expected	2023-2024	Oct	$ 4.86	$ 4.94	$ 4.94	$ 4.94	$ 4.94	$ 4.80	$ 4.80	$ 4.94	$ 4.85	$ 4.93
Expected	2024-2025	Nov	$ 4.98	$ 5.08	$ 4.98	$ 4.98	$ 4.98	$ 5.01	$ 4.91	$ 5.08	$ 5.00	$ 5.00
Expected	2024-2025	Dec	$ 5.09	$ 5.16	$ 5.09	$ 5.09	$ 5.09	$ 5.16	$ 4.94	$ 5.16	$ 5.09	$ 5.10
Expected	2024-2025	Jan	$ 5.03	$ 5.15	$ 5.03	$ 5.03	$ 5.03	$ 5.15	$ 4.96	$ 5.15	$ 5.09	$ 5.05
Expected	2024-2025	Feb	$ 5.08	$ 5.09	$ 5.08	$ 5.08	$ 5.08	$ 5.03	$ 5.00	$ 5.03	$ 5.02	$ 5.08
Expected	2024-2025	Mar	$ 4.99	$ 4.98	$ 4.99	$ 4.99	$ 4.99	$ 4.92	$ 4.92	$ 4.92	$ 4.92	$ 4.99
Expected	2024-2025	Apr	$ 4.85	$ 4.88	$ 4.85	$ 4.85	$ 4.85	$ 4.79	$ 4.79	$ 4.90	$ 4.83	$ 4.86

APPENDIX 6.4 II EXPECTED MONTHLY DETAIL

Appendix 6.4 - Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
Expected	2024-2025	May	$ 4.87	$ 4.88	$ 4.87	$ 4.87	$ 4.87	$ 4.81	$ 4.81	$ 4.90	$ 4.84	$ 4.88
Expected	2024-2025	Jun	$ 4.93	$ 4.89	$ 4.89	$ 4.89	$ 4.89	$ 4.86	$ 4.86	$ 4.90	$ 4.88	$ 4.90
Expected	2024-2025	Jul	$ 4.94	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.92	$ 4.90	$ 4.91	$ 4.91
Expected	2024-2025	Aug	$ 4.94	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.94	$ 4.90	$ 4.92	$ 4.91
Expected	2024-2025	Sep	$ 4.91	$ 4.90	$ 4.90	$ 4.90	$ 4.90	$ 4.84	$ 4.84	$ 4.90	$ 4.86	$ 4.90
Expected	2024-2025	Oct	$ 4.92	$ 4.93	$ 4.93	$ 4.93	$ 4.93	$ 4.85	$ 4.85	$ 4.93	$ 4.88	$ 4.93
Expected	2025-2026	Nov	$ 5.10	$ 5.27	$ 5.10	$ 5.10	$ 5.10	$ 5.04	$ 5.04	$ 5.27	$ 5.11	$ 5.13
Expected	2025-2026	Dec	$ 5.22	$ 5.39	$ 5.22	$ 5.22	$ 5.22	$ 5.35	$ 5.14	$ 5.39	$ 5.29	$ 5.25
Expected	2025-2026	Jan	$ 5.15	$ 5.39	$ 5.15	$ 5.15	$ 5.15	$ 5.22	$ 5.09	$ 5.39	$ 5.23	$ 5.20
Expected	2025-2026	Feb	$ 5.23	$ 5.23	$ 5.23	$ 5.23	$ 5.23	$ 5.16	$ 5.16	$ 5.20	$ 5.17	$ 5.23
Expected	2025-2026	Mar	$ 5.02	$ 5.16	$ 5.02	$ 5.02	$ 5.02	$ 4.95	$ 4.95	$ 5.16	$ 5.02	$ 5.05
Expected	2025-2026	Apr	$ 4.88	$ 5.06	$ 4.88	$ 4.88	$ 4.88	$ 4.82	$ 4.82	$ 5.16	$ 4.94	$ 4.92
Expected	2025-2026	May	$ 4.92	$ 5.07	$ 4.92	$ 4.92	$ 4.92	$ 4.85	$ 4.85	$ 5.16	$ 4.96	$ 4.95
Expected	2025-2026	Jun	$ 4.98	$ 5.10	$ 4.98	$ 4.98	$ 4.98	$ 4.91	$ 4.91	$ 5.17	$ 5.00	$ 5.00
Expected	2025-2026	Jul	$ 5.01	$ 5.17	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.17	$ 5.02	$ 5.04
Expected	2025-2026	Aug	$ 5.03	$ 5.17	$ 5.03	$ 5.03	$ 5.03	$ 4.96	$ 4.96	$ 5.17	$ 5.03	$ 5.06
Expected	2025-2026	Sep	$ 4.99	$ 5.17	$ 4.99	$ 4.99	$ 4.99	$ 4.92	$ 4.92	$ 5.17	$ 5.01	$ 5.02
Expected	2025-2026	Oct	$ 4.99	$ 5.20	$ 5.14	$ 5.14	$ 5.14	$ 4.92	$ 4.92	$ 5.20	$ 5.02	$ 5.12
Expected	2026-2027	Nov	$ 5.12	$ 5.31	$ 5.12	$ 5.12	$ 5.12	$ 5.06	$ 5.06	$ 5.31	$ 5.14	$ 5.16
Expected	2026-2027	Dec	$ 5.23	$ 5.40	$ 5.23	$ 5.23	$ 5.23	$ 5.40	$ 5.15	$ 5.40	$ 5.32	$ 5.26
Expected	2026-2027	Jan	$ 5.20	$ 5.38	$ 5.20	$ 5.20	$ 5.20	$ 5.25	$ 5.14	$ 5.38	$ 5.26	$ 5.24
Expected	2026-2027	Feb	$ 5.25	$ 5.24	$ 5.25	$ 5.25	$ 5.25	$ 5.17	$ 5.17	$ 5.18	$ 5.17	$ 5.25
Expected	2026-2027	Mar	$ 4.97	$ 5.08	$ 4.97	$ 4.97	$ 4.97	$ 4.90	$ 4.90	$ 5.08	$ 4.96	$ 4.99
Expected	2026-2027	Apr	$ 4.82	$ 4.96	$ 4.82	$ 4.82	$ 4.82	$ 4.76	$ 4.76	$ 5.08	$ 4.87	$ 4.85
Expected	2026-2027	May	$ 4.85	$ 4.99	$ 4.85	$ 4.85	$ 4.85	$ 4.79	$ 4.79	$ 5.08	$ 4.89	$ 4.88
Expected	2026-2027	Jun	$ 4.91	$ 5.01	$ 4.91	$ 4.91	$ 4.91	$ 4.84	$ 4.84	$ 5.08	$ 4.92	$ 4.93
Expected	2026-2027	Jul	$ 4.94	$ 5.09	$ 4.94	$ 4.94	$ 4.94	$ 4.87	$ 4.87	$ 5.09	$ 4.94	$ 4.97
Expected	2026-2027	Aug	$ 4.96	$ 5.09	$ 4.96	$ 4.96	$ 4.96	$ 4.89	$ 4.89	$ 5.09	$ 4.96	$ 4.98
Expected	2026-2027	Sep	$ 4.94	$ 5.09	$ 4.94	$ 4.94	$ 4.94	$ 4.87	$ 4.87	$ 5.09	$ 4.95	$ 4.97
Expected	2026-2027	Oct	$ 4.94	$ 5.12	$ 5.08	$ 5.08	$ 5.08	$ 4.87	$ 4.87	$ 5.12	$ 4.95	$ 5.06
Expected	2027-2028	Nov	$ 5.09	$ 5.24	$ 5.09	$ 5.09	$ 5.09	$ 5.03	$ 5.03	$ 5.24	$ 5.10	$ 5.12
Expected	2027-2028	Dec	$ 5.22	$ 5.33	$ 5.22	$ 5.22	$ 5.22	$ 5.33	$ 5.14	$ 5.33	$ 5.27	$ 5.24
Expected	2027-2028	Jan	$ 5.16	$ 5.32	$ 5.16	$ 5.16	$ 5.16	$ 5.28	$ 5.09	$ 5.32	$ 5.23	$ 5.19
Expected	2027-2028	Feb	$ 5.22	$ 5.21	$ 5.22	$ 5.22	$ 5.22	$ 5.15	$ 5.15	$ 5.16	$ 5.15	$ 5.22
Expected	2027-2028	Mar	$ 5.01	$ 5.06	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.06	$ 4.98	$ 5.02
Expected	2027-2028	Apr	$ 4.86	$ 4.97	$ 4.86	$ 4.86	$ 4.86	$ 4.80	$ 4.80	$ 5.08	$ 4.89	$ 4.89
Expected	2027-2028	May	$ 4.92	$ 4.99	$ 4.92	$ 4.92	$ 4.92	$ 4.85	$ 4.85	$ 5.08	$ 4.93	$ 4.93
Expected	2027-2028	Jun	$ 4.95	$ 5.02	$ 4.95	$ 4.95	$ 4.95	$ 4.88	$ 4.88	$ 5.08	$ 4.95	$ 4.96
Expected	2027-2028	Jul	$ 4.99	$ 5.10	$ 4.99	$ 4.99	$ 4.99	$ 4.92	$ 4.92	$ 5.10	$ 4.98	$ 5.01
Expected	2027-2028	Aug	$ 5.01	$ 5.08	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.08	$ 4.99	$ 5.02
Expected	2027-2028	Sep	$ 4.97	$ 5.09	$ 4.97	$ 4.97	$ 4.97	$ 4.90	$ 4.90	$ 5.09	$ 4.96	$ 4.99
Expected	2027-2028	Oct	$ 4.98	$ 5.11	$ 5.11	$ 5.11	$ 5.11	$ 4.91	$ 4.91	$ 5.11	$ 4.98	$ 5.08
Expected	2028-2029	Nov	$ 5.14	$ 5.23	$ 5.14	$ 5.14	$ 5.14	$ 5.08	$ 5.08	$ 5.24	$ 5.13	$ 5.16
Expected	2028-2029	Dec	$ 5.27	$ 5.34	$ 5.27	$ 5.27	$ 5.27	$ 5.34	$ 5.11	$ 5.34	$ 5.26	$ 5.28
Expected	2028-2029	Jan	$ 5.20	$ 5.32	$ 5.20	$ 5.20	$ 5.20	$ 5.32	$ 5.14	$ 5.32	$ 5.26	$ 5.23
Expected	2028-2029	Feb	$ 5.26	$ 5.26	$ 5.26	$ 5.26	$ 5.26	$ 5.20	$ 5.18	$ 5.20	$ 5.19	$ 5.26
Expected	2028-2029	Mar	$ 5.08	$ 5.07	$ 5.08	$ 5.08	$ 5.08	$ 5.02	$ 5.02	$ 5.07	$ 5.03	$ 5.08
Expected	2028-2029	Apr	$ 4.91	$ 4.98	$ 4.91	$ 4.91	$ 4.91	$ 4.84	$ 4.84	$ 5.10	$ 4.93	$ 4.92
Expected	2028-2029	May	$ 4.94	$ 4.98	$ 4.94	$ 4.94	$ 4.94	$ 4.87	$ 4.87	$ 5.10	$ 4.95	$ 4.95
Expected	2028-2029	Jun	$ 4.98	$ 5.01	$ 4.98	$ 4.98	$ 4.98	$ 4.91	$ 4.91	$ 5.10	$ 4.98	$ 4.98
Expected	2028-2029	Jul	$ 5.02	$ 5.11	$ 5.02	$ 5.02	$ 5.02	$ 4.95	$ 4.95	$ 5.11	$ 5.01	$ 5.04
Expected	2028-2029	Aug	$ 5.04	$ 5.14	$ 5.04	$ 5.04	$ 5.04	$ 4.97	$ 4.97	$ 5.14	$ 5.03	$ 5.06
Expected	2028-2029	Sep	$ 5.03	$ 5.11	$ 5.03	$ 5.03	$ 5.03	$ 4.96	$ 4.96	$ 5.11	$ 5.01	$ 5.04
Expected	2028-2029	Oct	$ 5.03	$ 5.14	$ 5.14	$ 5.14	$ 5.14	$ 4.96	$ 4.96	$ 5.14	$ 5.02	$ 5.11
Expected	2029-2030	Nov	$ 5.19	$ 5.23	$ 5.19	$ 5.19	$ 5.19	$ 5.12	$ 5.12	$ 5.25	$ 5.16	$ 5.19
Expected	2029-2030	Dec	$ 5.29	$ 5.33	$ 5.29	$ 5.29	$ 5.29	$ 5.33	$ 5.16	$ 5.33	$ 5.27	$ 5.30
Expected	2029-2030	Jan	$ 5.25	$ 5.31	$ 5.25	$ 5.25	$ 5.25	$ 5.31	$ 5.19	$ 5.31	$ 5.27	$ 5.26
Expected	2029-2030	Feb	$ 5.32	$ 5.34	$ 5.33	$ 5.33	$ 5.33	$ 5.26	$ 5.22	$ 5.27	$ 5.25	$ 5.33
Expected	2029-2030	Mar	$ 5.03	$ 5.00	$ 5.03	$ 5.03	$ 5.03	$ 4.96	$ 4.96	$ 5.00	$ 4.98	$ 5.02
Expected	2029-2030	Apr	$ 4.87	$ 4.95	$ 4.87	$ 4.87	$ 4.87	$ 4.81	$ 4.81	$ 5.06	$ 4.90	$ 4.89
Expected	2029-2030	May	$ 4.91	$ 4.95	$ 4.91	$ 4.91	$ 4.91	$ 4.84	$ 4.84	$ 5.06	$ 4.92	$ 4.92
Expected	2029-2030	Jun	$ 4.96	$ 4.97	$ 4.96	$ 4.96	$ 4.96	$ 4.89	$ 4.89	$ 5.06	$ 4.95	$ 4.96
Expected	2029-2030	Jul	$ 5.02	$ 5.05	$ 5.02	$ 5.02	$ 5.02	$ 4.95	$ 4.95	$ 5.06	$ 4.99	$ 5.02
Expected	2029-2030	Aug	$ 5.03	$ 5.07	$ 5.03	$ 5.03	$ 5.03	$ 4.96	$ 4.96	$ 5.07	$ 5.00	$ 5.04
Expected	2029-2030	Sep	$ 5.03	$ 5.09	$ 5.03	$ 5.03	$ 5.03	$ 4.96	$ 4.96	$ 5.09	$ 5.01	$ 5.04
Expected	2029-2030	Oct	$ 5.04	$ 5.12	$ 5.12	$ 5.12	$ 5.12	$ 4.97	$ 4.97	$ 5.12	$ 5.02	$ 5.10
Expected	2030-2031	Nov	$ 5.18	$ 5.20	$ 5.18	$ 5.18	$ 5.18	$ 5.12	$ 5.12	$ 5.23	$ 5.15	$ 5.19
Expected	2030-2031	Dec	$ 5.32	$ 5.32	$ 5.32	$ 5.32	$ 5.32	$ 5.32	$ 5.19	$ 5.32	$ 5.28	$ 5.32
Expected	2030-2031	Jan	$ 5.28	$ 5.31	$ 5.28	$ 5.28	$ 5.28	$ 5.31	$ 5.22	$ 5.31	$ 5.28	$ 5.29
Expected	2030-2031	Feb	$ 5.36	$ 5.38	$ 5.38	$ 5.38	$ 5.38	$ 5.32	$ 5.28	$ 5.32	$ 5.31	$ 5.37
Expected	2030-2031	Mar	$ 5.13	$ 5.10	$ 5.13	$ 5.13	$ 5.13	$ 5.07	$ 5.07	$ 5.10	$ 5.08	$ 5.12
Expected	2030-2031	Apr	$ 4.98	$ 5.05	$ 4.98	$ 4.98	$ 4.98	$ 4.91	$ 4.91	$ 5.14	$ 4.99	$ 4.99
Expected	2030-2031	May	$ 5.01	$ 5.06	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.14	$ 5.01	$ 5.02
Expected	2030-2031	Jun	$ 5.08	$ 5.06	$ 5.06	$ 5.06	$ 5.06	$ 5.02	$ 5.02	$ 5.14	$ 5.06	$ 5.06
Expected	2030-2031	Jul	$ 5.12	$ 5.13	$ 5.12	$ 5.12	$ 5.12	$ 5.06	$ 5.06	$ 5.14	$ 5.08	$ 5.12
Expected	2030-2031	Aug	$ 5.14	$ 5.15	$ 5.14	$ 5.14	$ 5.14	$ 5.08	$ 5.08	$ 5.15	$ 5.10	$ 5.14
Expected	2030-2031	Sep	$ 5.13	$ 5.15	$ 5.13	$ 5.13	$ 5.13	$ 5.07	$ 5.07	$ 5.15	$ 5.09	$ 5.13
Expected	2030-2031	Oct	$ 5.14	$ 5.18	$ 5.18	$ 5.18	$ 5.18	$ 5.08	$ 5.08	$ 5.18	$ 5.11	$ 5.17

