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April 14, 2008

***VIA ELECTRONIC FILING***

Public Utility Commission of Oregon
550 Capitol Street, N.E., Suite 215
P.O. Box 2148
Salem, Oregon 97308-2148

Attn: Filing Center

Re: **LC___**: NW Natural's 2008 Integrated Resource Plan

Enclosed is NW Natural's Oregon 2008 Integrated Resource Plan. NW Natural believes this document meets the Oregon requirements established in OPUC Order Nos. 05-964;LC 37 and OPUC Order Nos. 07-002 and 07-047; UM 1056.

If you have any questions regarding this Plan, please contact me at (503) 721-2476.

Sincerely,

/s/ Inara K. Scott

Inara K. Scott
Manager, Regulatory Affairs

enclosure


# Draft 2008 Integrated Resource Plan

Executive Summary and
Multi-Year Action Plan

This Executive Summary provides an overview of NW Natural's (NW Natural or the Company) key findings in its 2008 Integrated Resource Plan (IRP or Plan). This document and Technical Appendix (Volume II) constitutes the Company's sixth Integrated Resource Plan. Both the Oregon Public Utility Commission (OPUC) and the Washington Utilities and Transportation Commission (WUTC) require NW Natural to develop long-term resource plans that describe how the Company plans to serve its core customers with reliable natural gas supplies and energy service at the lowest possible cost to those customers. This activity is also known as Least Cost Planning.

## A BRIEF HISTORY OF OUR COMPANY

The Company's roots extend deep into Oregon history. Five weeks before Oregon became a state on January 9, 1859, Portland merchants John Green and Herman C. Leonard obtained a franchise from the last territorial legislature to open a gas company. Their goal was to light Portland's streets with gas manufactured from coal. The new Portland Gas Light Company brought in coal from Vancouver Island, Australia, and Japan. Gas sold for $10 for a thousand cubic feet (compared to $9.20 in 2004 and approximately $12 today). A separate business, the East Portland Gas Light Company, was created in 1882 to provide service to the growing urban area springing up east of the Willamette River. Ten years later, when a 10-inch submerged line was laid across the Willamette River, the east-side business merged with the Portland Gas Company. After changing its name to the Portland Gas Light Company, it began making gas from oil in 1905 as home and water heating began replacing street lighting. Another ownership change occurred in 1910 when the Company was sold to the American Power Company, which renamed the utility Portland Gas and Coke, a name it would retain until it became Northwest Natural Gas Company in 1956.

Between 1914 and 1917, the Company extended distribution lines to Oregon City, Milwaukie, Oak Grove, Gladstone, Beaverton, Orenco, Hillsboro, and Forest Grove. The Vancouver, Washington, gas distribution system was purchased in 1925. A line was laid to Salem in 1929 as service began to the Willamette Valley. In 1956, a new interstate pipeline brought natural gas to the Pacific Northwest for the first time and ushered in a new era of growth. The Company name was abbreviated to NW Natural in 1997.

## INTRODUCTION & BACKGROUND

A. Description of NW Natural

NW Natural is headquartered in Portland, Oregon. The Company currently serves approximately 652,000 residential, commercial and industrial customers in Oregon and southwest Washington. NW Natural's service territory includes the Portland-Vancouver metropolitan area, the Willamette Valley, the Oregon coast – from Astoria down through Coos County, and the Columbia River Gorge. NW Natural's southwest Washington service territory covers portions of Clark, Skamania and Klickitat counties.

**FIGURE ES-1**


B. Overview of Integrated Resource Planning

Integrated Resource Planning is unique to regulated utilities. Oregon and Washington regulators require seven key components. NW Natural's IRP must demonstrate that the Company has: 1) examined a range of demand forecasts; 2) examined all feasible means of meeting demand, including traditional supply-side, as well as demand-side, resources; 3) treated supply-side and demand-side resources equally; 4) described the Company's long-term plan for meeting expected load growth; 5) described its plan for resource acquisitions between planning cycles; 6) taken

uncertainties in planning into account; and 7) involved the public in the planning process.

Within the seven key components, recent rulemaking orders in both Oregon (Order No. 07-002, UM 1056) and Washington [Docket Nos. UE-030311 and UG-030312, General Order No. R-526 (adopting WAC 480-90-238)] have further enhanced the planning process.

In Oregon there are now 11 guidelines that are intended to direct the Company through the seven key components more efficiently. NW Natural must demonstrate it has addressed: 1) Substantive Requirements; 2) Procedural Guidelines; 3) Plan Filing, Review, and Updates; 4) Plan Components; 5) Transmission; 6) Conservation; 7) Demand Response; 8) Environmental Costs; 9) Multi-State Utilities; 10) Reliability; and 11) Resource Acquisition.

In Washington the guidelines fall within four areas of concern, including: 1) Purpose; 2) Minimum Analysis Requirements; 3) Content; and 4) Timing.

## PRINCIPAL CONCLUSIONS FROM THIS PLAN

NW Natural believes this Plan is an important guide regarding how the Company intends to serve a growing region with reliable, low-cost energy supplies. With this in mind, the Company has come to the following principal conclusions:

1. Although the Company has seen a decline in its use per customer, its core customer base continues to grow at 2.4 percent annually, a level well above the national gas distribution industry average of approximately 1.5 percent. Thus, the Company continues to project that its growing customer base will offset the falling use per customer, resulting in steadily rising peak day (1.5 percent) and annual (1.6 percent) gas requirements.

2. For this IRP, the Company has selected an 85 percent probability coldest winter augmented by a three-day peak event as its planning standard against which to evaluate the cost and risk trade off of various supply and demand resources available to *SENDOUT®*. Although this planning standard incorporates a level of demand less than the Company's traditional "design year" planning standard, it reflects the Company's evaluation and selection of a planning standard and resulting portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers.

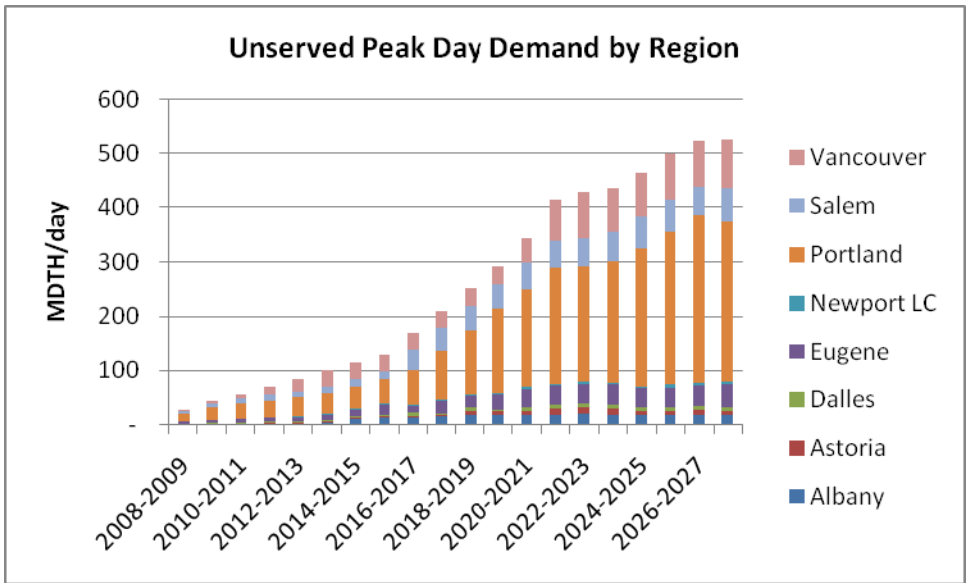
3. The use of *SENDOUT®* as a modeling tool provides NW Natural a more realistic look at demand levels and capacity requirements than was previously possible. One consequence of this approach is that a forecast design year with a strenuous peak episode is much harder to serve using *SENDOUT®*. As a result,

the need for capacity additions in the near and medium term significantly increased beyond the results in previous IRP studies

4. The Company's existing resources are not sufficient to fully satisfy peak day demand. Due to lead time requirements to develop the necessary resources to meet future growing demand, beginning this year the Company must add resources to assure service under peak load conditions.

   Figure ES-2 demonstrates the inability of the Company's existing resources to meet projected loads. Peak day resource deficiencies occur in all regions except Newport, totaling about 28 MDth/day in the initial year, and rising to greater than 500 MDth/day by the end of the planning horizon.

**Figure ES-2**

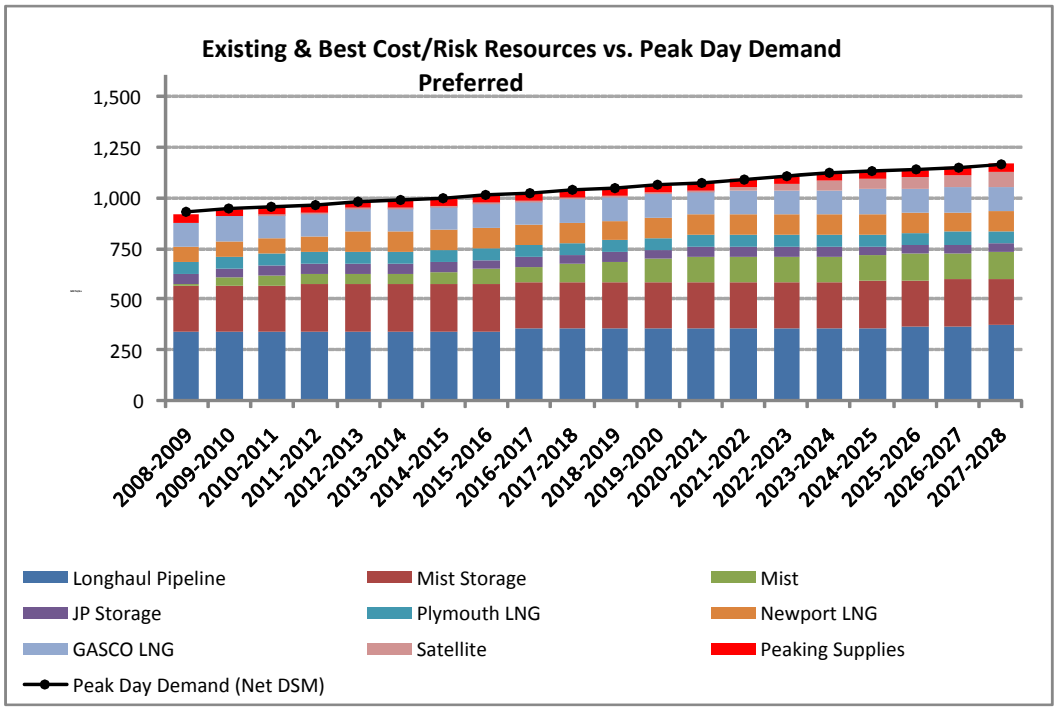



   Annual unserved demand is forecast to increase from 28 MDth in the first year to 6,993 MDth by 2027/2028.

5. The Company's Preferred Portfolio fully addresses the forecast unserved demand under the existing resource portfolio, except in the initial year of the planning horizon when there are insufficient demand and supply side resources available to meet immediate peak day demand deficiencies. The Company's Preferred incremental resource portfolio includes both demand and supply side resources. By the final year of the 20 year planning horizon, the Preferred Portfolio includes an aggregate level of design weather adjusted DSM savings of approximately 8.9 Bcf. The Preferred Portfolio also includes incremental Mist recall, interstate pipeline capacity, and NW Natural distribution system investments.

Figure ES-3 summarizes the blend of supply-side resources selected to satisfy the Company's Preferred Portfolio 20-year peak day demand forecast (net of DSM). The new resources selected for addition to NW Natural's existing portfolio consist primarily of new pipeline contract demand, satellite liquefied natural gas, and the recall of existing Mist underground storage resources to core-market service. These supply-side resources are discussed more fully in Chapters 3 and 5.

**FIGURE ES-3**




## LOAD FORECASTS

To determine the energy requirements for the Company's service area, NW Natural must identify the characteristics of its customer base. This includes the number and types of current customers, the amount of customer growth anticipated in the region, and the amount and pattern of gas usage expected by those customers.

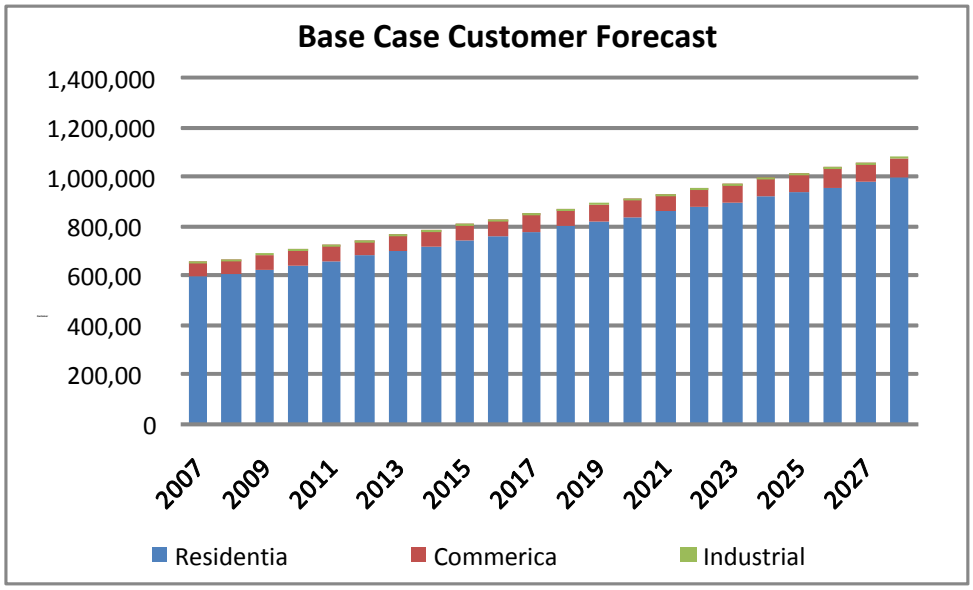
To forecast growth, NW Natural relies upon economic and population growth projections from the Oregon Office of Economic Analysis. NW Natural also projects the number of customers that the Company expects to convert to natural gas from other energy sources.

The Company's load forecast incorporates design year temperatures based on an 85% probability coldest winter and the highest three-day peak load event over the past twenty years. In addition, the Company utilizes stochastic modeling to assess the performance of its selected gas supply portfolio under a range of temperature and price conditions.

KEY FINDINGS:

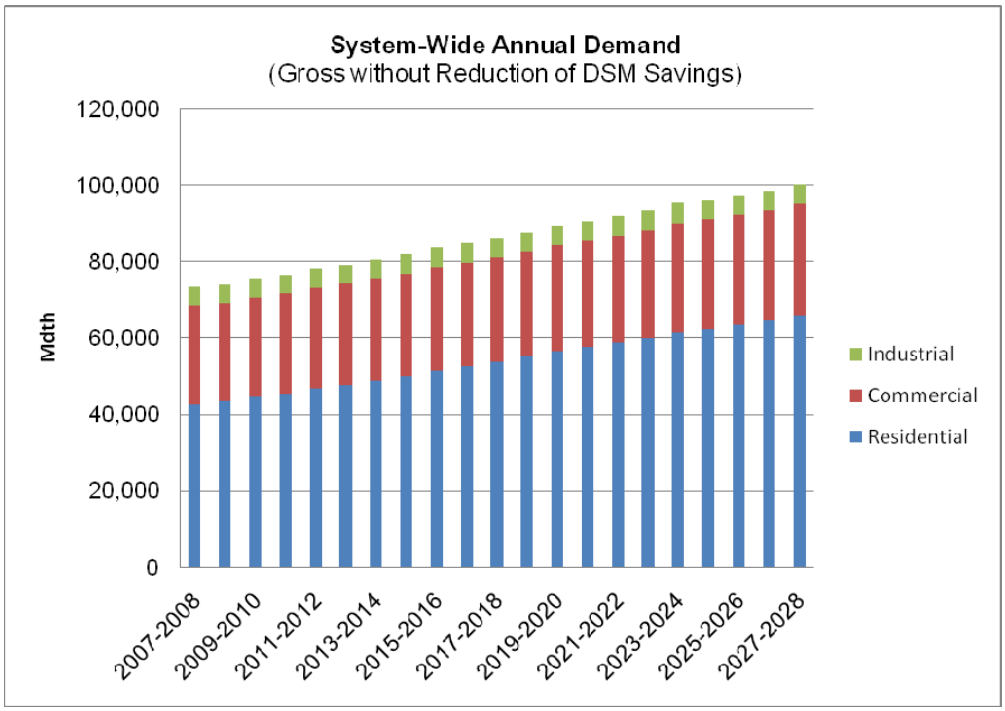
1. During the next 20 years, the Company forecasts a 2.4 percent annual growth in the number of system-wide core customers. The number of core-market customers is forecast to increase by over 60 percent between 2008 and 2028 (see Figure ES-4).

**FIGURE ES-4**



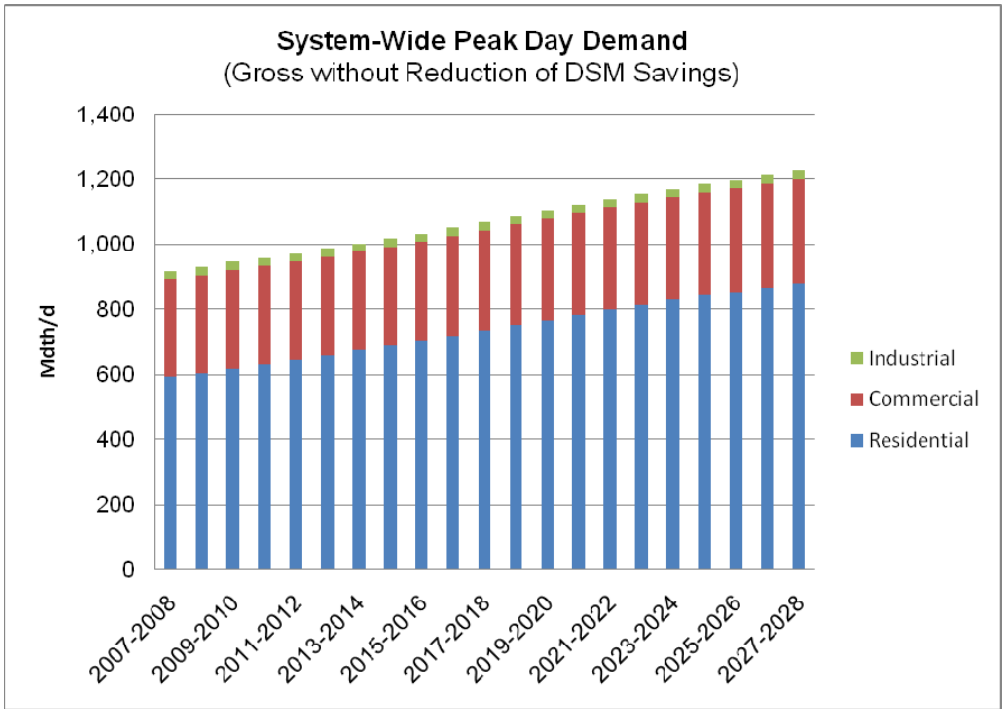

2. At the same time, the Company is forecasting average residential and commercial use per customer to decline by approximately -0.3 percent and -0.7 percent per year, respectively. This trend partially offsets load growth attributable to the forecast growth in customers. Overall, the Company is forecasting a 1.6 percent average growth rate in annual firm demand over the 20 year planning horizon, reaching approximately 100 Bcf by 2027-2028. Figure ES-5 depicts the annual gas requirements forecast for this planning cycle.

**FIGURE ES-5**




3. The Company is projecting peak day gas requirements to increase at 1.5 percent annually during the next 20 years; rising from 915 MDth to 1,223 MDth (refer to Figure ES-6).

**FIGURE ES-6**



## SUPPLY-SIDE RESOURCES

Supply-side resources include the gas itself, gas storage, the interstate pipeline capacity needed to transport the gas to NW Natural's service area, and investments in the Company's own pipeline/distribution facilities. The gas supply planning process is based on ensuring reliable service to NW Natural's core customers.

The amount of gas required at any given time depends on customer behavior. This behavior is greatly influenced by weather, but can also be impacted by changing business conditions and the price of natural gas as compared to alternative fuels.

Maintaining a variety of supply sources at the Company's disposal is the best means of ensuring reliable service. NW Natural's supply portfolio consists of both contracted natural gas supplies and supplies of stored natural gas. The Company has access to natural gas in underground storage facilities and above-ground liquefied natural gas (LNG) storage tanks. Both storage options can be used as "peaking" resources to augment the Company's distribution system. It is also essential for the Company to identify and act when opportunities arise, as they do during times of low demand on interstate pipelines, to get supplies onto our system and into storage in order to further enhance the security of our overall supply portfolio.

Obviously, NW Natural's supply requirements will increase as its firm customer population grows. But the characteristics of the increased load are key factors in the resource selection process. For example, additional water heater load can be met most efficiently by a resource that can deliver the same amount of gas year-round - a "base load" resource. Growth in heating load, on the other hand, presents seasonal demands, and is best served with a combination of "base load" and "peaking" resources.

Given these complexities, the Company has assembled a portfolio of supplies to meet the projected needs of its firm customers. At the same time, this portfolio is flexible enough to enable the Company to negotiate better opportunities as they arise. Existing contracts have staggered terms of greater than one year to very short-term arrangements of 30 days or less. This variety gives the Company the security of longer-term agreements, but still allows the Company to seek more economic transactions in the shorter term.

### SUPPLY DIVERSIFICATION

Over the twenty years since NW Natural began purchasing supplies for its customers directly in the market, rather than from the interstate pipeline, the Company has pursued a diversified approach to acquiring supply resources. This includes expanding gas receipt points to allow new gas supplies to be purchased from, and

stored in, Alberta, Canada, as well as traditional supply basins in British Columbia and the U.S. Rockies. Diversification has given the Company competitive options and improved service reliability on the interstate pipeline system. NW Natural believes that the availability of supply, the large existing pipeline infrastructure in Canada, the number of industry players active in the region, and the liquidity of the market will yield reliable, market priced supplies for years to come.

## RECENT RESOURCE DECISIONS

Included in the Company's portfolio of current gas supply are resources added since the development of the Company's 2004 IRP in response to continued robust customer growth, and in anticipation of future growth. These additions generally followed supply-related conclusions and action plan steps developed in the 2004 IRP.

In late 1999 the Company completed the last increment of Mist expansion completed for core customers that added almost 28 miles of 24" piping to loop the existing South Mist Feeder from Miller Station to a point at the western edge of the Portland metropolitan area (Bacona). While the Company made subsequent reservoir and Miller Station additions and improvements, this storage capacity was marketed to interstate (off-system) customers using a northern backhaul delivery path to the Deer Island gate interconnection with Northwest Pipeline. Additional storage capacity was not initially available for core customers due to the extended length of the authorization process for the South Mist Pipeline Extension (SMPE), which did not receive final permission to be built until November 2003.

NW Natural completed the first segment of SMPE in late 2003. Rather than follow the original plan of working from north to south, the Company built a 12 mile section from the southern terminus at the Molalla gate station to its first interconnection further north with the Company's high pressure distribution system near Aurora. This connection allowed higher flows and pressures from the NWPL system, which were critical to that southern portion of the Portland-area distribution system during the cold weather event experienced in early January 2004.

NW Natural completed the remaining 50 miles of SMPE in the fall of 2004, finally allowing the Company to access more Mist deliverability. This marked the first "recall" of Mist capacity developed in advance of core need, which had been marketed to the interstate market. Over the planning horizon of this IRP, recall of existing Mist storage will be one of NW Natural's primary focuses for developing its supply portfolio. Mist is an exceptional resource for NW Natural due primarily to its location within the service territory. Because of its location, the resource is available without the need for winter re-delivery on the interstate pipelines, which both reduces cost to customers and enhances service reliability. Underground storage and related infrastructure developments in Oregon provide equivalent benefits for Washington customers, as storage permits the Company to displace north to south flowing pipeline supplies to more northerly delivery points in Washington.

## FUTURE SUPPLY-SIDE RESOURCE ALTERNATIVES

In this Plan, NW Natural has considered the following resource options for new pipeline and storage capacity:

Interstate Pipeline Capacity Additions – In this IRP the Company is considering a variety of interstate pipeline capacity resources, including: (i) new NWPL Grants Pass Lateral capacity serving Salem, Newport, Albany and Eugene, (ii) new NWPL "mainline" capacity serving Portland, Astoria, Vancouver, and The Dalles, (iii) new capacity upstream of NWPL mainline capacity providing access to the Rockies and Alberta supply areas, (iv) new Palomar pipeline capacity both east and west of Molalla, (v) new capacity on the proposed Pacific Connector Pipeline to access regasified LNG from the proposed Jordan Cove LNG project at Coos Bay, Oregon, (vi) recall of existing NWPL mainline capacity from the Rockies and Sumas that NW Natural has released to Georgia Pacific, and (vii) existing NWPL mainline capacity from the Rockies currently held by March Point Cogeneration Company. Strategies exist to reduce the risk of excess capacity additions, such as partnerships with other local distribution companies and pipelines.

Brownsville to Eugene – With a relatively modest capital investment ($420,000), the Company can construct a river crossing thereby allowing up to 5,000 Dth/day of existing NWPL capacity to be delivered to Eugene.

Newport Expansion - The daily deliverability of gas from NW Natural's Newport liquefied natural gas plant could be increased from 60,000 Dth/day to 100,000 Dth/day. The cost of infrastructure additions would be about $15 million. While this would enhance NW Natural's system reliability during periods of peak demand, NW Natural would have to add or upgrade major segments of its distribution system to move the gas.

Willamette Valley Feeder – A new pipeline could move natural gas from the Mist underground storage facility south to the Salem area, and then continue further south to Albany or Eugene if necessary. This project would work in conjunction with a new pipeline from Newport and is an alternative to continued expansion of NWPL's Grant's Pass Lateral.

Imported LNG - The Company is evaluating the impact of two LNG import terminals proposed to be sited in Oregon. The Bradwood Landing terminal would have an estimated average production capacity of 1.0 Bcf per day and has proposed a 35-mile export pipeline to Northwest Pipeline in addition to the proposed interconnect with the Palomar pipeline. The Jordan Cove terminal is also sized at 1.0 Bcf/day and would connect to the proposed Pacific Connector Gas Pipeline. Although neither Bradwood nor Jordan Cove has been constructed, for analysis purposes, NW Natural is including them in its modeling.

Satellite LNG – Small-scale LNG storage and vaporization facilities are used as peaking resources because they provide only a few days of deliverability. Where peaking

demands are sharpest, the addition of satellite LNG could defer significant pipeline infrastructure investments. In this IRP, NW Natural has evaluated satellite LNG in three locations in the Willamette Valley (Salem, Albany and Eugene) as interim resources that might delay the incursion of more expensive pipeline projects.

KEY FINDINGS:

1. NW Natural's supply acquisition strategy will rely on transporting gas with pricing negotiated at market rates on an annual, seasonal, or monthly basis.

2. The Company's existing supplies are not sufficient to satisfy 100% of projected peak day demand. Even with strong price elasticity and conservation materializing in recent years, new storage and/or pipeline resources must continue to be added to meet expected firm load growth.

3. The Company's service territory is widespread and it may not be practical to consider tying together all of NW Natural's customers into a single integrated distribution system. Accordingly, some amount of incremental upstream pipeline capacity may be needed to serve the more isolated portions of the Company's system. Conversely, as the cost of upstream pipeline expansions increase, NW Natural has found that removing bottlenecks and more fully integrating certain portions of its own distribution system may be a cheaper potential alternative. As discussed in Chapter 5 of this IRP, *SENDOUT*® selects several NW Natural distribution system investments as least cost means of serving forecast load, including the Brownsville to Eugene river crossing, the enhancement of the Newport pipeline, and investment in the Willamette Valley Feeder project.

4. The need for risk management has been underscored by the ruptures and resulting federal order in 2003 that Northwest Pipeline Corporation (NWPL) must replace its 26" mainline from the Canadian border to NW Natural's service territory by December 2006. The Company is pursuing strategies to improve supply path diversity, such as contracting for capacity on the eastern zone of the proposed Palomar Pipeline for access to domestic supplies and both east and west zones of Palomar for purchasing imported LNG-sourced gas supplies should one or more proposed LNG terminals be sited in the region. This IRP demonstrates that in addition to enhancing the Company's gas supply reliability, both of these resource options, should they be developed, are likely to be cost-effective resource choices.

## DEMAND-SIDE RESOURCES

Since publication of the 2000 Plan, a great deal has changed with respect to the Company's approach to energy efficiency. The 2004 Plan marked a major change in the way the Company deals with demand-side resources in that the combination of the partial decoupling mechanism in the state of Oregon and the public purpose funding mechanism administered by the Energy Trust allowed the Company to

take a more facilitative rather than administrative role in the development and delivery of conservation programs. It is worth emphasizing that NW Natural continues to administer the collection and disbursement of public purpose funding. Additionally, following the enactment of the UM 1056 IRP guidelines, the OPUC now expects NW Natural to assume a more direct role in assessing conservation in its service territory. While the Company maintained a laissez-faire approach towards the Energy Trust's modeling and planning of conservation programs in the 2004 IRP, NW Natural directly participated in these activities for the 2008 IRP. This new approach allows the Company to play an administrative and facilitative role, but not be involved directly in the delivery of conservation programs.

Public purpose funds are collected from Oregon residential and commercial ratepayers and are used by the Energy Trust to finance residential and commercial energy efficiency investments. In addition, funds are collected and used by the Company to fund low-income weatherization and low-income bill payment assistance in Oregon. In Washington, low income weatherization is accomplished using deferred accounting.

In this IRP cycle, NW Natural is performing resource assessments for both its Oregon and Washington service territories. In Oregon, the Company has been tasked with evaluating the funding adequacies of its public purpose charges that go to both the Energy Trust as well as the Company's own low-income programs. The Company has also been tasked with assessing energy efficiency resources for its firm industrial sales customers. On the other side of the river, NW Natural has been asked to evaluate the technically achievable conservation potential in its Washington service territory.

KEY FINDINGS

1. Figures ES-7 and ES-8 depict DSM "achievable" annual savings targets by customer sector and state. The appendices to Chapter 4 contain more detailed information on DSM "achievable" annual savings targets.

**FIGURE ES-7**

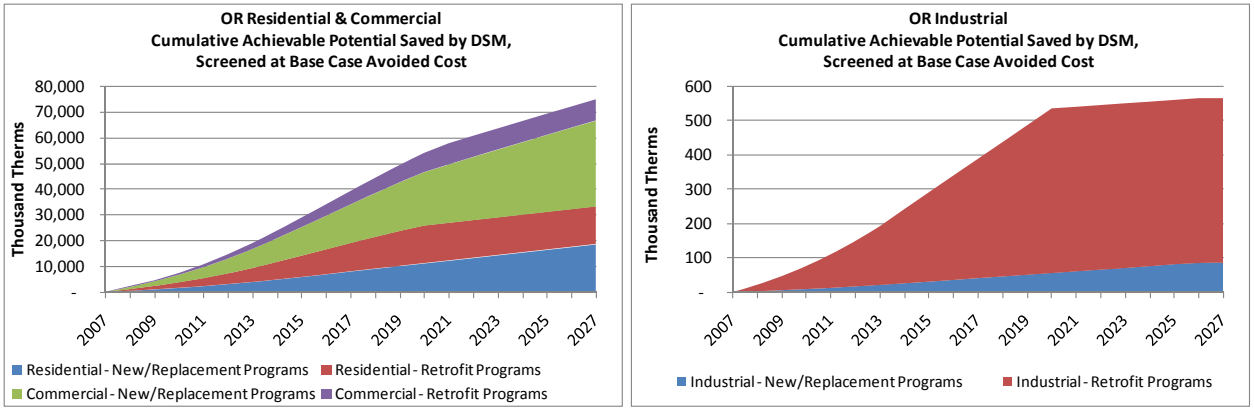
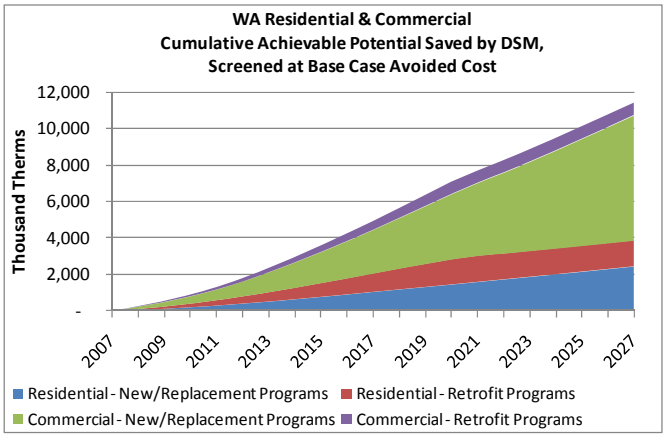


**FIGURE ES-8**




2. The Company pursues cost effective energy efficiency improvements through the Energy Trust.

3. The Company continues to seek out ways to work with the WUTC in an effort to pursue revenue-per-customer decoupling in Washington and implement cost effective energy efficiency programs that mirror the success the Energy Trust has experienced in Oregon.

## IMPACT OF RELATED ENVIRONMENTAL COSTS ON NW NATURAL'S DSM STRATEGY

Related environmental costs do impact demand-side resource choices. Recognizing the cost of carbon dioxide damage could have the greatest impact on the Company's avoided costs. The most likely vehicle through which carbon dioxide costs could be imposed on energy users is through a national carbon tax or greenhouse gas mitigation strategies coming out of the West Coast Governors' Task Force on Green House Gases.

If a carbon tax were imposed, more of the demand-side resource options would be cost-effective. Adding a carbon tax of as little as $7 per ton adds $0.04 to the Company's avoided costs, while $40 per ton adds nearly $0.24 per therm to the avoided cost figures. This could drive up the implicit commodity cost of natural gas and therefore make some non-cost-effective conservation measures cost-effective.

## OTHER DEMAND-SIDE MANAGEMENT CONSIDERATIONS

### LOAD MANAGEMENT

Following the 2000-01 energy crisis, energy planners' attention focused on a group of activities generally known as demand response. The general purpose of

demand response is to help manage demand during periods of system stress. The term encompasses a number of activities including real time pricing, time of use rates, critical-peak pricing, demand buyback, interruptible rates, and direct load controls. To varying degrees, several of these techniques to manage peak demands are used by Northwest Natural.

On the NWN system, customers taking service on interruptible rates represent approximately 42 percent of annual throughput. This includes interruptible sales service, interruptible transportation service and firm on our system transportation service where the transporter, not the Company, is responsible for the firmness of upstream pipeline capacity arrangements. Interruptible service is very attractive for large volume customers because of the low distribution margin involved. As a result, all customers that can manage their operations on interruptible service are currently served on an interruptible basis – leaving little opportunity to reduce peaks loads through expanded interruptible service.

## RATE DESIGN

In general, the Company believes that rate design policies should encourage year-round energy efficiency and cause customers to not place excessive demands on the system during severe weather episodes. The Company also believes that revenue stability is desirable. Toward these ends, the Company's initiatives with respect to the partial decoupling mechanism and the WARM mechanisms in Oregon strike a reasonable balance.

The combination of the Company's partial decoupling and WARM mechanisms in Oregon allow a reasonable compromise between the extremes of collecting fixed system costs primarily through customer charges or collecting fixed costs primarily with volumetric charges. For residential and small commercial customers we have retained the existing approach of recovering the bulk of fixed system costs through volumetric charges. Thus, the marginal cost of comfort is kept high, customer charges are kept relatively low, and revenues are substantially stabilized through the partial decoupling and WARM mechanisms.

With respect to Demand Side Resource planning in Washington, the major remaining step is to establish Revenue Per Customer Decoupling for residential and commercial class customers following the blueprint set forth in the Company's Initial General Rate Case Testimony and proposed Schedule 230 in the Washington UG-080546 (go to:

https://www.nwnatural.com/CMS300/uploadedFiles/WUTC_08-2_Advice_Filing-Coded.pdf

## DSM ACTIVITIES' IMPACT ON SMALL BUSINESS

Where incentives are proposed in the residential equipment markets, equipment distributors and dealers have been encouraged to sell high-efficiency equipment. NW Natural's participation in DSM activities through public purpose funding

has a positive economic impact on smaller companies involved in providing energy conservation services.