1/ Avoided costs shown before Environmental Externalities adder.

APPENDIX 6.4 II HIGH GROWTH – LOW PRICE MONTHLY DETAIL

Appendix 6.4 - Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
High Growth & Low Price	2011-2012	Nov	$ 2.97	$ 2.99	$ 2.97	$ 2.97	$ 2.97	$ 2.93	$ 2.93	$ 2.99	$ 2.95	$ 2.98
High Growth & Low Price	2011-2012	Dec	$ 2.83	$ 3.00	$ 2.83	$ 2.83	$ 2.83	$ 2.76	$ 2.76	$ 3.00	$ 2.84	$ 2.87
High Growth & Low Price	2011-2012	Jan	$ 2.35	$ 2.50	$ 2.35	$ 2.35	$ 2.35	$ 2.32	$ 2.32	$ 2.50	$ 2.38	$ 2.38
High Growth & Low Price	2011-2012	Feb	$ 2.89	$ 2.92	$ 2.89	$ 2.89	$ 2.89	$ 2.86	$ 2.86	$ 2.88	$ 2.86	$ 2.90
High Growth & Low Price	2011-2012	Mar	$ 2.95	$ 2.95	$ 2.95	$ 2.95	$ 2.95	$ 2.91	$ 2.91	$ 2.91	$ 2.91	$ 2.95
High Growth & Low Price	2011-2012	Apr	$ 2.44	$ 2.65	$ 2.44	$ 2.44	$ 2.44	$ 2.41	$ 2.41	$ 2.87	$ 2.56	$ 2.48
High Growth & Low Price	2011-2012	May	$ 2.55	$ 2.80	$ 2.55	$ 2.55	$ 2.55	$ 2.52	$ 2.52	$ 2.87	$ 2.64	$ 2.60
High Growth & Low Price	2011-2012	Jun	$ 2.70	$ 2.87	$ 2.70	$ 2.70	$ 2.70	$ 2.66	$ 2.66	$ 2.87	$ 2.73	$ 2.73
High Growth & Low Price	2011-2012	Jul	$ 2.76	$ 2.87	$ 2.76	$ 2.76	$ 2.76	$ 2.72	$ 2.72	$ 2.88	$ 2.77	$ 2.78
High Growth & Low Price	2011-2012	Aug	$ 2.64	$ 2.88	$ 2.64	$ 2.64	$ 2.64	$ 2.60	$ 2.60	$ 2.88	$ 2.69	$ 2.68
High Growth & Low Price	2011-2012	Sep	$ 2.53	$ 2.78	$ 2.53	$ 2.53	$ 2.53	$ 2.50	$ 2.50	$ 2.88	$ 2.63	$ 2.58
High Growth & Low Price	2011-2012	Oct	$ 2.66	$ 2.90	$ 2.66	$ 2.66	$ 2.66	$ 2.62	$ 2.62	$ 2.90	$ 2.71	$ 2.70
High Growth & Low Price	2012-2013	Nov	$ 3.12	$ 3.32	$ 3.12	$ 3.12	$ 3.12	$ 3.07	$ 3.07	$ 3.32	$ 3.16	$ 3.16
High Growth & Low Price	2012-2013	Dec	$ 3.26	$ 3.44	$ 3.26	$ 3.26	$ 3.26	$ 3.17	$ 3.17	$ 3.58	$ 3.30	$ 3.30
High Growth & Low Price	2012-2013	Jan	$ 3.45	$ 3.69	$ 3.45	$ 3.45	$ 3.45	$ 3.41	$ 3.41	$ 3.70	$ 3.51	$ 3.50
High Growth & Low Price	2012-2013	Feb	$ 3.61	$ 3.82	$ 3.61	$ 3.61	$ 3.61	$ 3.56	$ 3.56	$ 3.82	$ 3.64	$ 3.65
High Growth & Low Price	2012-2013	Mar	$ 3.67	$ 3.82	$ 3.67	$ 3.67	$ 3.67	$ 3.62	$ 3.62	$ 3.82	$ 3.69	$ 3.70
High Growth & Low Price	2012-2013	Apr	$ 3.61	$ 3.79	$ 3.61	$ 3.61	$ 3.61	$ 3.56	$ 3.56	$ 3.82	$ 3.65	$ 3.64
High Growth & Low Price	2012-2013	May	$ 3.59	$ 3.82	$ 3.59	$ 3.59	$ 3.59	$ 3.54	$ 3.54	$ 3.82	$ 3.63	$ 3.63
High Growth & Low Price	2012-2013	Jun	$ 3.60	$ 3.82	$ 3.60	$ 3.60	$ 3.60	$ 3.55	$ 3.55	$ 3.82	$ 3.64	$ 3.64
High Growth & Low Price	2012-2013	Jul	$ 3.63	$ 3.82	$ 3.63	$ 3.63	$ 3.63	$ 3.58	$ 3.58	$ 3.82	$ 3.66	$ 3.67
High Growth & Low Price	2012-2013	Aug	$ 3.63	$ 3.83	$ 3.63	$ 3.63	$ 3.63	$ 3.58	$ 3.58	$ 3.83	$ 3.66	$ 3.67
High Growth & Low Price	2012-2013	Sep	$ 3.63	$ 3.83	$ 3.63	$ 3.63	$ 3.63	$ 3.58	$ 3.58	$ 3.83	$ 3.66	$ 3.67
High Growth & Low Price	2012-2013	Oct	$ 3.66	$ 3.89	$ 3.66	$ 3.66	$ 3.66	$ 3.61	$ 3.61	$ 3.89	$ 3.70	$ 3.70
High Growth & Low Price	2013-2014	Nov	$ 3.85	$ 4.06	$ 3.85	$ 3.85	$ 3.85	$ 3.80	$ 3.80	$ 4.06	$ 3.89	$ 3.89
High Growth & Low Price	2013-2014	Dec	$ 3.97	$ 4.17	$ 3.97	$ 3.97	$ 3.97	$ 3.88	$ 3.88	$ 4.17	$ 3.98	$ 4.01
High Growth & Low Price	2013-2014	Jan	$ 3.94	$ 4.17	$ 3.94	$ 3.94	$ 3.94	$ 3.89	$ 3.89	$ 4.17	$ 3.99	$ 3.99
High Growth & Low Price	2013-2014	Feb	$ 3.95	$ 4.07	$ 3.95	$ 3.95	$ 3.95	$ 3.90	$ 3.90	$ 4.06	$ 3.95	$ 3.97
High Growth & Low Price	2013-2014	Mar	$ 3.95	$ 4.04	$ 3.95	$ 3.95	$ 3.95	$ 3.90	$ 3.90	$ 4.04	$ 3.95	$ 3.97
High Growth & Low Price	2013-2014	Apr	$ 3.79	$ 3.98	$ 3.79	$ 3.79	$ 3.79	$ 3.74	$ 3.74	$ 4.05	$ 3.84	$ 3.83
High Growth & Low Price	2013-2014	May	$ 3.74	$ 4.00	$ 3.74	$ 3.74	$ 3.74	$ 3.69	$ 3.69	$ 4.05	$ 3.81	$ 3.79
High Growth & Low Price	2013-2014	Jun	$ 3.77	$ 4.02	$ 3.77	$ 3.77	$ 3.77	$ 3.72	$ 3.72	$ 4.05	$ 3.83	$ 3.82
High Growth & Low Price	2013-2014	Jul	$ 3.80	$ 4.05	$ 3.80	$ 3.80	$ 3.80	$ 3.75	$ 3.75	$ 4.05	$ 3.85	$ 3.85
High Growth & Low Price	2013-2014	Aug	$ 3.80	$ 4.05	$ 3.80	$ 3.80	$ 3.80	$ 3.75	$ 3.75	$ 4.05	$ 3.85	$ 3.85
High Growth & Low Price	2013-2014	Sep	$ 3.81	$ 4.06	$ 3.81	$ 3.81	$ 3.81	$ 3.76	$ 3.76	$ 4.06	$ 3.86	$ 3.86
High Growth & Low Price	2013-2014	Oct	$ 3.83	$ 4.12	$ 3.83	$ 3.83	$ 3.83	$ 3.78	$ 3.78	$ 4.12	$ 3.90	$ 3.89
High Growth & Low Price	2014-2015	Nov	$ 4.03	$ 4.28	$ 4.03	$ 4.03	$ 4.03	$ 3.97	$ 3.97	$ 4.28	$ 4.07	$ 4.08
High Growth & Low Price	2014-2015	Dec	$ 4.09	$ 4.31	$ 4.09	$ 4.09	$ 4.09	$ 3.97	$ 3.97	$ 4.31	$ 4.08	$ 4.13
High Growth & Low Price	2014-2015	Jan	$ 4.07	$ 4.31	$ 4.07	$ 4.07	$ 4.07	$ 4.01	$ 4.01	$ 4.31	$ 4.11	$ 4.12
High Growth & Low Price	2014-2015	Feb	$ 4.09	$ 4.23	$ 4.09	$ 4.09	$ 4.09	$ 4.04	$ 4.04	$ 4.22	$ 4.10	$ 4.12
High Growth & Low Price	2014-2015	Mar	$ 4.09	$ 4.21	$ 4.09	$ 4.09	$ 4.09	$ 4.03	$ 4.03	$ 4.21	$ 4.09	$ 4.11
High Growth & Low Price	2014-2015	Apr	$ 3.94	$ 4.15	$ 3.94	$ 3.94	$ 3.94	$ 3.89	$ 3.89	$ 4.21	$ 4.00	$ 3.99
High Growth & Low Price	2014-2015	May	$ 3.93	$ 4.17	$ 3.93	$ 3.93	$ 3.93	$ 3.88	$ 3.88	$ 4.21	$ 3.99	$ 3.98
High Growth & Low Price	2014-2015	Jun	$ 3.99	$ 4.19	$ 3.99	$ 3.99	$ 3.99	$ 3.93	$ 3.93	$ 4.21	$ 4.03	$ 4.03
High Growth & Low Price	2014-2015	Jul	$ 4.02	$ 4.21	$ 4.02	$ 4.02	$ 4.02	$ 3.96	$ 3.96	$ 4.21	$ 4.05	$ 4.06
High Growth & Low Price	2014-2015	Aug	$ 4.01	$ 4.22	$ 4.01	$ 4.01	$ 4.01	$ 3.95	$ 3.95	$ 4.22	$ 4.04	$ 4.05
High Growth & Low Price	2014-2015	Sep	$ 3.98	$ 4.22	$ 3.98	$ 3.98	$ 3.98	$ 3.92	$ 3.92	$ 4.22	$ 4.02	$ 4.02
High Growth & Low Price	2014-2015	Oct	$ 3.99	$ 4.30	$ 3.99	$ 3.99	$ 3.99	$ 3.93	$ 3.93	$ 4.30	$ 4.05	$ 4.05
High Growth & Low Price	2015-2016	Nov	$ 4.16	$ 4.44	$ 4.16	$ 4.16	$ 4.16	$ 4.11	$ 4.11	$ 4.44	$ 4.22	$ 4.21
High Growth & Low Price	2015-2016	Dec	$ 4.23	$ 4.48	$ 4.23	$ 4.23	$ 4.23	$ 4.11	$ 4.11	$ 4.48	$ 4.23	$ 4.28
High Growth & Low Price	2015-2016	Jan	$ 4.19	$ 4.49	$ 4.19	$ 4.19	$ 4.19	$ 4.14	$ 4.14	$ 4.49	$ 4.25	$ 4.25
High Growth & Low Price	2015-2016	Feb	$ 4.22	$ 4.46	$ 4.22	$ 4.22	$ 4.22	$ 4.16	$ 4.16	$ 4.46	$ 4.26	$ 4.26
High Growth & Low Price	2015-2016	Mar	$ 4.26	$ 4.45	$ 4.26	$ 4.26	$ 4.26	$ 4.21	$ 4.21	$ 4.45	$ 4.29	$ 4.30
High Growth & Low Price	2015-2016	Apr	$ 4.11	$ 4.38	$ 4.11	$ 4.11	$ 4.11	$ 4.06	$ 4.06	$ 4.45	$ 4.19	$ 4.16
High Growth & Low Price	2015-2016	May	$ 4.12	$ 4.39	$ 4.12	$ 4.12	$ 4.12	$ 4.07	$ 4.07	$ 4.45	$ 4.19	$ 4.17
High Growth & Low Price	2015-2016	Jun	$ 4.16	$ 4.41	$ 4.16	$ 4.16	$ 4.16	$ 4.11	$ 4.11	$ 4.46	$ 4.22	$ 4.21
High Growth & Low Price	2015-2016	Jul	$ 4.18	$ 4.46	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.46	$ 4.24	$ 4.24
High Growth & Low Price	2015-2016	Aug	$ 4.18	$ 4.46	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.46	$ 4.24	$ 4.24
High Growth & Low Price	2015-2016	Sep	$ 4.17	$ 4.46	$ 4.17	$ 4.17	$ 4.17	$ 4.12	$ 4.12	$ 4.46	$ 4.23	$ 4.23
High Growth & Low Price	2015-2016	Oct	$ 4.18	$ 4.51	$ 4.18	$ 4.18	$ 4.18	$ 4.13	$ 4.13	$ 4.51	$ 4.25	$ 4.25
High Growth & Low Price	2016-2017	Nov	$ 4.86	$ 5.18	$ 4.86	$ 4.86	$ 4.86	$ 4.80	$ 4.80	$ 5.18	$ 4.93	$ 4.93
High Growth & Low Price	2016-2017	Dec	$ 4.94	$ 5.19	$ 4.94	$ 4.94	$ 4.94	$ 4.80	$ 4.80	$ 5.19	$ 4.93	$ 4.99
High Growth & Low Price	2016-2017	Jan	$ 4.90	$ 5.22	$ 4.90	$ 4.90	$ 4.90	$ 4.82	$ 4.82	$ 5.22	$ 4.95	$ 4.96
High Growth & Low Price	2016-2017	Feb	$ 4.93	$ 5.14	$ 4.93	$ 4.93	$ 4.93	$ 4.87	$ 4.86	$ 5.14	$ 4.96	$ 4.97
High Growth & Low Price	2016-2017	Mar	$ 4.93	$ 5.13	$ 4.93	$ 4.93	$ 4.93	$ 4.86	$ 4.86	$ 5.13	$ 4.95	$ 4.97
High Growth & Low Price	2016-2017	Apr	$ 4.75	$ 5.07	$ 4.75	$ 4.75	$ 4.75	$ 4.69	$ 4.69	$ 5.13	$ 4.84	$ 4.81
High Growth & Low Price	2016-2017	May	$ 4.80	$ 5.10	$ 4.80	$ 4.80	$ 4.80	$ 4.74	$ 4.74	$ 5.13	$ 4.87	$ 4.86
High Growth & Low Price	2016-2017	Jun	$ 4.83	$ 5.12	$ 4.83	$ 4.83	$ 4.83	$ 4.77	$ 4.77	$ 5.13	$ 4.89	$ 4.89
High Growth & Low Price	2016-2017	Jul	$ 4.86	$ 5.13	$ 4.86	$ 4.86	$ 4.86	$ 4.80	$ 4.80	$ 5.13	$ 4.91	$ 4.92
High Growth & Low Price	2016-2017	Aug	$ 4.86	$ 5.14	$ 4.86	$ 4.86	$ 4.86	$ 4.80	$ 4.80	$ 5.14	$ 4.91	$ 4.92
High Growth & Low Price	2016-2017	Sep	$ 4.86	$ 5.14	$ 4.86	$ 4.86	$ 4.86	$ 4.80	$ 4.80	$ 5.14	$ 4.91	$ 4.92
High Growth & Low Price	2016-2017	Oct	$ 4.87	$ 5.23	$ 4.91	$ 4.91	$ 4.91	$ 4.81	$ 4.81	$ 5.23	$ 4.95	$ 4.97
High Growth & Low Price	2017-2018	Nov	$ 5.02	$ 5.39	$ 5.02	$ 5.02	$ 5.02	$ 4.95	$ 4.95	$ 5.39	$ 5.10	$ 5.09
High Growth & Low Price	2017-2018	Dec	$ 5.17	$ 5.44	$ 5.17	$ 5.17	$ 5.17	$ 5.01	$ 5.01	$ 5.44	$ 5.15	$ 5.22
High Growth & Low Price	2017-2018	Jan	$ 5.12	$ 5.46	$ 5.12	$ 5.12	$ 5.12	$ 5.05	$ 5.05	$ 5.46	$ 5.18	$ 5.19
High Growth & Low Price	2017-2018	Feb	$ 5.17	$ 5.39	$ 5.17	$ 5.17	$ 5.17	$ 5.11	$ 5.10	$ 5.39	$ 5.20	$ 5.22
High Growth & Low Price	2017-2018	Mar	$ 5.14	$ 5.37	$ 5.14	$ 5.14	$ 5.14	$ 5.08	$ 5.08	$ 5.37	$ 5.17	$ 5.19
High Growth & Low Price	2017-2018	Apr	$ 4.97	$ 5.32	$ 4.97	$ 4.97	$ 4.97	$ 4.90	$ 4.90	$ 5.37	$ 5.06	$ 5.04
High Growth & Low Price	2017-2018	May	$ 5.01	$ 5.34	$ 5.01	$ 5.01	$ 5.01	$ 4.94	$ 4.94	$ 5.37	$ 5.09	$ 5.07
High Growth & Low Price	2017-2018	Jun	$ 5.05	$ 5.36	$ 5.05	$ 5.05	$ 5.05	$ 4.99	$ 4.99	$ 5.37	$ 5.11	$ 5.11
High Growth & Low Price	2017-2018	Jul	$ 5.08	$ 5.38	$ 5.08	$ 5.08	$ 5.08	$ 5.02	$ 5.02	$ 5.38	$ 5.14	$ 5.14
High Growth & Low Price	2017-2018	Aug	$ 5.09	$ 5.38	$ 5.09	$ 5.09	$ 5.09	$ 5.03	$ 5.03	$ 5.38	$ 5.14	$ 5.15
High Growth & Low Price	2017-2018	Sep	$ 5.08	$ 5.38	$ 5.08	$ 5.08	$ 5.08	$ 5.02	$ 5.02	$ 5.38	$ 5.14	$ 5.14
High Growth & Low Price	2017-2018	Oct	$ 5.09	$ 5.48	$ 5.14	$ 5.14	$ 5.14	$ 5.03	$ 5.03	$ 5.48	$ 5.18	$ 5.20
High Growth & Low Price	2018-2019	Nov	$ 5.20	$ 5.58	$ 5.20	$ 5.20	$ 5.20	$ 5.14	$ 5.14	$ 5.58	$ 5.29	$ 5.28
High Growth & Low Price	2018-2019	Dec	$ 5.36	$ 5.65	$ 5.36	$ 5.36	$ 5.36	$ 5.23	$ 5.23	$ 5.65	$ 5.37	$ 5.42
High Growth & Low Price	2018-2019	Jan	$ 5.31	$ 5.66	$ 5.31	$ 5.31	$ 5.31	$ 5.23	$ 5.23	$ 5.66	$ 5.37	$ 5.38
High Growth & Low Price	2018-2019	Feb	$ 5.37	$ 5.59	$ 5.37	$ 5.37	$ 5.37	$ 5.30	$ 5.30	$ 5.59	$ 5.40	$ 5.41
High Growth & Low Price	2018-2019	Mar	$ 5.31	$ 5.56	$ 5.31	$ 5.31	$ 5.31	$ 5.25	$ 5.25	$ 5.56	$ 5.35	$ 5.36
High Growth & Low Price	2018-2019	Apr	$ 5.14	$ 5.47	$ 5.14	$ 5.14	$ 5.14	$ 5.08	$ 5.08	$ 5.56	$ 5.24	$ 5.21
High Growth & Low Price	2018-2019	May	$ 5.18	$ 5.47	$ 5.18	$ 5.18	$ 5.18	$ 5.12	$ 5.12	$ 5.57	$ 5.27	$ 5.24
High Growth & Low Price	2018-2019	Jun	$ 5.21	$ 5.50	$ 5.21	$ 5.21	$ 5.21	$ 5.15	$ 5.15	$ 5.57	$ 5.29	$ 5.27
High Growth & Low Price	2018-2019	Jul	$ 5.25	$ 5.57	$ 5.25	$ 5.25	$ 5.25	$ 5.19	$ 5.19	$ 5.57	$ 5.31	$ 5.32
High Growth & Low Price	2018-2019	Aug	$ 5.26	$ 5.57	$ 5.26	$ 5.26	$ 5.26	$ 5.20	$ 5.20	$ 5.57	$ 5.32	$ 5.32