## PUBLIC COMMUNICATION AND PARTICIPATION

### TECHNICAL WORKING GROUP

The Technical Working Group (TWG) brings together professionals representing a variety of entities with an interest in NW Natural's IRP process. NW Natural reached out to a wide audience including representatives from the Citizens' Utility Board, Energy Trust of Oregon, Northwest Power and Conservation Council, TransCanada-Gas Transmission Northwest, Northwest Industrial Gas Users, Northwest Pipeline Corporation, Williams Northwest Pipeline, the Oregon Public Utility Commission, and the Washington Utilities & Transportation Commission. This group continues to be an integral part of plan development.

### PUBLIC PARTICIPATION

The Company has held five technical working group meetings and one open house public participation meetings to date. In addition to these meetings the Company has periodically met with Commission Staff to discuss the guidelines adopted in Order No. 07-047, as well as to identify areas of NW Natural's Plan that needed enhancement.


## Draft 2008 Integrated Resource Plan

Multi-Year Action Plan

### 1.0 Demand Forecasting

1.1 Determine appropriate statistical probabilities in developing design year and peak day demand levels through stochastic analysis. The coldest daily events over the past 20 years date back to 1989 and 1990, so absent extreme cold weather in the near future, firm peak-day requirements could drop noticeably in the 2009 or subsequent IRP.

1.2 Recalibrate forecast for changes in gas usage equations and expected customer gains following each heating season. Assess implications and report to state Public Utility Commissions as appropriate.

1.3 Regularly review price volatility and the associated risks within the market.

1.4 The Company will monitor the spread of hybrid heat systems, because of the implications that increase has for demand forecasting.

1.5 Review the demand forecast to ensure that it performs well under warmer days and report findings in the IRP Update in 2009.

1.6 The Company will investigate data collection requirements to analyze demand forecast error regionally.

### 2.0 Supply-Side Resources

2.1 Review cost estimates, on an ongoing basis, for those resources under consideration to identify potential changes in the composition of previously selected resource mixes.

2.2 Recall daily and annual underground storage capacity from the interstate storage gas market to core market service as needed.

2.3 Support development of the Palomar Pipeline, primarily for risk management purposes in diversifying the Company's supply path options.

2.4 Monitor LNG import terminal developments and participate in discussions with project sponsors to preserve the option of purchasing LNG-sourced gas supplies to the extent this proves to be a cost-effective resource option.

2.5 The Northwest is currently witnessing a variety of proposals to construct new or expand existing interstate pipeline projects, principally related to moving Rocky Mountain and LNG-sourced gas supplies to markets throughout the West Coast. The Company will monitor these proposals and, as appropriate, participate in discussions with project sponsors to preserve the option of securing cost-effective new interstate pipeline capacity.

2.6 Refine cost estimates, conduct more detailed system modeling, and investigate siting/permitting constraints on satellite LNG facilities and the specific NW Natural distribution system investments--including the Willamette Valley Feeder and Newport LNG enhancement--identified as potential cost-effective resources in this IRP.

2.7 While NW Natural has not included biogas as a resource option in this IRP, the Company will continue to investigate how this resource can be utilized in the future, given the enormous environmental benefits that may accrue to it.

## 3.0 Demand-Side Resources

3.1 Work with the Energy Trust of Oregon in efforts to improve energy efficiency delivery programs and program participation rates.

3.2 Pursue revenue per customer decoupling in the state of Washington.

3.3 In Oregon, provide periodic updates of the Company's conservation resource assessments to determine adequacy of public purpose funding.

3.4 In Washington, provide periodical updates of the Company's conservation resource assessments to determine any changes in what is technically achievable.

3.5 In Oregon, pursue energy efficiency for industrial sales customers consistent with the Company's independent assessment that indicated that there are cost-effective resources that can be acquired for this customer class.

## 4.0 *SENDOUT®* Model and Integrated Resource Plan Integration

4.1 Update and enhance the optimization model to capture changes in market conditions, refinements of incremental resources, and changes in system characteristics. The *SENDOUT®* model needs to be regularly updated to address changing market conditions, new pipeline proposals, and other changing characteristics of NW Natural's gas delivery system. The model will also be further refined with additional information about the potential route and cost characteristics of incremental supply-side projects such as the Willamette Valley Feeder, as such details are developed.

4.2 Acquire resources consistent with the Preferred Portfolio.

NW Natural will be seeking to acquire the following resources, in conjunction with its selection of its preferred portfolio:

- Palomar East capacity: Per the terms of the Precedent Agreement, assuming the Palomar project proceeds as currently scheduled, the Company plans to commit to 100,000 Dth/day of capacity on Palomar East.

- Newport LNG Enhancement: Preferred Portfolio selected this resource to be on-line in 2012. The Company will report the progress that has been made on this project in the 2009 Annual IRP Update.

- Willamette Valley Feeder (WVF): In order to get the WVF on-line in 2010, as called for in the Preferred Portfolio, the Company must proceed immediately to refine and finalize cost projections, develop final route plans, and investigate any impediments to proceeding with the project. The Company will report the progress that has been made on this project in the 2009 Annual IRP Update.

- Brownsville to Eugene River Crossing: This project is called for by the model in 2011 and provides a supply alternative to Satellite LNG in Eugene. The relatively smaller nature of the project gives the Company some time to update model runs prior to committing resources to the project. It also provides the opportunity to evaluate this project within the scope of a larger Willamette Valley Feeder project. The Company will update the OPUC with its 2009 Annual IRP Update as to progress that has been made on this project.

- Mist Recall: the Company plans to recall 10,000 Dth/day of Mist capacity in the fall of 2008, and an additional 30,000 Dth/day of capacity in the fall of 2009.

## 5.0 Avoided Cost Determination

5.1 As regulation of greenhouse gas emissions and other items develops, NW Natural will update its environmental adder levels and costs and assess their impact on demand-side resource decisions.

## 6.0 Public Involvement

6.1 Conduct additional Technical Working Group meetings as necessary to address the Oregon Public Utility Commission's requirement for a 2009 update to this 2008 IRP.

# CHAPTER 02: GAS REQUIREMENTS FORECAST

# CHAPTER 2: GAS REQUIREMENTS FORECAST

Forecasting future requirements for gas service is the starting point of resource planning. This ensures that resources will be available when needed and it provides a basis for acquiring them in an optimal manner. Therefore, useful forecasting requires that all factors that might impact future gas requirements, or "loads," be thoroughly considered on a daily, seasonal, and annual basis.

## I. OVERVIEW OF DEMAND FORECAST METHODOLOGY

The forecasting process evaluates the amount of gas needed to serve the Company's changing customer base. In order to do this, NW Natural first identifies the characteristics of its customer base, including the number and types of customers currently served, the number and types of customers that could be served in the future, and the amount and pattern of gas usage that can reasonably be expected by those customers. Appendix 2-10 highlights historical usage by customer class.

The forecast focuses on “core market” customers, a group of customers defined as those customers taking firm service on “sales” rate schedules, where the Company provides both upstream supply capacity and storage gas capacity, and also provides for the commodity gas itself. Firm “transportation” customers provide for their own upstream capacity and commodity gas, and are not explicitly considered in this IRP. Similarly, the gas requirements of customers served on interruptible sales and / or transportation rate schedules are not considered, because the Company does not plan for upstream pipeline capacity or storage capacity to serve these customers.

NW Natural continues to use region-specific forecasts in the 2008 IRP, reflecting the Company’s segmentation of its gas distribution system into eight primary geographic regions defined herein as Albany, Astoria, Eugene & Coos Bay, The Dalles (Oregon), Lincoln City & Newport, Portland, Salem, and Vancouver & The Dalles (Washington). These regions differ in terms of weather, customer gains, usage patterns by customers, and resource availability. The results of the individual regional level forecasts are presented in detail in the appendices to Chapter 2.

**Figure 2-1**
**NW Natural Service Territory**
**Major Geographic Regions**

**Region**
1. Albany
2. Astoria
3. Eugene & Coos Bay
4. The Dalles (OR)
5. Lincoln City & Newport
6. Portland
7. Salem
8. Vancouver & The Dalles (WA)


The division of NW Natural's service territory into these eight major geographic regions reflects the different demand and supply points and the distribution system connections between these respective points as analyzed in *SENDOUT®*. Specifically, the regional demand forecasts are compared against current supply resources in *SENDOUT®*, resulting in a Base Case forecast of unserved demand by region. These results of unserved demand by region are presented in Appendix 5-3 and provide useful information to guide infrastructure planning.

## A. TRADITIONAL DETERMINISTIC APPROACH

The process for developing gas requirement forecasts utilized by the Company follows the several stages outlined below.

- The Company first projects customer counts by customer sub-class for each year of the forecast time horizon as explained in Section II. Customer growth forecasts were prepared for six scenarios, including the Company projected Base Case and five other sensitivities as listed in Table 2-1.

- The Company then statistically estimates gas usage equations for each customer subclass (or market segment) as explained in Section III. Design year (including peak day) projections are derived from multiple regressions, separating out Base-use and Temperature Sensitive Load-use (TSL-use).

- Next, the Company applies design weather conditions, projected prices, and customers to gas usage equations to derive firm gas requirements for each forecast scenario. Price forecasts were prepared for three scenarios, including high, reference and low forecasts. The price forecasts are discussed in more detail in Section V.

The Base Case demand forecast utilizes the Company's projected customer growth and projected prices. This IRP also considers five departures from the Base Case demand forecast to place reasonable bounds on the range of demand forecast outcomes. In addition to high and no growth sensitivities, NW Natural also evaluated three negative growth demand scenarios to consider the effects of a lasting recession. A description of each sensitivity is provided in Table 2-1 below. The Company ran *SENDOUT®* under all five of these demand sensitivities in addition to the Base Case to determine how supply resource selection varies with different demand levels. A comparison of *SENDOUT®* sensitivity results is presented in Chapter 5 with supporting detail provided in Appendix 5-3.

**Table 2 - 1**
**Demand Forecasts - Base Case & Sensitivities**

**Base Case Demand**: Expected Base Case customer growth and reference Per Therm Usage Charge forecast.

1. **High Growth Sensitivity**: High customer growth and low Per Therm Usage Charge forecast. Assumes incremental 1% increase over the Base Case in residential and commercial annual growth rates.

2. **No Growth Sensitivity**: No net customer growth in residential and commercial customers and high Per Therm Usage Charge price forecast.

3. **Negative Growth Demand Sensitivity**: Negative growth demand and reference Per Therm Usage Charge price forecast. Assumes residential, commercial and industrial customers decline by -1% per year.

4. **Negative Short Term Growth Demand Sensitivity**: Negative short term growth and reference Per Therm Usage Charge price forecast. Assumes residential, commercial and industrial customers decline by -1% per year for the first five years of the forecast period from 2008 to 2010. Annual growth rate for three year period from 2013 to 2015 increases linearly from -1% back to Base Case growth rate in 2016.

5. **Negative Long Term Growth Demand Sensitivity**: Negative long term growth and reference Per Therm Usage Charge price forecast. Assumes Base Case annual growth rates for residential, commercial and industrial customers for the first five years of the forecast period from 2008 to 2010. For three year period from 2013 to 2015, the annual growth rate declines linearly from the 2012 Base Case annual growth rate to a rate of -1% in 2016. Assumes residential, commercial and industrial customers decline by -1% per year for the remainder of the forecast period.

Figures 2-2 and 2-3 below compare the Base Case demand forecast and the five sensitivities for peak day and annual design year firm requirements. Base Case peak day requirements are projected to increase from 915 MDth/day in 2007-2008 to 1,223 MDth/day in 2027-2028 at annual growth rate of 1.5 percent. Design year annual firm

demand is projected to increase from 73,201 MDth in 2007-2008 to 100,132 MDth in 2027-2028 at an annual growth rate of 1.6% in annual requirements.

**Figure 2-2**

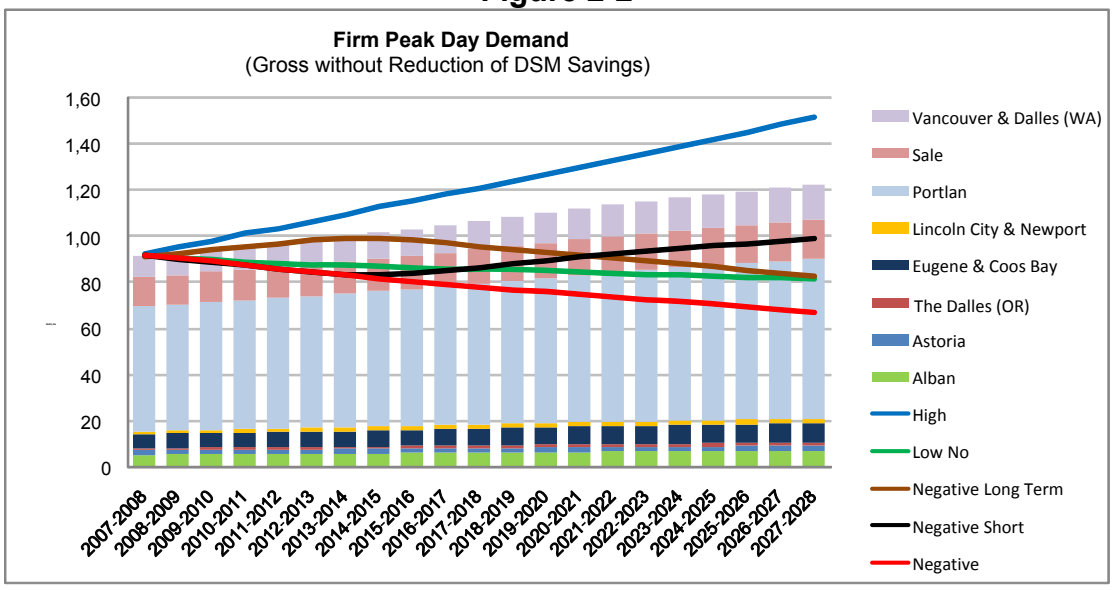
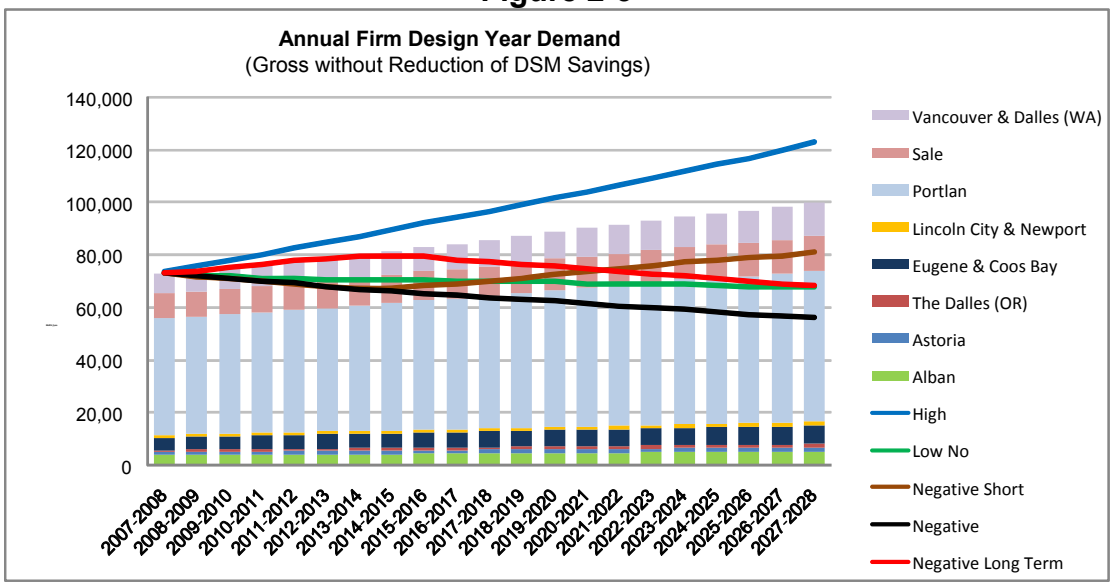



**Figure 2-3**



## B. STOCHASTIC APPROACH

In addition to the six deterministic demand forecasts listed in Table 2-1, the Company incorporates Monte Carlo simulations (i.e. stochastic analysis) in its evaluation of customer demand. The 2008 IRP marks the first time NW Natural is incorporating stochastic analysis. In response to a growing general interest in risk analysis, the Company has begun using *SENDOUT®.* Version 12 as the platform for performing Monte Carlo simulations. *SENDOUT®.* Version 12 supports Monte Carlo simulations around weather and price.

In the context of the IRP, NW Natural is interested in evaluating the impact of resource decisions across a range of weather and forward price scenarios along with evaluating the LP optimized least-cost supply portfolio solution at different levels of probable demand levels. Monte Carlo simulation and *SENDOUT®.* are explained in more detail in Chapter 5.

Although the calculations that yield the stochastically produced load forecasts differ significantly from the traditional deterministic approach, most of the underlying assumptions are identical to the Base Case, including the customer growth forecast and the use per customer regression coefficients. The primary difference is in how HDDs are treated in the Monte Carlo simulations versus using the traditional deterministic approach of evaluating one design year. By describing the expected variability, behavior, and correlation among potential events in the Monte Carlo simulation, *SENDOUT®.*performs hundreds of iterations to produce a robust numerical representation of the many possible future weather and price scenarios, their resulting demand requirements and associated probabilities or likelihood of occurrence.

The timing of the peak event also supports the use of a stochastic model. Given the progressive depletion of storage levels and deliverability throughout a heating season, the later the peak event occurs in the heating season, the more difficult it is to successfully serve peak demand. Therefore, the stochastic model is allowed to treat the peak day as a moving target to replicate a more likely outcome where peaking weather does not show up on the same day every year. Results of the Monte Carlo simulation are presented in Chapter 5.

## II. CUSTOMER FORECASTS

NW Natural relies on economic and population growth projections from the Oregon Office of Economic Analysis[1] (OEA) to develop a 20-year Base Case customer forecast, which represents the Company's expected growth in residential, commercial, and firm industrial customer meters through 2028, including new construction and fuel-conversion gains. Regional center (formerly referred to as "district") growth forecasts utilize both the results produced using the system-wide macro-economic variables and historic growth observed at the regional center level – typically 3 years, with a team of Company subject matter experts who further refine the forecasts. These projections are monitored and updated quarterly. The Company's process for developing the Base Case customer growth forecast for residential, commercial and industrial customers is outlined in Table 2-2 below.

1 Quarterly Economic and Revenue Forecast, Oregon Office of Economic Analysis, November 20, 2007. Available at http://www.oea.das.state.or.us.

**Table 2-2**
**Base Case Customer Growth Forecast**
**Methodology**

**Residential:**

Attrition

- Projected residential attrition is derived from the aggregate set of historical customer counts, net of gross customer adds, inclusive of any activity among new construction and conversion customers.
- Existing customer base is reduced for the projected attrition over the forecast period.

New Construction customer gains (single family and multi-family):

Through the 2007 to 2016 period

- Major driver is the Oregon Economic and Revenue Forecast (OERF) of housing starts.
- Estimated housing starts are allocated to the eight major geographic regions of NW Natural's service territory according to market share of customers within each territory.

For 2017 to end of forecast in 2028

- Assumes new construction gains for years 2017 and later remain at 2016 projected levels.

Conversion customer gains:

Through the 2007 to 2016 period

- Stock of convertible dwellings in service area resource centers served by Oil and Other Fuels.
- Current preferred dealers and available incentives.
- Oregon Economic and Revenue Forecast (OERF) of CPI and Personal Income.
- Ratio of Electric to Gas Rates.

For 2017 to end of forecast in 2028

- Assumes conversion customer gains for years 2017 and later remain at 2016 projected levels.

**Commercial:**

Attrition

- Projected commercial attrition is derived from the aggregate set of historical customer counts, net of gross customer adds, inclusive of any activity among new construction and conversion customers.
- Existing customer base is reduced for the projected attrition over the forecast period.

New Construction customer gains:

- Assumes flat growth based on average historical customer gains.

Conversion customer gains:

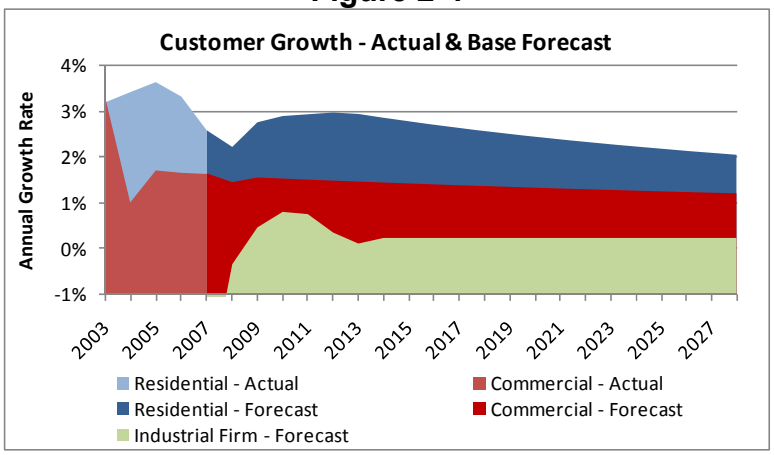
- Assumes flat growth based on average historical customer gains.

**Industrial Firm:**

- Assumed firm industrial customer annual growth rates for 2007 through 2013 are derived from the Oregon Economic and Revenue Forecast (OERF) December 2007 manufacturing forecast.
- For the remainder of the forecast period from 2014 to 2028, the Company assumes an annual growth rate of .22%, equal to the two year average annual growth rate for 2012 and 2013.

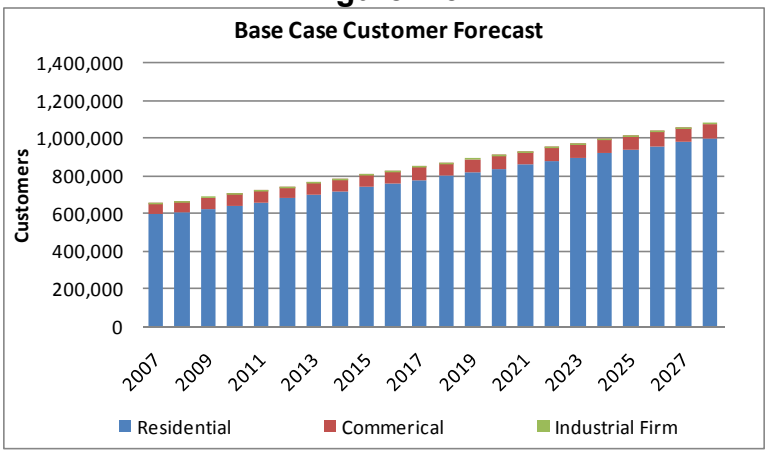
Figure 2-4 below compares actual customer growth experienced by the Company and forecasted base case growth rates. Comparisons are shown for residential, commercial and industrial firm sectors from 2003 through 2027. As shown in Figure 2-4, the Company experienced a peak in actual residential growth in 2005, when growth was well above 3%. This growth declined through 2007 and on a forecast basis until 2008, when the forecast shows a new surge of growth and upward trend until approximately 2012. After 2013, residential growth begins to gradually decline.

**Figure 2-4**




On the commercial side, Figure 2-4 above shows a steep decline in customer growth from 2003 to 2004, which the Company believes is the result primarily of commercial customers changing rate schedules. In 2005 commercial customer growth flattens to a very gradual decline. Finally, for industrial customers, because of the small number of customers and significant changes from sales to transportation, actual customer growth is not shown until 2008 when the OEA forecast suggests renewed industrial growth. This growth reaches a peak in approximately 2010, and then gradually declines to a stable amount of growth at less than 1%. The resulting Base Case forecast of customer counts is shown in Figure 2-5 below.

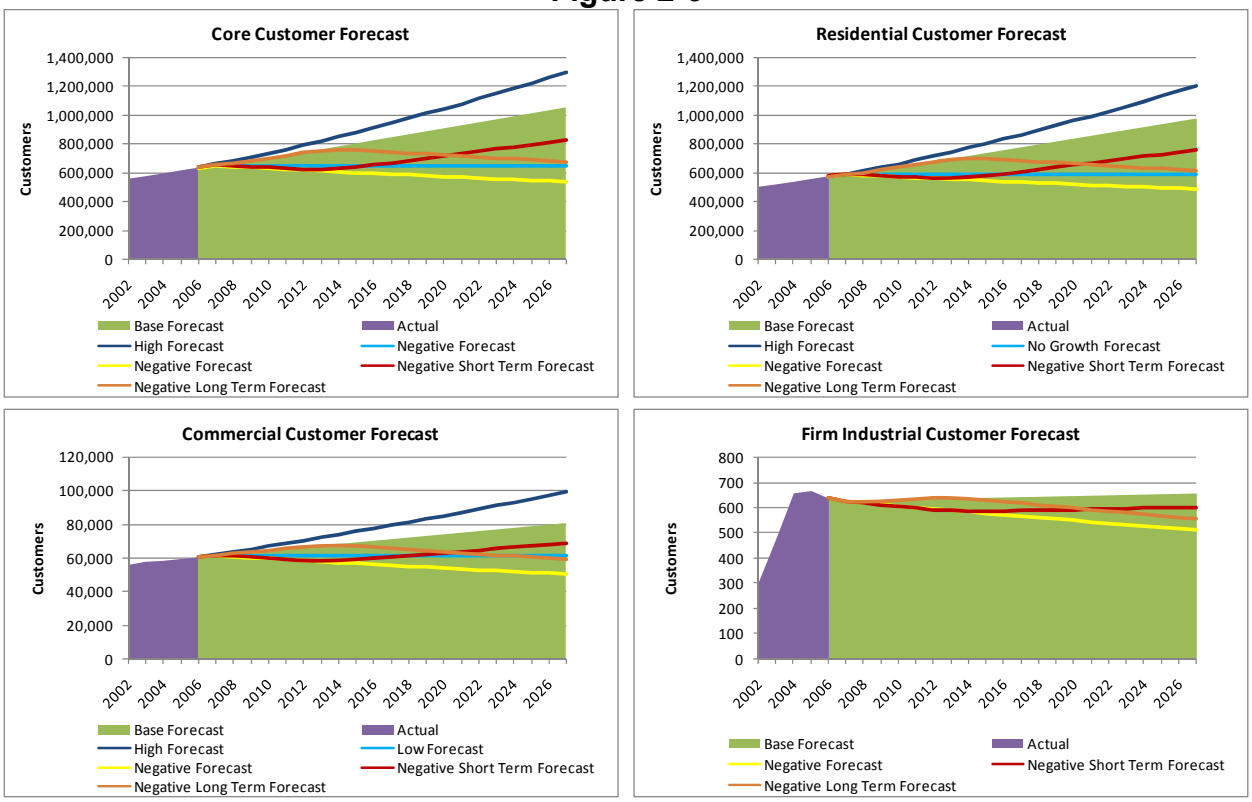
**Figure 2-5**



The Company has developed five departures from the Base Case customer forecast to place reasonable bounds on the range of potential growth outcomes in a mature industry. These five sensitivities around the base case customer growth forecast are outlined in Table 2-1.

Figure 2-6 graphically compares actual historical customer numbers against the six different customer forecasts (i.e. Base Case plus five sensitivities). Specifically, Figure 2-6 shows the historical total number of customers by class since 2002 and the forecasted number of total customers net of attrition with new construction and conversions additions through end of year 2027. As illustrated, the Base Case scenario is the most representative of historical trends in customer growth. Customer numbers by region and sector for each of the six forecasts are provided in tabular form in Appendices 2-14 through 2-19. A more detailed discussion of the Base Case forecast and driving factors by customer class is provided in the following Sections A through E.

**Figure 2-6**



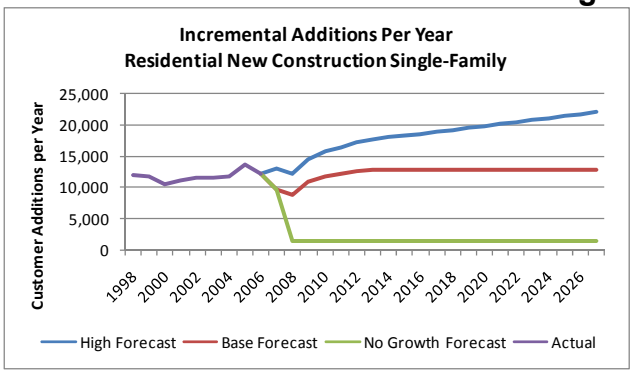
## A. NEW CONSTRUCTION – RESIDENTIAL

The residential forecast for new construction gains is broken out for single-family and multi-family market segments. For the first half of the forecast period from 2007–2016 (2007-08 through 2015-16 heating seasons), the Oregon Economic and Revenue Forecast (OERF) of housing starts drives the system and state level Base Case results for new construction additions. New construction additions for second half of the forecast period from 2017 to 2027 are assumed to remain at 2016 forecasted levels.

Following the forecasting of system and state level customer gains, existing market share drives the allocation of new construction customer gains by market segment (i.e. single family versus multi-family) and by major geographic region.

Figures 2-7 and 2-8 show residential new construction hookups added per year since 1998 and into the year 2027 for single-family and multi-family dwellings and results of the high, base, and no growth forecasts for the system's cumulative new construction residential customers. The cumulative customer growth from residential single-family new construction and multi-family new construction, respectively, is also shown for the 20 year planning period.

**Figure 2-7**



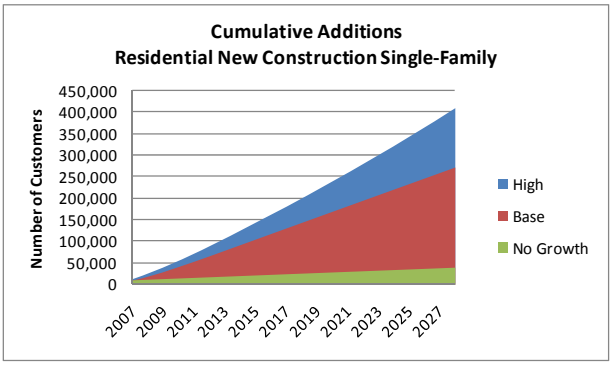
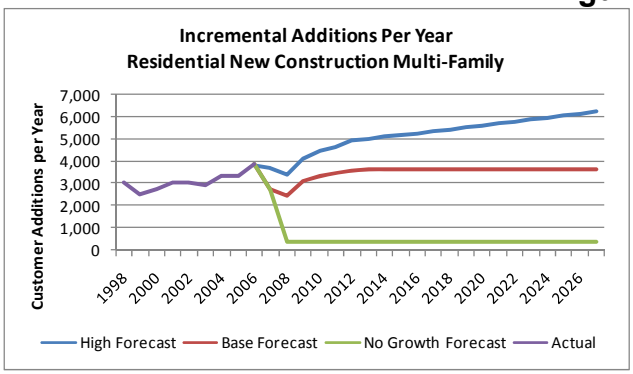
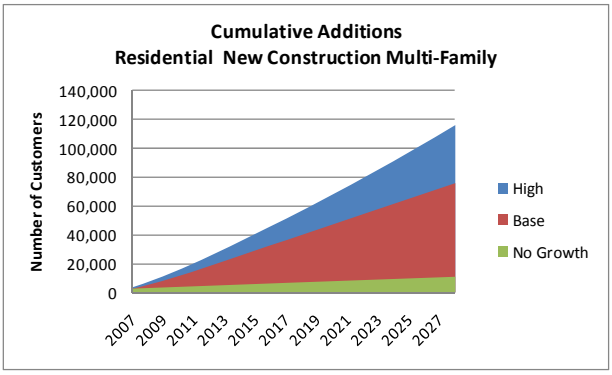



**Figure 2-8**

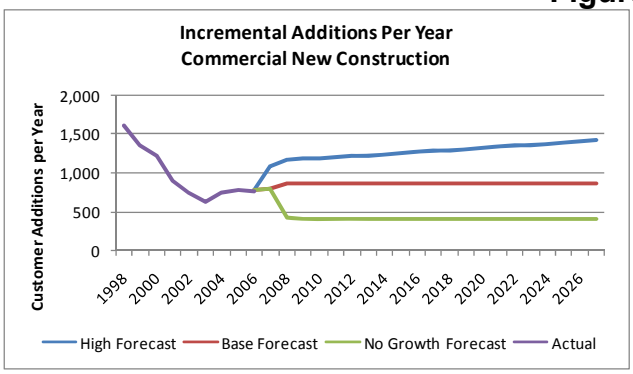



## B. NEW CONSTRUCTION – COMMERCIAL

For the entire forecast period, the Company derives commercial new construction customer additions from the average recent historical customer gains experienced. New construction customer additions are then allocated to regional centers in the same manner as the residential new construction customers are allocated.

**Figure 2-9**



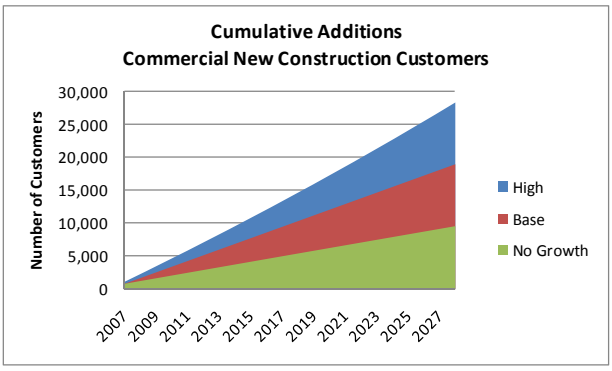




Figure 2-9 shows the annual growth levels experienced since 1998 and results of the high, base, and no growth forecasts for the system's cumulative new construction commercial customers. Commercial new construction customers increase by approximately 18,000 by the end of the planning period under the Base Case.

## C. NEW CONSTRUCTION – INDUSTRIAL FIRM

The industrial sector has shown slower output growth than the economy as a whole in recent decades, with imports meeting a growing share of demand for industrial goods. NW Natural anticipates a continuation of this trend throughout its service area. Within the industrial sector, the expectation is that the output of manufacturing industries will grow more rapidly than that of non-manufacturing industries, which include agriculture, mining and construction. However, with higher energy prices and more foreign competition, the expectation is that the energy-intensive manufacturing sectors will remain relatively flat. Assumed industrial firm customer annual growth rates for 2007 through 2013 are derived from the Oregon Economic and Revenue Forecast (OERF) December 2007 manufacturing forecast and average 0.35 percent per year.

The analysis of customer growth in the Company's service area over the last five years found that growth in the outer years is immaterial and unrelated to current or projected trends. For the remainder of the forecast period from 2014 to 2027, the Company assumes a lower annual growth rate of 0.22 percent based on the two year average of OERF estimates for 2012 and 2013.

## D. CONVERSIONS FROM OTHER FUELS – RESIDENTIAL AND COMMERCIAL

In addition to forecasting new construction customer gains, each year NW Natural projects the number of residential and commercial customers expected to convert to natural gas from other energy sources by reviewing historical conversion activity experienced by the Company in prior years.

Traditionally, Residential customer gains through fuel conversions were modeled using a starting inventory for the year 1990 of 72,900 oil and 250,000 other stock, actual conversions and per capita income (1983). The forecast for residential customer gains through conversions used the economic driver variables and stock conversion model through the first eight years of the forecast cycle. This trend was then extrapolated through the end of the forecast period.

Figures 2-10 and 2-11 show the incremental number of residential and commercial conversion customer additions per year, respectively. The base case scenario projects that approximately 4,100 to 5,700 new residential conversion each

year. Because the Company believes there will not be a significant number of conversions to gas from other fuels within the industrial firm class of customers, zero conversions are assumed for the industrial firm customer class.