APPENDIX 6.4 II HIGH GROWTH – LOW PRICE MONTHLY DETAIL

Appendix 6.4 - Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
High Growth & Low Price	2018-2019	Sep	$ 5.19	$ 5.57	$ 5.19	$ 5.19	$ 5.19	$ 5.13	$ 5.13	$ 5.57	$ 5.28	$ 5.27
High Growth & Low Price	2018-2019	Oct	$ 5.20	$ 5.60	$ 5.25	$ 5.25	$ 5.25	$ 5.14	$ 5.14	$ 5.60	$ 5.29	$ 5.31
High Growth & Low Price	2019-2020	Nov	$ 5.29	$ 5.61	$ 5.29	$ 5.29	$ 5.29	$ 5.23	$ 5.23	$ 5.61	$ 5.36	$ 5.36
High Growth & Low Price	2019-2020	Dec	$ 5.48	$ 5.68	$ 5.48	$ 5.48	$ 5.48	$ 5.30	$ 5.30	$ 5.68	$ 5.43	$ 5.52
High Growth & Low Price	2019-2020	Jan	$ 5.43	$ 5.66	$ 5.43	$ 5.43	$ 5.43	$ 5.34	$ 5.34	$ 5.66	$ 5.45	$ 5.48
High Growth & Low Price	2019-2020	Feb	$ 5.47	$ 5.57	$ 5.47	$ 5.47	$ 5.47	$ 5.40	$ 5.40	$ 5.55	$ 5.45	$ 5.49
High Growth & Low Price	2019-2020	Mar	$ 5.38	$ 5.50	$ 5.38	$ 5.38	$ 5.38	$ 5.31	$ 5.31	$ 5.50	$ 5.37	$ 5.40
High Growth & Low Price	2019-2020	Apr	$ 5.23	$ 5.46	$ 5.23	$ 5.23	$ 5.23	$ 5.17	$ 5.17	$ 5.50	$ 5.28	$ 5.28
High Growth & Low Price	2019-2020	May	$ 5.26	$ 5.44	$ 5.26	$ 5.26	$ 5.26	$ 5.20	$ 5.20	$ 5.50	$ 5.30	$ 5.30
High Growth & Low Price	2019-2020	Jun	$ 5.30	$ 5.46	$ 5.30	$ 5.30	$ 5.30	$ 5.24	$ 5.24	$ 5.51	$ 5.33	$ 5.34
High Growth & Low Price	2019-2020	Jul	$ 5.34	$ 5.51	$ 5.34	$ 5.34	$ 5.34	$ 5.28	$ 5.28	$ 5.51	$ 5.35	$ 5.38
High Growth & Low Price	2019-2020	Aug	$ 5.36	$ 5.51	$ 5.36	$ 5.36	$ 5.36	$ 5.29	$ 5.29	$ 5.51	$ 5.36	$ 5.39
High Growth & Low Price	2019-2020	Sep	$ 5.28	$ 5.51	$ 5.28	$ 5.28	$ 5.28	$ 5.22	$ 5.22	$ 5.51	$ 5.32	$ 5.33
High Growth & Low Price	2019-2020	Oct	$ 5.29	$ 5.56	$ 5.38	$ 5.38	$ 5.38	$ 5.23	$ 5.23	$ 5.56	$ 5.34	$ 5.40
High Growth & Low Price	2020-2021	Nov	$ 5.44	$ 5.68	$ 5.44	$ 5.44	$ 5.44	$ 5.35	$ 5.35	$ 5.70	$ 5.47	$ 5.49
High Growth & Low Price	2020-2021	Dec	$ 5.58	$ 5.77	$ 5.58	$ 5.58	$ 5.58	$ 5.45	$ 5.45	$ 5.77	$ 5.56	$ 5.62
High Growth & Low Price	2020-2021	Jan	$ 5.54	$ 5.75	$ 5.54	$ 5.54	$ 5.54	$ 5.44	$ 5.44	$ 5.75	$ 5.54	$ 5.58
High Growth & Low Price	2020-2021	Feb	$ 5.58	$ 5.70	$ 5.58	$ 5.58	$ 5.58	$ 5.51	$ 5.51	$ 5.69	$ 5.57	$ 5.60
High Growth & Low Price	2020-2021	Mar	$ 5.52	$ 5.64	$ 5.52	$ 5.52	$ 5.52	$ 5.45	$ 5.45	$ 5.64	$ 5.51	$ 5.54
High Growth & Low Price	2020-2021	Apr	$ 5.36	$ 5.55	$ 5.36	$ 5.36	$ 5.36	$ 5.29	$ 5.29	$ 5.64	$ 5.40	$ 5.39
High Growth & Low Price	2020-2021	May	$ 5.40	$ 5.54	$ 5.40	$ 5.40	$ 5.40	$ 5.33	$ 5.33	$ 5.64	$ 5.43	$ 5.43
High Growth & Low Price	2020-2021	Jun	$ 5.44	$ 5.57	$ 5.44	$ 5.44	$ 5.44	$ 5.37	$ 5.37	$ 5.64	$ 5.46	$ 5.46
High Growth & Low Price	2020-2021	Jul	$ 5.48	$ 5.64	$ 5.48	$ 5.48	$ 5.48	$ 5.41	$ 5.41	$ 5.64	$ 5.49	$ 5.51
High Growth & Low Price	2020-2021	Aug	$ 5.50	$ 5.65	$ 5.50	$ 5.50	$ 5.50	$ 5.43	$ 5.43	$ 5.65	$ 5.50	$ 5.53
High Growth & Low Price	2020-2021	Sep	$ 5.30	$ 5.50	$ 5.30	$ 5.30	$ 5.30	$ 5.24	$ 5.24	$ 5.65	$ 5.37	$ 5.34
High Growth & Low Price	2020-2021	Oct	$ 5.31	$ 5.54	$ 5.41	$ 5.41	$ 5.41	$ 5.25	$ 5.25	$ 5.54	$ 5.35	$ 5.42
High Growth & Low Price	2021-2022	Nov	$ 5.45	$ 5.66	$ 5.45	$ 5.45	$ 5.45	$ 5.36	$ 5.36	$ 5.68	$ 5.47	$ 5.49
High Growth & Low Price	2021-2022	Dec	$ 5.56	$ 5.74	$ 5.56	$ 5.56	$ 5.56	$ 5.46	$ 5.46	$ 5.74	$ 5.55	$ 5.60
High Growth & Low Price	2021-2022	Jan	$ 5.51	$ 5.71	$ 5.51	$ 5.51	$ 5.51	$ 5.43	$ 5.43	$ 5.71	$ 5.52	$ 5.55
High Growth & Low Price	2021-2022	Feb	$ 5.58	$ 5.59	$ 5.58	$ 5.58	$ 5.58	$ 5.49	$ 5.49	$ 5.55	$ 5.51	$ 5.58
High Growth & Low Price	2021-2022	Mar	$ 5.37	$ 5.47	$ 5.37	$ 5.37	$ 5.37	$ 5.30	$ 5.30	$ 5.47	$ 5.36	$ 5.39
High Growth & Low Price	2021-2022	Apr	$ 5.24	$ 5.39	$ 5.24	$ 5.24	$ 5.24	$ 5.18	$ 5.18	$ 5.47	$ 5.28	$ 5.27
High Growth & Low Price	2021-2022	May	$ 5.28	$ 5.40	$ 5.28	$ 5.28	$ 5.28	$ 5.22	$ 5.22	$ 5.48	$ 5.30	$ 5.31
High Growth & Low Price	2021-2022	Jun	$ 5.31	$ 5.43	$ 5.31	$ 5.31	$ 5.31	$ 5.25	$ 5.25	$ 5.48	$ 5.32	$ 5.34
High Growth & Low Price	2021-2022	Jul	$ 5.34	$ 5.48	$ 5.34	$ 5.34	$ 5.34	$ 5.28	$ 5.28	$ 5.48	$ 5.35	$ 5.37
High Growth & Low Price	2021-2022	Aug	$ 5.37	$ 5.48	$ 5.37	$ 5.37	$ 5.37	$ 5.30	$ 5.30	$ 5.48	$ 5.36	$ 5.39
High Growth & Low Price	2021-2022	Sep	$ 5.32	$ 5.46	$ 5.32	$ 5.32	$ 5.32	$ 5.26	$ 5.26	$ 5.49	$ 5.33	$ 5.35
High Growth & Low Price	2021-2022	Oct	$ 5.31	$ 5.49	$ 5.44	$ 5.44	$ 5.44	$ 5.25	$ 5.25	$ 5.49	$ 5.33	$ 5.43
High Growth & Low Price	2022-2023	Nov	$ 5.50	$ 5.64	$ 5.50	$ 5.50	$ 5.50	$ 5.40	$ 5.40	$ 5.66	$ 5.49	$ 5.53
High Growth & Low Price	2022-2023	Dec	$ 5.64	$ 5.73	$ 5.64	$ 5.64	$ 5.64	$ 5.49	$ 5.49	$ 5.73	$ 5.57	$ 5.65
High Growth & Low Price	2022-2023	Jan	$ 5.59	$ 5.71	$ 5.59	$ 5.59	$ 5.59	$ 5.45	$ 5.45	$ 5.71	$ 5.54	$ 5.62
High Growth & Low Price	2022-2023	Feb	$ 5.62	$ 5.67	$ 5.62	$ 5.62	$ 5.62	$ 5.52	$ 5.52	$ 5.66	$ 5.57	$ 5.63
High Growth & Low Price	2022-2023	Mar	$ 5.54	$ 5.57	$ 5.54	$ 5.54	$ 5.54	$ 5.47	$ 5.47	$ 5.57	$ 5.51	$ 5.55
High Growth & Low Price	2022-2023	Apr	$ 5.42	$ 5.49	$ 5.42	$ 5.42	$ 5.42	$ 5.35	$ 5.35	$ 5.58	$ 5.42	$ 5.43
High Growth & Low Price	2022-2023	May	$ 5.47	$ 5.51	$ 5.47	$ 5.47	$ 5.47	$ 5.40	$ 5.40	$ 5.58	$ 5.46	$ 5.48
High Growth & Low Price	2022-2023	Jun	$ 5.52	$ 5.53	$ 5.50	$ 5.50	$ 5.50	$ 5.45	$ 5.45	$ 5.58	$ 5.49	$ 5.51
High Growth & Low Price	2022-2023	Jul	$ 5.55	$ 5.58	$ 5.55	$ 5.55	$ 5.55	$ 5.48	$ 5.48	$ 5.58	$ 5.51	$ 5.56
High Growth & Low Price	2022-2023	Aug	$ 5.57	$ 5.58	$ 5.56	$ 5.56	$ 5.56	$ 5.50	$ 5.50	$ 5.58	$ 5.53	$ 5.57
High Growth & Low Price	2022-2023	Sep	$ 5.41	$ 5.50	$ 5.41	$ 5.41	$ 5.41	$ 5.34	$ 5.34	$ 5.59	$ 5.42	$ 5.43
High Growth & Low Price	2022-2023	Oct	$ 5.41	$ 5.53	$ 5.48	$ 5.48	$ 5.48	$ 5.34	$ 5.34	$ 5.53	$ 5.40	$ 5.48
High Growth & Low Price	2023-2024	Nov	$ 5.54	$ 5.64	$ 5.54	$ 5.54	$ 5.54	$ 5.45	$ 5.45	$ 5.65	$ 5.52	$ 5.56
High Growth & Low Price	2023-2024	Dec	$ 5.65	$ 5.72	$ 5.65	$ 5.65	$ 5.65	$ 5.53	$ 5.53	$ 5.72	$ 5.59	$ 5.67
High Growth & Low Price	2023-2024	Jan	$ 5.59	$ 5.66	$ 5.59	$ 5.59	$ 5.59	$ 5.50	$ 5.50	$ 5.66	$ 5.55	$ 5.60
High Growth & Low Price	2023-2024	Feb	$ 5.66	$ 5.63	$ 5.66	$ 5.66	$ 5.66	$ 5.55	$ 5.55	$ 5.55	$ 5.55	$ 5.65
High Growth & Low Price	2023-2024	Mar	$ 5.40	$ 5.41	$ 5.40	$ 5.40	$ 5.40	$ 5.33	$ 5.33	$ 5.41	$ 5.36	$ 5.40
High Growth & Low Price	2023-2024	Apr	$ 5.27	$ 5.34	$ 5.27	$ 5.27	$ 5.27	$ 5.21	$ 5.21	$ 5.41	$ 5.28	$ 5.29
High Growth & Low Price	2023-2024	May	$ 5.29	$ 5.33	$ 5.33	$ 5.33	$ 5.33	$ 5.23	$ 5.23	$ 5.41	$ 5.29	$ 5.32
High Growth & Low Price	2023-2024	Jun	$ 5.37	$ 5.33	$ 5.33	$ 5.33	$ 5.33	$ 5.30	$ 5.30	$ 5.42	$ 5.34	$ 5.34
High Growth & Low Price	2023-2024	Jul	$ 5.40	$ 5.40	$ 5.40	$ 5.40	$ 5.40	$ 5.33	$ 5.33	$ 5.42	$ 5.36	$ 5.40
High Growth & Low Price	2023-2024	Aug	$ 5.42	$ 5.42	$ 5.42	$ 5.42	$ 5.42	$ 5.35	$ 5.35	$ 5.42	$ 5.37	$ 5.42
High Growth & Low Price	2023-2024	Sep	$ 5.37	$ 5.40	$ 5.34	$ 5.34	$ 5.34	$ 5.30	$ 5.30	$ 5.42	$ 5.34	$ 5.36
High Growth & Low Price	2023-2024	Oct	$ 5.38	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.31	$ 5.31	$ 5.45	$ 5.36	$ 5.44
High Growth & Low Price	2024-2025	Nov	$ 5.52	$ 5.56	$ 5.52	$ 5.52	$ 5.52	$ 5.42	$ 5.42	$ 5.60	$ 5.48	$ 5.53
High Growth & Low Price	2024-2025	Dec	$ 5.69	$ 5.67	$ 5.69	$ 5.69	$ 5.69	$ 5.50	$ 5.50	$ 5.67	$ 5.56	$ 5.69
High Growth & Low Price	2024-2025	Jan	$ 5.64	$ 5.65	$ 5.64	$ 5.64	$ 5.64	$ 5.47	$ 5.47	$ 5.65	$ 5.53	$ 5.65
High Growth & Low Price	2024-2025	Feb	$ 5.69	$ 5.65	$ 5.69	$ 5.69	$ 5.69	$ 5.53	$ 5.53	$ 5.56	$ 5.54	$ 5.68
High Growth & Low Price	2024-2025	Mar	$ 5.50	$ 5.49	$ 5.50	$ 5.50	$ 5.50	$ 5.43	$ 5.43	$ 5.44	$ 5.43	$ 5.50
High Growth & Low Price	2024-2025	Apr	$ 5.37	$ 5.39	$ 5.37	$ 5.37	$ 5.37	$ 5.30	$ 5.30	$ 5.44	$ 5.35	$ 5.37
High Growth & Low Price	2024-2025	May	$ 5.39	$ 5.40	$ 5.40	$ 5.40	$ 5.40	$ 5.32	$ 5.32	$ 5.44	$ 5.36	$ 5.39
High Growth & Low Price	2024-2025	Jun	$ 5.44	$ 5.40	$ 5.40	$ 5.40	$ 5.40	$ 5.37	$ 5.37	$ 5.45	$ 5.39	$ 5.41
High Growth & Low Price	2024-2025	Jul	$ 5.49	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.43	$ 5.43	$ 5.45	$ 5.44	$ 5.46
High Growth & Low Price	2024-2025	Aug	$ 5.50	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.45	$ 5.46
High Growth & Low Price	2024-2025	Sep	$ 5.42	$ 5.41	$ 5.41	$ 5.41	$ 5.41	$ 5.35	$ 5.35	$ 5.45	$ 5.38	$ 5.41
High Growth & Low Price	2024-2025	Oct	$ 5.43	$ 5.44	$ 5.44	$ 5.44	$ 5.44	$ 5.36	$ 5.36	$ 5.44	$ 5.39	$ 5.44
High Growth & Low Price	2025-2026	Nov	$ 5.74	$ 5.80	$ 5.74	$ 5.74	$ 5.74	$ 5.54	$ 5.54	$ 5.85	$ 5.64	$ 5.75
High Growth & Low Price	2025-2026	Dec	$ 5.91	$ 5.90	$ 5.91	$ 5.91	$ 5.91	$ 5.63	$ 5.63	$ 5.91	$ 5.72	$ 5.90
High Growth & Low Price	2025-2026	Jan	$ 5.89	$ 5.90	$ 5.89	$ 5.89	$ 5.89	$ 5.59	$ 5.59	$ 5.90	$ 5.69	$ 5.89
High Growth & Low Price	2025-2026	Feb	$ 5.95	$ 5.92	$ 5.95	$ 5.95	$ 5.95	$ 5.67	$ 5.67	$ 5.79	$ 5.71	$ 5.94
High Growth & Low Price	2025-2026	Mar	$ 5.56	$ 5.66	$ 5.56	$ 5.56	$ 5.56	$ 5.46	$ 5.46	$ 5.66	$ 5.53	$ 5.58
High Growth & Low Price	2025-2026	Apr	$ 5.40	$ 5.56	$ 5.40	$ 5.40	$ 5.40	$ 5.33	$ 5.33	$ 5.67	$ 5.44	$ 5.43
High Growth & Low Price	2025-2026	May	$ 5.43	$ 5.57	$ 5.49	$ 5.49	$ 5.49	$ 5.36	$ 5.36	$ 5.67	$ 5.46	$ 5.49
High Growth & Low Price	2025-2026	Jun	$ 5.49	$ 5.60	$ 5.49	$ 5.49	$ 5.49	$ 5.42	$ 5.42	$ 5.67	$ 5.50	$ 5.51
High Growth & Low Price	2025-2026	Jul	$ 5.52	$ 5.67	$ 5.52	$ 5.52	$ 5.52	$ 5.45	$ 5.45	$ 5.67	$ 5.52	$ 5.55
High Growth & Low Price	2025-2026	Aug	$ 5.54	$ 5.68	$ 5.54	$ 5.54	$ 5.54	$ 5.47	$ 5.47	$ 5.68	$ 5.54	$ 5.57
High Growth & Low Price	2025-2026	Sep	$ 5.50	$ 5.68	$ 5.50	$ 5.50	$ 5.50	$ 5.43	$ 5.43	$ 5.68	$ 5.51	$ 5.54
High Growth & Low Price	2025-2026	Oct	$ 5.50	$ 5.70	$ 5.64	$ 5.64	$ 5.64	$ 5.43	$ 5.43	$ 5.70	$ 5.52	$ 5.63
High Growth & Low Price	2026-2027	Nov	$ 5.77	$ 5.83	$ 5.77	$ 5.77	$ 5.77	$ 5.56	$ 5.56	$ 5.87	$ 5.66	$ 5.79
High Growth & Low Price	2026-2027	Dec	$ 5.92	$ 5.91	$ 5.92	$ 5.92	$ 5.92	$ 5.66	$ 5.66	$ 5.91	$ 5.74	$ 5.92
High Growth & Low Price	2026-2027	Jan	$ 5.89	$ 5.89	$ 5.89	$ 5.89	$ 5.89	$ 5.61	$ 5.61	$ 5.90	$ 5.71	$ 5.89
High Growth & Low Price	2026-2027	Feb	$ 5.94	$ 5.92	$ 5.94	$ 5.94	$ 5.94	$ 5.68	$ 5.68	$ 5.72	$ 5.70	$ 5.94