**Figure 2-10**

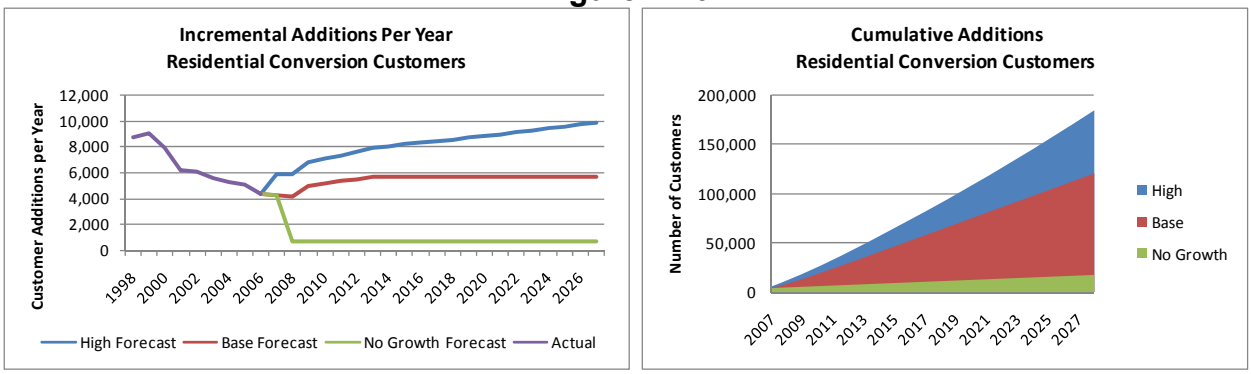
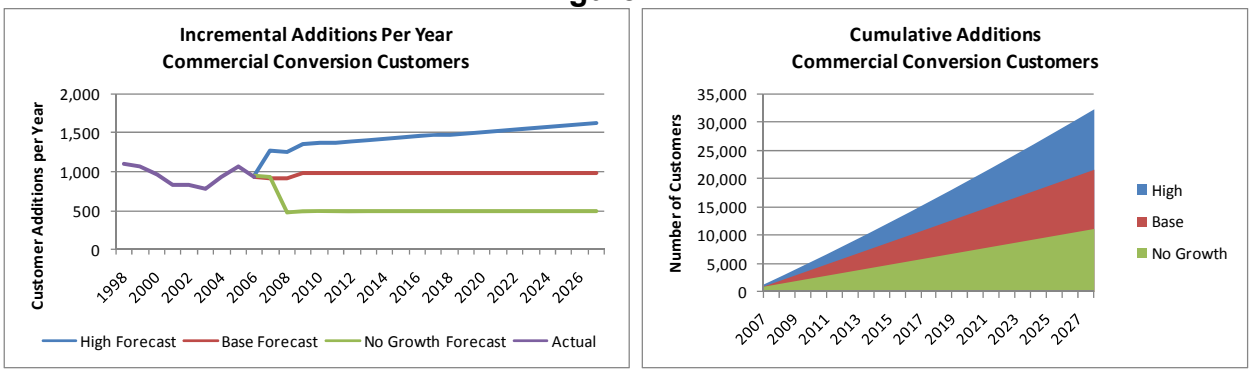



**Figure 2-11**




## E. HYBRID HEAT CUSTOMERS

NW Natural is monitoring the spread of hybrid heat systems, a heat pump sold with natural gas back up because of their recent gain in market share. A discussion of hybrid heat customers and their implications to demand forecasting and rate design is presented in Appendix 2 - 24.

## III. USE PER CUSTOMER FORECASTS

It is widely accepted that NW Natural's resource planning revolves around meeting peak load. In order to better identify resources needed to serve peak loads it is necessary to identify fuel use as a function of temperature by separating temperature-sensitive use from non-temperature-related use. Non-temperature-sensitive use represents gas requirements for water heating, cooking, and other miscellaneous uses that are largely unresponsive to temperature variations. Non-temperature-sensitive use is expressed as the number of therms used per customer per day for these purposes and is often referred to as base use. The level of base use for residential and commercial customers has remained relatively constant throughout time. However, emerging technologies now exist that provide opportunities for end-use customers to adopt conservation measures to decrease their Base Case use. And in time there will be opportunities to influence overall base use through market transformation efforts – commonly defined as a shift towards stricter efficiency standards through regulation.

The concept of Heating Degree Days (HDDs or Degree Days) is used to measure temperature. HDDs are a measure of the coldness of the weather experienced, based on the extent to which the daily mean temperature falls below a reference temperature, usually 65 degrees Fahrenheit. For example, on a day when the mean outdoor temperature is 35 degrees F, 30-degree days would be experienced. Following National Weather Service conventions, daily mean temperature represents the sum of the high and low readings for the day divided by two, with days defined as the 24 hour period between midnight for each day. While midnight-to-midnight is different than the 7 a.m.-to 7a.m. (Pacific Time) "gas day" used for scheduling deliveries in the gas pipeline industry, that difference is not meaningful here. Consistent with past IRPs, the Company uses a 65-degree balance point assumption in this Plan for both design year and normal annual forecasting.

Developing a method to match usage data to temperature data is vitally important because the capturing of customer usage data and temperature data occur at different intervals. Meters are read for groups of customers over the course of a month rather than at month-end. This results in the availability of customer usage data on a billing cycle basis, thus creating a unique relationship between usage data for any customer group, and number of days and degree-days within the billing period being examined. To reveal the relationship for each customer sub-class between base use and number of days and temperature-sensitive use and heating degree days (HDD), for a given month, the number of days and heating degree days undergo a transformation to reflect the same aggregation of various periods as the monthly billing cycle usage

data. By summing the heating degree days associated with each meter read date in a month and aligning them with the respective volumes and customer counts, the heating degree days are matched up against usage for the period in which they occur and provides a basis for determining the necessary relationships.

Temperature-sensitive use is expressed as the number of therms used per customer per HDD. On average a residential customer uses 0.47 therms per day for base use purposes and an average of 0.11 therms per HDD for space heating purposes. The major sources of differences between various customers' space heating use per degree-day are dwelling size, appliance efficiency, and the thermal integrity of the structure (how well it is insulated). Customer usage profiles for each sub-class and geographic region combination for base year 2007-2008 are provided in Appendix 2-5.

## A. RESIDENTIAL AND COMMERCIAL LOAD EQUATIONS

Equations for forecasting daily use per customer ("UPC") gas requirements for each residential and commercial customer sub-class all use the same general functional form shown below. They are derived from regression analyses of historic data, and numerically represent the relationships between energy use, and weather and price changes. Equations are used to forecast demand for 2007-08 and later heating seasons.

**Residential & Commercial Load Equation**

Daily UPC = [INT-Base Coeff + $HDD/D_a$ x EXP{INT-TSL Coeff + HDD Coeff x LN(MIN(45, $HDD/D_a$)) + Price Coeff x LN(Price)}]

Where:

- $HDD/D_a$ = Regional HDDs for a specified day;
- Price Coeff is assumed to be –0.1798 and -0.1947 for residential and commercial customers, respectively
- Price is the Per Therm Usage Charge billed to residential and commercial customers.
- EXP(A ) is e to the power A
- LN(A ) is the Natural Log of A

For residential and commercial customers, base load is determined by running a linear regression of therm usage during summer months (i.e. July, August,

and September) against HDDs. Base load is then estimated by the resulting constant coefficient. Consequently, the temperature sensitive use or heat load for each month of the year is estimated by subtracting from total use (1) the estimated base load and (2) the price effect, where the price effect is calculated as the assumed price coefficient multiplied by the natural log of the per therm usage charge billed to customers. Residential and commercial price coefficients are assumed to be -0.1798 and -0.1947, respectively. Further discussion of these price coefficients is presented in Section V. For the 2007-2008 base year, the resulting price effect on demand is equivalent to price elasticities[2] of negative 0.13 and negative 0.12 for residential and commercial customers, respectively. A discussion of price elasticity and the per therm usage charge forecast follows in Section V.

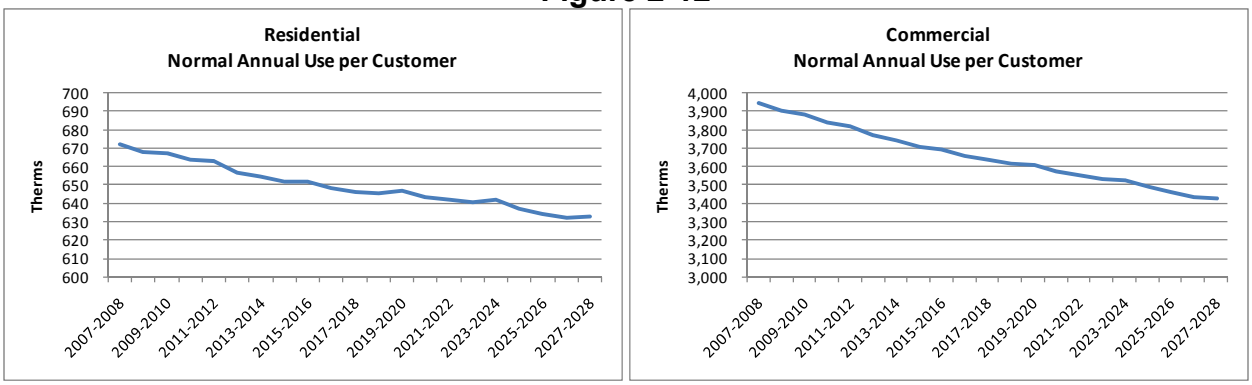
To determine temperature sensitive load, the natural log of heat use net of price effects is then regressed against the natural log of heating degree days for non-heating months (i.e. October through May). NW Natural's core market forecasting methods include an element of "bend over" for the residential and commercial classes. While residential and commercial bend over has not been observed empirically, it is necessary to recognize the phenomenon when extrapolating use factor equations calibrated using monthly observations that never exceed an average 35 heating degree days per day to more severe weather. The Company has assumed that when HDDs exceed 45, an increasing number of gas heating appliances are running at full capacity and that gas use per heating degree day (unit consumptions) will not increase further as the weather gets colder. The resulting regression coefficients have been used to estimate demand for the 2007-2008 gas year and are shown in Appendix 2-1. Summaries of the residential and commercial regression model statistics are provided in Appendix 2-2 and Appendix 2-3, respectively.

Over time, conservation investments change usage for existing and conversion dwellings. To incorporate conservation effects not included by DSM programs, the demand forecast assumes a 10%, 5%, 15%, and 100% annual decrease in Int-Base, Int-TSL, HDD, and Price coefficients, respectively.[3] Figure 2-12 below illustrates the Base Case forecasted normal annual use per customer decline for existing residential and commercial customers. Over the 20 year forecast period, average residential and commercial use per customer is expected to decline by approximately -0.3% and -0.7% per year, respectively.

2 Price Elasticity of negative 0.13 means that if prices increase by 10%, demand is expected to decrease by 1.3%.

3 Each coefficient decline is calculated for each forecast year 2 (i.e. 2009) through year 20 (i.e. 2027) as the previous year coefficient * EXP(-Annual % Decrease / 20 years * current year). All coefficients, with the exception of the Int-Base Coefficient are in Lognormal terms.

**Figure 2-12**




## B. INDUSTRIAL FIRM LOAD EQUATIONS

Industrial base load and temperature sensitive load are derived from a linear regression analysis of historical monthly industrial firm usage and temperature data. The resulting usage factors are assumed to remain constant over the forecast period. A summary of the industrial regression model statistics is provided in Appendix 2-4.

**Industrial Firm Load Equation**

Daily UPC = Base Load + Temperature Sensitive Load x $HDD/D_a$

Where:

$HDD/D_a$ = Regional HDDs for a specified day;

## C. INTERRUPTIBLE CUSTOMER REQUIREMENTS

The Company carefully examines the best mix of side supply resources in order to meet the needs of its firm sales customers. NW Natural is not obligated to dedicate resources to interruptible customers, with the serving of Interruptible load occurring only with capacity in excess of that required for core market customers. While not considered by the Company for IRP planning purposes, the interruptible sales demand forecast is described below for informative purposes only.

The interruptible sales forecast assumes an average daily UPC of 1,284 therms based on 12 month ended November 2007 volumes. This assumed average daily use per interruptible customer is held constant over the forecast period. Projections for industrial interruptible sales range from 82 million therms for the 2007-2008 gas year to a peak of approximately only 86 million therms for the 2027-2028 gas year. The use of an almost unchanging fixed volume forecast reflects the basic nature of the load in question. Large industrial and institutional users generate most of the interruptible load, and research shows that these customers exhibit constant usage.

**Interruptible Load Equation**

Daily UPC = 1,284 therms

The number of interruptible customers is assumed to grow at the same annual rate as the industrial customer forecast. Similar to the industrial forecast, the Company assumes no conversions to gas from other fuels for the interruptible customer class.

## IV. FORECAST EQUATION PERFORMANCE

NW Natural focuses primarily on gas usage behavior during severe weather episodes for capacity planning purposes. It is difficult to measure forecast accuracy for design day forecasts unless the Company experiences near term cold spells. Fortunately, a significant “cold snap” took place in the Company’s service area during January 2004, and an unseasonably cold three-day period in early 2006 followed the 2004 event. Figure 2-13 and Figure 2-14 below show the relationship of actual firm throughput to predicted gas use during the seventeen-day period December 26, 2003 through January 11, 2004, and the cold three-day period in 2006. The 2004 and 2006 backcast demand curves test the reasonableness of the Company’s current use per customer forecasts against the actual cold snap observations and were developed by applying the Company’s current UPC forecast to the historical customer counts and the per therm usage charges as of the date of the observed cold snaps.

**Figure 2-13**

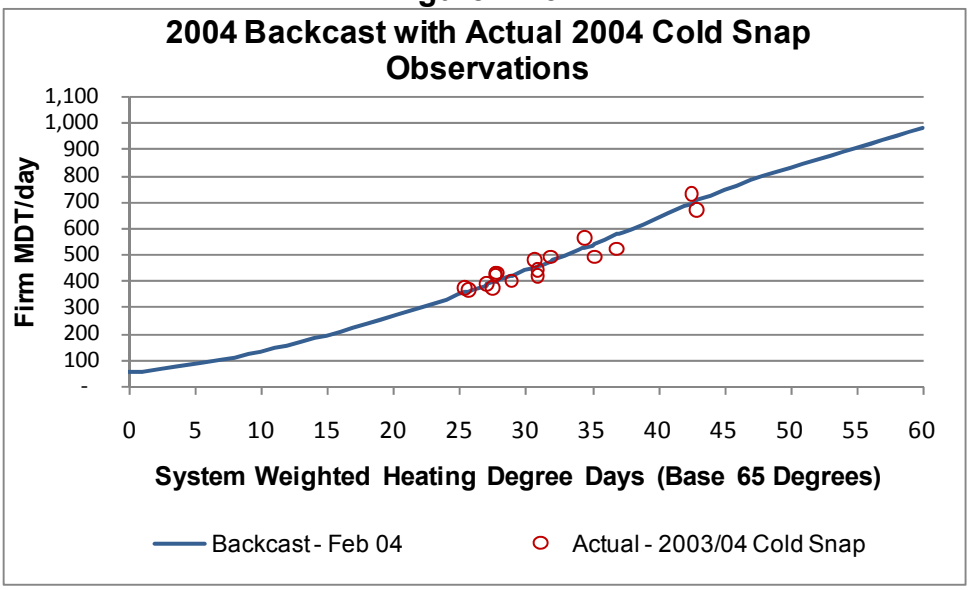
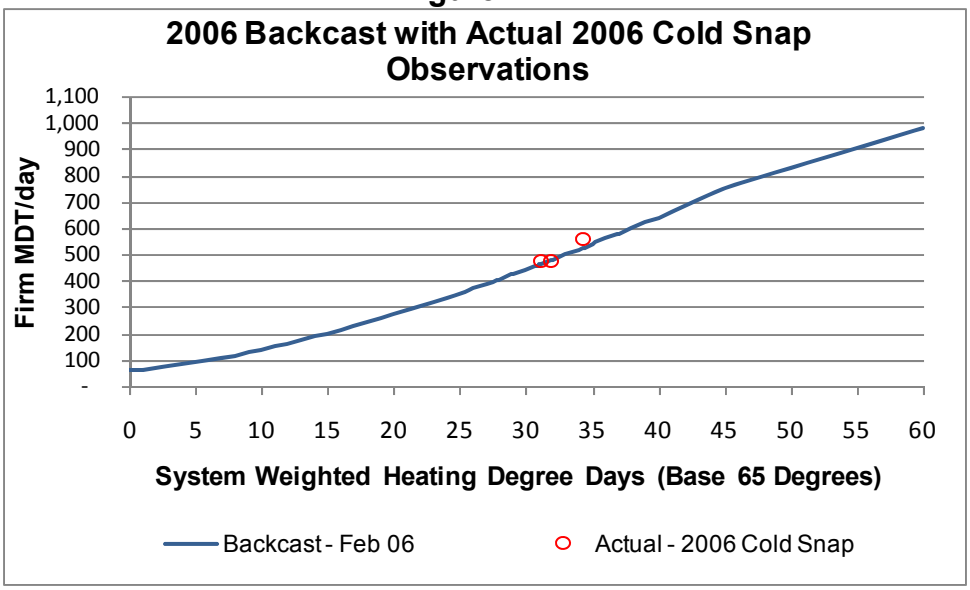
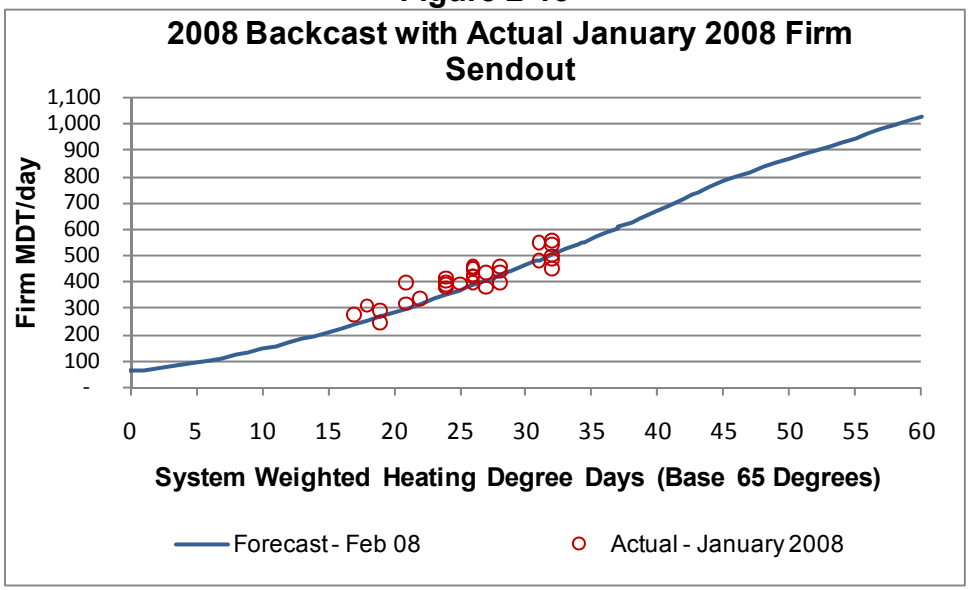



**Figure 2-14**




To test the recent performance of the demand forecast, NW Natural also compared the demand forecast results to the actual daily firm throughput volumes for January 2008. These results are shown in below in Figure 2-15.

**Figure 2-15**




The root mean square error (RMSE) is a common statistical measure used to describe and compare the precision of forecasts. The RMSE can be calculated with the formula shown below.

**Root Mean Square Error (RMSE)**

$$RMSE = \sqrt{\sum_{t=1}^{n} \left( Y_t^{Actual} - Y_t^{forecasted} \right)^2 / n}$$

Where:

- $Y_t^{Actual}$ designates the actual outcome for observation t
- $Y_t^{forecasted}$ designates the forecast

For the twenty historical cold-day observations shown in Figures 2-13 and 2-14 above, the RMSE is approximately 29 thousand dekatherms (MDth), suggesting a 90 percent confidence interval of approximately ±47 MDth.[4] For the 31 recent actual January 2008 daily observations shown in Figure 2-15 above, the RMSE is approximately 43 MDth, suggesting a 90 percent confidence interval of approximately

4 Assuming normal distribution of the forecast errors, different uncertainty bands can be calculated with the help of the root mean square error (RMSE). It is possible to design an uncertainty band within which the variable in question will lie with a probability of 90 percent by applying the interval ±1.64 x RMSE to the forecast, where 1.64 is taken from the normal distribution.

±71 MDTh. While the demand forecast appears to perform better when estimating demand on colder January 2008 days, the forecast is still producing reasonable results for warmer days. As shown in Figure 2-13, the forecasted demand line falls in between actual observed demand levels occurring during the three warmest days and the fourth warmest day in January 2008. Specifically, the demand equation is only slightly under-predicting the warmest three days with forecast errors in the amount of 38 MDTh, 57 MDTh and 23 MDTh, respectively and only slightly over-predicting the fourth warmest day with a forecast error of -25 MDTh. All forecast errors for these warmer days are within the 90% confidence interval of ±71 MDTh. As an action item, the Company plans to further review the demand forecast to ensure that it performs well under warmer weather days and will report findings in the IRP Update in 2009.

The forecasted values shown above represent the system-level forecast for each day. The Company currently does not have daily firm throughput recorded by the eight IRP regions that would be necessary to perform a similar daily analysis of forecast error at the regional level. This is due to inherent difficulties in mapping gate station throughput data to the eight IRP regions. As a future action item, the Company will investigate data collection requirements to analyze demand forecast error regionally, similar to the system-wide analysis presented in Figures 2-13 through 2-15 above.

## V. PRICE FORECASTS

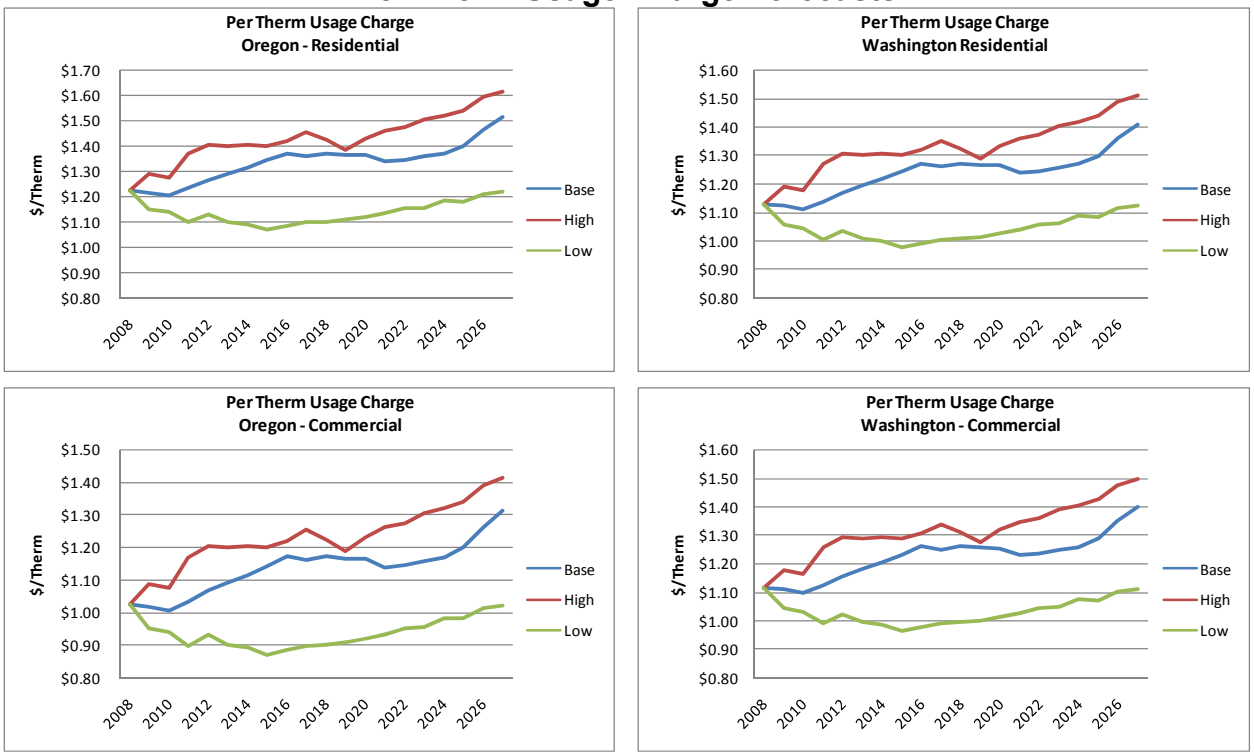
### A. CUSTOMER PER THERM USAGE CHARGE FORECAST

The sustained volatility of natural gas prices and the risk and uncertainty associated with them makes it necessary to include price elasticity in NW Natural's modeling in order to accurately forecast use per customer. Trends in usage by Company-specific customers have been directly linked to changes in their natural gas rates, and this trend is anticipated to persist. Analysis of the historical responses to price changes over the past 13 years has yielded a -0.1798 price coefficient estimate for the Company's residential customers and -0.1947 for its commercial customers. For the 2007-2008 base year, the resulting price effect on demand is equivalent to price elasticities of negative 0.13 and negative 0.12 for residential and commercial customers, respectively.[5]

5 The price elasticity factors are estimated for the 2007/2008 year by increasing the per therm usage charge by 10% and observing the forecasted percentage decrease in demand for the 2007/2008 year assuming price coefficients equal to -0.1798 and -0.1947 for residential and commercial customers, respectively.

The 2008 customer per therm usage charges for Oregon and Washington are developed by taking the current monthly billing rate for residential sales service and the customer weighted average of the commercial sales service rate schedules, excluding the customer charge component. For 2009 and later, the difference between these rates and an assumed allowed margin[6] is escalated by the forecasted annual change in the Company's cost of gas supply. For purposes of this analysis, the Company's cost of gas supply is estimated as a weighted average of wholesale market prices assuming 32.3% of purchases are from Sumas, 32.3% from AECO, and 35.4% from NW Rockies/Opal. In additional to a base case wholesale gas price forecast, NW Natural also produces forecasts for high and low price scenarios. A discussion of the wholesale market price forecasts follows in Section B.

**Figure 2–16**
**Per Therm Usage Charge Forecasts**




6 Residential margins are assumed to be $0.5810/therm and $0.4990/therm for Oregon and Washington, respectively. Commercial margins are assumed to be $0.3814/therm and $0.4837/therm for Oregon and Washington, respectively.

## B. NATURAL GAS PRICE FORECASTS

During the past seven years price fluctuations in the natural gas market have shouldered the shut-in of supplies due to hurricanes, direct and indirect influences related to domestic and international terrorist attacks, and ongoing political instability within countries that retain the rights to the major fuel reserves. In addition, the role of non-commercial trading by price speculators and the level of influence they have on both spot market prices and the futures market has yet to be fully vetted, although there has been an increased concern over their role in the last decade. This uncertainty surrounding the natural gas market makes forecasting natural gas prices extremely difficult.

Future gas prices are influenced by long-term factors such as changing demand, development of LNG infrastructure, and the likelihood of additional frontier supplies coming to market. Supplies are expected to grow over the next five years from LNG imports and from domestic production, especially in Texas and Wyoming. The debate over pipelines from the Arctic Circle may be resolved, but the pipelines are not likely to be in service in this time frame. If the Mackenzie Delta pipeline is built, all of its gas deliveries are likely to be consumed in northern Alberta for oil-sands production. Diversity among supply basins will also continue to be important if Rockies supplies find new outlets to the East and price differentials evaporate. These long term effects are further coupled with short term factors such as actual weather, anticipated near term weather, as well as storage inventories in various supply and demand areas affect short-term gas prices.

Pipeline de-contracting could pose a major concern in the Pacific Northwest. Decisions by shippers to not renew pipeline capacity contracts with Gas Transmission Northwest (GTN) led to a major rate increase on that system in 2007. Projects such as the Ruby Pipeline and Jordan Cove LNG terminal create additional opportunities for de-contracting on GTN and other pipeline systems. However, recent long-term contract renewals on the Northwest Pipeline (NWP) system in February 2008 may be the first signal that this trend is easing. The March 2008 announcement of the NWP/GTN Sunstone pipeline project could even reverse this trend, i.e., lead to the re-subscription of currently unutilized pipeline capacity, if that project is successful.

Although NW Natural does not believe that they can accurately predict future prices for a 20-year planning horizon, the Company has reviewed several public and proprietary price forecasts and has selected high, base, and low price forecasts to represent reasonable pricing possibilities for AECO, NW Rockies, Sumas and Malin indices. NW Natural tracks a number of public price forecasts including those available from the U.S. Energy Information Administration (EIA) and NYMEX futures. The

Company relies on the Wood Mackenzie Long Term Outlook7 for its Base Case natural gas price forecast for Henry Hub and basis differentials for NW Rockies, Sumas, AECO and Malin pricing points, as it has traditionally outperformed projections released by the EIA. This consulting firm produces both a long-term market outlook as well as monthly and weekly updates. NW Natural is therefore able to rely on forecasts that have a long-term perspective – incorporating those elements that drive long range views, and also up to date information as the markets change.

The high price scenario assumes the same monthly gas prices for 2007/2008 as the Base case. For the 2009/2010 season, the high scenario assumes Base Case monthly prices plus ½ times the standard deviation of $1.23/MMBtu observed in the historical Gas Daily First of Month Henry Hub index over the five year period from 2003 to 2007. For the 2011/2012 season, the high scenario assumes Base Case monthly prices plus one standard deviation.[8] For 2013/14 through 2027/28, the high price scenario is escalated at the EIA 2007 Annual Energy Outlook High Case forecasted year to year percent change in the Henry Hub annual spot price.

The low price scenario assumes the same monthly gas prices for 2007/2008 as the Base case. For the 2009/2010 season, the high scenario assumes Base Case monthly prices minus ½ times the standard deviation of $1.23/MMBtu observed in the historical Gas Daily First of Month Henry Hub index over the five year period from 2003 to 2007. For the 2011/2012 season, the low scenario assumes Base Case monthly prices minus one standard deviation. For 2013/14 through 2027/28, the low price scenario is escalated at the EIA 2007 Annual Energy Outlook Low Case forecasted year to year percent change in the Henry Hub annual spot price.

7 The Wood Mackenzie Long Term Outlook was updated in January 2008.

8 The use of +/- one standard deviation for the near term is a reasonable range for high and low price scenarios. Assuming a normal probability distribution, approximately 68% of the possible price values are expected to fall within one standard deviation of the mean.

| **Table 2–4**<br>**Henry Hub Natural Gas Price Scenarios** | | |
|---|---|---|
| **High Price Scenario**<br>2007-2008: Same as Base Case<br>2009-2010: ½ Standard deviation increase over Base Case.<br>2011– 2012: 1 Standard deviation increase over Base Case.<br>2013 – 2027: Escalated at EIA 2007 Annual Energy Outlook High Case % change year to year. | **Base Case** – Wood Mackenzie Long Term Outlook of monthly Henry Hub market prices and basis differentials for AECO, Malin, Sumas, and Rockies. | **Low Price Scenario**<br>2007-2008: Same as Base Case<br>2009-2010: ½ Standard deviation decrease over Base Case.<br>2011– 2012: 1 Standard deviation decrease over Base Case.<br>2013 – 2027: Escalated at EIA 2007 Annual Energy Outlook Low Case % change year to year. |

Figure 2-17 below presents the resulting annual average base case, high, and low forecasts for Henry Hub. Figure 2-18 shows monthly base case price forecast with basis differentials for NW Rockies, Sumas, AECO and Malin indices.

**Figure 2–17**

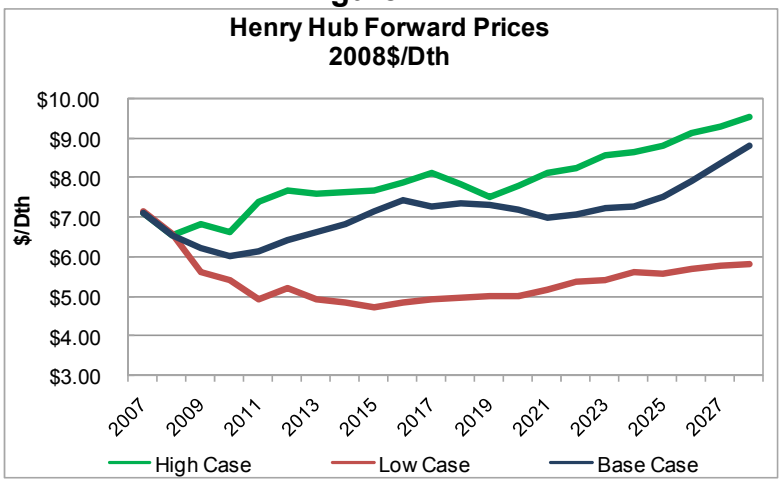


**Figure 2–18**

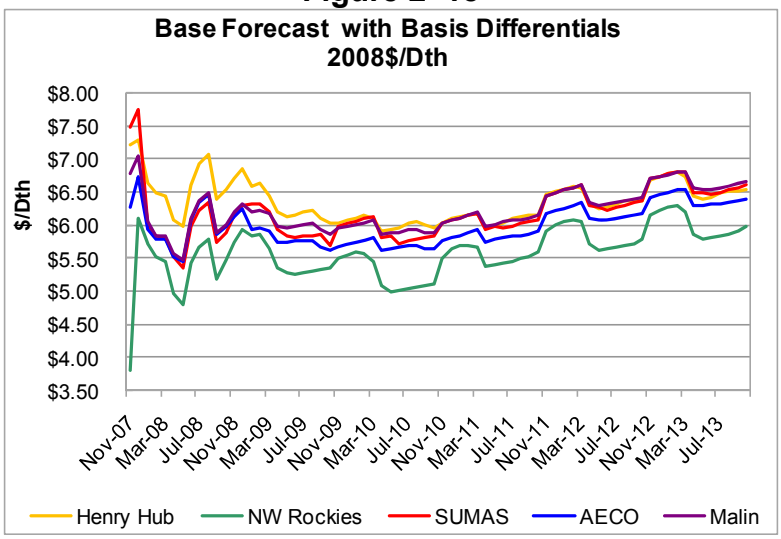
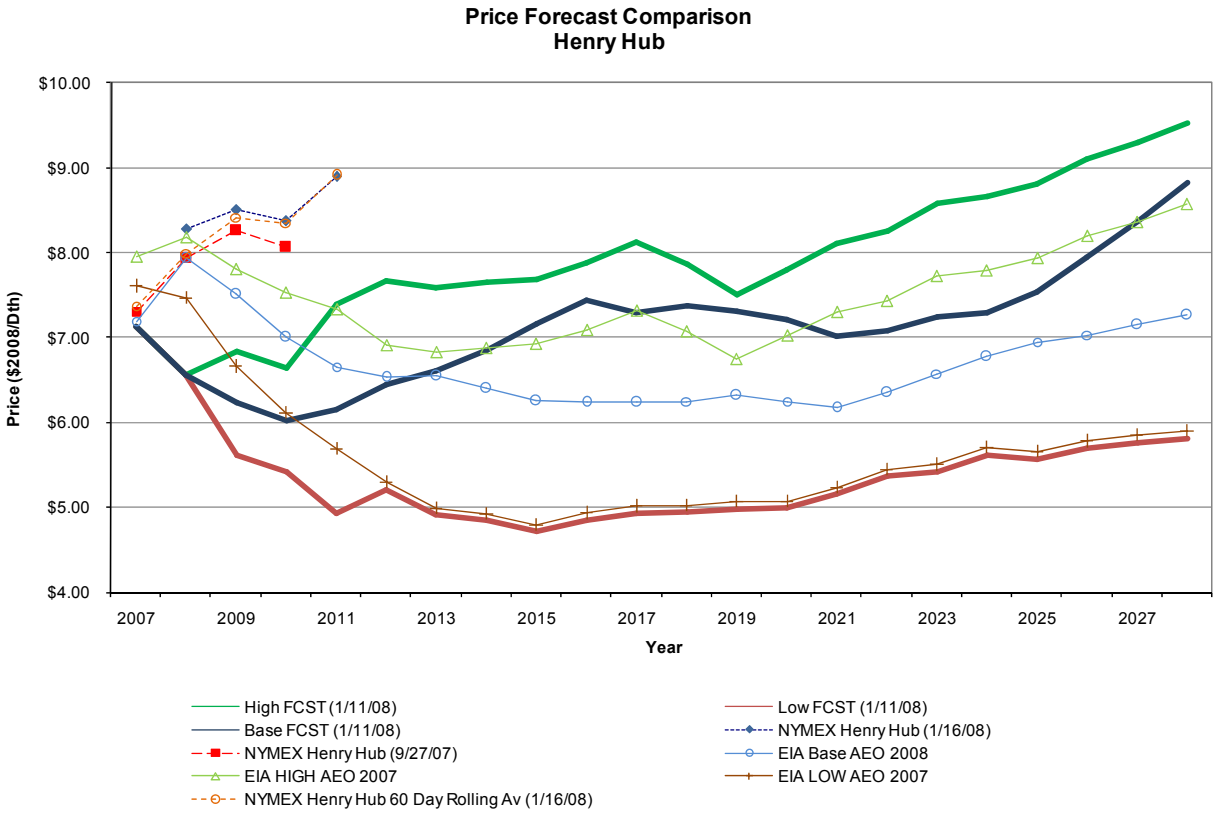



Figure 2-19 shows a comparison of the annual average base case, high and low price forecasts for Henry Hub against EIA projections and historical NYMEX futures. Each year the EIA releases its Annual Energy Outlook (AEO) that presents the EIA forecast and analysis of U.S. energy supply, demand, and prices. The EIA produces a base case ("Reference Case"), and high and low price scenarios to account for future uncertainty in the market. The EIA 2007 Annual Energy Outlook represents the current best available long term forecast for high and low Henry Hub cases, as the EIA 2008 Annual Energy Outlook update for high and low price cases has not yet been released as of March 17, 2008. In addition, Wood Mackenzie does not provide the Company with high and low price forecasts. EIA's base case is influenced by a number of assumptions including: the construction of new LNG terminal capacity; the Alaska pipeline beginning to transport to the lower 48 States in 2018; decreased consumption due to high natural gas prices and increased supply; and technological advances in production remaining at historical rates. The high and low price cases are driven by: the unproven domestic natural gas resource base being 15 percent lower (high price case) and 15 percent higher (low price case) than the estimate used in the base case; and technological advances in production in the low price case at levels 50 percent below the base case (50 percent above the base case for the high price case). Downstream, EIA projects delivered natural gas prices will trend with anticipated changes in wellhead prices due to flat transmission and distribution margins. However, it is worth noting that if public opposition prevents infrastructure enhancements, delivered prices would be expected to rise.

**Figure 2-19**




NW Natural evaluated the impact of the high and low price forecasts compared to the Base Case in *SENDOUT®*. A comparison of supply cost results are presented in Chapter 5. In addition to the two high and low price forecast sensitivities, NW Natural also evaluated a wide probabilistic range of potential prices and the effect on supply cost through Monte Carlo simulations in *SENDOUT®*. Results of this analysis are also presented in Chapter 5.

## VI. WEATHER PLANNING STANDARDS

### A. DESIGN DAY

For design day planning purposes, NW Natural relies on the coldest historical system-wide coincident day observed during the last twenty years. This coincident system-weighted coldest average day of 53.0 HDD occurred on February 3, 1989 and was identified by examining for each day, the system-wide customer weighted

average of the regional observed HDDs. Design day for each region is then defined as the actual HDD observed for that region on February 3, 1989. In addition, a "restated" coincident peak day for each regional center has been created by averaging five peak day events and adjusting the regional averages such that the system weighted average peak day corresponds to the February 3, 1989, system weighted average peak day. Further analysis revealed that the shoulder day leading into the average peak day and the shoulder day following it represent two out of the top ten average coldest days during the design year. Therefore, this plan includes peaking shoulder days that also occurred in 1989, to better account for the ramp-up to the peak day and the ramp-out from it.

The question of reasonableness arose in the previous IRP surrounding the probability of the design day weather occurring. In analyzing weather conditions over the last 20 years the probability of a system weighted-average peak day of 53.0 HDD occurring as a coincident moment ranged from zero percent during a stretch of summer days up to 0.115 percent on February 3rd, the date on which the system weighted-average peak of 53.0 HDDs actually occurred. Further analysis of historical peak day temperatures over the last 20 years yielded a 20-year mean value of 37.57 HDDs, and a standard deviation of 6.52 HDDs. The peak values have a statistical range of 48.3 HDDs (95th percentile) to 26.9 HDDs (5th Percentile). Looking forward there is a 0.90% likelihood each year that the Company will experience a system weighted-average peak day equal to or greater than 53.0 HDDs.

## B. CURRENT DESIGN YEAR PLANNING CRITERIA

To evaluate annual demand requirements for least cost planning purposes, the Company developed for each geographic region a design year with daily HDD levels based on the 85% probability coldest winter[9] (i.e. November through March), where the statistically generated total HDDs are allocated to days based on the historical pattern observed during the 2000/01 winter, which on a system weighted average basis most closely matches the statistically generated total. Design year is augmented by the coldest historical coincident system-weighted average day observed during the last twenty years from 1987 to 2006. This coincident system-weighted coldest average day occurred on February 3, 1989. In addition, the day prior to and following the peak day (i.e. February 2 and February 4) are also included in design year

9 Assuming a normal distribution of winter HDD subtotals, the 85% probability coldest winter is equal to approximately the average winter HDD subtotal + (1.0364 x Standard Deviation of Winter HDD subtotals. Averages and standard deviations for winter HDD subtotals are derived from 20 years of historical weather data for 1987 to 2006.

to model a consecutive three day cold snap. For the non-heating season (i.e. April through October), daily HDD values are assumed equal to the 20-year average normal.

The resulting design day, design year and 20-year average normal year heating degree days are shown below in Table 2-5 for each geographic region. Temperature patterns vary by region and are not correlated. The Portland metropolitan area represents approximately 61 percent of total customers in NW Natural's service territory, and therefore dominates calculated system weighted averages. However, matching cold temperatures in other regions do not always accompany a cold day in Portland. For example, the record cold 54 HDD-event observed for Portland on December 30, 1968, involved only 40 HDDs at the Eugene weather station. Similarly, the record cold 64 HDD event observed for Eugene was accompanied by 48 HDDs in Portland. The coastal regions of Coos Bay, Lincoln City & Newport and Astoria typically have milder winters. In contrast, winters in Vancouver and The Dalles are usually colder than the rest of NW Natural's service territory.

**Table 2-5**

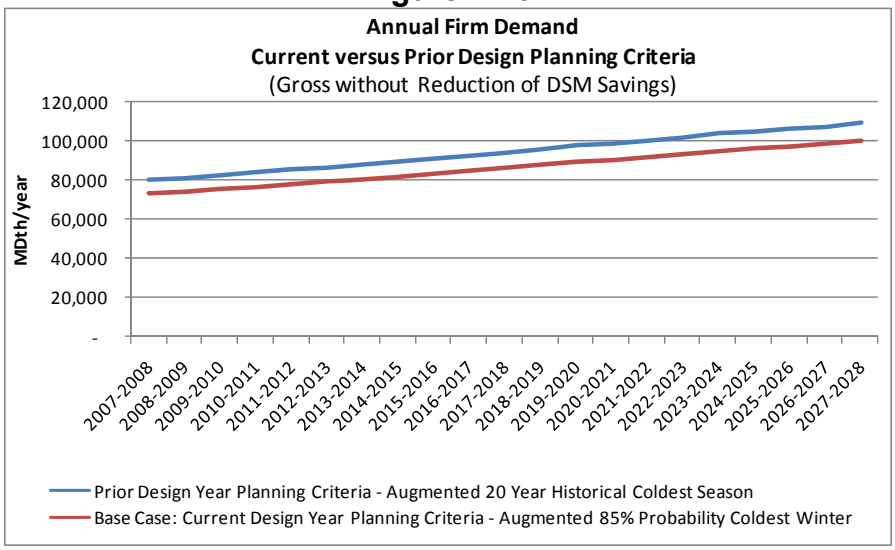
| Heating Degree Days By Geographic Region | Design Day 3-Feb-89 | Design Year | Normal Year |
|---|---|---|---|
| Albany | 52.0 | 4,931 | 4,653 |
| Astoria | 50.0 | 5,223 | 4,935 |
| Coos Bay | 38.0 | 4,656 | 4,365 |
| The Dalles (OR) | 60.0 | 5,601 | 5,268 |
| Eugene | 52.5 | 4,930 | 4,635 |
| Lincoln City & Newport | 48.5 | 5,078 | 4,776 |
| Portland | 53.0 | 4,498 | 4,218 |
| Salem | 54.0 | 4,845 | 4,559 |
| Vancouver | 53.5 | 5,092 | 4,824 |

## C. PRIOR DESIGN YEAR PLANNING CRITERIA – 20 YEAR COLDEST HISTORICAL

While NW Natural currently bases its least cost planning decisions on an augmented 85 percent probability coldest winter design year, in the past the Company had relied upon the historical coldest season observed in the past 20 years augmented to represent a very cold weather scenario. As shown in Figure 2-20 below, the use of the prior design year planning criteria would increase forecasted design year firm requirements by approximately 6,800 MDth in 2007-2008 and 9,200 MDth by 2027-2028. For purposes of this IRP, NW Natural evaluated in *SENDOUT*® both the 85 percent probability coldest winter and the historical coldest season observed in the past

20 years. A discussion of cost and risk trade off in the two resulting supply resource selections is presented in Chapter 5.

**Figure 2-20**




The 20 year coldest historical weather scenario is developed for each geographic region with daily HDD levels based on the colder of the historical coldest season experienced in the last 20 years from 1987 to 2006 and the daily corresponding 20 year normal. With this 2008 IRP, the 1985-1986 winter drops out of the 20-year time frame and is replaced by the 1992-1993 heating season as the coldest historical season experienced in the last 20 years. In addition, the historical coldest year is augmented by the coldest historical coincident system-weighted average coldest day observed during the last twenty years from 1987 to 2006. As discussed in the prior section, this coincident system-weighted coldest average day occurred on February 3, 1989. To model a consecutive three day cold snap, the day prior to and following the peak day (i.e. February 2 and February 4) are also included.

In contrast to the 85% probability design year, the 1992-93 heating season has presented the most demanding period faced by NW Natural in the last 20 years. Before the 1992-93 heating season, the 1985-86 period was most demanding. Although the extreme cold weather experienced in February 1989 had a much colder peak day, it occurred during a very mild heating season. Going back more than 50 years, the 1949-50 heating season was the most severe of all. The distribution of heating degree days for these selected cold heating seasons are compared in Table 2-6 and Figure 2-21, using Portland data as the basis for the comparison.

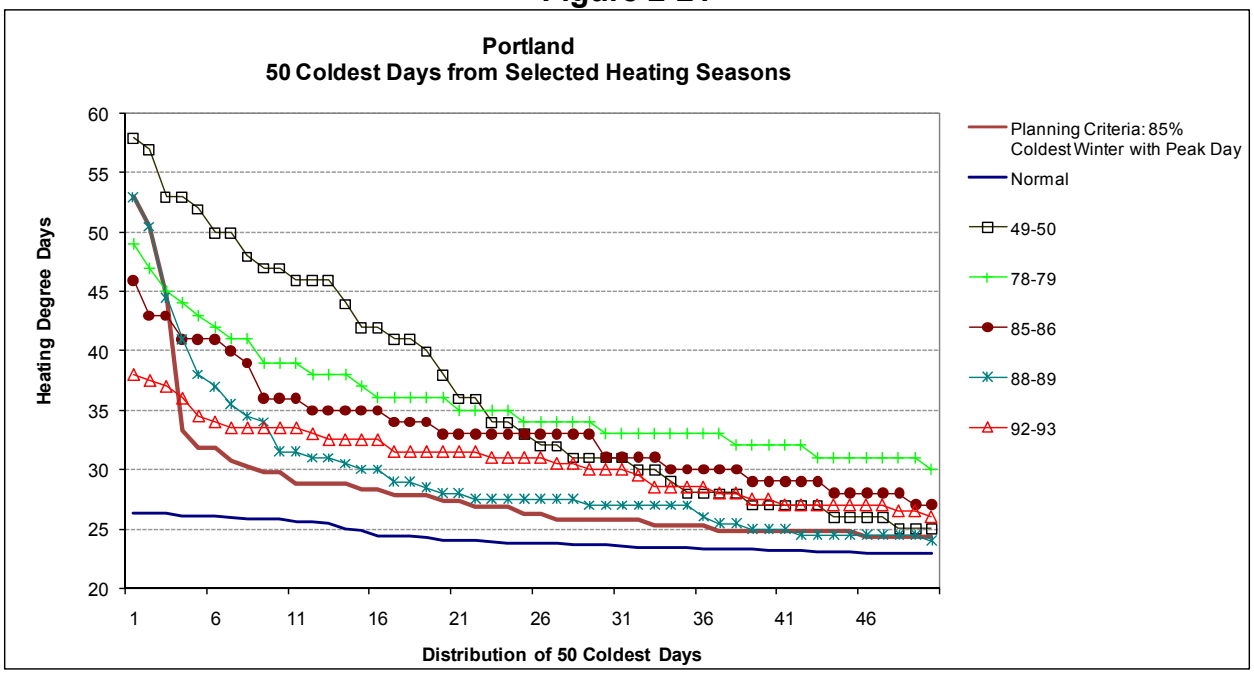
**Table 2-6**
Historical Heating Degree Days (HDDs)[10]

| Heating Season | Peak HDD | Number of Days Colder Than: 49 HDD | 38 HDD | 29 HDD |
|---|---|---|---|---|
| 1949-50[11] | 58 | 7 | 19 | 32 |
| 1968-69 | 54 | 2 | 9 | 29 |
| 1978-79 | 49 | 0 | 8 | 60 |
| 1985-86 | 46 | 0 | 8 | 38 |
| 1988-89 | 53 | 2 | 4 | 16 |
| 1992-93 | 38 | 0 | 1 | 32 |

10 As reported at Portland International Airport.

11 NW Natural does not plan for a repeat of the 1949-50 weather episode that falls within a coldest-in-fifty-nine-year time frame. It would be considerably more expensive to base the Company's design weather year on the 1949-50 episode instead of the 85% probability coldest winter planning weather criteria currently used by the Company. Rather than commit to the expense of obtaining the additional supply-side resources necessary to meet a repeat of the 1949-50 experience, NW Natural could call upon a variety of highly publicized voluntary curtailment strategies to meet short-term demand in the event that NW Natural experiences extreme weather at a level similar to the 1949-50 winter conditions. If historic winter conditions such as 1949-50 occur, or if resources do not perform as expected, then the possibility exists to take emergency actions to prevent outages to firm customers. For example, carte blanche may be given to suppliers to round up additional supplies. In addition, emergency capacity exists at the storage plants permitting withdrawals at higher-than-planned rates, albeit at the risk of temporary or permanent damage to the facilities. The Public appeals broadcasting of lower thermostat settings is also an option. Finally, if absolutely necessary to avert firm outages the preempting of gas transported to interruptible customers is an option. Therefore, a certain amount of emergency capacity exists in the system that provides NW Natural a buffer in meeting the extraordinary requirements of firm customers.

**Figure 2-21**




In addition to the two design year weather scenarios, NW Natural also evaluated the cost and risk trade off of its supply options with hundreds of Monte Carlo simulations assuming a normal distribution around the 20-year normal. The three deterministic weather scenarios (i.e. 85% probability coldest winter design year, augmented coldest historical year, and normal year) are provided in Appendix 2-14 through 2-16. Results of the cost and risk trade off analyses against the 85% probability coldest design year, 20 year historical coldest weather and the Monte Carlo simulations are presented in Chapter 5.

## VII. KEY FINDINGS

Appendices 2-6 through 2-19 summarize NW Natural's customer class and total firm requirements forecasts under each of the Company's six primary load growth scenarios. The demand forecast from the expected Base Case revealed the following:

- The number of system-wide core customers is expected to increase from 652,000 in 2007 to 1,053,000 by 2027. This is an annual average growth rate of 2.4 percent.

- Coincident system-wide design day core demand is projected to increase from a peak of 915 MDth/day in 2007-2008 to 1,223 MDth/day in 2027-2028. This is an annual growth rate of 1.5% in peak day requirements.

- Annual system-wide design year demand assuming the 85% probability coldest winter is projected to increase from 73,201 MDth in 2007-2008 to 100,132 MDth in 2027-2028. This is an annual growth rate of 1.6% in annual requirements.

- Annual system-wide normal demand is projected to increase from 68,774 MDth in 2007-2008 to 94,209 MDth in 2027-2028. This is an annual growth rate of 1.6% in annual requirements.

## VIII. ACTION ITEMS

- The Company will monitor the spread of hybrid heat systems and implications for demand forecasting.

- The Company will further review the demand forecast to ensure that it performs well under warmer weather days and will report findings in the IRP Update in 2009.

- The Company will investigate data collection requirements to analyze demand forecast error regionally, similar to the system-wide analysis presented in Figures 2-11 through and 2-13.

# CHAPTER 3: SUPPLY-SIDE RESOURCES

# CHAPTER 3: SUPPLY-SIDE RESOURCES

## I. OVERVIEW

This chapter discusses the gas supply resources that the Company currently uses to meet existing firm customer supply requirements, as well as the supply-side alternatives that could be used to meet the forecasted growth in gas requirements as described in Chapter 2. Supply-side resources include not only the gas itself, but also the pipeline capacity required to transport the gas, the Company's gas storage options, and the system enhancements necessary to distribute the gas. This chapter surveys existing and potential resources without judgment as to the resources that will be chosen. Chapter 5 describes the actual linear programming optimization process, which selects the resources that are least cost under a variety of load growth scenarios.

The gas supply planning process focuses on securing and dispatching gas supply resources to ensure reliable service to the Company's sales customers. The amount of gas needed is greatly influenced by customer behavior. Several factors can affect customer behavior, and can cause daily, seasonal, and annual variations in the amount of gas required. Much of this variation is due to changes in the weather. However, changes in business cycles, and the price of natural gas service in relation to other fuel alternatives, may also influence a customer's gas use. These behavioral factors are accounted for in the Company's gas requirements forecast, and are discussed in more detail in Chapter 2.

The ability to plan for customer requirement variations while maintaining reliability of service is best accomplished by keeping a variety of supply resources available. The Company's current supply portfolio consists of both contracted natural gas supplies, which can be used year-round and transported on the interstate pipeline system, and storage gas supplies, which are stored either underground or as liquefied natural gas (LNG)[1] in tanks. Both can be used as peaking resources during periods of high demand.

1 Liquefied natural gas, or LNG, is natural gas in its liquid form. When natural gas is cooled to minus 259 degrees Fahrenheit (-161 degrees Celsius), it becomes a clear, colorless, odorless liquid. LNG is neither corrosive nor toxic. Natural gas is primarily methane, with low concentrations of other hydrocarbons, water, carbon dioxide, nitrogen, oxygen and some sulfur compounds. During the process known as liquefaction, natural gas is cooled below its boiling point, removing most of these compounds. The remaining natural gas is primarily methane with only small amounts of other hydrocarbons. LNG weighs less than half the weight of water so it will float if spilled on water.

Another resource in the Company's portfolio is a variation on storage. It consists of recallable supply arrangements with industrial customers, gas-fired electric generation plants, and/or with the gas suppliers serving such facilities. The terms of these agreements allow the Company to call on gas supplies controlled by these parties for a limited number of days during the heating season. For a variety of reasons this resource most closely resembles NW Natural's LNG peaking service. The alternate fuel tanks of the end-users could be thought of as the storage medium. Since the end-users for these gas supplies either have to shut down or switch to alternative fuels, the duration for such service is limited, like LNG. Its delivery to or within the Company's service territory again mirrors that of the Company's LNG plants and related contracts. Finally, like LNG, this is a relatively expensive resource on a pure cent per therm basis. That is because prospective suppliers of this service expect it to be called upon during the harshest weather, when alternate fuel costs are highest and re-supply is uncertain, and so they must include the possible cost of plant shutdowns and product loss. Most customers are simply unwilling to even consider providing such a service on a negotiated basis, and others may be too small to be of interest to the Company. However, the Company continues to pursue such resources where feasible.

Even with prices of natural gas expected to increase over the next 20 years, NW Natural expects its gas supply requirements to generally increase as its firm customer population grows. The characteristics of this load increase are a critical component of the resource selection process. For example, water heater demand is relatively constant throughout the year. Additional water heater load could be met most efficiently and economically by a resource that has relatively constant deliverability year-round -- a "baseload" resource. The growth in space heating requirements tends to be highly seasonal in nature. This type of load growth is best met with a combination of "baseload" and "peaking" resources. Peaking resources are designed to deliver large volumes of gas for a short duration, such as during cold weather.

The effects of price elasticity add another layer of complexity onto gas requirements. When prices go up, consumption should decrease to some extent. This may be due to structural changes and choices, such as the installation of higher efficiency appliances and insulating materials. Or, it may be due to behavioral changes, such as turning down thermostat settings or dressing warmer. The structural changes should persist under most conditions, but the behavioral changes could be easily reversed. For example, lowering the thermostat may be a customer's response to high prices, but during an extreme cold weather episode, the customer may decide to raise the thermostat rather than risk frozen pipes or other discomforts. This may be a temporary move that has a negligible impact on annual requirements, but it could directly correlate to, and have a non-trivial impact on, peak day requirements.

Given these complexities, the Company has assembled a portfolio of supplies to meet the projected needs of its firm customers. At the same time, this portfolio is flexible enough to enable the Company to negotiate better opportunities as they arise. Existing contracts have staggered terms of greater than one year to very short-term arrangements of 30 days or less. This variety gives the Company the security of longer-term agreements, but still allows the Company to seek more economic transactions in the shorter term.

## II. CURRENT RESOURCES

### A. PIPELINE TRANSPORTATION CONTRACTS

NW Natural holds firm transportation contracts for capacity on the Northwest Pipeline Corporation (NWPL) interstate pipeline system, over which all of NW Natural's supplies must flow except for the small amount of local gas produced in the Mist field (currently less than 1% of annual requirements). For its purchases in Alberta and British Columbia, NW Natural also holds transportation contracts on the pipeline systems upstream of NWPL, namely Gas Transmission Northwest (GTN, a unit of TransCanada Pipelines Limited), TransCanada's BC System (TCPL-BC, formerly known as ANG), TransCanada's Alberta System (TCPL-Alberta, also known as NOVA), Westcoast Energy Inc. (WEI, a division of Spectra Energy) and the Southern Crossing Pipeline (SCP) owned by Terasen Inc. (formerly known as BC Gas).

NW Natural holds all rights to most of its firm transportation contracts. The exception is one small volume NWPL contract that was acquired by NW Natural from another party who retained the right to re-acquire the contract at a future date. Similarly, NW Natural has released a small portion of its NWPL capacity to two customers but has retained certain heating season recall rights. Details of each contract are provided in Table 3-1.

**Table 3-1**[2]

Firm Transportation Capacity as of January 2008

| Pipeline and Contract | Contract Demand (Dth/day) | Termination Date |
|---|---|---|
| **NWPL:** | | |
| Sales Conversion | 216,044 | 9/30/2013 |
| 1993 Expansion | 34,000 | 9/30/2044 |
| 1995 Expansion | 102,000 | 11/30/2011 |
| Weyerhaeuser Cap. Acquisition | 5,200 | Annual Evergreen |
| Duke Capacity Acquisition | 5,000 | 3/31/2008 |
| Total NWPL Capacity | 362,244 | |
| less recallable releases to - | | |
| Portland General Electric | (30,000) | 10/31/2010 |
| Georgia Pacific | (7,000) | Annual Evergreen |
| Net NWPL Capacity | 325,244 | |
| **GTN:** | | |
| Sales Conversion | 3,616 | 10/31/2023 |
| 1993 Expansion | 46,549 | 10/31/2023 |
| 1995 Rationalization | 56,000 | Annual Evergreen |
| Total GTN Capacity | 106,165 | |
| **TCPL BC System:** | | |
| 1993 Expansion | 47,000 | 10/31/2008 |
| 1995 Rationalization | 56,500 | Annual Evergreen |
| Engage Capacity Acquisition | 3,814 | 10/31/2008 |
| 2004 Capacity Acquisition | 48,200 | 10/31/2016 |

2 Notes to Table 3-1:

a. For each listed capacity resource, the *SENDOUT®* model includes the cost NW Natural is currently paying for the service.

b. All of the agreements continue year-to-year after termination, at NW Natural's sole option, except for the NWPL 1993 expansion contract, the Weyerhaeuser Capacity Acquisition and the releases to PGE and GP. Continuation of those agreements requires mutual consent.

c. The TCPL-BC and TCPL-Alberta contracts are denominated in volumetric units. Accordingly, the above energy units are approximations.

d. The numbers shown for the 1993 Expansion contracts on GTN and TCPL-BC are for the winter season (October-March) only. Both contracts decline during the summer season (April-September) to approximately 300,000 therms/day.

e. NW Natural also has a 2,500,000 therm/day interruptible NWPL contract with a monthly evergreen term.

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| | | |
|---|---|---|
| Total TCPL-BC Capacity | 155,514 | |
| **TCPL Alberta System:** | | |
| 1995 Rationalization | 57,000 | Annual Evergreen |
| Burlington/Summit Cap. Assignments | 23,561 | 10/31/2008 |
| Engage Capacity Acquisition | 3,861 | 10/31/2008 |
| Engage Capacity Assignments | 24,121 | 10/31/2008 |
| 2004 Capacity Acquisition | 48,910 | 10/31/2016 |
| Total TCPL-Alberta Capacity | 157,453 | |
| **WEI T-South Capacity** | 60,000 | 10/31/2014 |
| **Southern Crossing Pipeline (SCP)** | 47,200 | 10/31/2020 |

Since the implementation of FERC Order 636 in 1993, capacity rights on U.S. interstate pipelines have been commoditized; *i.e.*, capacity can be bought and sold like other commodities. These releases and acquisitions occur over electronic bulletin board systems maintained by the pipelines, under rules laid out by FERC. To further facilitate transactional efficiency and a national market, interstate pipelines have moved towards some standardization of definitions and procedures through the efforts of the industry-supported North American Energy Standards Board (NAESB), with the direction and approval of FERC. Capacity trades also can occur on the Canadian pipelines. In general, Canadian pipelines try to be consistent with most of the NAESB standards since much of the Canadian gas production is destined by export to markets in the United States.

On the pipeline systems utilized by NW Natural, usage among capacity holders tends to peak in roughly a coincident fashion as cold weather blankets the Pacific Northwest region. Similarly, capacity that may be available during off-peak months tends to be available from many capacity holders at the same time. This means that, unfortunately, NW Natural is rarely in a position to release capacity during high value periods of the year, and it would be unusual for capacity to be available for acquisition during peak load conditions. Given the dynamics of market growth and pipeline expansion, the Company will continue to monitor and utilize the capacity release mechanism whenever appropriate, which primarily will mean continuing to post its own capacity for release during off-peak periods to benefit its customers.

## B. GAS SUPPLY CONTRACTS

NW Natural's portfolio of supply for the 2007-2008 heating season is indicated in Table 3-2.[3] The contracts with near-term expiration dates will either be renegotiated or replaced prior to the next heating season. The contracts are baseloaded, meaning they have a daily delivery obligation, unless labeled as "Swing Supply," which means NW Natural has a daily option to take all, some or none of the indicated volumes at its discretion.

3 Table 3-2 excludes local production from the Mist field that is delivered directly to NW Natural's system. Since the initial gas discoveries in 1979, Mist production flows peaked at approximately 100,000 therms per day. Local production now results from third party exploration efforts and currently runs less than 20,000 therms per day. The Company utilizes approximately 12,000 therms per day for modeling purposes. All such production is sold under a long-term contract to NW Natural for the life of the production wells. Due to the relatively low Btu content of the production gas, volumes almost always must be blended with the Company's other supplies to reach an acceptable heating value. This limits the amount of production gas the Company can receive, and so the amount is not likely to change significantly unless higher Btu gas discoveries are made or markets for lower Btu gas can be found.

**Table 3-2**[4]

Upstream Supplier Portfolio as of January 2008

| Supply Location | Duration | Baseload Quantity (Dth/day) | Swing Supply (Dth/day) | Contract Termination Date |
|---|---|---|---|---|
| *British Columbia (Station 2):* | | | | |
| BP Canada | Nov-Oct | 5,000 | | 10/31/2009 |
| Coral Energy Canada | Nov-Oct | 10,000 | | 10/31/2010 |
| Husky Energy Marketing | Nov-Oct | 5,000 | | 10/31/2009 |
| Nexen (assigned from Duke) | Nov-Oct | 20,750 | | 10/31/2008 |
| PremStar Energy | Nov-Oct | 3,000 | | 10/31/2008 |
| Sempra Energy Trading | Nov-Oct | 10,000 | | 10/31/2008 |
| TD Commodities | Nov-Mar | 4,000 | | 3/31/2008 |
| *Alberta:* | | | | |
| BP Canada | Nov-Oct | 10,000 | | 10/31/2009 |
| Sempra Energy Trading | Nov-Oct | 10,000 | | 10/31/2014 |
| BP Canada | Nov-Oct | 10,000 | | 10/31/2009 |
| ONEOK Energy Services Canada | Nov-Mar | 10,000 | | 3/31/2008 |
| Coral Energy Canada | Nov-Oct | 10,000 | | 10/31/2008 |
| TD Commodities | Nov-Mar | 10,000 | | 3/31/2008 |
| Husky Energy Marketing | Nov-Mar | 10,000 | | 3/31/2008 |
| *Rockies:* | | | | |
| Coral Energy Resource | Nov-Mar | 15,000 | | 3/31/2008 |
| PPM Energy | Nov-Oct | 10,000 | | 10/31/2008 |
| BP Energy | Nov-Oct | 10,000 | | 10/31/2008 |
| BP Energy | Nov-Mar | | 10,000 | 3/31/2008 |
| ONEOK | Nov-Mar | 10,000 | | 3/31/2008 |
| ONEOK | Nov-Mar | | 10,000 | 3/31/2008 |
| Western Gas Resources | Nov-Mar | 10,000 | | 3/31/2008 |
| Western Gas Resources | Nov-Oct | 5,000 | | 10/31/2010 |
| ConocoPhillips | Nov-Mar | 10,000 | | 3/31/2008 |
| Total Off-System Firm Contract Supply | | 197,750 | 20,000 | |

4 Notes to Table 3-2:

a. Contract quantities represent deliveries into upstream pipelines. Accordingly, quantities delivered into NW Natural's system are slightly less due to the reduction for upstream pipeline fuel consumption.

b. Almost all term contracts contain a price formula tied to a published monthly index price. Those index prices may be hedged using financial instruments.

c. *SENDOUT®* assumes all spot and term gas supplies are priced at 100% of the proprietary forecast of monthly gas commodity prices for Sumas, Aeco, and Opal.

## C. STORAGE RESOURCES

The key characteristics of existing storage options available to NW Natural from its own facilities, or contracted from NWPL on a firm basis, are shown in Table 3-3[5]:

**Table 3-3[6]**
Firm Storage Resources as of January 2008

| Facility | Max. Daily Rate (Dth/day) | Max. Seasonal Level (Dth) | Termination Date |
|---|---|---|---|
| **Jackson Prairie:** | | | |
| SGS-2F | 46,030 | 1,120,288 | Upon 1-Year Notice |
| TF-2 (redelivery service) | 32,624 | 839,046 | Upon 1-Year Notice |
| TF-2 (redelivery service) | 13,406 | 281,242 | 3/31/2008 |
| **Plymouth LNG:** | | | |
| LS-1 | 60,100 | 478,900 | Upon 1-Year Notice |
| TF-2 (redelivery service) | 60,100 | 478,900 | Upon 1-Year Notice |
| **Total Firm Off-system Storage:** | | | |
| Withdrawal/Vaporization | 106,130 | 1,599,188 | |
| TF-2 Redelivery | 106,130 | 1,599,188 | |
| **Firm On-System Storage Plants:** | | | |
| Mist (reserved for core) | 230,000 | 8,975,000 | n/a |
| Portland LNG Plant | 120,000 | 600,000 | n/a |
| Newport LNG Plant | 60,000 | 1,000,000 | n/a |
| Total On-System Storage | 410,000 | 10,575,000 | |
| Total Firm Storage Resource | 516,130 | 12,174,188 | |

5 SGS refers to the Storage Gas Service available from NWPL at the Jackson Prairie underground storage facility near Chehalis, Washington. LS refers to the Liquefaction Service offered at NWPL's Plymouth LNG plant in Washington, just across the Columbia River from Umatilla, Oregon. SGS-2F and LS-1 exclude NWPL transportation service to NW Natural's system. TF-2 is the firm transportation service offered by NWPL for redelivery of gas from certain storage facilities to customers on its system.

6 Notes:

a. For the JP and Plymouth storage resources listed herein, the *SENDOUT®* model includes the cost NW Natural is currently paying NWPL for the service. For each of the on-system storage resources, the *SENDOUT®* model includes a carrying charge on the carried gas inventory equal to 5.16%. In addition, for the Mist capacity, the *SENDOUT®* model includes a daily deliverability charge of $0.004/Dth (the same cost assumed for Mist recall capacity).

b. All of the above agreements continue year-to-year after termination at NW Natural's sole option.

c. On-system storage peak deliverability based on design criteria.

NW Natural's core customers currently receive underground storage service at NW Natural's Miller Station facility from four depleted production reservoirs (Bruer, Flora, Al's Pool, and a portion of Reichhold), collectively referred to as Mist storage. The Mist storage deliverability and seasonal capacity shown in Table 3-3 represents NW Natural's portion of the present design capacity reserved for core customers. This facility has a maximum total daily deliverability of 519,000 dekatherms and a total working gas capacity of about 16 million dekatherms contained in the above plus three newer reservoirs (Schlicker, Busch, and Meyer). Capacity in excess of core needs is made available for non-utility storage business. As core needs grow, existing storage capacity may be recalled and transferred for use by core utility customers. The IRP models the recallable portion of the existing Mist storage capacity as an incremental resource that is discussed in Section V of this chapter.

## D. OTHER EXISTING SUPPLY RESOURCES

As mentioned previously, an additional type of resource in NW Natural's portfolio is a variation on storage, *i.e.*, agreements that allow the Company to utilize gas supplies delivered to the Company's service territory for a limited number of days during the heating season. These are supplies that otherwise would be consumed at industrial sites in the Company's service territory. NW Natural currently has four such "recall" arrangements with three parties, as summarized in Table 3-4 below.

**Table 3-4**[7]

Recallable Supply Arrangements as of January 2008

| Type | Max. Daily Rate (Dth/day) | Max. Annual Recall (days) | Termination Date |
|---|---|---|---|
| **Recall Agreements:** | | | |
| Recall 1 | 30,000 | 30 | 11/1/2010 |
| Recall 2 | 7,000 | 35 | upon 1 year notice |
| Recall 3A | 3,000 | 40 | upon 1 year notice |
| Recall 3B | 5,000 | 40 | upon 1 year notice |
| Total Recall Resource | 45,000 | | |

All of the above agreements provide for continuation after the termination date if mutually acceptable. Three of these deals (Recall 2 and 3A/B) are already in

7 For each listed recall resource, the *SENDOUT®* model includes the cost NW Natural is currently paying for the service.

their annual "evergreen" period. The first two arrangements (Recall 1 and 2) utilize NWPL capacity released by NW Natural on a recallable basis, and correlate to customer release volumes shown in Table 3-1. When those two arrangements terminate, the released NWPL capacity reverts back to NW Natural. The IRP assumes that NW Natural terminates Recall 2 and the model treats this capacity as an incremental resource. Recall 3A and 3B utilize NWPL capacity held by the providers of the service.

The pricing of the recallable supplies reflects the peaking nature of the service. The incremental price of any recalled supplies typically is tied to alternative fuel costs (diesel, propane, etc.), and so would not be economic to dispatch until anything other than extreme cold weather conditions.

## E. SUPPLY DIVERSITY

The Company buys its supplies from a variety of supply basins, including a small amount of local production in the Mist field as mentioned above. The underlying purchase contracts are weighted towards long-term (one year or more) durations to ensure reliability of supply and simplify contract administration. A significant number of the contracts are medium-term (less than one year but at least one month) arrangements, primarily five-month contracts, to match the seasonal increase in customer requirements during the winter. A small portion is purchased on the spot (less than one month) market, typically during the non-heating season to meet fluctuating storage injection requirements and if favorable pricing is available during other periods of the year.

Figures 3-1 and 3-2 provide graphical representations of the Company's supply resources and diversity during 2007.