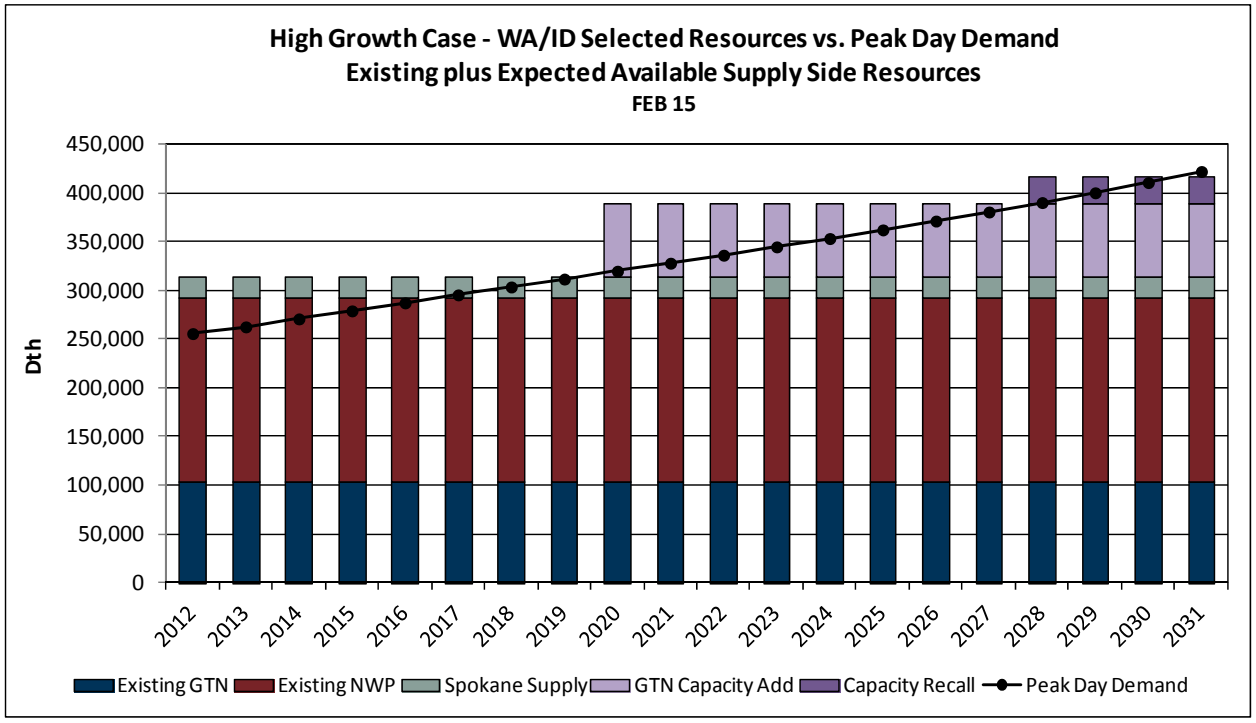
APPENDIX 6.4 II HIGH GROWTH – LOW PRICE MONTHLY DETAIL

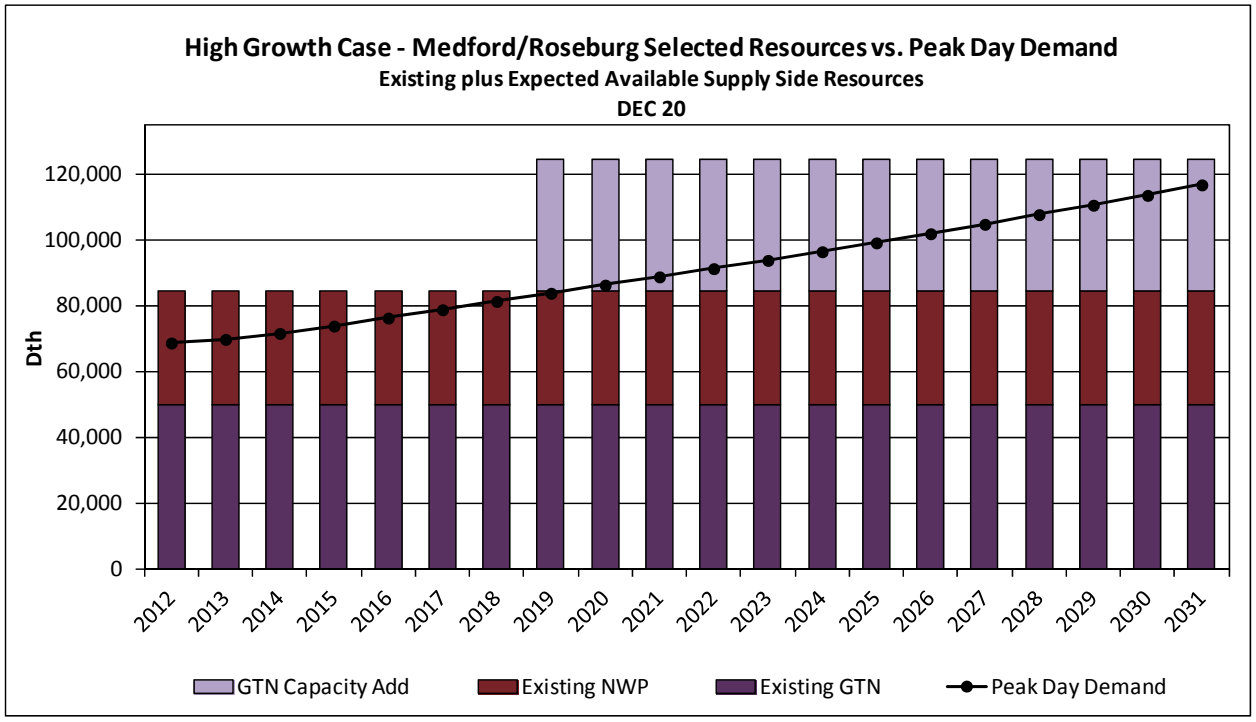
Appendix 6.4 - Monthly Avoided Cost Detail 1/
2010$

Scenario	Gas Year	Month	Klam Falls	La Grande	Medford GTN	Medford NWP	Roseburg	WA/ID Both	WA/ID GTN	WA/ID NWP	WA/ID Annual	OR Annual
High Growth & Low Price	2026-2027	Mar	$ 5.52	$ 5.58	$ 5.52	$ 5.52	$ 5.52	$ 5.41	$ 5.41	$ 5.58	$ 5.47	$ 5.53
High Growth & Low Price	2026-2027	Apr	$ 5.33	$ 5.47	$ 5.33	$ 5.33	$ 5.33	$ 5.27	$ 5.27	$ 5.59	$ 5.37	$ 5.36
High Growth & Low Price	2026-2027	May	$ 5.37	$ 5.50	$ 5.45	$ 5.45	$ 5.45	$ 5.30	$ 5.30	$ 5.59	$ 5.39	$ 5.44
High Growth & Low Price	2026-2027	Jun	$ 5.42	$ 5.52	$ 5.42	$ 5.42	$ 5.42	$ 5.35	$ 5.35	$ 5.59	$ 5.43	$ 5.44
High Growth & Low Price	2026-2027	Jul	$ 5.45	$ 5.59	$ 5.45	$ 5.45	$ 5.45	$ 5.38	$ 5.38	$ 5.59	$ 5.45	$ 5.48
High Growth & Low Price	2026-2027	Aug	$ 5.47	$ 5.59	$ 5.47	$ 5.47	$ 5.47	$ 5.40	$ 5.40	$ 5.59	$ 5.46	$ 5.49
High Growth & Low Price	2026-2027	Sep	$ 5.45	$ 5.60	$ 5.45	$ 5.45	$ 5.45	$ 5.38	$ 5.38	$ 5.60	$ 5.45	$ 5.48
High Growth & Low Price	2026-2027	Oct	$ 5.45	$ 5.62	$ 5.58	$ 5.58	$ 5.58	$ 5.38	$ 5.38	$ 5.62	$ 5.46	$ 5.56
High Growth & Low Price	2027-2028	Nov	$ 5.74	$ 5.77	$ 5.74	$ 5.74	$ 5.74	$ 5.53	$ 5.53	$ 5.82	$ 5.63	$ 5.75
High Growth & Low Price	2027-2028	Dec	$ 5.86	$ 5.84	$ 5.86	$ 5.86	$ 5.86	$ 5.62	$ 5.62	$ 5.84	$ 5.69	$ 5.86
High Growth & Low Price	2027-2028	Jan	$ 5.83	$ 5.83	$ 5.83	$ 5.83	$ 5.83	$ 5.59	$ 5.59	$ 5.83	$ 5.67	$ 5.83
High Growth & Low Price	2027-2028	Feb	$ 5.87	$ 5.85	$ 5.87	$ 5.87	$ 5.87	$ 5.67	$ 5.67	$ 5.73	$ 5.69	$ 5.87
High Growth & Low Price	2027-2028	Mar	$ 5.55	$ 5.56	$ 5.55	$ 5.55	$ 5.55	$ 5.45	$ 5.45	$ 5.58	$ 5.49	$ 5.56
High Growth & Low Price	2027-2028	Apr	$ 5.38	$ 5.48	$ 5.38	$ 5.38	$ 5.38	$ 5.31	$ 5.31	$ 5.60	$ 5.40	$ 5.40
High Growth & Low Price	2027-2028	May	$ 5.43	$ 5.50	$ 5.47	$ 5.47	$ 5.47	$ 5.36	$ 5.36	$ 5.60	$ 5.44	$ 5.47
High Growth & Low Price	2027-2028	Jun	$ 5.46	$ 5.53	$ 5.46	$ 5.46	$ 5.46	$ 5.39	$ 5.39	$ 5.60	$ 5.46	$ 5.47
High Growth & Low Price	2027-2028	Jul	$ 5.50	$ 5.60	$ 5.50	$ 5.50	$ 5.50	$ 5.43	$ 5.43	$ 5.60	$ 5.49	$ 5.52
High Growth & Low Price	2027-2028	Aug	$ 5.52	$ 5.63	$ 5.52	$ 5.52	$ 5.52	$ 5.45	$ 5.45	$ 5.63	$ 5.51	$ 5.54
High Growth & Low Price	2027-2028	Sep	$ 5.48	$ 5.59	$ 5.48	$ 5.48	$ 5.48	$ 5.41	$ 5.41	$ 5.61	$ 5.48	$ 5.50
High Growth & Low Price	2027-2028	Oct	$ 5.49	$ 5.61	$ 5.61	$ 5.61	$ 5.61	$ 5.42	$ 5.42	$ 5.61	$ 5.48	$ 5.59
High Growth & Low Price	2028-2029	Nov	$ 5.82	$ 5.83	$ 5.82	$ 5.82	$ 5.82	$ 5.58	$ 5.58	$ 5.94	$ 5.70	$ 5.82
High Growth & Low Price	2028-2029	Dec	$ 5.95	$ 5.95	$ 5.95	$ 5.95	$ 5.95	$ 5.69	$ 5.69	$ 5.96	$ 5.78	$ 5.95
High Growth & Low Price	2028-2029	Jan	$ 5.94	$ 5.94	$ 5.94	$ 5.94	$ 5.94	$ 5.64	$ 5.64	$ 5.94	$ 5.74	$ 5.94
High Growth & Low Price	2028-2029	Feb	$ 5.91	$ 5.88	$ 5.91	$ 5.91	$ 5.91	$ 5.72	$ 5.72	$ 5.76	$ 5.73	$ 5.90
High Growth & Low Price	2028-2029	Mar	$ 5.59	$ 5.59	$ 5.59	$ 5.59	$ 5.59	$ 5.52	$ 5.52	$ 5.61	$ 5.55	$ 5.59
High Growth & Low Price	2028-2029	Apr	$ 5.49	$ 5.49	$ 5.49	$ 5.49	$ 5.49	$ 5.42	$ 5.42	$ 5.61	$ 5.49	$ 5.49
High Growth & Low Price	2028-2029	May	$ 5.45	$ 5.49	$ 5.49	$ 5.49	$ 5.49	$ 5.38	$ 5.38	$ 5.61	$ 5.46	$ 5.48
High Growth & Low Price	2028-2029	Jun	$ 5.49	$ 5.52	$ 5.49	$ 5.49	$ 5.49	$ 5.42	$ 5.42	$ 5.62	$ 5.49	$ 5.49
High Growth & Low Price	2028-2029	Jul	$ 5.53	$ 5.61	$ 5.53	$ 5.53	$ 5.53	$ 5.46	$ 5.46	$ 5.62	$ 5.51	$ 5.55
High Growth & Low Price	2028-2029	Aug	$ 5.55	$ 5.64	$ 5.55	$ 5.55	$ 5.55	$ 5.48	$ 5.48	$ 5.64	$ 5.53	$ 5.57
High Growth & Low Price	2028-2029	Sep	$ 5.54	$ 5.62	$ 5.54	$ 5.54	$ 5.54	$ 5.47	$ 5.47	$ 5.62	$ 5.52	$ 5.56
High Growth & Low Price	2028-2029	Oct	$ 5.54	$ 5.64	$ 5.64	$ 5.64	$ 5.64	$ 5.47	$ 5.47	$ 5.64	$ 5.53	$ 5.62
High Growth & Low Price	2029-2030	Nov	$ 5.96	$ 5.96	$ 5.96	$ 5.96	$ 5.96	$ 5.62	$ 5.62	$ 6.12	$ 5.79	$ 5.96
High Growth & Low Price	2029-2030	Dec	$ 6.12	$ 6.12	$ 6.12	$ 6.12	$ 6.12	$ 5.85	$ 5.84	$ 6.14	$ 5.94	$ 6.12
High Growth & Low Price	2029-2030	Jan	$ 6.12	$ 6.12	$ 6.12	$ 6.12	$ 6.12	$ 5.69	$ 5.69	$ 6.12	$ 5.84	$ 6.12
High Growth & Low Price	2029-2030	Feb	$ 5.93	$ 5.88	$ 5.93	$ 5.93	$ 5.93	$ 5.77	$ 5.76	$ 5.77	$ 5.77	$ 5.92
High Growth & Low Price	2029-2030	Mar	$ 5.56	$ 5.56	$ 5.56	$ 5.56	$ 5.56	$ 5.47	$ 5.47	$ 5.61	$ 5.52	$ 5.56
High Growth & Low Price	2029-2030	Apr	$ 5.52	$ 5.52	$ 5.52	$ 5.52	$ 5.52	$ 5.45	$ 5.45	$ 5.61	$ 5.51	$ 5.52
High Growth & Low Price	2029-2030	May	$ 5.42	$ 5.48	$ 5.48	$ 5.48	$ 5.48	$ 5.35	$ 5.35	$ 5.61	$ 5.44	$ 5.47
High Growth & Low Price	2029-2030	Jun	$ 5.47	$ 5.48	$ 5.48	$ 5.48	$ 5.48	$ 5.40	$ 5.40	$ 5.62	$ 5.47	$ 5.48
High Growth & Low Price	2029-2030	Jul	$ 5.53	$ 5.55	$ 5.53	$ 5.53	$ 5.53	$ 5.46	$ 5.46	$ 5.62	$ 5.51	$ 5.53
High Growth & Low Price	2029-2030	Aug	$ 5.54	$ 5.57	$ 5.54	$ 5.54	$ 5.54	$ 5.47	$ 5.47	$ 5.62	$ 5.52	$ 5.55
High Growth & Low Price	2029-2030	Sep	$ 5.54	$ 5.59	$ 5.59	$ 5.59	$ 5.59	$ 5.47	$ 5.47	$ 5.62	$ 5.52	$ 5.58
High Growth & Low Price	2029-2030	Oct	$ 5.55	$ 5.62	$ 5.62	$ 5.62	$ 5.62	$ 5.48	$ 5.48	$ 5.62	$ 5.53	$ 5.61
High Growth & Low Price	2030-2031	Nov	$ 6.02	$ 6.02	$ 6.02	$ 6.02	$ 6.02	$ 5.62	$ 5.62	$ 6.24	$ 5.83	$ 6.02
High Growth & Low Price	2030-2031	Dec	$ 6.17	$ 6.18	$ 6.18	$ 6.18	$ 6.18	$ 5.90	$ 5.89	$ 6.26	$ 6.02	$ 6.18
High Growth & Low Price	2030-2031	Jan	$ 6.18	$ 6.18	$ 6.18	$ 6.18	$ 6.18	$ 5.77	$ 5.77	$ 6.24	$ 5.93	$ 6.18
High Growth & Low Price	2030-2031	Feb	$ 6.03	$ 5.89	$ 6.03	$ 6.03	$ 6.03	$ 5.81	$ 5.81	$ 5.81	$ 5.81	$ 6.00
High Growth & Low Price	2030-2031	Mar	$ 5.65	$ 5.65	$ 5.65	$ 5.65	$ 5.65	$ 5.57	$ 5.57	$ 5.65	$ 5.60	$ 5.65
High Growth & Low Price	2030-2031	Apr	$ 5.62	$ 5.62	$ 5.62	$ 5.62	$ 5.62	$ 5.55	$ 5.55	$ 5.65	$ 5.59	$ 5.62
High Growth & Low Price	2030-2031	May	$ 5.52	$ 5.59	$ 5.59	$ 5.59	$ 5.59	$ 5.45	$ 5.45	$ 5.65	$ 5.52	$ 5.57
High Growth & Low Price	2030-2031	Jun	$ 5.59	$ 5.59	$ 5.59	$ 5.59	$ 5.59	$ 5.52	$ 5.52	$ 5.66	$ 5.57	$ 5.59
High Growth & Low Price	2030-2031	Jul	$ 5.63	$ 5.63	$ 5.63	$ 5.63	$ 5.63	$ 5.56	$ 5.56	$ 5.66	$ 5.59	$ 5.63
High Growth & Low Price	2030-2031	Aug	$ 5.65	$ 5.65	$ 5.65	$ 5.65	$ 5.65	$ 5.58	$ 5.58	$ 5.66	$ 5.61	$ 5.65
High Growth & Low Price	2030-2031	Sep	$ 5.64	$ 5.65	$ 5.65	$ 5.65	$ 5.65	$ 5.57	$ 5.57	$ 5.66	$ 5.60	$ 5.65
High Growth & Low Price	2030-2031	Oct	$ 5.65	$ 5.68	$ 5.68	$ 5.68	$ 5.68	$ 5.58	$ 5.58	$ 5.68	$ 5.62	$ 5.68

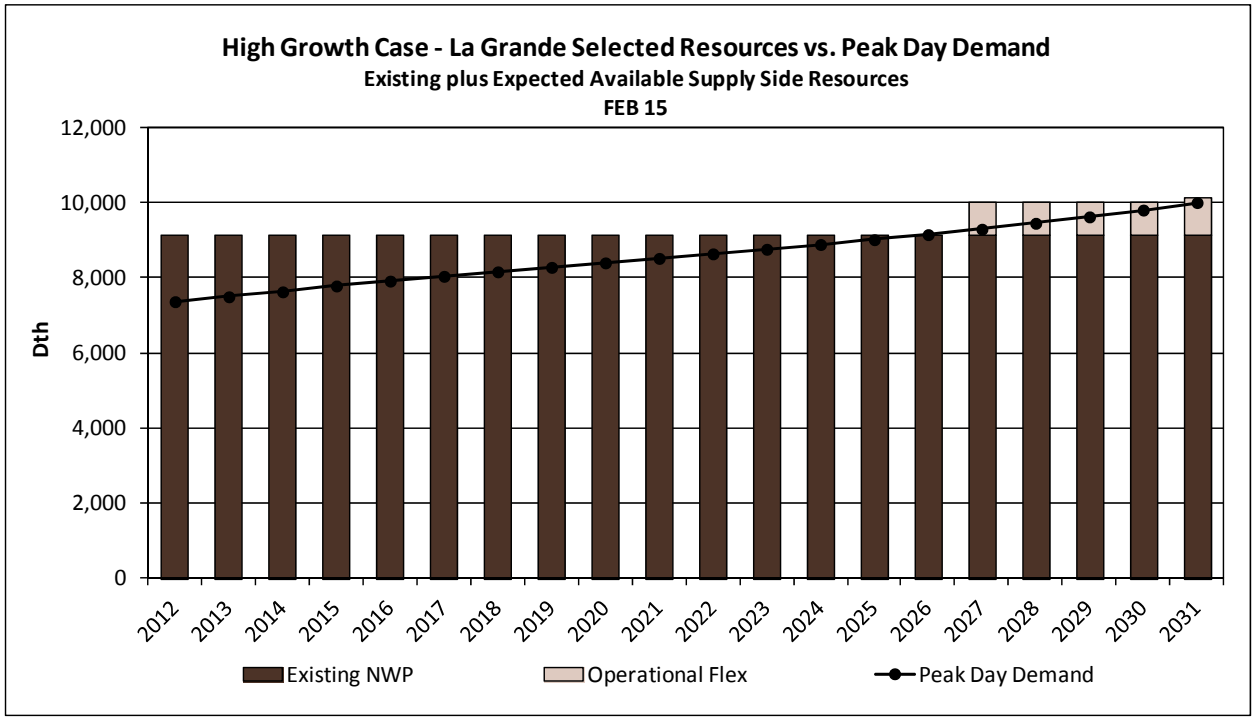
1/ Avoided costs shown before Environmental Externalities adder.

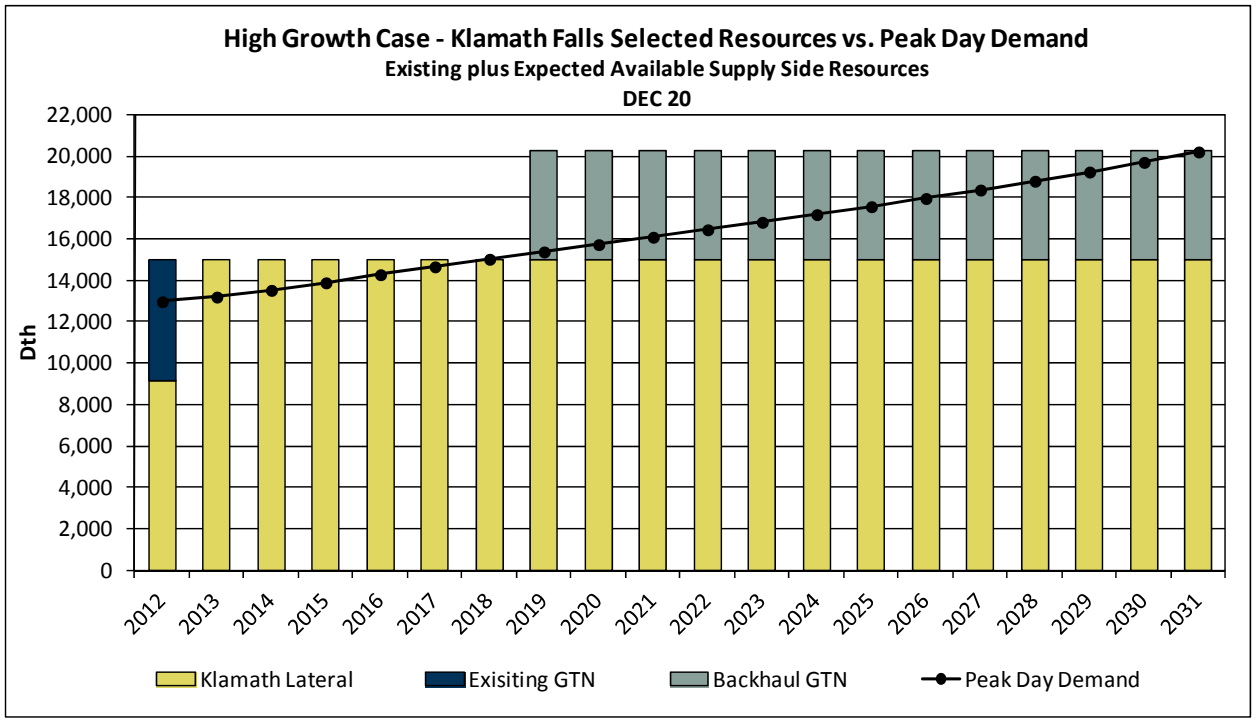
APPENDIX 7.1 II HIGH GROWTH CASES
SELECTED RESOURCES VS. PEAK DAY DEMAND
EXISTING PLUS EXPECTED AVAILABLE



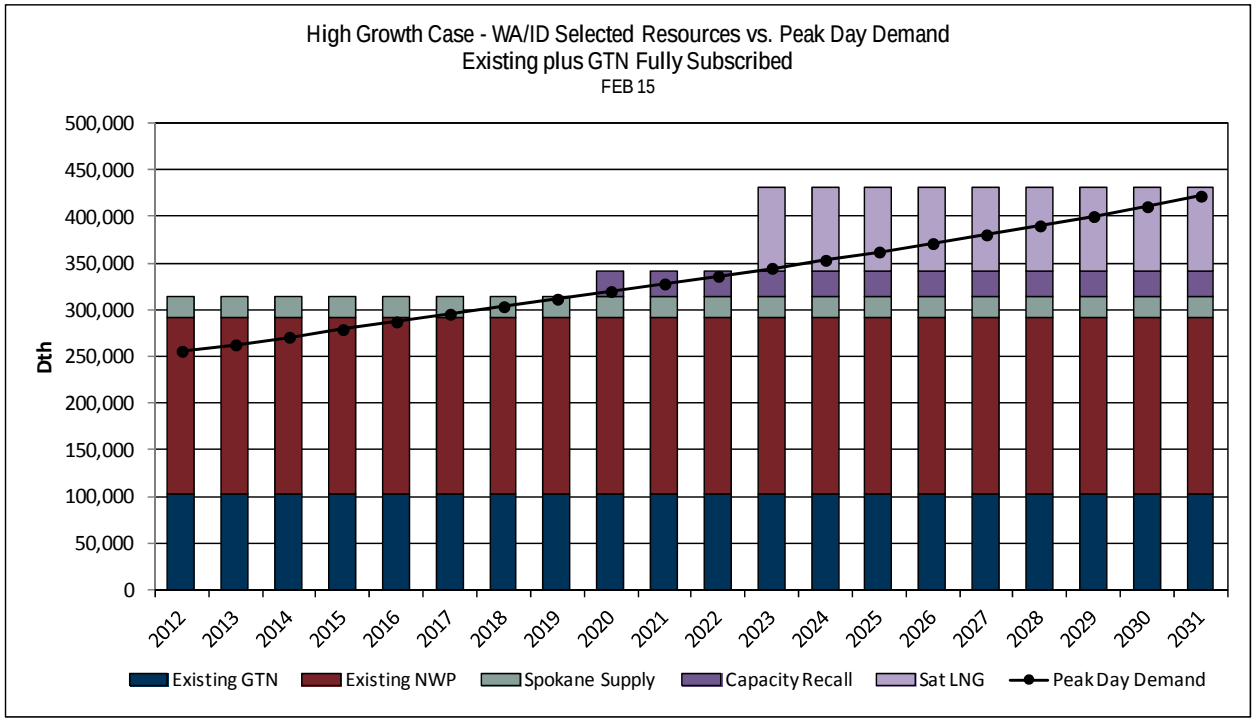


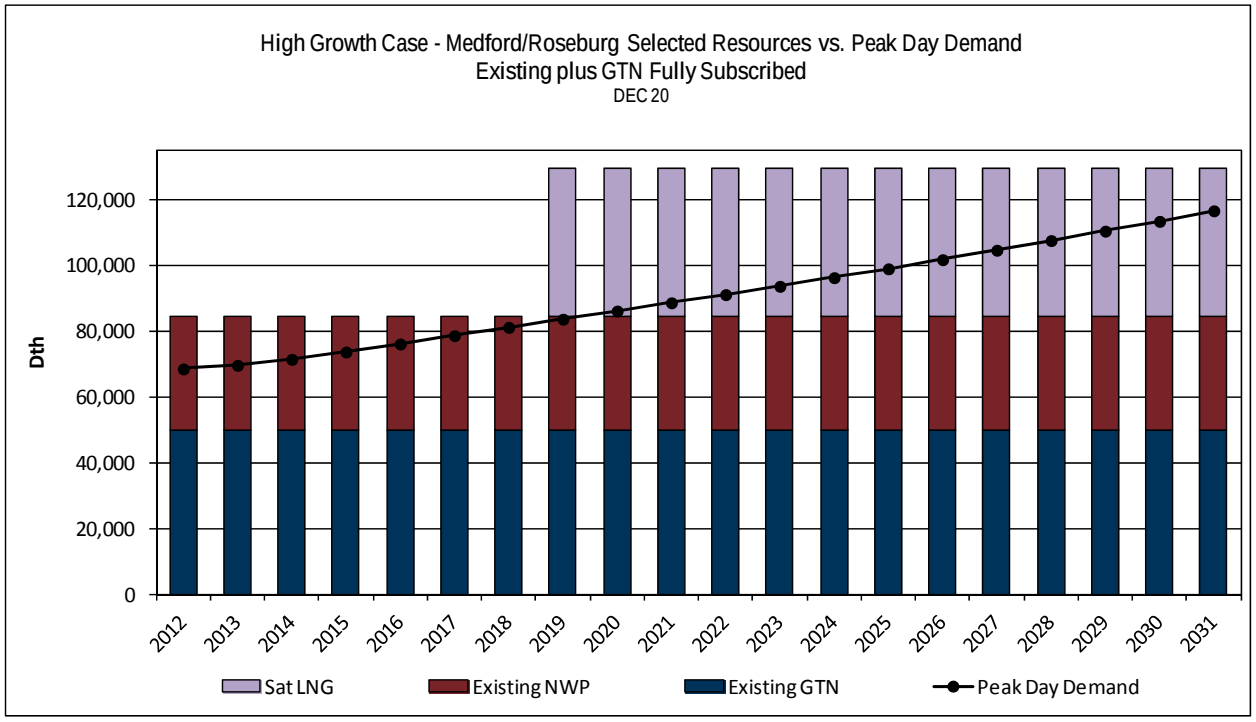
APPENDIX 7.1 II HIGH GROWTH CASES
SELECTED RESOURCES VS. PEAK DAY DEMAND
EXISTING PLUS EXPECTED AVAILABLE