**FIGURE 3-1**

**Gas Supply Diversity by Contact Length**
**For Calendar Year 2007**

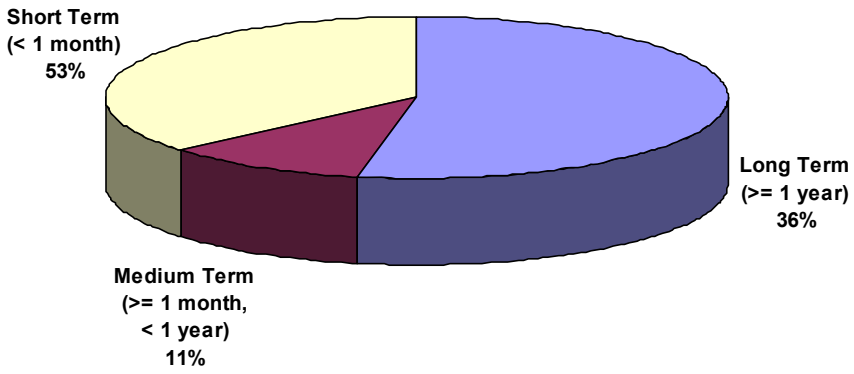
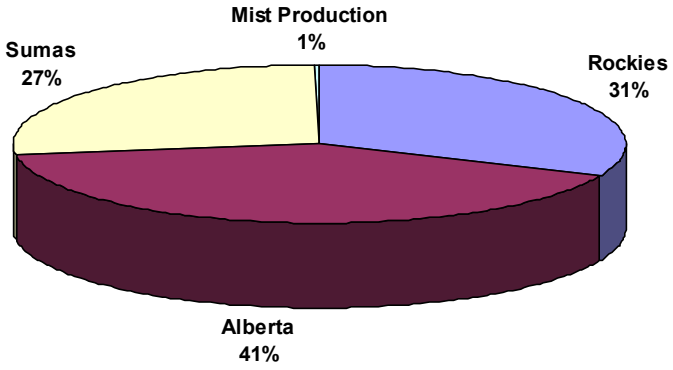



**FIGURE 3-2**

**Gas Supply Diversity by Source**
**For Calendar Year 2007**




Two transitions began in 2003 that have altered the appearance of these graphs in recent years. First, the Company had five long-term (10 to 15- year) supply

contracts that all expired in October or November 2003. These contracts previously accounted for over 60% of total annual purchases. They began during the onset of deregulation in the late 1980s and early 1990s and reflected concerns at the time regarding supply reliability, as well as regulatory requirements to demonstrate market support for upstream pipeline expansions. They were cumbersome, however, in that they required annual price renegotiation subject to binding arbitration. Over time, these contracts evolved to using price formulas based on monthly price indexes, but annual renegotiation was still needed every year to determine the factor (usually a small premium) to be applied to the monthly index for the coming year. Replacement supply contracts also reference monthly price indexes, but the factor to be applied to the index has been negotiated for the term of the agreement, so no further negotiations are required.

The second transition concerns sources of supply. While NW Natural originally was dependent on British Columbia for roughly half of its gas purchases, there are far greater supplies of gas available in the province of Alberta. Alberta markets are far more liquid and hence exhibit less volatility than British Columbia trading points. NW Natural's subscription to capacity on SCP and associated TCPL capacity allowed it to shift some of its current British Columbia purchases to Alberta starting in November 2004. Figure 3-2 reflects the movement away from British Columbia supply and more towards Alberta supply.

As supply contracts expire, new opportunities to re-contract supplies under different arrangements will be examined.

## F. PHYSICAL AND FINANCIAL HEDGING

NW Natural provides its retail customers with a bundled gas product including gas storage for its regulated utility business. To accomplish this, NW Natural aggregates load and acquires gas supplies for its core retail customers through wholesale market physical purchases that may be hedged using physical storage or financial transactions.

Four goals guide the physical and financial hedging of gas supplies: 1) reliability, 2) lowest reasonable cost, 3) price stability, and 4) cost recovery. Section VII. B. of this chapter provides definitions of the four goals.

The use of selected financial derivative products provides NW Natural with the ability to employ prudent risk management strategies within designated parameters for natural gas commodity prices. The objective is to use derivative products to

structure hedging strategies as defined by NW Natural Gas Supply Risk Management Policies. All wholesale gas transactions must be within the limits set forth by those policies. This is intended to prevent speculative risk.

NW Natural's Gas Acquisition Strategy and Policies Committee has oversight for the development and enforcement of the Gas Supply Risk Management Policies. Within those policies, the Derivatives Policy establishes governance and controls for financial derivative instruments related to natural gas commodity prices including financial commodity hedge transactions.

## III. SUPPLY-SIDE RESOURCE DISPATCHING

The Company's Gas Supply Department now utilizes *SENDOUT®* to perform its dispatch modeling each fall. Based on expected conditions, this modeling provides guidance to the department in how it anticipates dispatching from various pipeline supplies and storage facilities. The objective is to ensure reliable service during the heating season on an aggregate system-wide basis and, at the same time, achieve the maximum economic benefit from seasonal price differences and varying gas delivery terms. With the assistance of *SENDOUT®*, resource portfolios are developed with the best combination of expected costs and associated risks and uncertainties for the utility and its customers. The system is operated as an integrated whole and costs are apportioned accordingly, absent state boundaries.

NW Natural's heavy reliance on storage gas requires routine examination of the Company's ability to meet peaking loads. To test the Company's storage resources, Gas Supply incorporates inventory curves into the *SENDOUT®* modeling that represent the ideal operation of each storage facility to meet core customer demand. These results provide insight for operational personnel by simulating the effects of dispatch choices on subsequent heating season conditions.

Appendix 3-1 shows the inventory guidelines for the 2007-2008 heating season at Mist, the Newport LNG plant, the Portland LNG plant ("Gasco"), and under the Jackson Prairie (SGS-2F) and Plymouth (LS-1) contracts with NWPL.

## IV. RECENT RESOURCE DECISIONS

Since the 2004 IRP, NW Natural has added new resources to its gas supply portfolio in response to continued robust customer growth and in anticipation of future growth, although tempered by declining usage per customer trends. These additions generally followed supply-related conclusions and action plan steps developed in the 2004 IRP, in particular, the further development of remaining Mist storage capacity and deliverability as follows:[8]

- 2004 IRP Conclusion No. 2: "The Company's existing resources are in balance with loads. Therefore, beginning almost immediately the Company must add resources to assure service under peak load conditions."

    - Company Action: In 2004, NW Natural completed the South Mist Pipeline Extension (SMPE) and recalled 20,000 Dth/day of peak withdrawal capacity at Mist. Since that time, load forecasts have not indicated a need to change the Company's overall supply portfolio, as increases in customers served were offset by declining usage per customer.

- 2004 IRP Conclusion No. 3: "Sequential development of underground storage reservoirs is the least-cost means of meeting our service area's growing requirements. Pre-development of storage resources ahead of core-market need, with excess capacity sold into the interstate market provides the least cost resource development path for core market customers."

    - Company Action: Since the 2004 IRP, NW Natural has expanded Mist's total capacity (core and interstate) up to 519,000 Dth/day of withdrawal capability due to strong demand from the interstate market. This brings Miller Station and its set of surrounding reservoirs up to their full build-out potential, given existing leaseholds. This is actually greater than the full planned Miller Station build-out contemplated in the 2004 IRP of 425,000 Dth/day. Customers now have the ability to recall over time up to an additional 289,000 Dth/day.

8 Conclusions reprinted from NW Natural's 2004 Integrated Resource Plan, Volume 1, Executive Summary, pages ES-2 and ES-16.

- 2004 IRP Conclusion No. 4: "Current interstate pipeline capacity is adequate for the next 15 years, although minor adjustments at certain gate stations and upgrades of interstate pipeline lateral capacity may be required before then."

    - Company Action: NW Natural is pursuing options to further diversity pipeline transportation paths. Specifically, in August 2007, the Company entered into precedent agreements for service along a proposed transmission line ("Palomar") that would connect TransCanada Corporation's GTN interstate gas line in central Oregon to NW Natural's high-pressure system.
    - An opportunity presented itself in February 2008 to acquire 12,000 Dth/day of NWPL capacity from the Rockies to the I-5 corridor at existing (not expansion) rates with a start date no later than November 2017. Based on preliminary IRP results, this acquisition ("March Point NWPL capacity") fit projected needs at a favorable price and so the deal was executed before the opportunity disappeared.

    Note: Both Palomar and March Point NWPL capacity have been modeled as discretionary incremental capacity additions in *SENDOUT®* in order to validate those decisions.

- 2004 IRP Action Plan 2.1: "Refine cost estimates for Grants Pass Lateral enhancements and the joint development marginal storage reservoirs and Willamette Valley Feeder segments. Marginal storage reservoirs are those known to exit but not included as resource options in this Plan."

    - Company Action: This IRP includes enhanced Grants Pass Lateral capacity and Willamette Valley Feeders segments as incremental resource options.

- 2004 IRP Action Plan 2.2: "Continue to recall daily and annual underground storage capacity from the interstate storage gas market to core market service as needed."

    - Company Action: This IRP models the availability of Mist recall capacity throughout the planning horizon. NW Natural will continue to recall Mist capacity as identified in this 2008 IRP.

- 2004 IRP Action Plan 2.3: "Evaluate the benefits and costs of marine liquefied natural gas facilities located in the Pacific Northwest."

    - Company Action: The Company continues to evaluate system supply opportunities from proposed liquefied natural gas import facilities in

Oregon. This IRP includes two alternate resource portfolios with LNG import terminals.

## V. FUTURE RESOURCE ALTERNATIVES

Aside from the existing gas supply resources mentioned previously, NW Natural is now considering additional gas supply resource options including recall or acquisition of existing and new interstate pipeline capacity, recall of existing Mist storage marketed to interstate customers, imported LNG, satellite LNG, and various extensions/expansion of its own pipeline system. The primary alternatives are described in more detail below and summarized in Appendix 3-2. These options will be evaluated in Chapter 5 using *SENDOUT®*.

### A. INTERSTATE CAPACITY ADDITIONS

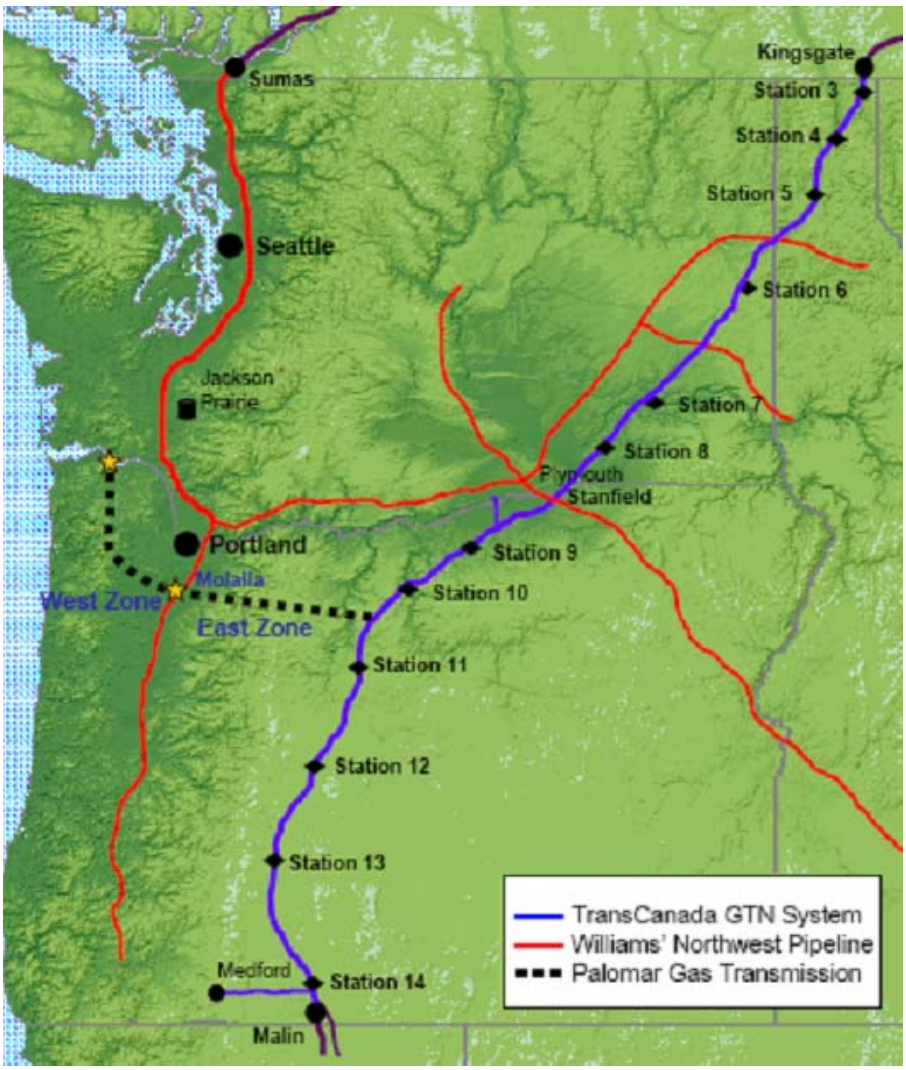
NW Natural holds existing CD entitlements and citygate station capacity on: (i) NWPL's "mainline" serving NW Natural's service areas in Portland, Astoria, Vancouver and The Dalles, and (ii) NWPL's Grants Pass Lateral serving NW Natural's loads in the Willamette Valley south of Portland. Therefore, consideration of incremental NWPL capacity, separately on the mainline and on the Grants Pass Lateral, is a starting point for NW Natural's assessment of incremental interstate pipeline capacity in this IRP.

Since NW Natural is only interconnected to NWPL, a subscription to more NWPL mainline capacity has traditionally been a prerequisite to holding more upstream capacity of equivalent amount (i.e. from GTN). NW Natural considers exceptions to this rule when market dynamics indicate some advantage to holding more, less, or different upstream capacity than it currently has in its possession. For example, as upstream pipelines continue to expand into new supply regions and/or to serve new markets, an evolution of trading hubs may occur; opening up the more liquid, trading points while others fade into disuse. The construction of an LNG import terminal in the Pacific Northwest or British Columbia and/or the construction of a new pipeline transporting Arctic gas (either from Alaska or the Mackenzie Delta) are examples of market developments that could cause NW Natural to reconfigure or add to its upstream pipeline contracts. Under these market conditions, it may be to NW Natural's benefit to hold transportation capacity upstream of NWPL leading to these new supply points.

In response to its reliance solely on NWPL for delivery of interstate gas supplies, NW Natural has partnered with TransCanada Corporation to form Palomar Gas Transmission LLC. As depicted in Figure 3-3, Palomar is proposing to develop,

build and operate the proposed Palomar pipeline project in two segments. The eastern segment would connect GTN's mainline north of Madras, Oregon, to NW Natural's gate station at Molalla ("Palomar East"), and the western segment would continue this connection to NW Natural facilities near Mist, Oregon ("Palomar West"). Separate from its ownership interest in Palomar, NW Natural has entered into a Precedent Agreement with Palomar for 100,000 Dth/day of capacity on the proposed pipeline for delivery of gas from Madras to Molalla (Palomar East) and from Molalla to Mist (Palomar West). The proposed Palomar project would be subject to approval by the Federal Energy Regulatory Commission (FERC), as well as the U.S. Forest Service, Bureau of Land Management, and numerous other Federal and State agencies.

**Figure 3-3: Proposed Palomar Pipeline**



From NW Natural's perspective, the primary benefit accruing form construction of Palomar East would be to manage the risks associated with the delivery of natural gas into the region. The Willamette Valley, including the Portland metro area, is served solely by NWPL. Adding a second interstate pipeline delivery corridor would assure both the security of gas supply as well as reliable gas service well into the future for core customers. As such, by interconnecting with Palomar at Molalla, NW Natural would be in position to consider turning back redundant NWPL capacity, effectively lowering the net cost of this incremental resource.[9] As a secondary benefit, the second phase (Palomar West) would be well positioned to effectively interconnect with any LNG terminals that might be constructed along the lower Columbia River in order to transport gas from these terminals to the Portland area and the interstate natural gas pipeline network in central Oregon.[10]

As shown in Table 3-5 below, in this IRP, NW Natural considers acquisition of incremental interstate pipeline capacity in several forms: (i) new NWPL Grants Pass Lateral capacity serving Salem, Newport, Albany and Eugene, (ii) new NWPL "mainline" capacity serving Portland, Astoria, Vancouver, and The Dalles, (iii) new capacity upstream of NWPL mainline capacity providing access to the Rockies[11] and Alberta supply areas, (iv) new Palomar capacity both east and west of Molalla, (v) new capacity on the proposed Pacific Connector Pipeline to access regasified LNG from the proposed Jordan Cove LNG project at Coos Bay, OR, (vi) recall of existing NWPL mainline capacity from the Rockies and Sumas that NW Natural has released to Georgia Pacific, and (vii) existing NWPL mainline capacity from the Rockies currently held by that NW Natural has contracted to acquire starting in 2017. The acquisition of incremental pipeline capacity spans a wide range of lead times; its availability depends on the availability of existing capacity, the length of the pipeline's open season process, and the completion date of the constructed facilities.

9 NW Natural has modeled a turn back of up to 77,000 Dth/day of existing NWPL capacity from Stanfield to Portland upon the availability of Palomar capacity.

10 As previously discussed, we have included the Palomar West pipeline segment serving the Bradwood LNG project in the *SENDOUT®* model.

11 NWPL capacity upstream of Stanfield, Oregon.

**Table 3-5**
**Incremental Interstate Pipeline Capacity Additions Modeled in *SENDOUT®***

| Interstate Pipeline Segments | Contract Demand (Dth/d) | Assumed Availability |
|---|---|---|
| NWPL Zones 12-9 (Grants Pass Lateral) | 74,200 | November 2011 |
| NWPL Zones 26-12 ("mainline") | 2,031,000 | November 2011 |
| Upstream of NWPL z26-12: | | |
| Rockies-Stanfield | 1,062,000 | November 2011 |
| Alberta-Stanfield | 969,000 | November 2011 |
| Palomar East | 200,000 | November 2011 |
| Palomar West | 100,000 | November 2011 |
| Pacific Connector | 100,000 | November 2011 |
| GP Recall (existing NWPL capacity) | 3,500 each from Rockies & Sumas | November 2008 |
| March Point NWPL capacity | 12,000 Rockies to Portland | November 2017 |

## B. MIST STORAGE RECALL

In addition to the existing Mist storage capacity currently reserved for the core market (see Table 3-3), the Company has four reservoirs (Reichhold, Schlicker, Busch and Meyer Pools) that are developed for storage services, currently serve the interstate storage market in whole or in part, but could be recalled for service to the Company's core customers. Table 3-6 identifies the recallable Mist capacity and the year the capacity is available given current contractual commitments to interstate market customers.

**Table 3-6**
**Mist Recall Capacity**
**(incremental to existing capacity for core)**

| Assumed Availability | Capacity (Dth) | | Deliverability (Dth) | |
|---|---|---|---|---|
| | Increment | Cumulative | Increment | Cumulative |
| 2008 | 1,710,000 | | 75,630 | |
| 2010 | 600,000 | 2,310,000 | 26,537 | 102,167 |
| 2011 | 1,560,000 | 3,870,000 | 68,996 | 171,163 |
| 2012 | 320,200 | 4,190,000 | 14,153 | 185,316 |
| 2015 | 1,089,000 | 5,279,000 | 48,165 | 233,481 |
| 2017 | 1,260,000 | 6,539,000 | 55,727 | 289,208 |

Mist is ideally located in the center of NW Natural's service territory, eliminating the need for upstream interstate pipeline transportation service to deliver the gas during the heating season. Due to its location within the Company's service territory, Mist is particularly well suited to meet incremental load requirements in the Portland area, which is traditionally the area where the majority of the Company's firm load growth lies. Mist gas may also be directly delivered to loads along the Columbia River and north Oregon coast from St, Helens to Astoria.

## C. NW NATURAL INFRASTRUCTURE ADDITIONS

System expansions or reinforcements accompany the need to increase resources to meet load growth, regardless of whether supplies come from Mist or from the Company's numerous gate station interconnections with NWPL. The Company's Engineering Department, in close collaboration with the Construction and Marketing departments and input from outside economic development and planning agencies, performs the planning for the expansion, reinforcement, and replacement of elements of the distribution system.

The Company uses the Synergy software package[12] to evaluate infrastructure requirements. Synergy provides the platform for digital computer simulation of transient gas flow behavior in any arbitrarily configured piping system. The analysis procedure calculates the time-varying flows, pressures, horsepower and other variables under scenarios that reflect actual service conditions. Studies are conducted to determine the response of the gas distribution system due to load changes, pressure set point changes, compressor performance changes, etc. The software is also sophisticated enough to enable the modeling of high-speed transient conditions, such as instantaneous valve closure and pipeline rupture.

The Company has constructed models based on the Synergy software that are designed to evaluate distribution system capacity constraints, inter-related flow characteristics, and pressure stabilization aspects of distribution system planning that are evaluated under steady-state and transient conditions. Over time the process was streamlined through the integration of geographically referenced system map information and Company data sources. This enhancement enabled Engineering to avoid the formerly tedious and time-consuming effort of manually constructing nodal networks and linking data. System maps from the Geographic Information System provide the physical distribution system data required for basic model construction, and the Customer Information System provides load data.

12 This software was formerly known as the Stoner Workstation Service (SWS).

The Synergy models and software provide the Company the opportunity to evaluate performance of the distribution system under a variety of conditions. Typically the analysis focuses on meeting growing peak day customer demands while maintaining system stability. Gas requirements at delivery nodes are projected based on observed flow rates during recent cold weather episodes. These flow rates are then adjusted to match design peak weather conditions and the effects of customer growth. Alternative system expansion and reinforcement strategies are then evaluated in terms of system stability, cost, and ability to meet future gas delivery requirements. This computer simulation capability allows the Company to efficiently evaluate distribution system performance in terms of stability, reliability, and safety under varying boundary conditions ranging from peak-day delivery requirements to temporary service interruptions, both planned and unplanned.

System planning takes place continuously, integrating new customer growth requirements into the Company's construction forecasts. Computer simulation testing is used to help validate the need for and timing of specific system expansion, reinforcement, and replacement projects. Near-term (one to two-year) projects are highly likely to occur as specified to meet customer delivery requirements. Mid-term (three to five-year) projects are subject to time slippage based on adjustments to the rate and geographic direction of customer growth. Long-term (beyond five years) will tend to be general projections based on expected economic development of the region and gas supply resource acquisitions, and thus, subject to change.

With SMPE completed in 2004, future internal infrastructure decisions revolve around two key considerations:

1. The impact on the Company's pipeline system design, reinforcement and replacement projects from the 2002 federally-mandated Integrity Management Program (IMP) and other similar state approved programs regarding bare steel pipeline and geo-hazard mitigation. IMP and similar programs continue to evolve, but compliance is likely to require significant infrastructure investment over the next ten years. Those programs have been and will continue to be the subject of separate proceedings with state regulators and will not be further discussed here, but any infrastructure conclusions reached in the IRP will require further analysis to ensure congruence with the various integrity programs.

2. Alternatives for moving Mist and Newport storage gas to customers outside the current confines of the Portland-area and northern Willamette Valley distribution systems, respectively. The focus of the next three sections will be options for moving storage gas to areas traditionally beyond their reach.

## D. ENHANCEMENT OF PIPELINE FROM NEWPORT

The daily deliverability of the Newport LNG plant is modeled at 60,000 Dth/day due to load limitations. That is, the market areas served by the Newport plant (from the town of Newport north to Lincoln City and then east to Salem) have peak loads ranging up to about 60,000 Dth/day. However, the Newport plant has all the equipment necessary to vaporize and deliver up to 100,000 Dth/day. To reach the 100,000 Dth/day capability, infrastructure additions would be needed on the Newport to Salem pipeline to deliver an incremental 40,000 Dth/day (see Appendix 3-2). In addition, to connect more load centers (*e.g.*, Corvallis/Albany, Eugene) to the Newport plant, NW Natural would need to invest in some or all of the Willamette Valley Feeder project pipeline segments (see below). The additional piping and upgrading required to reach new load centers could be quite costly due to geographical constraints. This cost, though, could be competitive versus a subscription to additional upstream pipeline capacity, which also would need to be accompanied by Willamette Valley Feeder project investments to serve customers increasingly distant from NWPL's gate stations.

## E. BROWNSVILLE TO EUGENE

To access approximately 5,000 Dth/day of Grants Pass Lateral capacity available at the Brownsville/Halsey gate station, the Company needs a Willamette River crossing near the town of Harrisburg in order to bring that capacity to the Eugene market. The Company estimates this project would cost approximately $420,000 and could be placed in-service by November 2012.

## F. WILLAMETTE VALLEY FEEDER

The Willamette Valley Feeder project involves new piping to move Mist gas or other incremental gas supplies delivered to Molalla south to Salem, Albany, and potentially even the Eugene area. This project could also work in conjunction with a pipeline capacity expansion project from Newport as described above. As shown in Table 3-7 below, the project includes a total of six segments serving three load regions, as follows: (i) Salem area segments: Sherwood-Perrydale, Perrydale-Independence; (ii) Albany area segments: Independence-N. Albany, N. Albany-S. Albany; and (iii) Eugene area segments: S. Albany-Halsey, Halsey-Eugene.

**Table 3-7**
**Willamette Valley Feeder Project Segments**

| Segment | Assumed Capacity (Dth) | Estimated Capital Cost |
|---|---|---|
| Sherwood-Perrydale | 120,000 | $16,600,000 |
| Perrydale-Independence | 82,000 | $14,400,000 |
| Independence-N. Albany | 50,000 | $13,700,000 |
| N. Albany-S. Albany | 38,000 | $8,800,000 |
| S. Albany-Halsey | 26,000 | $12,300,000 |
| Halsey-Eugene | 26,000 | $16,700,000 |

This project would be an alternative to continued expansion of NWPL's Grants Pass Lateral, which transports gas to NW Natural's system throughout the Willamette Valley. In the past it was thought that the Willamette Valley Feeder project would only proceed if environmental, civic, or other pressures significantly increase the cost or time needed to expand NWPL's lateral. However, the Company has enhanced portions of its pipeline from Portland to Salem over the past few years in the course of routine replacement activities (leakage repair, road grading projects, etc.), and would expect to continue these activities in the future as well as implement additional projects through the IMP mentioned above. Because of the project-specific nature of the Company's pipeline integrity programs, one or more specific segments of a Willamette Valley Feeder project, for example, from Albany to Eugene, could become cost-effective in lieu of incremental NWPL capacity between those two locations. For this reason, the Valley Feeder and NWPL capacity options have been segmented in the IRP analysis. The NWPL expansion capacity project includes three segments: Molalla to Salem, Salem to Albany, and Albany to Eugene. *SENDOUT®* evaluates the costs of Willamette Valley Feeder segments to the assumed incremental costs of the NWPL's Grants Pass Lateral capacity expansion segments, as well as to the strategic placement of satellite LNG storage discussed below.

It should also be noted that a Willamette Valley Feeder project offers three advantages over continued expansion of NWPL's Grants Pass Lateral that are qualitative in nature and so have not been modeled in *SENDOUT®*. These advantages are:

1. Risk management. By providing gas deliveries through pipelines following different routes, NW Natural will be less susceptible to disruptions affecting NWPL's system.

2. New service opportunities. By following new routes, homes and businesses that previously may have been too distant may now be able to access gas service.

3. Lower impact. Further expansion of NWPL's Grants Pass Lateral would necessitate expansion of existing distribution lines emanating from the NWPL gate stations. Prior customer growth along these corridors may make those lines more difficult to expand as compared to the Willamette Valley Feeder, which would approach those communities using alternate routes.

## H. IMPORTED LNG

Natural gas liquefaction dates back to the 19th century, when British chemist and physicist Michael Faraday experimented with liquefying different types of gases, including natural gas. German engineer Karl van Linde built the first practical compressor refrigerator machine in Munich in 1873. The first liquefied natural gas plant dates back to 1912 and was built in West Virginia, with the first commercial liquefaction plant being built in Cleveland, Ohio, in 1941. Today there are over 100 active LNG facilities spread across the United States, with most concentrating in the northeastern United States.

Ocean transport of LNG began in 1959[13]. U.S. natural gas companies built four land-based marine liquefied natural gas import terminals between 1971 and 1981: Lake Charles – operated by Southern Union[14]; Everett, MA – operated by Tractebel[15]; Elba Island, GA – operated by El Paso[16]; and Cove Point, MD – operated by Dominion[17]. From a high of 253 Bcf in 1979, LNG imports saw a sharp decline. This was caused by natural gas industry restructuring that led to increased North American domestic natural gas production and price disputes with Algeria, then the sole LNG exporter to the U.S. These events resulted in the owners of the Elba Island and Cove Point facilities mothballing their terminals for over 20 years. Not until the first new Atlantic Basin LNG liquefaction plant came on line in Trinidad and Tobago, combined

13 That first cargo of LNG was shipped from the United States to England.

14 The Lake Charles terminal was completed in 1981, and has a max send-out rate of 2.1 Bcf per day or a firm sustained baseload of 1.8 Bcf per day (13.1 mmtpa)

15 The Everett terminal was completed in 1971, and has a max send-out rate of 1 Bcf per day (nameplate) or a firm sustained baseload of 715 Mcf per day.

16 The Elba Island terminal was completed in 1978, and has a max send-out rate of 1.2 Bcf per day or a firm sustained baseload of 1 Bcf.

17 The Cove Point terminal was completed in 1978, and has a max send-out rate of 1 Bcf per day or a firm sustained baseload of 750 Mcf.

with increased U.S. natural gas demand and increased natural gas prices, were these two facilities reactivated. The EIA estimates the combined annual baseload capacity of the four land-based import terminals is 880 Bcf, and each facility has either recently completed an expansion or announced plans to expand their capacity over the next few years. Reflecting its new-found competitiveness in North American markets, U.S, LNG imports exceeded 780 Bcf in 2007.

In response to current and forecast gas market conditions, North America has witnessed a second wave of LNG import terminal project development. Excelerate Energy completed the Gulf Gateway offshore Louisiana LNG import terminal in 2005 and the Northeast Gateway offshore Massachusetts terminal in 2008. Several other projects are under construction and there are several dozen proposed new LNG terminals that are in various stages of development. The EIA predicts that by 2010, projects could be located in and around the U.S., including the Gulf of Mexico, Bahamas, the U.S. west coast, Mexico's west coast, and varying points along the U.S. and Canadian east coasts.

While most of the activity focused on LNG is taking place in the Gulf of Mexico and along the U.S. east coast, there are a number of viable west coast LNG projects and proposals that could become operational within the next five to ten years that would have a direct impact on NW Natural's resource planning and acquisition. As of January 2008, the FERC lists four proposed or potential LNG import terminal projects within Oregon. They are Bradwood (Northern Star LNG) in Bradwood, Jordan Cove in Coos Bay, Oregon LNG in Astoria, and Port Westward LNG in St. Helens. The two projects that are furthest along are the Bradwood and Jordan Cove facilities.

The Bradwood terminal would be a re-gasification facility consisting of two storage tanks and an estimated average production capacity of 1.0 Bcf per day, with a possible expansion up to 1.5 Bcf per day. Bradwood has proposed a 35-mile export pipeline to interconnect with Northwest Pipeline near Kelso, Washington. The proposed Palomar Pipeline, which is a separate project, would link to the Bradwood Landing Pipeline a few miles east of the terminal. This second alternative pipeline path would support LNG deliveries into the NW Natural system and to the GTN pipeline in central Oregon. The developer has filed with both FERC and the OPUC.

The Jordan Cove terminal would also be a re-gasification facility consisting of two storage tanks, a 25 MW gas-fired cogeneration plant, and a 250 mile Pacific Connector Gas Pipeline. It is estimated to have an average production capacity of 1.0 Bcf per day, with the ability to host six to seven tankers per month. Jordan Cove and Pacific Connector each filed applications for approval from the FERC in September 2007.

Although neither Bradwood nor Jordan Cove has been constructed, for analysis purposes, NW Natural is including them in its modeling (see Appendix 3-2). As depicted in Figure 3-4, we model the Bradwood project as feeding the Company's intrastate distribution system by way of the proposed Palomar West pipeline. As depicted in Figure 3-5, we model the Jordan Cove project as feeding the Company's distribution system by way of the proposed Pacific Connector Pipeline with further delivery by either NWPL or Palomar. NW Natural would be able to receive some portion of the Jordan Cove-sourced supply into the south end of its system (Eugene) via NWPL's Grants Pass Lateral. Due to capacity constraints on the Grants Pass Lateral, we assume Jordan Cove volumes greater than 25,000 Dth/day are delivered to NW Natural via Pacific Connector, GTN and Palomar East. Absent more definitive information from project developers, we assume that import LNG supply will be priced competitively alongside any of the Company's other gas supply contracts (see Appendix 3-2 for assumed LNG pricing).

**Figure 3-4: Bradwood Landing Schematic**

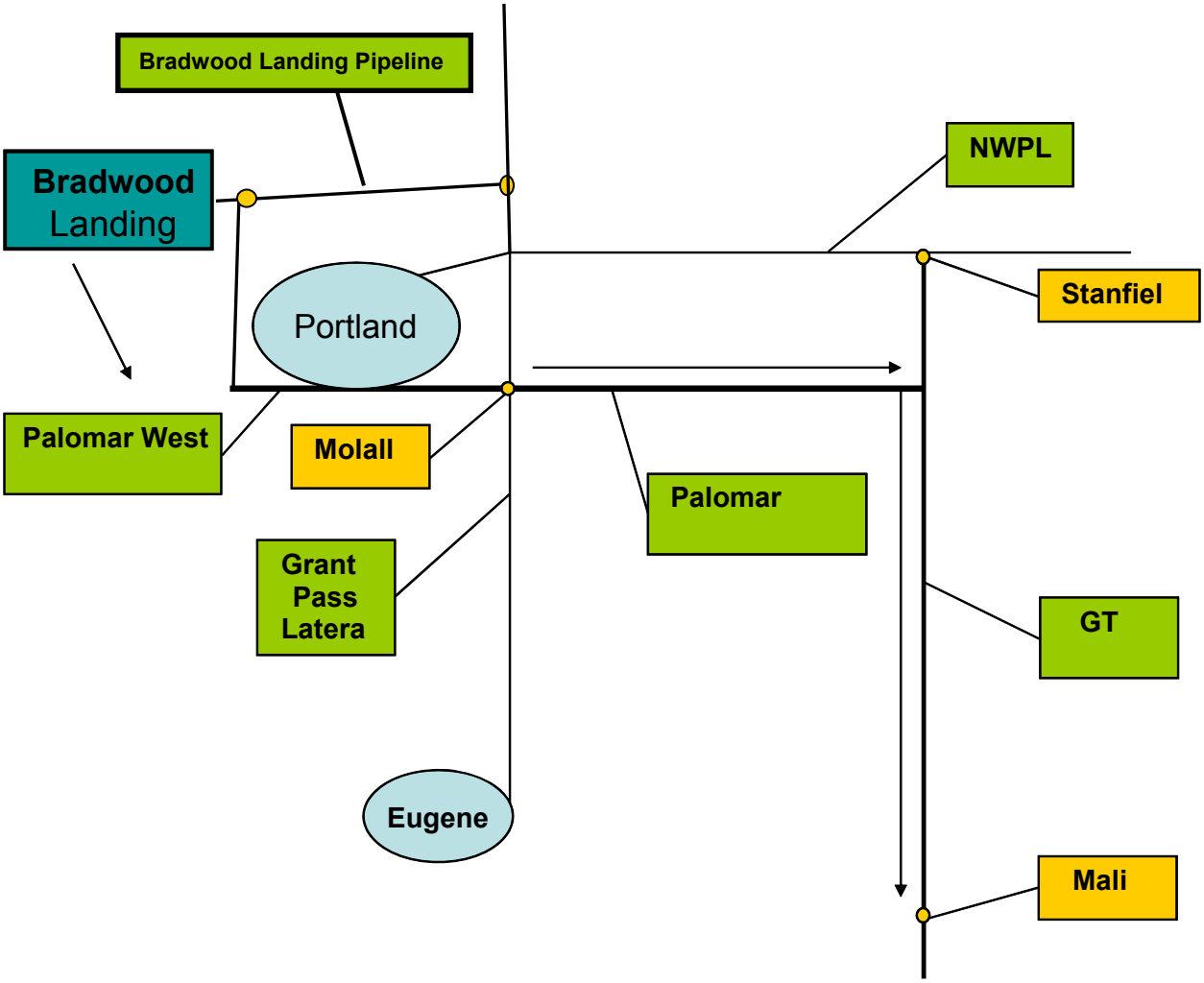
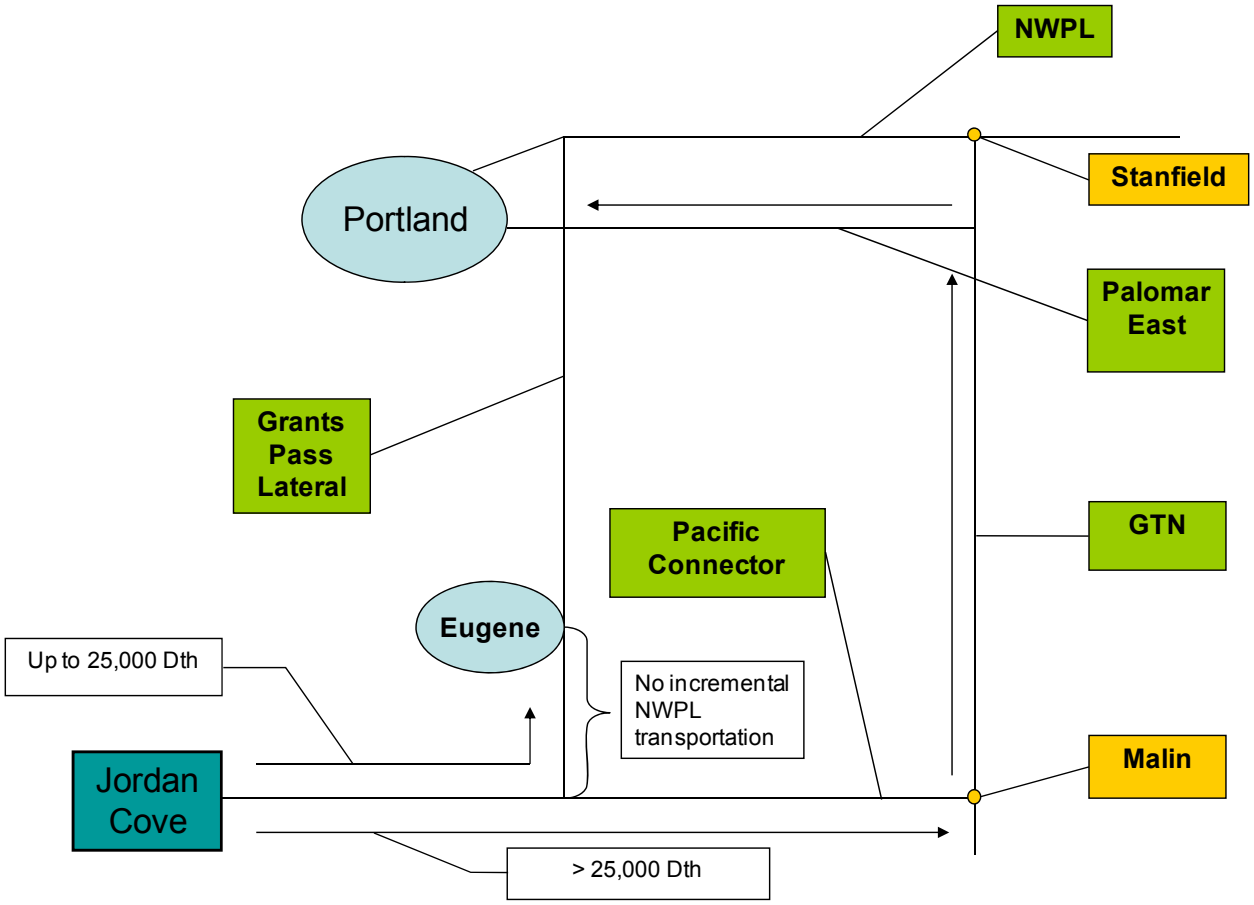


**Figure 3-5: Jordan Cove Schematic**




Stakeholders in Oregon requested that the Company review the other potential new LNG import terminal resources in the March 6, 2007 Technical Working Group meeting, and we continue to monitor all proposed import terminals. However, because NW Natural believes the costs and market impacts of Bradwood (north) and Jordan Cove (south) would be similar for other regional LNG import projects, the Company has elected not to include other proposed projects in the modeling of this IRP.

There are several economic and strategic factors favoring U.S. LNG imports. For example, LNG has the potential to put downward pressure on domestic prices and further diversify a utility's supply portfolio. NW Natural views LNG as a key resource in providing further diversification among its supply side resources. If an LNG import terminal is sited in Oregon, the Company foresees subscribing 20-25% of its supply portfolio through LNG supplies at some point in the future. With current load

hovering around 2 million therms per day, this would translate into approximately 400,000 to 500,000 therms per day of LNG.

## I. SATELLITE LNG

Some gas utilities rely on satellite LNG tanks to meet a portion of their peaking requirements. LNG facilities are used as peaking resource because they provide only a few days of deliverability. The concept is that a small tank serving a remote area would be filled with LNG as winter approaches, and the site manned during cold weather episodes when vaporization is required. Since there is no on-site liquefaction process, the facility is fairly simple in design and operation. Where peaking demands are sharpest, the addition of satellite LNG could defer significant pipeline infrastructure investments.

In recent years, control system improvements at the Newport LNG plant have improved liquefaction performance. Puget Sound Energy installed a satellite LNG facility near Gig Harbor, Washington, to help meet customer growth at the tail end of its distribution system. LNG from NW Natural was used to help fill the Gig Harbor tank, and this has renewed NW Natural's interest in evaluating this concept for remote areas where siting and zoning approvals are conceivable. In this IRP, NW Natural has evaluated satellite LNG in Willamette Valley locations near Salem, Albany, and Eugene, as interim resources that might delay the incursion of more expensive pipeline projects (see Appendix 3-2). The Company has modeled these resources as having 90,000 Dth (equivalent) of storage capacity and a maximum deliverability of 30,000 Dth/day for three days. The Company believes these are reasonable assumptions based on industry research of comparable facilities. At maximum vaporization/deliverability, this equates to a three day peaking resource.

## J. POTENTIAL FUTURE SUPPLY RESOURCES

In this section NW Natural identifies several other potential gas supply resources that could influence the design of NW Natural's future gas resource portfolio. NW Natural concludes that at this time these potential resources are not yet sufficiently well defined commercially or technically to warrant inclusion in the *SENDOUT®* model for this IRP.

***Biogas*** and the emerging underlying technology have the potential to provide a wide range of benefits far beyond further diversification of the Company's resource portfolio. Pilot projects have been launched around the country including the Pacific Northwest.

Locally, PGE has been operating a biogas program since 2002. Its facility delivers up to 70 kilowatts of renewable electricity to its customers. The technology utilized at this facility in Salem is very similar to the type of program NW Natural could potentially site at one of the other 400 dairy farms on Oregon. Furthermore, there is wide support among the Oregon Dairy Farmers of Oregon and the Oregon Department of Agriculture who see these types of programs as a strong way to help the industry, the economy and the environment.

NW Natural is in the early stages of R&D to develop an anaerobic digester gas (ADG) program. This emerging technology utilizes a five-step approach to convert animal waste into methane (natural gas) and composted soil amendment (fertilizer). While companies around the world have refined this approach, there are companies in the Pacific Northwest that offer the resources to bring such a program together. Capital expenditure requirement per site are approximately $5 million. However, the natural gas output is limited when compared to the Company's load requirements – 410,000 annual therms. The program is further enticing because of the other by-product of the process – fertilizer. While peat moss is a high-dollar market, over time it is unsustainable due to the limited supply of peat. Advocacy groups have begun to bring this issue to the forefront, and ADG provides a very appealing substitute. Regardless of who manages the program, it has the potential to offset the capital costs and provide a consistent revenue stream. The project would also eliminate the need to manage waste retention ponds, avoids contamination due to run-off, and decreases the need for commercial fertilizers. Because this resource is in the early R&D stage and given its small potential size, we have not included biogas in the *SENDOUT®* modeling for this IRP.

***Supply Basin Storage Developments.*** Capacity has been available in new and existing production area storage facilities in Alberta, British Columbia, and in the U.S. Rocky Mountain region. While NW Natural has made periodic use of these facilities (especially in Alberta) to store off-peak gas and improve supply contract load factors, there are no plans for NW Natural to become involved on a long-term equity and contractual basis with any of these facilities. The stumbling block is the upstream pipeline transportation cost required to bring these supplies to NW Natural's service area. Since the supplies would be needed during cold weather episodes, only primary firm transportation service will suffice. Consequently, having gas stored in a supply area can only advantage NW Natural if winter/summer price differences are sufficient to offset storage facility usage charges.

Assuming NW Natural continues to expand Mist, utilization of upstream pipeline capacity and year-round supply contracts should improve because storage injection requirements will grow. This will further decrease the need for supply area

storage. Due to these factors, supply basin storage will probably never be more than a year-to-year gas supply portfolio structuring option, rather than a long-term resource acquisition.

## VII. GAS SUPPLY PORTFOLIO ACQUISITION STRATEGY

### A. OVERVIEW

This section provides the Company's strategies for acquiring gas supplies as presented in NW Natural's Gas Acquisition Plan 2007-2008 ("GAP"). The GAP is the Company's most recently approved resource acquisition plan, but such plans are always subject to change based on market conditions. The primary objective of these gas acquisition plans is to ensure that supplies are sufficient to meet expected firm customer load requirements under "design" year conditions at a reasonable cost. Under other than "design" year conditions, NW Natural also expects to serve interruptible sales customers. The focus of the GAP is on the 2007-08 gas contracting year which runs from November through the following October. However, many resource decisions are of a multi-year nature. Accordingly, a 5-year horizon is used for discussion purposes in several areas of this section.

Below are excerpts from the GAP.

### B. PLAN GOALS

**Reliability**

The first priority of the Company's GAP is to ensure a gas resource portfolio that is sufficient to satisfy core customer requirements under design year weather conditions, as defined in the IRP. Trimming costs by compromising reliability is not acceptable.

**Lowest Reasonable Cost**

The second priority is to acquire gas supplies at the lowest reasonable cost to customers. In so doing, the Company takes a diversified portfolio approach with gas purchases paced during the contracting season. The Company also optimizes its gas supply resource assets using a third party marketer as well as its own staff in order to lower costs with minimal risk to stakeholders.

**Price Stability**

Customers are sensitive to price volatility in addition to the expected price level. Consequently, the Company makes use of physical assets (e.g. storage) and financial instruments (e.g. derivatives) to hedge price variability both within the contract year and up to five years.

**Cost Recovery**

NW Natural does not earn a return for acquiring and selling gas commodity supplies, yet the cost of these supplies typically amounts to more than half of the Company's total revenue stream. Consequently, the risks associated with the payment and recovery of gas acquisition costs need to be minimized. On the financial hedging side, this means strong credit policies and counterparty oversight. On the legal side, this mandates scrupulous compliance to any and all standards of conduct. And because any regulatory disallowances could be devastating, maintaining trust and credibility with state regulatory bodies is imperative.

## C. RELATIONSHIP TO THE INTEGRATED RESOURCE PLAN

The IRP contains the Company's long-range analysis of loads and resources spanning a 20-year horizon. It is prepared approximately every two years and involves considerable regulatory and public input. While the IRP focuses on identifying the best resource portfolio over the 20-year horizon, the GAP focuses on satisfying the Plan Goals in the short-term, given the existing resource portfolio. Because the IRP focuses on long-term decisions, it does not include many of the details relating to gas supply contracts, hedging, etc. that are provided in the GAP.

## D. STRATEGIES

Gas acquisition strategies based on the Company's market outlook are summarized as follows:

- Financially hedge between 35 percent and 75 percent of projected firm sales gas volumes in accordance with decisions of the NW Natural Gas Acquisition Strategy and Policies Committee.

- Shift some Alberta year-round contracts to the Rockies. Over the past several years, Rockies gas has been abundant and favorably priced compared to other

basins. The Company has maximized its purchase of Rockies gas primarily through spot purchases with a few short-term (typically winter season) contracts. However, those lower prices were caused by increased production in that region in anticipation of the Rockies Express East Pipeline. That pipeline will extend the existing Rockies Express West pipeline on to Ohio with a projected in-service date of June 2009. As that and other pipelines go into service, competition for Rockies supply will escalate. Accordingly, moving some purchases into longer-term contracts will help mitigate the volatility that is likely to increase for daily and short-term purchases. Evaluate other strategies as that and other new pipeline projects near completion and fundamentally alter the supply/demand dynamic in the Rockies.

- Fill storage at a pace that might present opportunities to purchase gas at times when storage around the country is likely to be full and a price drop could occur.

- Maintain a diversity of physical supplies from Alberta, British Columbia and Rockies.

- Due to its relative lack of trading liquidity, continue to baseload virtually all pipeline capacity from the Station 2 trading point in British Columbia with a mix of seasonal, annual and multi-year commitments.

## E. MARKET OUTLOOK

The historic high differential in price between the Rockies and the eastern U.S. is narrowing as new pipelines such as the Rockies Express enable more access to supplies in the Rockies. At the same time, Rockies producers will drill more vigorously to find production to fill the new pipelines. A parallel situation existed in the early 1990s prior to the construction of the Kern River Pipeline.

Despite high drilling activity, lower production per well and high depletion rates have kept recent domestic gas production increases at about two percent while power generation demand for gas continues to grow.[18] The debate over pipelines from the Arctic Circle may be resolved, but it is uncertain whether or not the pipelines will be in service in this time frame. This assumption is consistent with the Wood Mackenzie reports. If the Mackenzie Delta pipeline is built, all of its gas deliveries are likely to be consumed in northern Alberta for oil-sands production.

18 "November Monthly Market Report," Wood Mackenzie North American Gas Service, November 21, 2007.

LNG will provide additional supplies, nudging prices down to stem demand destruction. The implementation of new technologies, spurred by high energy prices, will enable continued GNP growth without an associated increase in energy usage. If not through better technology, then an economic recession such as occurred after the 2000-2001 energy crisis (and the September 11 disaster, Enron bankruptcy, etc.) will be the other means for a demand response to manifest itself. In either case, demand will grow modestly at best, keeping gas prices in check overall but with wide volatility as weather systems, terrorist acts and other events both local and global affect markets.

Pipeline de-contracting could pose a major concern in the Pacific Northwest. Decisions by shippers not to renew pipeline capacity contracts with Gas Transmission Northwest (GTN) led to a major rate increase on that system in 2007. Projects such as the Ruby Pipeline and Jordan Cove LNG terminal create additional opportunities for decontracting on GTN and other pipeline systems. However, recent long-term contract renewals on the Northwest Pipeline system in February 2008 may be the first signal that this trend is easing. The March 2008 announcement of the NWPL/GTN Sunstone pipeline project could even reverse this trend (i.e., lead to the resubscription of currently unutilized pipeline capacity, if that project is successful).

In light of the above, hedging will continue to be an important and necessary tool to manage volatility. Physical hedging through storage will only grow in importance, especially if pipeline rates increase to cover a shrinking customer base. Diversity among supply basins will also continue to be important if Rockies supplies find new outlets to the East and price differentials evaporate.

NW Natural has tested the impacts of a number of alternative outlooks, including, but not limited to: high and low demand and price scenarios; significant economic recession and decline in customer growth; the introduction of LNG into the region; significant increases in the rates of certain pipelines; and the stochastic analysis as explained in chapter 5.

## VIII. EMERGENCY PLANNING

NW Natural uses Incident Command System (ICS) as its emergency response methodology. The Northwest Natural Incident Management System Plan (IMSP) documents the ICS concept and the responsibilities of those individuals responding to an emergency incident. In addition, this plan provides response alternatives and resource material for a variety of possible emergency events.

This plan is written and maintained by the Business Continuity and Corporate Security Department. Responsibility for planning and coordinating the actions of field and office personnel during emergencies such as floods, earthquakes, pandemics, or severe cold weather is designated to the Incident Command Team. The Operations section of that team is prepared to take whatever actions are needed to prevent or minimize firm curtailments of service. This includes the operation of regulators to boost pressures, the installation of pipe to tie together sections of NW Natural's distribution system, the dispatching of mobile CNG and LNG tankers to handle distribution system trouble spots, curtailment notices to interruptible customers, shut-offs and light-ups of firm customers, and public announcements to reduce gas usage.

The Incident Command Team (ICT) conducts periodic exercises to ensure the readiness of the team and gain experience in ICS techniques. One of the most visible uses of ICS occurred during the Y2K rollover transition period. The Company utilized Y2K as both a potential threat and an opportunity for a corporate-wide emergency readiness exercise, with over 300 employees involved in the process. More recent examples include: managing two pre-planned and one unexpected outage of the electrical power at NW Natural's corporate headquarters; response to a pipeline breach in one of Portland's largest transportation transfer hubs; and the re-light of hundreds of customers on the Central Oregon Coast due to a landslide.

As previously described, the Company designs its resource portfolio to satisfy firm loads on the coldest-weather day and through the most strenuous heating season (as measured by HDDs) experienced during the past 20 years. However, these assumptions do not always hold true. First, design weather may not be the coldest faced by the Company. There certainly have been colder heating seasons if a longer historical perspective is taken, such as occurred in 1949/50. Second, the IRP assumes perfect foresight of the weather. This may not be important for storage supplies, which can respond to load changes very quickly, but all other supplies require some amount of prior notice for scheduling. This ranges from two hours for curtailment of interruptible sales, to a day for the transportation of most pipeline gas and the use of special industrial customer capacity/supply recall arrangements. Finally, the IRP assumes reliable equipment behavior; i.e., nothing breaks or freezes up, even in the face of extremely cold temperatures.

Accordingly, the ICT has to contend with the failure of any or all of the above assumptions in addition to the stresses on the system caused by the emergency itself. NW Natural's ultimate goal is an emergency management system that will allow for the continued delivery and/or restoration of gas during an emergent event in a safe and efficient manner. NW Natural cannot guarantee uninterrupted service at all times to all customers, but the IC Team works to make customer outages during emergency

events as brief and painless as possible, with public health and safety being the ultimate priority.

## IX. KEY FINDINGS

- For this planning cycle, the Company's gas supply procurement strategy will rely on the transportation of supplies priced at negotiated rates that will follow market prices on an annual, seasonal, or monthly basis.

- A portfolio of fixed price supplies ranging three years from the current period is desirable because it dampens volatility and assures more stable pricing for customers. The three year limit could be extended if deemed desirable and if counterparties are found who meet risk and credit standards.

- The Company's service territory is widespread and it is not practical to consider tying together all of NW Natural's customers into a single integrated distribution system. Accordingly, some amount of incremental upstream pipeline capacity may be needed throughout the forecast period to serve one or more portions of the Company's system. Conversely, as the cost of upstream pipeline expansions increase, it may be cost-effective for NW Natural to remove bottlenecks and more fully integrate certain portions of its own distribution system.

- As a single interstate pipeline utility with two-thirds of its supply flowing through Oregon's Columbia Gorge, NW Natural seeks cost-effective resource options to improve supply path diversity, and is assessing the Palomar Pipeline project in this IRP.

- In this IRP, NW Natural is considering a variety of incremental gas supply resource options to serve projected load over the forecast period, including new interstate pipeline capacity, Mist recall capacity, expansion/extension of the Company's distribution system, contracting for supply from proposed new LNG import terminals, and satellite LNG.

# CHAPTER 4: DEMAND-SIDE RESOURCES

## Table of Contents

## I. ENERGY EFFICIENCY OVERVIEW

NW Natural values energy efficiency (EE) services. As NW Natural strives to make environmentally responsible choices and asserts itself as an environmentally conscious community leader, promoting EE is the most immediate and material means available to a gas utility for reducing its carbon footprint. The Company also acknowledges that EE creates customer satisfaction and earns customer loyalty. Over the past 7 years, the Company's EE efforts have mitigated the sharp rise of gas commodity costs for program participants. This chapter demonstrates the amount of demand side management (DSM) resources identified by the Company. In addition, this chapter described the Company's plans to seek to acquire cost-effective DSM resources.

This Integrated Resource Plan (IRP) also meets the new guidelines established by the Oregon Public Utility Commission in Docket UM 1056, Order No. 07-047 (Feb. 9, 2007) regarding the assessment of demand-side resources and its inclusion in the Company's resource portfolio. Those guidelines addressed in this chapter include:

*Guideline 4(e): Identification and estimated costs of all supply-side and demand-side resource options, taking into account anticipated advances in technology.*

*Guideline 6(a): Each utility should ensure that a conservation potential study is conducted periodically for its entire service territory.*

*Guideline 6(b): 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.*

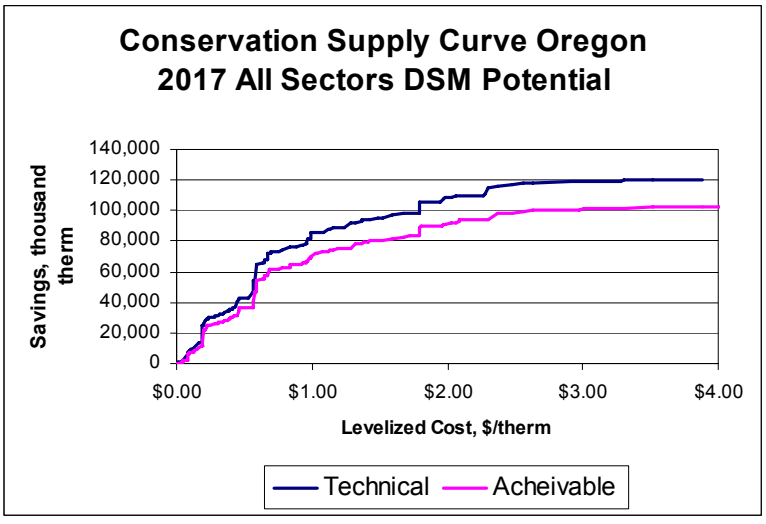
*Guideline 7: Plans should evaluate demand response resources, including voluntary rate programs, on par with other options for meeting…gas supply and transportation needs.*

## II. METHODOLOGY – ENERGY EFFICIENCY

NW Natural contracted with Stellar Processes to analyze the potential energy savings it can cost-effectively procure within its service territory. The Stellar Processes study began by estimating all energy savings that could be acquired without considering market constraints such as customer awareness. This was determined by analyzing customer demographics together with energy efficiency measure data as follows:

Information on demand side resource options was compiled from various local, regional and national sources. The measures that are marketable within NW Natural's service territory were identified through a demographical study of customer specific information such as historical gas usage, appliance holdings, and forecast economic growth. A levelized societal program cost ("levelized program cost") was then assigned to each efficiency measure based on the measure's projected therm savings, installation cost, and the present value of O&M cost less any non-energy offsetting benefit using the Company's real after-tax discount rate of 5.16%. The derivation of this discount rate is provided in Appendix 6-3. Levelized program costs provide a simple standard for comparing program options and conservation strategies. Levelized program costs also allow the Company to graphically demonstrate the potential therms that could be saved at various costs. Below is a resource supply curve that is useful for comparing demand side and supply side resource options. (Please note that Figure 4-1 depicts the year 2017 for demonstrative purposes only; all twenty years of the IRP planning horizon were included in NW Natural's resource assessment.)

**Figure 4-1: Natural Gas Supply Curve**




The supply curve method is necessarily crude, as the estimated DSM measure costs and savings are based on averages and are not adjusted for site specific cost effective deviations.

Stellar Processes identified individual cost-effective DSM measures by comparing each measure's levelized program cost with its expected levelized avoided cost adjusted for each measure's lifetime and load factor. This measure specific levelized avoided cost or Screening Cost was determined by taking the present value of either annual winter or year-round average (depending on load factor) avoided cost estimates over the DSM measure's life. As with levelized program cost estimates, avoided costs are discounted at the Company's real after-tax discount rate of 5.16 percent. For each DSM measure, two sets of screening costs were developed for (1) the Base Case avoided cost forecast and (2) the High Commodity Price avoided cost sensitivity. Both avoided cost scenarios include a $0.099 per therm adder for environmental externalities. The High Commodity Price avoided cost sensitivity reflects a 20 percent increase over the Company's high case natural gas commodity price forecast and is approximately 18 percent greater than the Base Case avoided cost forecast. This sensitivity was developed to simulate a decline in future North American natural gas supply. Avoided cost forecasts for the Base Case and High Commodity Price sensitivity are discussed in Chapter 6.[1]

The technical DSM potential is the sum of all cost effective DSM measures identified in the resource assessment over the twenty year planning period. This total is a rough snapshot of all EE that could be done in the area. It is a starting point since getting each customer to install every possible measure is not possible.

Achievable potential represents a more realistic assessment of expected energy savings, because it accounts for some economic constraints. Stellar Processes estimated achievable potential by multiplying technical savings by 85%, a standard established by the Northwest Power Planning Council. From the resulting achievable potential, Stellar Processes worked with the Energy Trust of Oregon (Energy Trust) to estimate attainable program ramp-up rates that consider marketing, technology delivery channels, and other program constraints. Stellar Processes then developed a 20-year DSM deployment scenario with year-by-year achievable savings, annual utility and societal costs for both the Base Case, and High Commodity Price sensitivity based on the following assumptions:

- DSM measures were bundled into logical combinations based on program delivery opportunities. For example, programs are bundled for new construction, end-of-life equipment replacement and retrofitting of existing facilities.
- Replacement measures were included where practical, as these are generally more cost effective than retrofit measures. To avoid double-counting, retrofits were constrained to measures where the forecasted stream of avoided costs presented in Chapter 6 only extends for the 20-year IRP planning horizon. For measures that extend beyond this 20-year period, Stellar Processes assumed

[1] The forecasted stream of avoided costs presented in Chapter 6 only extends for the 20-year IRP planning horizon. For measures that extend beyond this 20-year period, Stellar Processes assumed that avoided costs continue at a flat rate for the remaining years. This is a conservative assumption. However, with discounting, the present value of avoided costs is not sensitive to assumptions regarding the out years at the end of the planning scenario.

that avoided costs continue at a flat rate for the remaining years. This is a conservative assumption. However, with discounting, the present value of avoided costs is not sensitive to assumptions regarding the out years at the end of the planning scenario where replacement options are not available.

- Annual DSM amounts include new construction and replacement of existing equipment as it occurs.
- Retrofit programs are fully deployed in 13 to 14 years. The target population for retrofits is slightly smaller in later years due to market attrition.
- For conservation measures with lifetimes less than the planning horizon, owners were assumed to replace to the same efficiency level.
- Annual utility cost estimates assume 22% of initial capital cost for incentives plus an additional 66% for program management, administration and marketing. These are the Energy Trust's current estimates. High program administration costs reflect an aggressive DSM program deployment scenario.

## III. ENERGY EFFICIENCY STUDY RESULTS

The Screening Costs for all identified DSM measures range from $0.80 per therm to $0.97 per therm for the Base Case. This range increases to $0.94 to $1.13 for the High Commodity Price avoided cost sensitivity screening The low end of the Screening Cost range reflects measures such as residential water heating with year-round consumption and a 10-year measure life. Space heating measures with a 30-year life are at the high end.

Marginal, non-cost-effective DSM measures available in the Company's Oregon and Washington service territories are shown in Table 4-1 below. The levelized program costs for these measures slightly exceed their screening costs and are listed by their ascending difference between levelized program cost and screening cost. Screening costs for both Base Case avoided cost and High Commodity Price sensitivity are shown below with annual volume impacts assuming full deployment. Screening by the High Commodity Price avoided cost sensitivity results in only three additional cost effective DSM measures than in the Base Case.

**Table 4-1**
**DSM Measures Beyond Marginal Cost**

| DSM Program | Measure Description | Annual Gas Impacts (kTherms) | Levelized Cost ($/therm) | Screening Cost ($/therm) | |
|---|---|---|---|---|---|
| | | | | Base Case | High Commodity Sensitivity |
| Commercial Replace | Windows - Tinted AL Code to Class 40 | 167 | $0.956 | $0.844 | passes |
| Commercial Retrofit | DHW Recirc Controls | 373 | $0.936 | $0.796 | passes |
| Commercial Retrofit | Duct retrofit of both insulation and air sealing | 334 | $0.971 | $0.872 | passes |
| Commercial Replace | Windows - Tinted AL Code to Class 45 | 383 | $0.999 | $0.844 | $0.995 |
| Commercial Replace | DHW Cond Boiler (repl) | 28 | $1.0000 | $0.844 | $0.995 |
| Commercial Replace | Roof Insulation - Roofcut 0-22 | 1 | $1.1622 | $0.965 | $1.127 |
| Commercial New | HVAC controls | 2,777 | $0.9787 | $0.785 | $0.919 |
| Commercial New | Computerized Water Heater Control | 77 | $1.0420 | $0.815 | $0.962 |
| Commercial New | HiEff Clothes Washer | 95 | $1.0729 | $0.796 | $0.939 |
| Residential Retrofit | Window upgrade (U=.35), Zone 1 | 79 | $1.309 | $0.997 | $1.163 |
| Commercial Replace | HiEff Clothes Washer | 363 | $1.0887 | $0.796 | $0.939 |
| Commercial Replace | Windows - Add Argon to Vinyl Lowe | 144 | $1.2382 | $0.909 | $1.063 |
| Commercial New | Windows - Tinted AL Code to Class 40 | 17 | $1.2394 | $0.909 | $1.063 |
| Commercial Retrofit | Steam Trap Maintenance | 60 | $1.1865 | $0.846 | $0.989 |
| Commercial New | Cond Unit Heater From Power Draft (new) | 343 | $1.2892 | $0.891 | $1.043 |
| Commercial New | Windows - Tinted AL Code to Class 45 | 3 | $1.3881 | $0.909 | $1.063 |
| Commercial New | Cond Furnace (new) | 351 | $1.3751 | $0.891 | $1.043 |
| Commercial Replace | Cond Unit Heater from power draft (replace) | 685 | $1.3868 | $0.891 | $1.043 |
| Commercial New | Windows - Add Argon to Vinyl Lowe | 70 | $1.4300 | $0.909 | $1.063 |
| Residential New | HRV, E* (Zone 1) | 3,020 | $1.542 | $0.997 | $1.163 |
| Residential New | Heating upgrade (AFUE 90) (Zone1) | 1,769 | $1.758 | $0.982 | $1.146 |

The current avoided cost estimates include a $0.099 per therm environmental externality adder in the amount of $15 per ton for $CO_2$ and $2,000 per ton for NOx. If the Company were to assume a greater level of environmental adders, such as those alternatives shown in Table 6-2, several of the marginal non-cost-effective measures shown in Table 4-1 would become cost-effective. In addition, Stellar Processes notes that these measures might still be pursued in order to develop thorough program offerings to achieve market transformations or for other reasons related to program deployment. For example, commercial HVAC controls fails to meet the revised cost screen yet it has a fairly large potential savings. This measure was evaluated conservatively as having a short measure life due to the uncertainty of customer operations. However, training and on-going facility commissioning might address this issue in the future, making HVAC controls a cost effective piece in a program bundle.

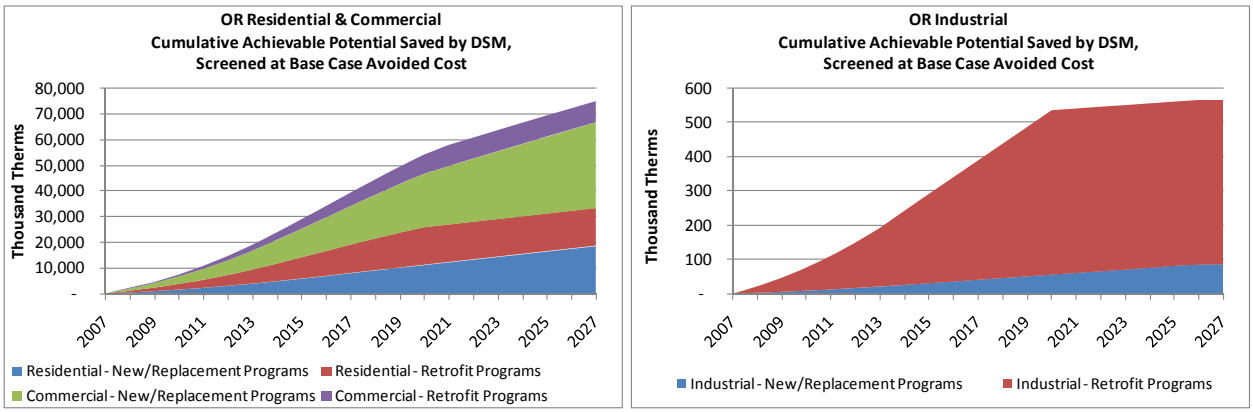
## A. OREGON – BASE CASE

The Stellar Processes study evaluated achievable energy efficiency potential for residential, commercial and firm industrial sales customers in Oregon. The Base Case study results identified the following:

- Cumulative achievable savings for residential and commercial EE programs in Oregon could reduce consumption by approximately 60 million therms by 2022 and approximately 75 million therms by 2028.
- For 2008, approximately 2.3 million therms of potential energy savings could be cost-effectively attained from residential and commercial EE programs in Oregon with funding of approximately $7.4 million per year.
- For 2008, approximately 22 thousand therms of potential energy savings could be cost-effectively attained from firm industrial sales EE programs in Oregon with funding of approximately $22 thousand per year. Cumulative achievable savings for firm industrial sales EE programs in Oregon could reduce consumption by approximately 540 thousand therms by 2022 and approximately 570 thousand therms by 2028. Firm industrial sales EE potential is significantly less compared to EE potential for the residential and commercial sectors, because most large industrial customers are non-core transportation customers and are not included in either the Stellar Processes study or this IRP as the Company does not supply gas to these customers.

Figure 4-2 below illustrates achievable potential savings per customer class in Oregon with cost-effective screening at Base Case avoided cost. More detailed information on the Oregon DSM deployment scenario is presented in tabular form in Appendix 4-2.

**Figure 4-2**




Annual utility and societal program costs are shown in Figures 4-3 and 4-4 below. The sudden drop in cost around 2021 reflects the end of the retrofit programs. Stellar Processes' deployment scenario assumes all applicable retrofit measures fall into a 13

to 14 year program. After 14 years, the deployment scenario assumes that the opportunity to retrofit existing stock is gone and the retrofit program ends. In contrast, the new/replacement programs are assumed to continue at an equal rate every year after the initial ramp-up.

**Figure 4-3**

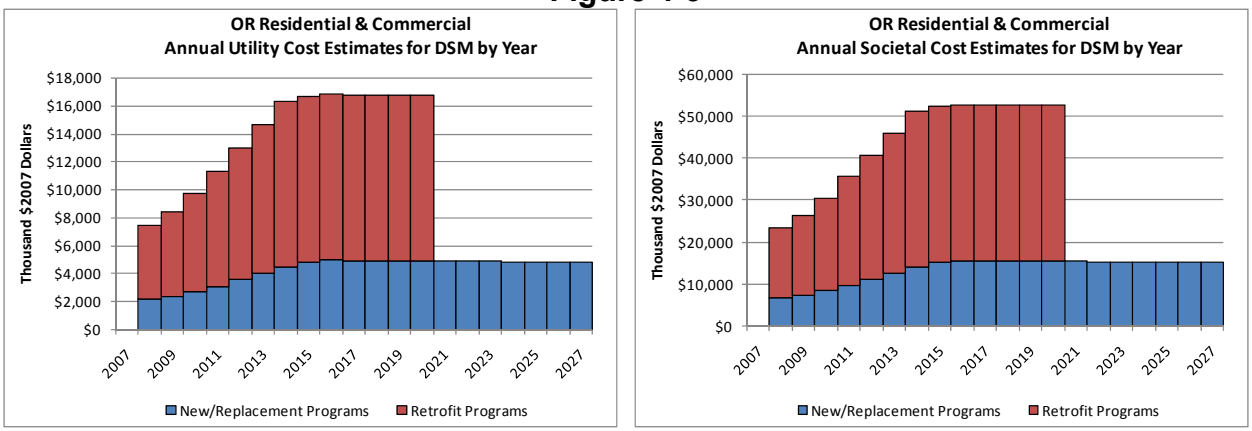
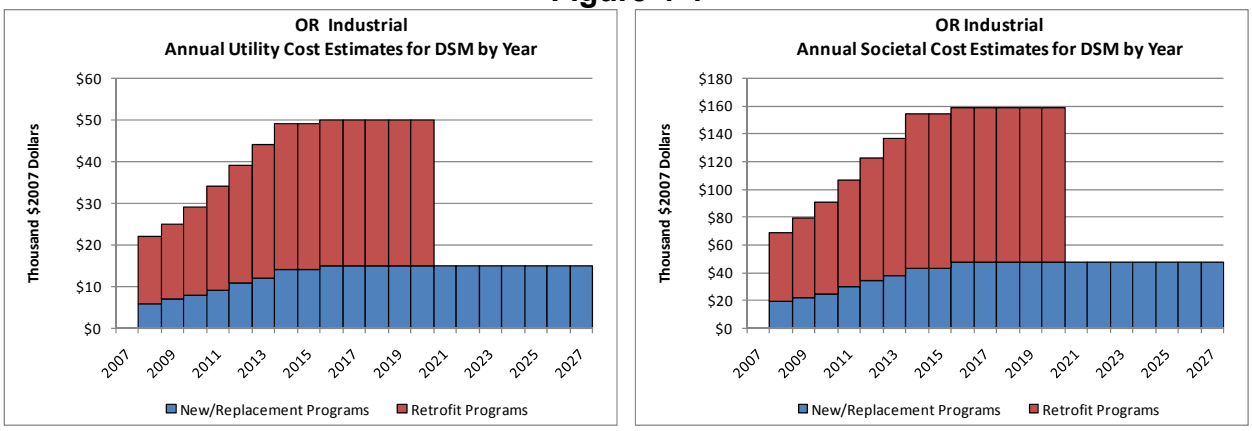



**Figure 4-4**




## B. WASHINGTON – BASE CASE

The Stellar Processes study evaluated achievable energy efficiency potential for residential and commercial customers in Washington, but did not include EE potential for firm industrial customers. However, Washington is unlike Oregon in that NW Natural does not have a contractor in place to obtain these EE resources. Annual utility cost estimates for Washington programs were based on the Energy Trust's estimated program costs used for the Oregon assessment. The actual cost to NW Natural for such programs would likely be far higher if NW Natural could not rely on the economies of scale gained by using the Energy Trust. The Company is currently investigating the possibility of bringing the Energy Trust into Washington as part of a

new conservation program that would be established in conjunction with a decoupling mechanism. Please see UG-080546 for more information about this proposal.