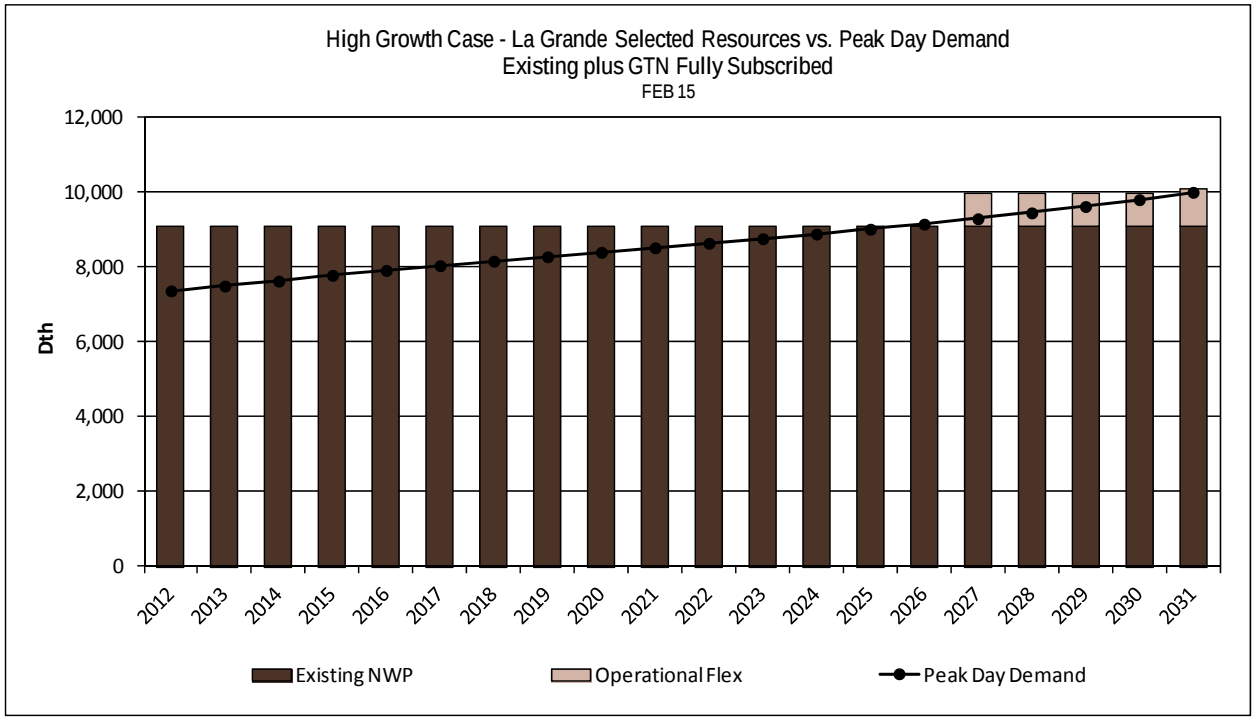


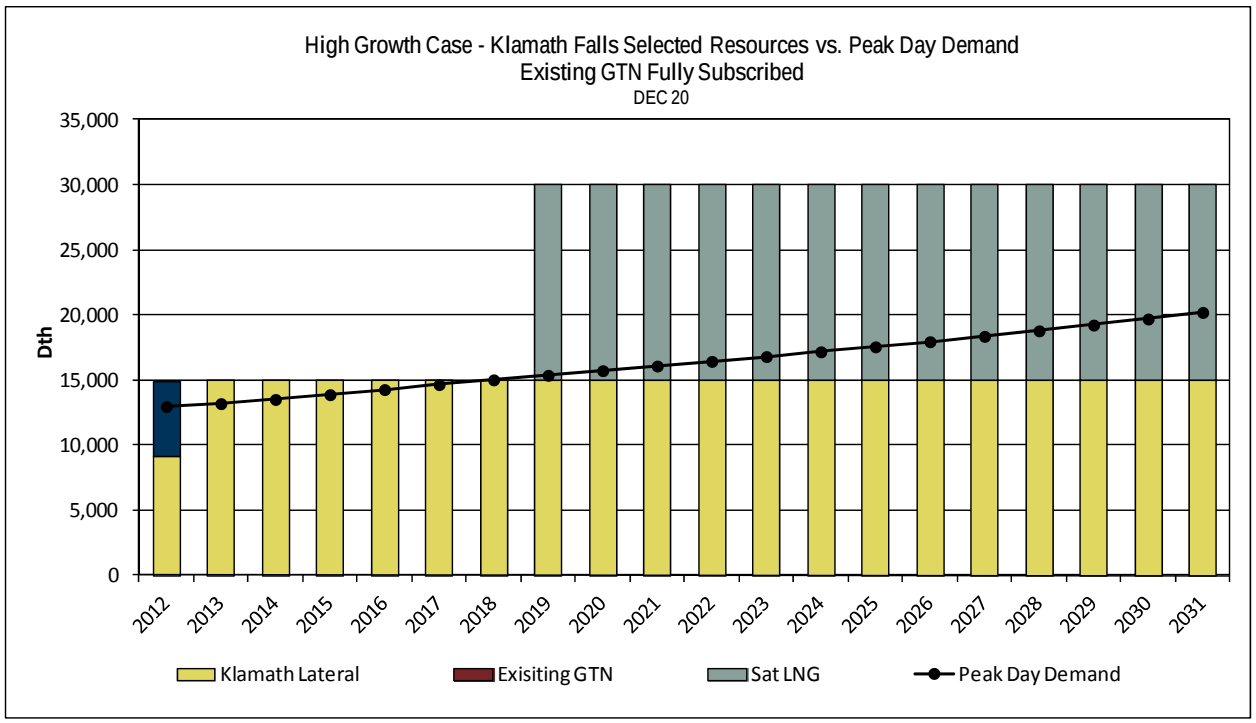
APPENDIX 7.1 II HIGH GROWTH CASES
SELECTED RESOURCES VS. PEAK DAY DEMAND
EXISTING PLUS GTN FULLY SUBSCRIBED





APPENDIX 7.1 II HIGH GROWTH CASES
SELECTED RESOURCES VS. PEAK DAY DEMAND
EXISTING PLUS GTN FULLY SUBSCRIBED





APPENDIX 7.2 II PEAK DAY DEMAND TABLE
HIGH GROWTH

Peak Day Demand - Served and Unserved (MDth/d)
Before Resource Additions & Net of DSM Savings

Case	Gas Year	La Grande Served	La Grande Unserved	La Grande Total	La Grande % of Peak Day Served	WA/ID Served	WA/ID Unserved	WA/ID Total	WA/ID % of Peak Day Served
High Growth	2012	7.36	-	7.36	100%	255.74	-	255.74	100%
High Growth	2013	7.49	-	7.49	100%	262.63	-	262.63	100%
High Growth	2014	7.62	-	7.62	100%	270.77	-	270.77	100%
High Growth	2015	7.78	-	7.78	100%	279.05	-	279.05	100%
High Growth	2016	7.91	-	7.91	100%	287.20	-	287.20	100%
High Growth	2017	8.04	-	8.04	100%	295.46	-	295.46	100%
High Growth	2018	8.16	-	8.16	100%	303.56	-	303.56	100%
High Growth	2019	8.28	-	8.28	100%	311.65	-	311.65	100%
High Growth	2020	8.40	-	8.40	100%	314.09	5.68	319.78	98%
High Growth	2021	8.52	-	8.52	100%	314.09	13.84	327.93	96%
High Growth	2022	8.64	-	8.64	100%	314.09	22.08	336.17	93%
High Growth	2023	8.76	-	8.76	100%	314.09	30.57	344.66	91%
High Growth	2024	8.88	-	8.88	100%	314.09	39.18	353.27	89%
High Growth	2025	9.01	-	9.01	100%	314.09	48.05	362.15	87%
High Growth	2026	9.10	0.05	9.15	99%	314.09	57.11	371.20	85%
High Growth	2027	9.10	0.19	9.29	98%	314.09	66.41	380.51	83%
High Growth	2028	9.10	0.35	9.45	96%	314.09	76.03	390.12	81%
High Growth	2029	9.10	0.52	9.62	95%	314.09	86.07	400.17	78%
High Growth	2030	9.10	0.70	9.80	93%	314.09	96.63	410.72	76%
High Growth	2031	9.10	0.90	10.00	91%	314.09	107.92	422.01	74%

Case	Gas Year	Klamath Falls Served	Klamath Falls Unserved	Klamath Falls Total	Klamath Falls % of Peak Day Served	Medford/ Roseburg Served	Medford/ Roseburg Unserved	Medford/ Roseburg Total	Medford/ Roseburg % of Peak Day Served
High Growth	2012	12.97	-	12.97	100%	68.57	-	68.57	100%
High Growth	2013	13.20	-	13.20	100%	69.66	-	69.66	100%
High Growth	2014	13.52	-	13.52	100%	71.48	-	71.48	100%
High Growth	2015	13.89	-	13.89	100%	73.71	-	73.71	100%
High Growth	2016	14.28	-	14.28	100%	76.14	-	76.14	100%
High Growth	2017	14.66	-	14.66	100%	78.67	-	78.67	100%
High Growth	2018	15.00	0.02	15.02	100%	81.19	-	81.19	100%
High Growth	2019	15.00	0.38	15.38	98%	83.69	-	83.69	100%
High Growth	2020	15.00	0.73	15.73	95%	84.12	2.05	86.17	98%
High Growth	2021	15.00	1.09	16.09	93%	84.12	4.55	88.66	95%
High Growth	2022	15.00	1.45	16.45	91%	84.12	7.04	91.15	92%
High Growth	2023	15.00	1.81	16.81	89%	84.12	9.56	93.68	90%
High Growth	2024	15.00	2.18	17.18	87%	84.12	12.19	96.30	87%
High Growth	2025	15.00	2.56	17.56	85%	84.12	14.87	98.98	85%
High Growth	2026	15.00	2.96	17.96	84%	84.12	17.65	101.77	83%
High Growth	2027	15.00	3.37	18.37	82%	84.12	20.53	104.64	80%
High Growth	2028	15.00	3.79	18.79	80%	84.12	23.45	107.57	78%
High Growth	2029	15.00	4.23	19.23	78%	84.12	26.32	110.44	76%
High Growth	2030	15.00	4.70	19.70	76%	84.12	29.30	113.42	74%
High Growth	2031	15.00	5.20	20.20	74%	84.12	32.50	116.61	72%

APPENDIX 7.2 II PEAK DAY DEMAND TABLE
LOW GROWTH

Peak Day Demand - Served and Unserved (MDth/d)
Before Resource Additions & Net of DSM Savings

Case	Gas Year	La Grande Served	La Grande Unserved	La Grande Total	La Grande % of Peak Day Served	WA/ID Served	WA/ID Unserved	WA/ID Total	WA/ID % of Peak Day Served
Low Growth	2012	7.23	-	7.23	100%	254.74	-	254.74	100%
Low Growth	2013	7.28	-	7.28	100%	257.33	-	257.33	100%
Low Growth	2014	7.33	-	7.33	100%	260.42	-	260.42	100%
Low Growth	2015	7.39	-	7.39	100%	263.55	-	263.55	100%
Low Growth	2016	7.44	-	7.44	100%	266.63	-	266.63	100%
Low Growth	2017	7.48	-	7.48	100%	269.67	-	269.67	100%
Low Growth	2018	7.52	-	7.52	100%	272.62	-	272.62	100%
Low Growth	2019	7.56	-	7.56	100%	275.55	-	275.55	100%
Low Growth	2020	7.61	-	7.61	100%	278.45	-	278.45	100%
Low Growth	2021	7.65	-	7.65	100%	281.36	-	281.36	100%
Low Growth	2022	7.69	-	7.69	100%	284.23	-	284.23	100%
Low Growth	2023	7.72	-	7.72	100%	287.17	-	287.17	100%
Low Growth	2024	7.76	-	7.76	100%	290.09	-	290.09	100%
Low Growth	2025	7.80	-	7.80	100%	293.06	-	293.06	100%
Low Growth	2026	7.84	-	7.84	100%	295.98	-	295.98	100%
Low Growth	2027	7.88	-	7.88	100%	298.91	-	298.91	100%
Low Growth	2028	7.92	-	7.92	100%	301.81	-	301.81	100%
Low Growth	2029	7.97	-	7.97	100%	304.74	-	304.74	100%
Low Growth	2030	8.01	-	8.01	100%	307.63	-	307.63	100%
Low Growth	2031	8.05	-	8.05	100%	310.55	-	310.55	100%

Case	Gas Year	Klamath Falls Served	Klamath Falls Unserved	Klamath Falls Total	Klamath Falls % of Peak Day Served	Medford/ Roseburg Served	Medford/ Roseburg Unserved	Medford/ Roseburg Total	Medford/ Roseburg % of Peak Day Served
Low Growth	2012	9.51	-	9.51	100%	68.19	-	68.19	100%
Low Growth	2013	9.58	-	9.58	100%	68.60	-	68.60	100%
Low Growth	2014	9.68	-	9.68	100%	69.28	-	69.28	100%
Low Growth	2015	9.79	-	9.79	100%	70.12	-	70.12	100%
Low Growth	2016	9.90	-	9.90	100%	71.04	-	71.04	100%
Low Growth	2017	9.99	-	9.99	100%	71.97	-	71.97	100%
Low Growth	2018	10.08	-	10.08	100%	72.90	-	72.90	100%
Low Growth	2019	10.17	-	10.17	100%	73.80	-	73.80	100%
Low Growth	2020	10.26	-	10.26	100%	74.70	-	74.70	100%
Low Growth	2021	10.35	-	10.35	100%	75.58	-	75.58	100%
Low Growth	2022	10.44	-	10.44	100%	76.46	-	76.46	100%
Low Growth	2023	10.53	-	10.53	100%	77.33	-	77.33	100%
Low Growth	2024	10.62	-	10.62	100%	78.23	-	78.23	100%
Low Growth	2025	10.71	-	10.71	100%	79.12	-	79.12	100%
Low Growth	2026	10.80	-	10.80	100%	80.03	-	80.03	100%
Low Growth	2027	10.89	-	10.89	100%	80.94	-	80.94	100%
Low Growth	2028	10.98	-	10.98	100%	81.83	-	81.83	100%
Low Growth	2029	11.07	-	11.07	100%	82.65	-	82.65	100%
Low Growth	2030	11.15	-	11.15	100%	83.45	-	83.45	100%
Low Growth	2031	11.24	-	11.24	100%	84.09	-	84.09	100%

APPENDIX 7.2 II PEAK DAY DEMAND TABLE
COLDEST IN 20 YEARS

Peak Day Demand - Served and Unserved (MDth/d)
Before Resource Additions & Net of DSM Savings

Case	Gas Year	La Grande Served	La Grande Unserved	La Grande Total	La Grande % of Peak Day Served	WA/ID Served	WA/ID Unserved	WA/ID Total	WA/ID % of Peak Day Served
Coldest in 20	2012	7.23	-	7.23	100%	230.63	-	230.63	100%
Coldest in 20	2013	7.31	-	7.31	100%	234.53	-	234.53	100%
Coldest in 20	2014	7.20	-	7.20	100%	232.87	-	232.87	100%
Coldest in 20	2015	7.23	-	7.23	100%	235.45	-	235.45	100%
Coldest in 20	2016	7.29	-	7.29	100%	239.40	-	239.40	100%
Coldest in 20	2017	7.36	-	7.36	100%	243.63	-	243.63	100%
Coldest in 20	2018	7.42	-	7.42	100%	247.71	-	247.71	100%
Coldest in 20	2019	7.46	-	7.46	100%	250.95	-	250.95	100%
Coldest in 20	2020	7.50	-	7.50	100%	254.42	-	254.42	100%
Coldest in 20	2021	7.56	-	7.56	100%	258.24	-	258.24	100%
Coldest in 20	2022	7.58	-	7.58	100%	261.16	-	261.16	100%
Coldest in 20	2023	7.61	-	7.61	100%	264.03	-	264.03	100%
Coldest in 20	2024	7.64	-	7.64	100%	267.26	-	267.26	100%
Coldest in 20	2025	7.67	-	7.67	100%	270.30	-	270.30	100%
Coldest in 20	2026	7.70	-	7.70	100%	273.64	-	273.64	100%
Coldest in 20	2027	7.73	-	7.73	100%	276.33	-	276.33	100%
Coldest in 20	2028	7.76	-	7.76	100%	279.33	-	279.33	100%
Coldest in 20	2029	7.80	-	7.80	100%	282.24	-	282.24	100%
Coldest in 20	2030	7.83	-	7.83	100%	285.11	-	285.11	100%
Coldest in 20	2031	7.86	-	7.86	100%	287.97	-	287.97	100%

Case	Gas Year	Klamath Falls Served	Klamath Falls Unserved	Klamath Falls Total	Klamath Falls % of Peak Day Served	Medford/ Roseburg Served	Medford/ Roseburg Unserved	Medford/ Roseburg Total	Medford/ Roseburg % of Peak Day Served
Coldest in 20	2012	12.69	-	12.69	100%	59.07	-	59.07	100%
Coldest in 20	2013	12.83	-	12.83	100%	59.66	-	59.66	100%
Coldest in 20	2014	12.68	-	12.68	100%	59.08	-	59.08	100%
Coldest in 20	2015	12.79	-	12.79	100%	59.75	-	59.75	100%
Coldest in 20	2016	13.00	-	13.00	100%	60.91	-	60.91	100%
Coldest in 20	2017	13.21	-	13.21	100%	62.15	-	62.15	100%
Coldest in 20	2018	13.40	-	13.40	100%	63.38	-	63.38	100%
Coldest in 20	2019	13.55	-	13.55	100%	64.38	-	64.38	100%
Coldest in 20	2020	13.70	-	13.70	100%	65.42	-	65.42	100%
Coldest in 20	2021	13.88	-	13.88	100%	66.55	-	66.55	100%
Coldest in 20	2022	14.01	-	14.01	100%	67.53	-	67.53	100%
Coldest in 20	2023	14.13	-	14.13	100%	68.38	-	68.38	100%
Coldest in 20	2024	14.27	-	14.27	100%	69.35	-	69.35	100%
Coldest in 20	2025	14.40	-	14.40	100%	70.28	-	70.28	100%
Coldest in 20	2026	14.54	-	14.54	100%	71.28	-	71.28	100%
Coldest in 20	2027	14.65	-	14.65	100%	72.13	-	72.13	100%
Coldest in 20	2028	14.78	-	14.78	100%	73.04	-	73.04	100%
Coldest in 20	2029	14.91	-	14.91	100%	73.83	-	73.83	100%
Coldest in 20	2030	15.02	-	15.02	100%	74.59	-	74.59	100%
Coldest in 20	2031	15.14	-	15.14	100%	75.44	-	75.44	100%

APPENDIX 8.1 || DISTRIBUTION SYSTEM MODELING

OVERVIEW

The primary goal of distribution system planning is to design for present needs and to plan for future expansion to serve demand growth. This allows Avista to satisfy current demand-serving requirements while taking steps toward meeting future needs. Distribution system planning identifies potential problems and areas of the distribution system that require reinforcement. By knowing when and where pressure problems may occur, the necessary reinforcements can be incorporated into normal maintenance. Thus, more costly reactive and emergency solutions can be avoided.

COMPUTER MODELING

When designing new main extensions, computer modeling can help determine the optimum size facilities for present and future needs. Undersized facilities are costly to replace, and oversized facilities incur unnecessary expenses to Avista and its customers.

THEORY AND APPLICATION OF STUDY

Natural gas network load studies have evolved in the last decade to become a highly technical and useful means of analyzing the operation of a distribution system. Using a pipeline fluid flow formula, a specified parameter of each pipe element can be simultaneously solved. Through years of research, pipeline equations have been refined to the point where solutions obtained closely represent actual system behavior.

Avista conducts network load studies using GL Noble Denton's SynerGEE® 4.6.0 software. This computer-based modeling tool runs on a Windows operating system and allows users to analyze and interpret solutions graphically.

CREATING A MODEL

To properly study the distribution system, all natural gas main information is entered (length, pipe roughness and ID) into the model. "Main" refers to all pipelines supplying services.

Nodes are placed at all pipe intersections, beginnings and ends of mains, changes in pipe diameter/material and to identify all large customers. A model element connects two nodes together. Therefore, a "to node" and a "from node" will represent an element between those two nodes. Almost all of the elements in a model are pipes.

Regulators are treated like adjustable valves in which the downstream pressure is set to a known value. Although specific regulator types can be entered for realistic behavior, the expected flow passing through the actual regulator is determined and the modeled regulator is forced to accommodate such flows.

FLUID MECHANICS OF THE MODEL

Pipe flow equations are used to determine the relationships between flow, pressure drop, diameter and pipe length. For all models, the Fundamental Flow equation (FM) is used due to its demonstrated reliability.

Efficiency factors are used to account for the equivalent resistance of valves, fittings and angle changes within the distribution system. Starting with a 95 percent factor, the efficiency can be changed to fine tune the model to match field results.

Pipe roughness along with flow conditions creates a friction factor for all pipes within a system. Thus, each pipe may have a unique friction factor, minimizing computational errors associated with generalized friction values.

LOAD DATA

All studies are considered steady state; all natural gas entering the distribution system must equal the natural gas exiting the distribution system at any given time.

Customer loads are obtained from Avista's customer billing system and converted to an algebraic format so loads can be generated for various conditions. Customer Management Module (CMM), a new add-on application for SynerGEE processes customer usage history and generates a base load (non-temperature dependent) and heat load (varying with temperature) for each customer.

In the event of a peak day or an extremely cold weather condition, it is assumed that all curtailable loads are interrupted. Therefore, the models will be conducted with only core loads.

DETERMINING NATURAL GAS CUSTOMERS' MAXIMUM HOURLY USAGE

DETERMINING DESIGN PEAK HOURLY LOAD

The design peak hourly load for a customer is estimated by adding the hourly base load and the hourly heat load for a design temperature. This estimate reflects highest system hourly demands, as shown in Table 1:

Table 1 - Determining Peak* Hourly Load

Peak Hourly Base Load	+	Peak Hourly Heat Load	=	Peak Hourly Load

This method differs from the approach that we use for IRP peak day load planning. The primary reason for this difference is due to the importance of responding to hourly peaking in the distribution system, while IRP resource planning focuses on peak day requirements to the city gate.

APPLYING LOADS

Having estimated the peak loads for all customers in a particular service area, the model can be loaded. The first step is to assign each load to the respective node or element.

GENERATING LOADS

Temperature-based and non-temperature-based loads are established for each node or element, thus loads can be varied based on any temperature (HDD). Such a tool is necessary to evaluate the difference in flow and pressure due to different weather conditions.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

Several years ago we converted our natural gas facility maps to GIS. While the GIS can provide a variety of map products, its power lies in its analytical capability. A GIS consists of three components: spatial operations, data association and map representation.

A GIS allows analysts to conduct spatial operations (relating a feature or facility to another geographically). A spatial operation is possible if a facility displayed on a map maintains a relationship to other facilities. Spatial relationships allow analysts to perform a multitude of queries, including:

- Identify electric customers adjacent to natural gas mains who are not currently using natural gas
- Display the ratio of customers to length of pipe in Emergency Operating Procedure zones (geographical areas defined by the number of customers and their safety in the event of an emergency)
- Classify high-pressure pipeline proximity criteria

The second component of the GIS is data association. This allows analysts to model relationships between facilities displayed on a map to tabular information in a database. Databases store facility information such as pipe size, pipe material, pressure rating, or related information (e.g., customer databases, equipment databases and work management systems). Data association allows interactive queries within a map-like environment.

Finally, the GIS provides a means to create maps of existing facilities in different scales, projections and displays. In addition, the results of a comparative or spatial analysis can be presented pictorially. This allows users to present complex analyses rapidly and in an easy-to-understand method.

BUILDING SYNERGEE® MODELS FROM A GIS

The GIS can provide additional benefits through the ease of creation and maintenance of load studies. Avista can create load studies from the GIS based on tabular data (attributes) installed during the mapping process.

MAINTENANCE USING A GIS

The GIS helps maintain the existing distribution facility by allowing a design to be initiated on a GIS. Currently, design jobs for the company's natural gas system are managed through Avista's Facility Management (AFM) tool. Once jobs are completed, the as-built information is automatically updated on GIS, eliminating the need to convert physical maps to a GIS at a later date. Because the facility is updated , load studies can remain current by refreshing the analysis.

DEVELOPING A PRESENT CASE LOAD STUDY

In order for any model to have accuracy, a present case model has to be developed that reflects what the system was doing when downstream pressures and flows are known. To establish the present case, pressure charts located throughout the distribution system are used.

Pressure charts plot pressure (some include temperature) versus time over several days. Various locations recording simultaneously are used to validate the model. Customer loads on SynerGEE® are generated to correspond with actual temperatures recorded on the pressure charts. An accurate model's downstream

pressures will match the corresponding location's field pressure chart. Efficiency factors are fine-tuned to further refine the model's pressures.

Since telemetry at the gate stations record hourly flow, temperature and pressure, these values are used to validate the model. All loads are representative of the average daily temperature and are defined as hourly flows. If the load generating method is truly accurate, all natural gas entering the actual system (physical) equals total natural gas demand solved by the simulated system (model).

DEVELOPING A PEAK CASE LOAD STUDY

Using the calculated peak loads, a model can be analyzed to identify the behavior during a peak day. The efficiency factors established in the present case are used throughout subsequent models.

ANALYZING RESULTS

After a model has been balanced, several features within the SynerGEE® model are used to translate results. Color plots are generated to depict flow direction, pressure, pipe diameter and gradient with specific break points. Reinforcements can be identified by visual inspection. When user edits are completed and the model is re-balanced, pressure changes can be visually displayed, helping identify optimum reinforcements.

An optimum reinforcement will have the largest pressure increase per unit length. Reinforcements can also be deferred and occasionally eliminated through load mitigation of DSM efforts.

PLANNING CRITERIA

In most instances, models resulting in node pressures below 15 psig indicate a likelihood of distribution low pressure and therefore necessitate reinforcements. For most Avista distribution systems, a minimum of 15 psig will ensure deliverability as natural gas exits the distribution mains and travels through service pipelines to a customer's meter. Some Avista distribution areas operate at lower pressures and are assigned a minimum pressure of 5 psig for model results. Given a lower operating pressure, service pipelines in such areas are sized accordingly to maintain reliability.

DETERMINING MAXIMUM CAPACITY FOR A SYSTEM

Using a peak day model, loads can be prorated at intervals until area pressures drop to 15 psig. At that point, the total amount of natural gas entering the system equals the maximum capacity before new construction is necessary. The difference between natural gas entering the system in this scenario and a peak day model is the maximum additional capacity that can be added to the system.

Since the approximate natural gas usage for the average customer is known, it can be determined how many new customers can be added to the distribution system before necessitating system reinforcements. The above models and procedures are utilized with new construction proposals or pipe reinforcements to determine the potential increase in capacity.

FIVE-YEAR FORECASTING

The intent of our load study forecasting is to predict the system's behavior and reinforcements necessary within the next five years. Various Avista personnel provide information to determine where and why certain areas may experience growth.

By combining information from Avista's demand forecast, IRP planning efforts, regional growth plans and area developments, proposals for pipeline reinforcements and expansions can be evaluated with SynerGEE®.