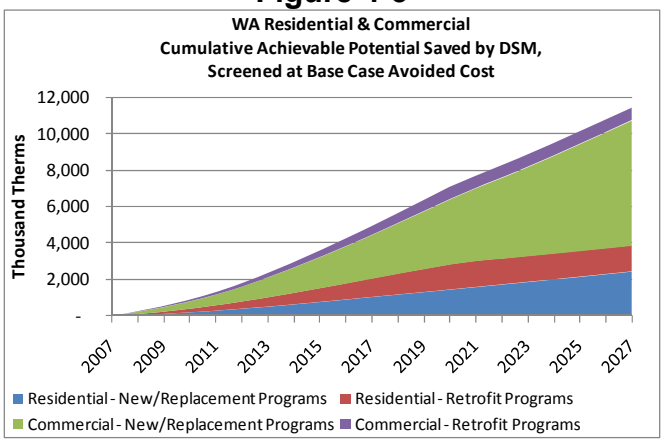
The Stellar Processes Base Case study identified the following:

- The 20 year cumulative achievable savings in Washington is 11 million therms.
- For 2008, approximately 250 thousand therms of potential energy savings could be cost-effectively attained from residential and commercial EE programs with funding of approximately $500 thousand per year.
- Washington's greatest EE potential is in residential and commercial new construction. Opportunities to improve efficiency during construction include installing insulation with high R-values, efficient windows, proper duct sealing, higher efficiency furnaces and heat recovery ventilation.

While a detailed study of EE potential for Washington-based firm industrial sales customers has not been performed, NW Natural expects the potential savings to be minimal based on the limited EE potential found for Oregon-based firm industrial sales customers. NW Natural has approximately only 30 firm industrial sales customers in its Washington service territory, compared to approximately 590 firm industrial sales customers in Oregon.

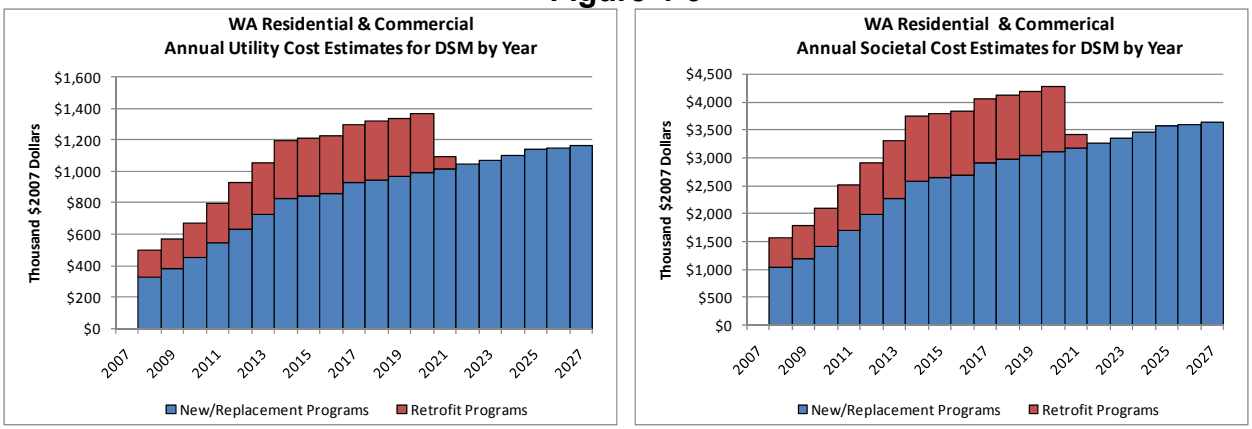
Figure 4-4 below illustrates the achievable potential DSM savings in Washington with cost-effective screening at Base Case avoided cost levels. More detail on the Washington DSM deployment scenario is presented in Appendix 4-2.

**Figure 4-5**




Annual utility and societal program costs are shown in Figure 4-6 below. As with the graphs of Oregon deployment scenario (Figures 4-3 and 4-4), the sudden drop in cost in 2022 assumes the majority of potential retrofit projects available in 2008 will have been completed by 2012.

**Figure 4-6**




## C. HIGH COMMODITY PRICE SENSITIVITY

The High Commodity Price avoided cost sensitivity is approximately 18 percent greater than the Base Case avoided cost forecast, but the study using this number resulted in only three additional cost effective DSM measures than the Base Case study. These three measures are the Commercial installations identified in Table 4-2 below.

**Table 4-2**
**Additional Cost-Effective Measures**
**Screening by High Commodity Price Avoided Cost**

| DSM Program | Measure Description | Annual Gas Impacts (kTherms) |
|---|---|---|
| Commercial Replace | Windows - Tinted AL Code to Class 40 | 167 |
| Commercial Retrofit | DHW Recirc Controls | 373 |
| Commercial Retrofit | Duct retrofit of both insulation and air sealing | 334 |
| Total | | 874 |

The High Commodity Price DSM deployment scenario results in a modest 1.6 percent increase in 2028 system-wide cumulative achievable therm savings as compared to the Base Case estimate of 87 to 88.4 million therms.

- The cumulative achievable savings for residential and commercial EE programs by 2028 in Oregon increased from the Base Case estimate of 75 million therms to 76 million therms, while achievable saving estimates for Oregon industrial EE programs remained unchanged.
- The cumulative achievable savings for residential and commercial EE programs by 2028 in Washington increased by 4 percent from the Base Case estimate of 11.4 million therms to 11.8 million therms.

The High Commodity Price DSM deployment scenario requires more funding than the Base Case with the present value of 20-year DSM program utility costs increasing by 15 percent over the Base Case DSM deployment scenario. While the

High Commodity Price DSM deployment scenario does not reflect a significant increase over the Base Case in projected achievable therm savings, the 20-year DSM Program utility costs on a per therm basis increased by 13 percent from $1.84/therm to $2.08/therm. More detail on the Oregon and Washington High Commodity Price DSM deployment scenario is presented in Appendix 4-3 and 4-4, respectively.

## IV. EVALUATION OF ACHIEVABLE DSM PROGRAMS IN *SENDOUT®*

Stellar Processes' deployment scenario was then evaluated within the *SENDOUT®* model, which determines the optimal resource portfolio necessary to meet both base and heat sensitive load. During that process, the DSM savings were adjusted to more extreme weather conditions to create a more realistic and dynamic evaluation. New construction and replacement programs were designated as "must take" because the opportunity to save therms is lost if these measures are not implemented as they occur. "Must take" programs were inputed as mandatory in *SENDOUT®* meaning "must takes" were automatically implemented and their savings were reduced from demand. Retrofit programs were designated as "discretionary" and evaluated in *SENDOUT®* against other supply-side resources. *SENDOUT®* then sized the implementation percentage for each discretionary DSM program based on levelized costs. Demand was further reduced for savings obtained from cost effective discretionary DSM.

For the Company's Base Case and all sensitivities with the exception of the two low price sensitivities[2] presented in Chapter 5, the Resource Mix functionality of *SENDOUT®* selected all available Oregon and Washington discretionary programs at 100% participation. Since the DSM programs with the highest average levelized program cost are discretionary programs (i.e. Retrofit HVAC program), the *SENDOUT®* results confirm that all Oregon and Washington DSM programs identified by Stellar Processes as achievable are indeed cost-effective compared against the Company's other resource supply options. The evaluation of DSM in *SENDOUT®* and associated results are discussed in more detail in Chapter 5.

## V. FUNDING AND PROGRAM DELIVERY

### A. OREGON

As stipulated in OPUC Order No. 02-634, NW Natural collects a public purpose charge from its residential and commercial customers for conservation as a companion to its decoupling adjustment. The public purpose charge amounts to 1.5 percent of the total revenue billed to residential and commercial customers. 1.25

[2] For the two low price sensitivities (i.e. Sensitivity 1: High Demand/Low Price Scenario with Mist Expansion and Sensitivity 4: Low Demand/Low Price Scenario), the Resource Mix functionality of *SENDOUT®* did not select Commercial Conversion Discretionary DSM programs specifically in the Dalles (OR) geographic region for some years.

percent provides energy efficiency programs. The remaining 0.25 percent funds the Company-administered Low-Income Weatherization programs.

Also, as stipulated in Article IV of the same order, NW Natural transferred the administrative responsibility of the EE programs funded through the public purpose charge to the Energy Trust of Oregon (Energy Trust). The Energy Trust is a non-profit organization established to provide energy efficiency services and a renewable energy program to Oregon investor-owned electric utility customers. Since its inception, the Energy Trust has grown from serving only electric customers to serving 70% of all electric customers in Oregon as well as all of Oregon's gas customers.

While working with the Energy Trust was a stipulated condition stemming from the decoupling proceeding (UG 143), NW Natural saw this as a good fit because of the Energy Trust's experience administering electric energy efficiency for PGE and Pacific Power. Further, NW Natural recognizes the benefits of combining program delivery to gas and electric customers. NW Natural further acknowledges the benefits derived from the OPUCs oversight of the Energy Trust.

Since the Energy Trust began administrating NW Natural's energy efficiency programs in 2002, collections have exceeded program expenditures. This is not unusual since energy efficiency programs require a ramping up period. It takes time to educate customers on efficiency, available incentives and efficient heating or other appliance options. Program spending in 2007 was $9.1 million, which was approximately $500,000 less than actual collections. 2008 collection may increase if the customer base or rates increase. As of 2008, The Energy Trust expects to fully spend NW Natural's forecasted collections, and begin to spend down the surplus funds from prior years.

In 2008, the Energy Trust has set a goal of acquiring 2.2 million therms in savings. Funding to reach this goal has been budgeted at approximately $11 million, which includes the forecasted $8.5 million to be collected through the Public Purpose funds and approximately half of the surplus funds. In 2009, the Energy Trust has established a goal of obtaining 2.5 million therms, and has budgeted approximately $11.8 million (including $3.5 million of the remaining $5 million from the surplus funds) to obtain this goal. Because the Energy Trust has estimated that the remaining surplus will be spent in 2009, NW Natural anticipates a need to raise the public purpose funding levels in 2010 to meet Energy Trust therm savings goals.

Order No. 05-964 states,

> NW Natural must include a full assessment of cost-effective DSM potential in its service territory over the 20-year planning period. The plan should also evaluate whether the public purpose charges for energy efficiency and low-income energy efficiency programs are set at reasonable levels or should be modified.

Based on the results of this resource assessment, the Company has determined that the Public Purpose Charge is appropriately set at this time. The Company and the Energy Trust are committed to aggressive acquisition of cost effective EE and market transformation as identified in the resource assessment. As such, the Company will re-evaluate the sufficiency of its Oregon public purpose funding levels in its next IRP.

Current public purpose charge collections do not apply to industrial customers. Commission Order No. 05-934, which updated the Commission's Order No. 02-634, states,

> The current stipulation makes it clear that these same industrial customers will not be eligible for Energy Trust Funding for natural gas related conservation and efficiency programs. We agree that if the industrial customers are not contributing money, they should not participate. (Page 2)

While Stellar Processes' study provides a rudimentary estimate of EE potential for NW Natural's Oregon industrial customers, NW Natural does not currently have a funding mechanism in place to recover costs for such a program. NW Natural is currently studying potential funding mechanisms that will not violate the stipulated agreement that is part of Order No. 05-934 or other Commission rules and policies. NW Natural plans to hold a meeting for interested stakeholders to discuss an appropriate funding mechanism.

### B. WASHINGTON

Historically, NW Natural has had a limited energy efficiency program in Washington that included both home weatherization programs and furnace efficiency programs. In March of 2007, however, NW Natural cancelled its home weatherization program due to lack of interest and low overall demand for home treatments. Historically the program experienced approximately 50 audits per year as compared to the furnace efficiency program, which delivers approximately 350 audits per year. In 2005 and 2006 the Company performed 71 and 50 audits, respectively. However, these audits yielded only five home treatments in 2005, and seven in 2006. The Company believes improvement is possible. The first step is for the Company to seek approval of a decoupling mechanism in its 2008 rate case. Without this, energy efficiency threatens the Company's recovery of its fixed costs. When this issue of lost revenue is addressed, the Company would like to then model its funding mechanism and the Energy Trust's administration of DSM programs in Washington. Please see UG-080546 for more details about the Company's decoupling and conversation program proposals.

## VI. LOW-INCOME WEATHERIZATION IN OREGON AND WASHINGTON

Since the early 1980s, NW Natural has endeavored to assist its low income customers with the cost of keeping warm by offering them special

weatherization services. Like the electric utilities, the Company has worked closely with county-based Community Action Agencies (CAA) to deliver low-income weatherization. Unlike the electrics, NW Natural remains responsible for administering the low-income programs.

Low Income Weatherization is not studied as a least cost supply option. While it helps reduce heating bills for participants and provides a value to all rate payers through reduced arrearages, the Company works with interested parties in determining the appropriate level of low income weatherization. A brief summary of NW Natural's offerings is listed below by state:

## D. OREGON

NW Natural's Oregon Low Income Energy Efficiency (OILEE) program underwent significant changes in 2007, and NW Natural is anticipating serving its low income customers more efficiently and effectively in the years to come.

### 1. OLIEE Program Evaluation

In keeping with its tariff requirements to perform periodic evaluations of its OLIEE program, in 2006, NW Natural completed an evaluation of its existing OLIEE program with the assistance of Forefront Economics of Beaverton, Oregon.

Key findings of the study included:

- The average participant saves 115 therms annually ($149 a year at current rates).
- The program reduced gas usage by 18 percent.
- Verified savings are 77 percent of expected savings (115 therms compared to 149 therms).
- From a Total Resource Cost (TRC) perspective the program almost breaks even. This means that the therms saved from the program are as expensive as a supply side resources (TRC benefit-cost ratio of 0.97).
- OILEE participants undeniably benefit from the program.

In future OLIEE evaluations the Company plans to include public input on research process and design issues to provide outside stakeholders with the opportunity to provide input on the process.

### 2. Changes in 2007

Compared to the electric utilities, NW Natural's low income program has had less funding because the Company's lower avoided

costs means program expenditures exceed their cost effective limit at a lower dollar level. Over time, a significant amount of NW Natural's low income weatherization funds remained unspent and accumulated. In 2007, NW Natural developed a two-part plan to:

a) Make serving low-income gas customers as compensatory as serving low-income electric customers, and

b) Spend down the accumulated funding through a one-time, temporary program of accelerated low income weatherization.

First, in 2007 the Company worked with interested parties to improve the OLIEE CAP program (CAP). On July 30, 2007, NW Natural filed with the OPUC a memorandum of understanding (MOU) that included as signatories: OPUC Staff, the Community Action Directors of Oregon (CADO) and the Citizens' Utility Board (CUB). This MOU describes a creative approach that allows agencies to be reimbursed for 90 percent of their actual cost of weatherizing qualifying homes. Additionally, the MOU provides agencies the opportunity to use funding for health and safety measures that do not save energy directly but enhance the overall safety and effectiveness of the actual installations. Finally, the plan requires the agencies to collectively weatherize a prescribed number of homes each of the three years in the pilot.

Second, the plan also addresses the present funding accumulation. While the Company maintains that the recommendations above can accelerate the CAA's use of funding, it is unlikely that the CAA has the ability to use the accumulated funding in the near to mid-term. Therefore, NW Natural hired Ecos Consulting to address the accumulated funding issue. This particular OLIEE program is known is an Open Solicitation Program (OSP) and is designed to cost-effectively and quickly install several major energy efficiency measures in 825 low income homes.

## E. WASHINGTON

Following the completion of the Company's last Washington general rate case in 2004, the WUTC authorized the NW Natural's administration of low-income weatherization programs. The Company recovers the funds distributed to CAAs through deferral accounting included in the Company's PGA mechanism. NW Natural expects expenditure levels in Washington to amount to approximately $0.1 million per year.

## VII. OTHER DEMAND-SIDE MANAGEMENT CONSIDERATIONS

### A. LOAD MANAGEMENT AND DEMAND RESPONSE

Demand response reduces system load requirements during periods of high demand and system stress. Due to previous severe disruptions in the western electric energy markets, demand response programs were largely developed to correct market failures in deregulated electric energy markets. Demand response encompasses a number of activities including real time pricing, time-of-use rates, critical-peak pricing, demand buyback, interruptible rates and direct load controls. To varying degrees, NW Natural manages peak demands using several of these techniques.

On NW Natural's system, customers taking service on interruptible rates represent approximately 42 percent of annual throughput. This includes interruptible sales service, interruptible transportation service and firm service on our system transportation service. Large volume customers gravitate towards interruptible service because of the low distribution margin.

The Federal Energy Regulatory Commission (FERC) pricing policies for interstate pipeline service influence the loads NW Natural serves. The straight fixed variable pricing of pipeline capacity creates an incentive for the Company to encourage gas use by high load factor customers and discourage low load factor use.

## VIII. KEY FINDINGS

- In Oregon, the Base Case DSM resource assessment identified annual savings of approximately 2.3 million therms that could be cost-effectively attained from residential and commercial EE programs with funding of approximately $7.4 million per year. Cumulative achievable savings for Oregon's residential and commercial EE programs could reduce consumption by approximately 60 million therms by 2022 and approximately 75 million therms by 2028.

- The resource assessment identified annual savings of approximately 22 thousand therms that could be cost-effectively attained from Oregon's firm industrial sales customers. The cost for these saving is approximately $22 thousand per year.

- In Washington, the resource assessment determined that approximately 250 thousand therms of potential energy savings could be cost-effectively attained from residential and commercial EE programs for approximately $500 thousand per year, if the Company were able to achieve program

costs in line with Oregon's program costs. Cumulative achievable savings for Washington's residential and commercial EE programs could reduce consumption by approximately 7.6 million therms by 2022 and approximately 11.4 million therms by 2028.

## IX. ACTION ITEMS

- NW Natural will work with the Energy Trust to provide updated estimates of achievable DSM savings and required Public Purpose charge funding levels for Oregon residential and commercial customers in its annual update and next IRP.

- The Company will work with interested parties to determine potential EE program funding mechanism for its Oregon firm industrial customers.

- Provided NW Natural and the WUTC can establish a revenue neutral environment for conservation, the Company will seek to mirror successful Energy Trust programs in the Company's Washington service area.

# CHAPTER 5: LINEAR PROGRAMMING AND THE COMPANY'S RESOURCE CHOICES

# CHAPTER 5: LINEAR PROGRAMMING AND THE COMPANY'S RESOURCE CHOICES

This chapter describes the analytic method NW Natural employed to combine the demand forecast with the supply and demand side resources to determine whether the Company has a resource deficiency and to select the least cost mix of resources required to serve forecast demand over the planning horizon. This chapter also defines a set of modeling scenarios, including a stochastic analysis, designed to assist the Company's selection of future resources under alternative specifications of future demand and price levels and resource availability.

The resulting resource mix demonstrates the Company's consideration of State and Federal policy. State policy, as evidenced in SB 838, seeks to provide additional funding mechanisms for energy efficiency. Federal policy, likewise, is trending toward energy market transformation and environmental protection. This IRP supports aggressive energy efficiency acquisition, incorporates carbon adders in its avoided cost, and does not shift reliance onto LNG supplies which directly demonstrate the influence of State and Federal policies in the development of this Plan.

## I. OVERVIEW – THE APPROACH TO OPTIMALITY

As loads grow across the Company's eight primary geographic regions, various methods exist for meeting them. Options available to the Company include DSM initiatives, acquiring additional pipeline capacity, recalling existing storage capacity, or putting new pipe in the ground that improves the interconnectivity between districts. None of these activities preclude the others, so there are a large number of potential resource combinations that could be adopted to serve new customer needs. The task at hand is choosing the best (in this case, least cost) combination. In making this choice, NW Natural uses a linear programming methodology.

Linear programming (LP) is an analytic technique that examines every possible means of acquiring demand or supply-side resources to meet growing customer needs and determines the least cost solution. The LP model selects that combination of resources that satisfies customer load in the least cost manner over the planning horizon. For this IRP, the Company adopted a new linear programming package called *SENDOUT®* that expands the analytic possibilities beyond previous efforts.

## II. LEAST COST OPTIMIZATION

The least cost aspect of the Company's network LP model attempts to minimize an equation representing the present value cost of meeting customer demand over the 20 year planning period. With respect to gas supply resources, two different types of supply options currently exist for meeting customer demand: (i) pipeline gas delivered on a real time basis to demand centers, or (ii) injecting gas into storage facilities during relatively low demand periods and withdrawing the gas from storage for delivery to demand centers during high demand periods. NW Natural applies constraints (or limitations) to this cost minimization exercise. For example, the Company's ability to deliver gas on a pipeline from a supply source to its city gate stations (points of interconnection between the pipeline and the Company's distribution facilities) is limited by the amount and type of pipeline capacity the Company has reserved. Typically, the Company buys pipeline capacity on a firm daily basis. That is, a 200,000 therm purchase of pipeline contract demand (CD) means that the buyer possess rights to 200,000 therms of gas deliveries per day for each day of the year. This constraint limits the model to only the capacity currently owned by the Company. Similarly, storage capacity and delivery services are limited by contractual entitlements and the Company cannot deliver more gas from storage than the quantity of gas it placed into storage. The modeling is similarly constrained to reflect the limitations with respect to take-away capacity on the downstream side of the city gates in the southern part of the Company's distribution system. In other words, the mere addition of pipeline CD in the southern Willamette Valley will not always be the sole solution to meeting the area's increasing demand.

The model meets customer requirements with existing pipeline CD and storage resources in a least-cost manner. Eventually, however, the model finds it does not have enough CD or storage to serve the ever-growing gas requirements. When the model identifies constraints beyond existing pipeline CD and storage, the model begins choosing new resource alternatives.

The Company meets expected additional supply side resource requirements in one of three different ways: (i) buying more pipeline CD, (ii) buying or building more storage (including LNG storage and vaporization facilities), or (iii) building new distribution facilities that meet the growing customer needs. The model considers both fixed costs and commodity costs associated with different resource selections. From the moment the model accepts a "contract" for incremental pipeline CD, for example, through to the end of the contract, the model assumes the Company pays the fixed costs associated with that resource selection. The model also calculates the commodity cost associated with the supply sources that can serve that pipeline section. Similarly, the use of a storage expansion facility also triggers the carrying charges

associated with the investment costs of the facility, which are fixed costs paid regardless of use levels throughout the entirety of the analysis. The model will also calculate the cost of the commodity used to fill the storage facility. The entire model, then, consists of an objective function (which sums up the costs of meeting load) and a large number of constraint equations designed to solve the system of equations for a set of resource use levels that minimize total cost.

In network analysis, the model moves product (natural gas) from supply "nodes" to demand "nodes" over transport "arcs." For example, the model identifies gas storage facilities and gas receipt points as nodes, and the model treats a pipeline like a transport arc. The Company inputs all the necessary information about how gas currently flows from supply sources to market centers, the capacity of the current "arcs" and supply "nodes," and the range of possible new supply nodes and arcs and the constraints on what capacity can be added to the network model. Then the network model examines all possible outcomes and yields an optimal solution. Unlike previous LP models, the *SENDOUT*® application provides the opportunity for the Company to choose to not meet load, but at very high cost. When curtailment is unavoidable, *SENDOUT*® reports these unmet loads as unserved demand.

Another change over previous IRP analytical methods relates to the structure of the gas year. Previous IRP studies used what is called "mixed integer analysis" as opposed to a more typical "continuous solution" analysis. Mixed integer programming (MIP) allows resource decisions to be "binary" in nature; that is, if the model chose a storage facility, then the model commits the full cost and it cannot be reduced or eliminated until full payment of the facility. This means that the model either takes the entire resource (binary = 1) or the model does not take the resource (binary = 0), and this prevents the analysis from including "continuous" solutions. With MIP analysis, the entire LP model solves once with each binary integer switched to zero, and then a second time with the switches at one. Depending on the number of switches this approach quickly becomes very computationally costly. An MIP model solves $2^n$ times where "n" equal the number of integers. For example, if a model includes 64 resources that are specified as integers, the model calculates $2^{64}$ intervals. Two to the sixty fourth power equals 18,466,744,073,709,600,000 complete recalculations. Obviously, MIP analysis requires careful specification.

To solve this problem and better manage the LP analysis, NW Natural's previous LP analyses divided the year into 15 "bins." The first 5 bins each contained one day arranged from the coldest in bin one to the fifth coldest in bin 5. The next 5 bins each contained 5 days in descending order of coldness, each of the next three bins (bins number 11, 12, and 13) contained 30 days, again in descending coldness. Bin 14 was 90 days in length, and bin 15 contained the 185 days modeled as the summer

period. Thus, each design year started out with its coldest day, and proceeded monotonically to its warmest.

In the load duration curve, 15 bin approach, the coldest, most demanding weather always occurs first. This tends to overstate the capability of a storage laden system because storage facilities are full and have the ability to deliver at their greatest rate during the beginning of each cycle. In the Company's current IRP, the peak day occurs on February 3rd, after several months of winter weather and significant heating load. If the Company positions this specific peak day first, followed immediately by the coldest to warmest weather, the storage biased system easily meets the load. However, if the model analyzes the identical winter load as it historically occurred, the storage based system may not meet the peak day requirements. For local distribution companies (LDCs) that have few resource options beyond pipeline capacity, this difference in approaches may be of little significance. For NW Natural, the difference is critical because the Company heavily relies on storage to satisfy peak demand.

## III. *SENDOUT®* – RESOURCE ASSESSMENT TOOL

The Company purchased *SENDOUT®* in 2005 intending to use it for both its annual PGA filings as well as its optimization model for the IRPs. New Energy Associates, a Ventyx Company, developed the *SENDOUT®* Gas Planning System. *SENDOUT®* is a gas portfolio and optimization application designed to comprehensively analyze and optimize an entire gas supply portfolio - including supply, transportation and storage assets. It generates best-cost strategic plans that consider economic parameters along with operational constraints. *SENDOUT®* is licensed by 65 energy companies in North America, including all of the natural gas utilities serving Oregon and Washington; it has become a standard for the gas supply strategic planning process.

*SENDOUT®* generates least-cost solutions through the analysis of hundreds of potential solutions made possible by evaluating numerous variables associated with forecast customer demand for gas (customer count forecasts, usage coefficients by customer type (residential, commercial), heating degree days (HDDs), and forecast end use rates), demand-side management programs, and existing and potential supply options. Please refer to Chapters 2 (demand forecast), 3 (existing and potential supply side resources), and 4 (DSM) for complete descriptions of these model inputs.

In response to a growing, general interest in risk analysis, the Company recently began using what was initially an add-on module to *SENDOUT®*, called

VectorGas™, as the platform for performing Monte Carlo simulations. *SENDOUT®* Version 12 now integrates the full functionality of VectorGas into *SENDOUT®* providing Monte Carlo simulation capability around weather and price. Through detailed portfolio optimization techniques, the analytical potential of *SENDOUT®* is enhanced because of its capability to produce probability distribution information.

With *SENDOUT®*, NW Natural abandoned the previous MIP, 15 bins approach. *SENDOUT®* specifies an entire 365 day analysis, and, more importantly, the model analyzes weather as it actually occurs, rather than in declining order of coldness. The move to *SENDOUT®* increased planning realism, and, as discussed in section V of this chapter, has revealed a need for increased resources sooner than in previous plans. Specifically, *SENDOUT®* reveals that under the Base Case Scenario assumptions (see section V below), NW Natural has insufficient existing resources to serve 100% of the forecast load across its system in the first forecast year (i.e., 2008-2009). By the second forecast year, *SENDOUT®* is able to secure sufficient incremental supply and demand resources to fully satisfy forecast load for the remainder of the 20 year planning horizon.

## IV. DSM EVALUATION IN *SENDOUT®*

As discussed in Chapter 4, NW Natural contracted with Stellar Processes to analyze the potential energy savings it can cost-effectively procure within its service territory. Stellar Processes developed two DSM deployment scenarios to reflect screening of DSM measures based on (1) the Base Case avoided cost forecast and (2) the High Commodity Price avoided cost sensitivity.

For this IRP, NW Natural utilized the Program Totals method of DSM evaluation in *SENDOUT®*, which provides direct input of DSM program impact, allowing comparison of DSM options with supply options. Specifically, the Usage Factor method of calculating DSM demand reduction was used in *SENDOUT®*. These usage factors represent the decrement to demand, both base and heat sensitive, associated with the Region/Class to which the DSM program is assigned. The utilization of heat sensitive DSM usage factors allows the achievable potential DSM savings to change with temperature assumptions and is a more realistic dynamic evaluation of DSM potential savings.

To estimate the *SENDOUT®* DSM usage factors for the two DSM deployment scenarios developed by Stellar Processes, NW Natural first allocated the Oregon and Washington annual achievable potential DSM saving estimates provided by

Stellar Processes for each DSM program type to each month in the year based on monthly load distribution estimates provided by Stellar Processes, which are shown in Appendix 4-6. For each year, the base DSM savings is estimated as the minimum monthly average DSM savings per day. The heat sensitive DSM savings for each month are then calculated by subtracting base DSM savings from total savings.

The percentage of base DSM savings to forecasted total base load demand is calculated for each state (i.e. Oregon and Washington), where residential and commercial base DSM saving estimates for New Construction programs are applied to the forecasted base load demand for new construction customers. Similarly, base DSM savings estimates for Replacement and Retrofit programs are applied to the forecasted demand for existing and conversion customers. This process is repeated to calculate the percentage of heat sensitive DSM savings to forecasted normal temperature sensitive load (assuming 20-year normal weather) for each state.[1]

DSM base and heat sensitive usage factors are than estimated for each region and customer sub-class combination, by multiplying the customer base load and temperature sensitive usage factors by the respective percentage of estimated DSM savings to normal demand.

Lost opportunity DSM programs in this analysis are locked in as "must run", while the other programs are discretionary. The New Construction and Replacement programs designated as "must run" by Stellar Processes are inputted into *SENDOUT*® as mandatory programs to be automatically utilized at 100% and reduced from demand. Retrofit programs are designated as "discretionary" by Stellar Processes and are treated differently. Using the Resource Mix functionality of *SENDOUT*®, discretionary DSM programs are evaluated based on levelized societal costs on a comparable basis with supply side options to calculate the most economical levels of utilization. Levelized societal costs were developed by Stellar Processes and are specified for each program in Appendix 4-5. *SENDOUT*® optimally sizes the implementation percent for each discretionary DSM program, taking into account the total cost and demand reduction. *SENDOUT*® reduces the demand and includes monthly program costs based on user inputs. While sizing of discretionary DSM programs is based on levelized program costs, the Company values all DSM programs at the annual utility program cost for purposes of estimating cost of supplying customer

[1] Specifically, residential and commercial heat sensitive DSM saving estimates for New Construction programs are applied to the forecasted normal temperature sensitive load for new construction customers. Similarly, heat sensitive DSM savings estimates for Replacement and Retrofit programs are applied to the forecasted normal temperature sensitive load for existing and conversion customers. The customer and associated demand forecasts are discussed in Chapter 2.

demand. These annual utility program costs were developed by Stellar Processes and are provided in Appendices 4-1 through 4-4.

For all model runs presented in this chapter with the exception of the two low price sensitivities.[2] the Resource Mix functionality of *SENDOUT*® selected all available discretionary programs at 100% participation based on the levelized societal DSM program costs, which were already pre-screened at avoided cost estimates by Stellar Processes to represent "achievable" programs. These *SENDOUT*® results suggest that all DSM programs identified by Stellar Processes as achievable are indeed cost-effective compared against other resource options. The resulting DSM cost-effective therm savings adjusted for design weather as selected by the *SENDOUT*® Resource Mix DSM allocated by customer sub-class and region over the 20 year IRP planning period are presented in Appendix 5-1.[3]

## V. *SENDOUT*® SCENARIOS, PORTFOLIOS & RESULTS

### A. PLANNING CRITERIA

NW Natural's planning criteria for estimating demand over the 20 year horizon of this IRP has evolved during the preparation of this document. In the past the Company had relied upon the historical coldest season observed in the past 20 years augmented by the coldest peak day event in 20 years to represent a very cold weather scenario. Based on analysis of the historical distribution of weather conditions over the last 20 years, the likelihood of this prior winter design criteria occurring in any one year is only 0.08%. Because the previous IRP model, using a load duration curve, tended to overestimate the Company's ability to meet a late winter peak event, in the past this planning standard may have been the most reasonable one. However, when the Company moved away from load duration curves, the model showed a need for significantly more resources than it had in the past to meet this planning standard. Using stochastic analysis, the Company was able to determine the extreme nature of the previous planning standard, and the high cost of using this planning standard to make resource selections. After considering this analysis, NW Natural concluded that the planning standard used for the previous model was no longer appropriate on a cost/risk basis.

[2] For the two low price sensitivities (i.e. Sensitivity 1: High Demand/Low Price and Sensitivity 4: Low Demand/Low Price), the Resource Mix functionality of SENDOUT® did not select Commercial Conversion Discretionary DSM programs specifically in the Dalles (OR) geographic region for some years.

[3] Appendix 5-1 contains the DSM savings for the Base Case Scenario and only those sensitivity analyses where the savings differ from the Base Case.

At the February 21, 2008 meeting with the Technical Working Group (TWG) NW Natural discussed changing the design criteria to an 85% probability coldest winter again augmented by the coldest peak day event in 20 years plus two shoulder days (see Chapter 2 for a more detailed description of this approach). The Company did not hear any concerns expressed from the TWG about this change to a less extreme planning standard and has proceeded to adopt it as the base case design criteria for this IRP. Implementation of this change results in an approximate 6,800 MDth reduction in forecasted annual 2007-2008 firm requirements and a reduction of 9,200 MDth by year 2027-2028. Later in this chapter we test the sensitivity of our selected base case portfolio to the previous historic coldest winter season design criteria (Sensitivity 6 shown in Appendix 5-3). This sensitivity analysis demonstrates that the forecast reduction in demand associated with the change to a more reasonable design standard reduces the present value of 20 year supply costs by $792 million.

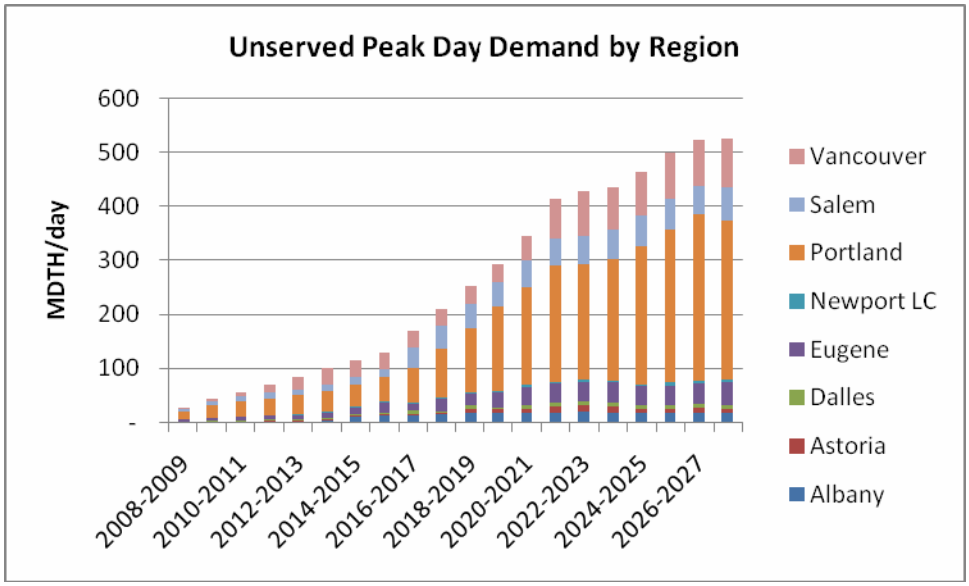
The likelihood of the augmented 85% probability coldest winter design criteria occurring in any one year is 5.9%, based on analysis of the historical distribution of weather conditions over the last 20 years. This probability of occurrence is equivalent to a 1 in 17 year event. In addition, NW Natural also uses *SENDOUT*® to assess the cost and risk trade off associated with adoption of the augmented 85% probability coldest winter planning standard by running hundreds of Monte Carlo simulations assuming a normal distribution around 20-year normal HDDs and around its base case gas commodity price forecast. The stochastic analysis presented later in this chapter shows that the selected least-cost base case resource mix that meets the augmented 85% probability coldest winter criteria results in unserved demand in only 3.7% of the 200 Monte Carlo simulations on average for each year. The Company believes that this change in design weather assumptions represents the best combination of risk/cost for planning criteria.

## B. DEVELOPMENT OF INCREMENTAL SUPPLY-SIDE RESOURCE OPTIONS

NW Natural's evaluation of its need for incremental resources over the 20 year planning horizon begins with its **Current Portfolio Scenario.** Here, the Company applies its planning criteria demand forecast to its existing supply-side resource portfolio (i.e., assuming there are no incremental supply or demand side resources available to NW Natural). The objective of this analysis is to test the ability of the Company's existing resource portfolio to satisfy forecasted load and determine whether and where the Company has an existing resource deficiency.

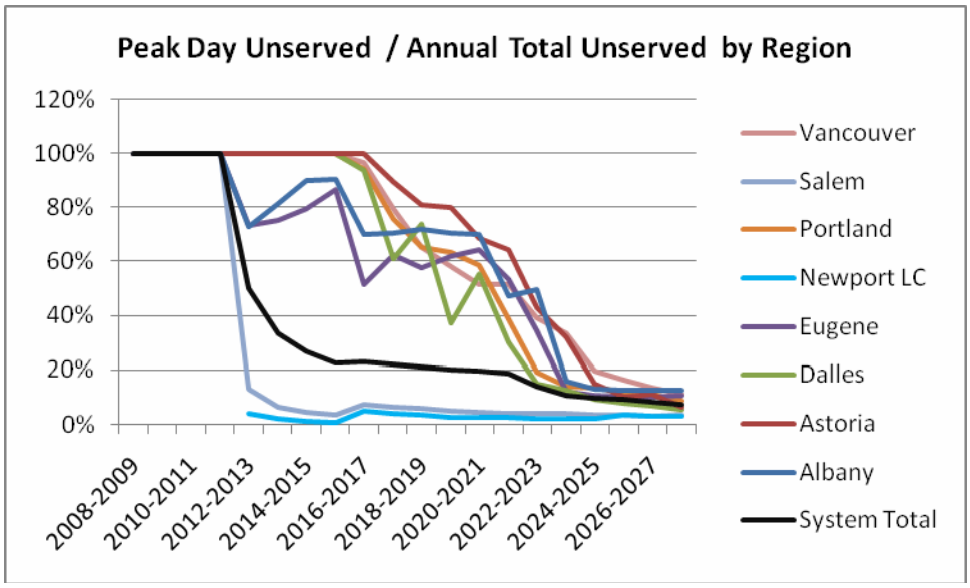
Figure 5-1 demonstrates that NW Natural's existing resource portfolio is not sufficient to serve aggregate forecasted load under the augmented 85% probability coldest winter planning criteria. *SENDOUT*® estimates peak day unserved demand in all areas except Newport, totaling about 28 MDth/day in the initial year, rising to greater than 500 MDth/day by the end of the planning horizon.

**Figure 5-1**




Appendix 5-2 contains the forecasted peak day and annual unserved demand results for each region. Forecasted annual unserved demand on an aggregate basis grows from approximately 28 MDth in the first year to 6,993 MDth by 2027-2028. In Figure 5-2 we compare the characteristics of unserved demand across regions and time by calculating the ratio of peak day unserved demand to annual unserved demand by region throughout the planning horizon.

**Figure 5-2**




This analysis reveals that peak day unserved demand initially comprises 100% of total unserved demand on an aggregate basis, but steadily falls throughout the planning horizon to a level of less than 10%. On a regional basis, this ratio shows significant variation. Except for Newport, which exhibits no unserved demand for the first few years, peak day unserved is 100% of annual unserved in all regions at the start of the forecast. Over time, unserved demand begins to expand beyond the peak day, appearing earlier in the southern regions and a few years later in the north. By the end of the planning horizon, however, all regions exhibit a peak day to annual ratio hovering in the 10% range. This suggests that on an aggregate system-wide basis, *SENDOUT*®'s preference for incremental peaking resources will be stronger in the initial years of the forecast than in the later years when its resource preference will shift increasingly towards incremental seasonal (e.g., Mist recall) and baseload (e.g., new pipeline CD) resources. However, gas delivery constraints and resource availability will affect system-wide resource preferences, resulting in region-specific resource selections. For example, satellite LNG located behind the citygate may serve as the preferred resource selection in Eugene at the south end both of NWPL's Grants Pass Lateral and the Company's distribution system, whereas seasonal storage with incremental pipeline resources may be a preferred resource selection for regions further north.

Based on these results, the Company concludes that it is necessary to assess a wide variety of incremental demand and supply-side resources to address forecast unserved demand. Section IV of this chapter describes NW Natural's approach

for assessing incremental DSM resources. As described in Chapter 3, the Company is also investigating a variety of incremental baseload, seasonal, and peaking supply resources (see Appendix 3-2 for a summary of expected costs and availability dates for each supply-side resource option). Baseload resources include contracting for incremental pipeline capacity from existing pipeline service providers (e.g., NWPL CD held by March Point), contracting for capacity on proposed new pipelines (e.g., Palomar East), or investing in expansion of the Company's own distribution system (e.g., the Willamette Valley Feeder). Seasonal resources include continued recall of the Company's existing Mist storage capacity. Peaking resources include locating Satellite LNG facilities in Salem, Albany, and Eugene. Lastly, the Company is assessing the economics of contracting for gas sourced from two different proposed LNG import terminals in Oregon. These facilities have the potential to provide baseload, seasonal, or peaking resource needs depending on the Company's market alternatives and contracting strategy. Although Appendix 3-2 indicates an expected availability date for each supply-side resource, the Company certainly has a higher degree of confidence in the timing for those resources that are currently in place (e.g., Mist recall, March Point capacity) or under its direct development control (Willamette Valley Feeder) than those resources that currently represent proposed third party project developments (e.g., LNG import terminals).

## C. BASE CASE SCENARIO

NW Natural's evaluation of its selection of incremental resources over the 20 year planning horizon begins with its **Base Case Scenario**. As explained previously, for this IRP, the Company has selected an augmented 85% probability coldest winter planning standard against which to evaluate the cost and risk trade off of various supply and demand resources available to *SENDOUT*®. With the "85% weather" demand specified for each region and customer class, *SENDOUT*® seeks to satisfy demand utilizing the demand-side resources represented by the Base Case DSM deployment scenario described in Chapter 4, the Company's existing portfolio of supply side resources, and the incremental resources described in Chapter 3, except for supplies sourced from the two LNG import terminals.[4] The Company has chosen to exclude imported LNG from the Base Case Scenario because, relative to the other incremental supply side resources considered, the LNG import terminals are: 1) subject to a greater degree of development/availability risk, and 2) outside the control of the Company in terms of facility development.

[4] Although NW Natural has a Precedent Agreement in place with Palomar providing for a contract capacity of 100 MMcf/day, in the Base Case Scenario the Company allows *SENDOUT*® to choose Palomar East capacity at any level from 0 to 200,000 Dth/day in order to determine the optimal mix of resources.

When the Company began this IRP process, the Palomar pipeline was still in the nascent stages of planning. Early versions of the *SENDOUT*® model included the pipeline only as a scenario, rather than as part of the base case. As plans for Palomar developed, we became more confident that it was reasonable to include Palomar East as part of the Company's base case.

As described in greater detail below, the Company has contracted in a Precedent Agreement for 100,000 Dth/day of capacity on Palomar East, based on our assessment of the commitment necessary to make the project economic, even in the absence of an LNG terminal. While the Company does have this Precedent Agreement in place, we felt it was important to assess the optimal resource mix under a wide variety of scenarios, and not limit the model to 100,000 Dth/day of capacity on the Palomar East pipeline. We view the Base Case as a "starting point" for the assessment of a variety of resource mix options. However, we remain mindful that we do have this existing obligation, and had we not sized our commitment as we did, Palomar East would likely not be a viable supply-side resource.

## D. OTHER SCENARIOS AND BASE CASE SENSITIVITIES

After identifying the Base Case resource portfolio, NW Natural designs a series of alternate scenarios in which it modifies the supply side resources made available to *SENDOUT*® in the Base Case and allows *SENDOUT*® to reselect a portfolio of optimal resources (a process known as "resource mix") to satisfy forecast demand. The Company designs a total of nine alternate scenarios where each scenario allows for a single change to the incremental supply side resources available in the Base Case. The first two of these scenarios provide for the introduction of one, but not both of the LNG import terminals. The **Northern LNG Scenario** adds supplies sourced from the Bradwood Landing project to the Base Case incremental resource portfolio while the **Southern LNG Scenario** adds supplies sourced from the Jordan Cove project to the Base Case incremental resource portfolio. The Company believes that given the scale, cost and supply commitments required to develop one of these projects, it is reasonable to assume that only one such project could be successfully developed in the region. To test the impact of this assumption, the Company then designs a **Two LNG Projects Scenario** that allows for the simultaneous introduction of both Bradwood and Jordan Cove in 2011.

The next four scenarios assume that certain incremental supply resources are either unavailable or delayed from the in-service dates assumed in the Base Case. The **No Palomar Scenario** assumes that the Palomar pipeline is not developed during the 20 year planning horizon. The **No GP Recall Scenario** assumes that the GP Recall option is not available to the Company and is designed to test the value of this resource

option. The **Delayed Satellite LNG Scenario** pushes out the assumed availability date of the satellite LNG resource from April of this year to 2012. Finally, the **No Satellite LNG Scenario** assumes that Satellite LNG is not available to the Company. This scenario is designed to test the value of this resource option and to consider alternative resource selections that may be necessary if the Company is unable to get a Satellite LNG sited at the time the model identifies the resource need.

The final two scenarios test the resource mix selection by varying the construction cost estimate for the Company's Willamette Valley Feeder project both with the Satellite LNG resource available (**WVF Alternative Scenario**) and without Satellite LNG availability (**WVF Alternative with No Satellite LNG Scenario**). NW Natural continues to refine its cost estimate for building the Willamette Valley Feeder, and believes the lower cost estimate, which is based on more recent data and a refinement of the route the pipeline would take, is in fact a more accurate assessment of the eventual cost of this resource.

In addition to the alternate scenarios discussed above, NW Natural develops 13 Sensitivity cases to the Base Case Scenario. The Sensitivity cases differ from the alternate Scenarios in that they include different planning criteria, such as alternate weather patterns, various levels of load growth, alternate forward price curves, and changes to available capacity levels, as summarized in Table 5-1. Finally, the Company conducts a stochastic analysis of the Base Case Scenario. The stochastic analysis assesses the resiliency of the Base Case resource portfolio to variation in the level of demand and prices specified in the Base Case Scenario by assuming hundreds of normally distributed potential outcomes around the 20-year average normal weather and the forecasted gas prices.

Table 5-1 summarizes NW Natural's alternate Scenarios and Base Case Sensitivities. In this chapter we provide a brief summary of the modeling results. Appendix 5-3 provides detailed results of the model runs.

**Table 5-1: NW Natural Modeling Scenarios & Base Case Sensitivities**

**Base Case Scenario**

- "85% weather"
- Base demand and price forecasts
- Incremental resources available: new pipeline CD, Mist recall[5], Palomar East, TF-1 capacity turnback, March Point capacity, GP recall[6], Satellite LNG, Willamette Valley feeder, Newport LNG enhancement, and Brownsville to Eugene capacity

| **Alternate Scenarios** (resource mix options) | **Base Case Sensitivities** (modifications of commodity availability, commodity cost, transportation cost, and/or load forecast inputs[7]) |
|---|---|
| 1. **Current Portfolio** (no incremental resources available)<br>2. **Northern LNG** (Bradwood Landing is available, Palomar West is available)<br>3. **Southern LNG** (Jordan Cove and Pacific Connector are available)<br>4. **Two LNG Projects** (both Bradwood | 1. **High Demand/Low Price**[8]: Significant new gas supplies (e.g., strong domestic exploration), relaxed environmental protections, and increased use of coal for electric generation with new technologies (e.g., carbon capture) drive gas prices lower, coupled with strong economic growth and higher demand.<br>2. **Low Demand/High Price**: Prolonged economic down turn, increased gas-fired electric generation, new environmental regulation (e.g., a significant carbon tax), and a decrease in supplies lead to higher prices, which in turn drives down demand.<br>3. **High Demand/High Price**: Significant new environmental regulations drive increased demand and price, but strong economic growth leads to continued high demand.<br>4. **Low Demand/Low Price**: A lengthy economic downturn, |

[5] *SENDOUT*® allows Mist Recall to cycle throughout the withdrawal season in all model runs.

[6] GP Recall is not treated as a Resource Mix decision. NW Natural may either keep the existing citygate peaking contract or it can recall the capacity. *SENDOUT*® is not able to solve for this type of decision. Therefore, the Company ran a Base Case Scenario with GP as status quo, and another with the capacity recalled. The capacity recall supports the least cost solution. Therefore, except in the No GP Recall case, the incremental GP Recall capacity referenced in this section is a fixed/locked-in value; it is not evaluated in the scenarios. In the No GP Recall case, the recall option is not available, but the existing citygate peaking service is available.

[7] The Low Demand and Negative Load Growth Sensitivities are modeled as a reduction in annual customer growth relative to the Base Case Scenario. Since available DSM is also modeled, in part, based on annual customer growth, the Company has scaled back the DSM available from new customers commensurate with the assumed reduction in such customers in these cases relative to the Base Case.

[8] Chapter 2 describes the Company's modeling assumptions for High, Low and Negative Demand, and High and Low Price references in this table.

| | |
|---|---|
| and Jordan Cove available in 2012)<br><br>5. **No Palomar** (and no CD turnback)<br><br>6. **No GP Recall**<br><br>7. **Delayed Satellite LNG** (not available until 2012)<br><br>8. **No Satellite LNG**<br><br>9. **WVF Alternative**<br><br>10. **WVF Alternative with No Satellite LNG** | coupled with significant new sources of supply such as imported LNG, lead to depressed price and demand.<br><br>5. **Palomar Min. at 100**: If Palomar East is constructed, under the terms of the Precedent Agreement the Company is committed to taking a minimum of 100,000 Dth/day of capacity.<br><br>6. **Old Design Weather**: Uses previous design planning standard of coldest peak event in 20 years + coldest total winter demand in 20 years (see Chapter 2).<br><br>7. **Negative Load Growth**: A -1% decrease in customer growth rate in all years.<br><br>8. **Negative Short-term Load Growth**: Negative customer growth per Sensitivity 7 for the first five years, trending linearly over next three years to return to the Base Case customer growth rate thereafter.<br><br>9. **Negative Long-term Load Growth**: Base Case customer growth for five years, trending linearly down over three years to negative customer growth per Sensitivity 7 thereafter.<br><br>10. **High AECO Price**: 3% increase in the AECO "high" price to simulate decrease in AECO supplies.<br><br>11. **Limited North American Supply**: 20% increase to the High Price forecast to simulate decrease in North American supply[9].<br><br>12. **Unconstrained Mist Recall**: No constraint on Mist Recall (i.e., all 289,208 Dth/d available immediately).<br><br>13. **GTN Decontracting**: 40% increase in GTN rates due to further decontracting. |

## E. HIGHLIGHTS OF DETERMINISTIC RESULTS - SCENARIOS

[9] The Limited North American Supply case assumes a greater amount of cost-effective DSM is available due to an increase in avoided costs over the Base Case. The assumed schedule of achievable cost-effective DSM for this case is based on the High Commodity Price DSM deployment scenario developed by Stellar Processes as discussed in more detail in Chapter 4.

Appendix 5-3 identifies the aggregate forecast unserved demand, the incremental resources that *SENDOUT*® selects to add to the Company's existing supply portfolio, and the present value cost of the resource portfolio over the 20 year planning horizon for each Scenario. The model results demonstrate that the Company expects to have incremental supply and demand side resources available for it to satisfy 100% of forecast demand except in the first year of the planning horizon. Unserved demand in year one (16,000 Dth) is a consequence of the forecast immediate need for peak day resources under the existing resource portfolio and the assumed unavailability of sufficient incremental peak day supply resources until the second year of the planning horizon. All regions except Astoria and Newport show peak day unserved demand in the first year. Appendix 5-3 contains unserved demand results by region for each Scenario.

*SENDOUT*® selects the following incremental resources in the Base Case Scenario:

- Mist Recall: *SENDOUT*® begins selecting this resource in April of 2008 at a level of 10,000 Dth/day, the amount that has been recalled by NW Natural for the 2008 – 2009 year. *SENDOUT*® continues to take increasing amounts of Mist Recall, reaching a level of 168,000 Dth/day in 2021-2022.
- Satellite LNG: In Eugene, *SENDOUT*® begins selecting this resource in April of 2010 at a level of 400 Dth/day, rising to 30,000 Dth/day by 2027-2028. *SENDOUT*® begins selecting this resource at 5,000 Dth/day in Salem in 2025, rising to 9,000 by 2027-2028. *SENDOUT*® does not select this resource in Albany throughout the planning horizon.
- March Point: *SENDOUT*® begins selecting this resource in the first year it is available (2017-2018) at the maximum amount of 12,000 Dth/day.
- Incremental pipeline CD: In 2011-2012, *SENDOUT*® elects to turn back existing NWPL CD capacity at a level of 77,000 Dth/day, the maximum amount that is first made available to the model in that year. This is a one-time economic decision for the model; it must size the amount of capacity turn-back for the balance of the planning horizon, as opposed to turning back smaller increments that may grow over time. At the same time, *SENDOUT*® replaces the turned-back capacity by selecting Palomar East capacity at an initial level of 41,000 Dth/day. *SENDOUT*® gradually increases the level of Palomar East capacity to 94,000 Dth/day by the end of the planning horizon.
- NW Natural facilities: *SENDOUT*® also selects the following NW Natural incremental facility projects:
    - Brownsville to Eugene: 900 Dth/day starting in 2011-2012, rising to the maximum of 5,000 Dth/day in 2016-2017
    - Newport pipeline enhancement: 23,000 Dth/day starting in 2012-2013

- Willamette Valley Feeder: 4,000 Dth/day starting in 2010-2011.

Appendix 5-3 identifies the incremental resources that *SENDOUT*® selects to add to the Company's existing supply portfolio for each of the Scenarios. At a high level, *SENDOUT*® appears to treat Mist recall, satellite LNG, and Palomar East as the swing resources in the resource mix decision. Mist recall is always selected at an initial level of 10,000 Dth/day starting in April 2008, but the 2027-2028 level selected varies from 109,000 Dth/day (Northern LNG Scenario) to 213,000 Dth/day (No Satellite LNG Scenario). Satellite LNG in Eugene varies from 6,000 (Southern LNG) to 30,000 Dth/day (Base Case), in Albany from 0 (Base Case) to 27,000 Dth/day (No Palomar), and in Salem from 0 (No GP Recall) to 30,000 Dth/day (No Palomar).[10] Palomar East is taken in every case except the Two LNG Scenario. In the GP Recall Scenario, Palomar East is selected at 100,000 Dth/day by 2027-2028. The modeling results also indicate that incremental NWPL zone 12-9 CD capacity is only selected when there is no satellite LNG available and incremental NWPL mainline CD from Stanfield is only selected in the No Palomar Scenario. Not surprisingly, the model fails to select the Company's Brownsville to Eugene capacity only in the two scenarios where it selects Jordan Cove LNG supplies for delivery to the southern end of its service territory.

As shown in Appendix 5-3, the 20 year NPVRR of total system costs for the Company's Base Case Scenario equals approximately $8.7 billion ($2007), ranking it 12th highest of the 24 tested Scenarios and Sensitivities (including the existing portfolio). Five Scenarios exhibit lower 20 year NPVRR costs, including all three of the imported LNG scenarios. The Two LNG Projects Scenario is estimated to be the least costly of the tested Scenarios at $8.4 billion ($2007), nearly $0.4 billion less than the Base Case. Aside from the Current Portfolio Scenario, the No Palomar Scenario is estimated to be the most costly of the tested Scenarios at $8.8 billion ($2007), approximately $0.04 billion more than the Base Case.

## F. HIGHLIGHTS OF DETERMINISTIC RESULTS – BASE CASE SENSITIVITIES

Appendix 5-3 also identifies the aggregate forecast unserved demand, the changes to the Base Case resource portfolio, and the present value cost of the resource portfolio over the 20 year planning horizon for each of the Base Case Sensitivity cases. The Sensitivity cases are based on the Base Case resource portfolio and, therefore, there are no additional supply-side resources available to address the first year

[10] Given siting and permitting uncertainty associated with developing satellite LNG facilities on its distribution system, the Company included the No Satellite LNG Scenario to test the sensitivity of the Base Case resource portfolio.

unserved demand in the Base Case (16,000 Dth). However, several of the Sensitivity Cases examine the impact of assumed higher or lower forecast demand and the model results demonstrate that these load assumptions directly translate into higher or lower first year undeserved demand. In the two low demand cases and the two negative load growth cases with negative initial year growth, the demand reduction is sufficient to eliminate the Base Case unserved demand in the first year of the planning horizon. This is also true for the Unconstrained Mist Recall case. In all cases, the Company expects to have incremental supply and demand side resources available for it to satisfy 100% of design planning standard forecast demand by the second year and thereafter throughout the planning horizon. Appendix 5-3 contains unserved demand results by region for the Sensitivity cases.

*SENDOUT*® reevaluates the optimal resource mix for each Sensitivity case. Notable adjustments to the Base Case portfolio include:

- Mist Recall: *SENDOUT*® continues to begin selecting this resource in April of 2008 in all cases. Except for the Unconstrained Mist Recall Sensitivity where *SENDOUT*® selects 26,000 Dth/day in the first year, the model continues to start at the 10,000 Dth/day April 2008 level in the Base Case. By the end of the 20 year planning horizon in 2027-2028, Mist Recall levels vary considerably, from a low of 24,000 Dth/day in two of the Negative Load Growth Sensitivity Cases to a high of the maximum 289,200 Dth/day in the two High Demand Sensitivity cases. As was evident in the resource mix scenarios, it appears that *SENDOUT*® is treating Mist Recall as the swing resource in the Base Case portfolio.

- Satellite LNG: Except in the low demand cases where Satellite LNG is not selected at all, *SENDOUT*® typically selects this resource in Eugene, less often in Albany and Salem. *SENDOUT*® selects Eugene Satellite LNG at levels ranging initially from 400 to 4,000 Dth/day, rising to anywhere from 11,000 Dth/day (Old Design Weather case) to several Sensitivities showing selection of the 30,000 Dth/day maximum by the end of the planning horizon. In the High Demand Sensitivities, Albany and Salem also reach the maximum of 30,000 Dth/day.

- Incremental pipeline CD: In all Sensitivities, *SENDOUT*® elects the one-time turn back of 77,000 Dth/day of existing NWPL CD capacity in 2011-2012. In all cases *SENDOUT*® replaces the turned-back capacity by selecting Palomar East capacity starting in 2011-2012. Initial Palomar East capacities selected range from a low of 6,000 Dth/day in the negative load growth case to 64,000 Dth/day in the Old Design Weather Sensitivity (except when the model is

constrained to take a minimum of 100,000 Dth/day in the Palomar at Min. of 100 Sensitivity). In most cases, *SENDOUT*® increases the level of Palomar East capacity over time, topping out at 200,000 Dth/day in both of the high demand cases by the end of the planning horizon. In the two high demand cases, *SENDOUT*® also selects a tranche of incremental NWPL CD z12-z9 capacity in the last two years of the planning horizon, at a level of 5,000 Dth/day. Finally, *SENDOUT*® also selects 12,000 Dth/day of incremental NWPL mainline CD from Stanfield in the two high demand cases in the final year of the planning horizon.

As shown in Appendix 5-3, the 20 year NPVRR of total system costs for the Company's Sensitivity cases range from approximately $11.5 billion ($2007) for the Limited North American Supply Sensitivity to a low of approximately $5.7 billion ($2007) for the Low Demand/Low Price case. These two Sensitivities mark the upper and lower ends, respectively, of the range of NPVRR estimates for all the tested Scenarios and Sensitivities.

## G. NW NATURAL'S PREFERRED PORTFOLIO

After testing a variety of scenarios and sensitivies, the Company identified the **Palomar Min at 100** as its Preferred Portfolio. This portfolio starts with the demand forecast and price forecasts identified by the Company as the base case. While we tested a number of different high and low price and demand forecast, we continue to believe the base case represents our best and most reliable forecast of future load and price.

The **Palomar Min at 100** scenario included as options all identified supply and demand-side resource options with the exception of imported LNG and the pipeline segments specifically associated with the imported LNG terminals. While scenarios including imported LNG were more cost-effective, as noted above the Company did not believe it could reasonably rely on the siting of those terminals for long-term planning purposes.

The Company included the **Palomar Min. at 100** Sensitivity case to test *SENDOUT*®'s treatment of the Company's decision to enter into a Precedent Agreement with Palomar for 100,000 Dth/day of capacity on this proposed new pipeline. The Company's primary objective in pursuing this portfolio selection is to facilitate a second direct connection to the interstate pipeline network in order to enhance long-term gas supply delivery reliability for its growing distribution system. NW Natural agreed to the Precedent Agreement because it concluded that a contractual commitment at this level was necessary to facilitate the development of this new

pipeline project. In the *SENDOUT*® analysis described above, the Palomar Min. at 100 Sensitivity case is slightly less economical than the Base Case which is not constrained to take Palomar at the 100,000 Dth/day level from day one, but it is more economical than the No Palomar case.

There are few differences between the Preferred Portfolio and the Base Case. Both call for the Newport LNG enhancement in 2012, the Brownsville to Eugene project in 2011, and the build-out of the Willamette Valley Feeder in 2010. Both portfolios also call for a small amount of satellite LNG in Eugene in 2010. Beginning in 2010, when Palomar East is modeled to be on-line, the portfolios differ in the amount of Mist Recall that is selected. The additional pipeline capacity allows the Company to recall slightly less Mist capacity in the Palomar at 100 scenario. In both cases, the model chooses to turn back capacity on the NWP system in favor of more economical capacity on the Palomar pipeline.

As noted above, although we have modeled Palomar East as unconstrained in the Base Case, the Company believes it would be unlikely that Palomar East would be available as an option had the Company not agreed to the 100,000 Dth/day Precedent Agreement. Thus we believe it is most realistic to compare the Preferred Portfolio with the No Palomar portfolio.

The Preferred Portfolio contains a few significant differences from the No Palomar portfolio. Besides the Preferred Portfolio being slightly more economical than the No Palomar alternative, the primary difference between these portfolios is that in the absence of Palomar East, the model is forced to acquire additional incremental capacity on the Northwest Pipeline system. We believe this resource decision only exacerbates existing concerns about reliability and NW Natural's dependence on a single pipeline. Although it is impossible to model on a purely economic basis, NW Natural believes the additional reliability provided by the Palomar pipeline is the most significant benefit of the Preferred Portfolio.

*Future Segmentation of NWP Capacity*

One of the primary drivers for the decision to agree to a Precedent Agreement for 100,000 Dth/day of capacity on Palomar East was fact that that amount of capacity matched the amount of NWP Gorge capacity – 102,000 Dth/day – that NW Natural could potentially turn back to NWP. Hence, the Company could acquire capacity on Palomar East and still keep its net pipeline capacity position neutral.

NW Natural had hoped that NWP would be agreeable to our being able to reallocate Willamette Valley delivery points to our other capacity contracts that we

planned to retain. Unfortunately, NWP has thus far not been agreeable to this reallocation. Hence, to be conservative we have assumed that we will need to retain 25,000 Dth/day of our NWP Gorge capacity to retain these delivery points. In the coming months, NW Natural plans to explore creative ways of reducing this requirement. If we could reduce this requirement, then we may ultimately be able to further improve upon the cost-effectiveness of the Preferred Case.

*Specific Resource Acquisitions and Action Items Related to the Preferred Portfolio*

NW Natural will be seeking to acquire the following resources, in conjunction with its selection of its preferred portfolio:

1. Palomar East capacity: Per the terms of the Precedent Agreement, assuming the Palomar project proceeds as currently scheduled, the Company plans to commit to 100,000 Dth/day of capacity on Palomar East. To make this resource even more economical, NW Natural plans to investigate creative ways of further reducing capacity on NWP.

2. Newport LNG Enhancement: This resource was selected in all scenarios tested by the Company with the exception of a 20-year negative load growth scenario that the Company does not believe is reasonable, given current economic projects and load growth estimates. The model selected this resource to be on-line in 2012. The Company's 2009 annual IRP update will discuss the progress that has been made on this project.

3. Willamette Valley Feeder (WVF): This resource was selected in all scenarios tested by the Company with the exception of the low demand and negative load growth scenarios. The Company has modeled two alternatives for the WVF, one of which is significantly lower in price, and would require less time for siting and permitting. However, in either case, this project is necessary. In order to get the WVF on-line in 2010, the Company must proceed immediately to refine and finalize cost projections, develop final route plans, and investigate any impediments to proceeding with the project. The Company will update the OPUC in its 2009 annual IRP update as to progress that has been made on this project.

4. Brownsville to Eugene River Crossing: this relatively small project was selected in most scenarios, with the exception of low demand,

negative growth, and the scenarios in which an imported LNG terminal is sited in Jordan Cove. This project is called for by the model in 2011, and may provide a cost-effective supply alternative to Satellite LNG in Eugene (as can be seen in the "Delayed Satellite LNG" sensitivity, which replaces satellite LNG in Eugene with a slightly larger Brownsville to Eugene project). The relatively smaller nature of the project gives the Company some time to update model runs prior to committing resources to the project. It also provides the opportunity to evaluate this project within the scope of a larger Willamette Valley Feeder project. The Company will update the OPUC in its 2009 annual IRP update as to progress that has been made on this project.

5. Mist Recall: the Company plans to recall 10,000 Dth/day of Mist capacity in the fall of 2008, and an additional 30,000 Dth/day of capacity in the fall of 2009.

6. Satellite LNG: By testing the impact of Delayed Satellite LNG and No Satellite LNG in the model, we were able to determine that the Brownville to Eugene River Crossing or alternative sizing of the Willamette Valley Feeder may substitute for a satellite LNG project in Eugene. While the Preferred Portfolio calls for a small satellite LNG project in Eugene in 2010, the Company is concerned that siting difficulties may make this impossible. As the Company develops plans for the Willamette Valley Feeder and Brownsville to Eugene projects, it will consider if these projects can be cost-effective substitutes to siting a satellite LNG facility in Eugene. The Company will update the OPUC with its 2009 annual IRP update as to progress that has been made on this project.

## H. STOCHASTIC ANALYSIS OVERVIEW

The deterministic analysis described above represent specific "what if" scenarios, which include predetermined assumptions for weather and price, as well as portfolio options and available incremental resources. To better understand the selected portfolio's response to weather and price criteria beyond the forecasts evaluated in the deterministic scenario analysis, the Company applies stochastic analysis to generate a variety of future weather and price events. Thus, by combining deterministic analysis and stochastic analysis, NW Natural is able to construct an

optimal portfolio that meets specific pre-determined planning criteria, while also stress testing the decision against a range of future weather and price events.

Deterministic analysis is valuable for selecting the optimal portfolio of available resources. The model selects resources that meet pre-determined design seasonal demand, while also meeting peak-day projections in each of the 20 years. However, due to the recurrence of design conditions in each of the 20 years, total system costs over the run horizon are overstated due to: 1) annual recurrence of design conditions; 2) annual recurrence of peak day; 3) recurrence of price increase in the forward price curve. In addition, deterministic analysis does not provide a comprehensive evaluation of reliability because only a single recurring weather profile is assessed within each scenario. As a result, deterministic analysis does not provide a comprehensive view of future events, and does not provide the range or expected performance across multiple weather and price profiles. Utilizing Monte Carlo[11] simulation to generate numerous weather profiles and price curves, the Company is able to measure a portfolio's performance over a range of future probable events not captured in the deterministic analysis. The following is a comparison of the benefits, limitations and applications of the two types of analyses for resource modeling purposes:

Deterministic Analysis (as employed in this IRP)

Primary Benefits:

- Assures pre-determined planning criteria are considered in each of the 20 years within the study horizon.
- Provides the basis for "what if" analysis to determine the optimal least-cost portfolio mix for a variety of pre-determined scenarios
- Provides a high level of flexibility to change assumptions based on specific objectives for each scenarios
- Provides the basis for resource mix / asset sizing decisions assuring key planning criteria is met throughout the study period.

Limitations:

[11] *SENDOUT*® uses Monte Carlo simulation to support stochastic analysis, which is a mathematical technique for evaluating risk and uncertainty. Monte Carlo simulation is a statistical modeling method used to imitate the many future possibilities that exist within a real-life system. By defining the expectation, variability, behavior, and correlation among potential events it is possible through repeated random "draws" to derive a numerical landscape of the many potential futures. Monte Carlo provides a quantitative landscape to reflect both the magnitude and the likelihood of these events, thereby providing a risk based viewpoint from which to base decisions.

- Weather patterns recur on an annual basis which is inconsistent with real world behavior
- Aggregate costs over the study horizon are over stated due to annual recurrence of design conditions year after year.
- The portfolio is not evaluated against a comprehensive range of weather and price patterns

Applications:

- Resource mix /asset sizing
- Comparison of various portfolio options and decisions under similar pre-determined planning criteria

Stochastic analysis (as employed in this IRP)

Primary Benefits:

- Provides a thorough stress test of the selected portfolio's performance under a variety of real world weather and price events
- Generates probabilistically weighted measures, such as costs, served demand, and unserved demand across a range of economic and operating conditions
- Provides a probabilistic view of expected costs and distribution of costs

Limitations:

- Randomness may not produce weather and price profiles consistent with planning criteria
- Will not necessarily capture desired peak day, due to low probability of occurrence

Applications:

- Stress testing for reliability against various weather patterns & related demand levels
- Provide expected costs and a range of costs over a normal distribution
- Used to confirm the selected portfolio's performance given real world economic and operational conditions.

The Company's application of deterministic and stochastic analysis in this IRP emphasizes the benefits of each, while minimizing the limitations. To this end, deterministic analysis provides the basis for resource sizing decisions and optimal portfolio construction, while stochastic analysis measures the selected assets under real world conditions, providing a comprehensive evaluation of portfolio performance.

The objective of stochastic analysis for the purposes of this IRP is to measure the reliability and cost of the Base Case and Preferred portfolios against a wide range of weather and price outcomes. Monte Carlo techniques generate multiple (200 in this case) weather and price forecasts over the 20 year period. For each of the 200 "draws", *SENDOUT*® solves for the least cost dispatch solution for resources selected from the Base Case portfolio. The stochastic analysis provides performance measures, such as system costs, served, and unserved demand under each of the 200 draws, and produces a distribution of Base Case portfolio results. Thus, stochastic analysis is used to evaluate the resource sizing decisions from the deterministic Base Case and Preferred portfolios against a range of weather profiles and forward prices.

Unlike the deterministic Scenarios and Sensitivities described previously, the stochastic analysis generates draws characterized by weather profiles with more variability from month to month and year to year. Generally, deterministic scenarios are constructed to include annually recurring weather profiles and related peak events to satisfy desired planning criteria. This type of traditional scenario analysis is valuable to assess the portfolio's ability to serve a pre-determined level of demand at various levels of growth over time. Any given year for a deterministic scenario may be representative of its associated probability, but the probability of consecutive years with the exact same weather profile is improbable.

For example, the Old Design Weather Sensitivity is constructed of 20 consecutive design years, each with a fixed peak day event. The same pattern is presented each and every year over the study horizon. However, assuming the design year is based on a 5% probability of occurrence, the probability of consecutive design years occurring is:

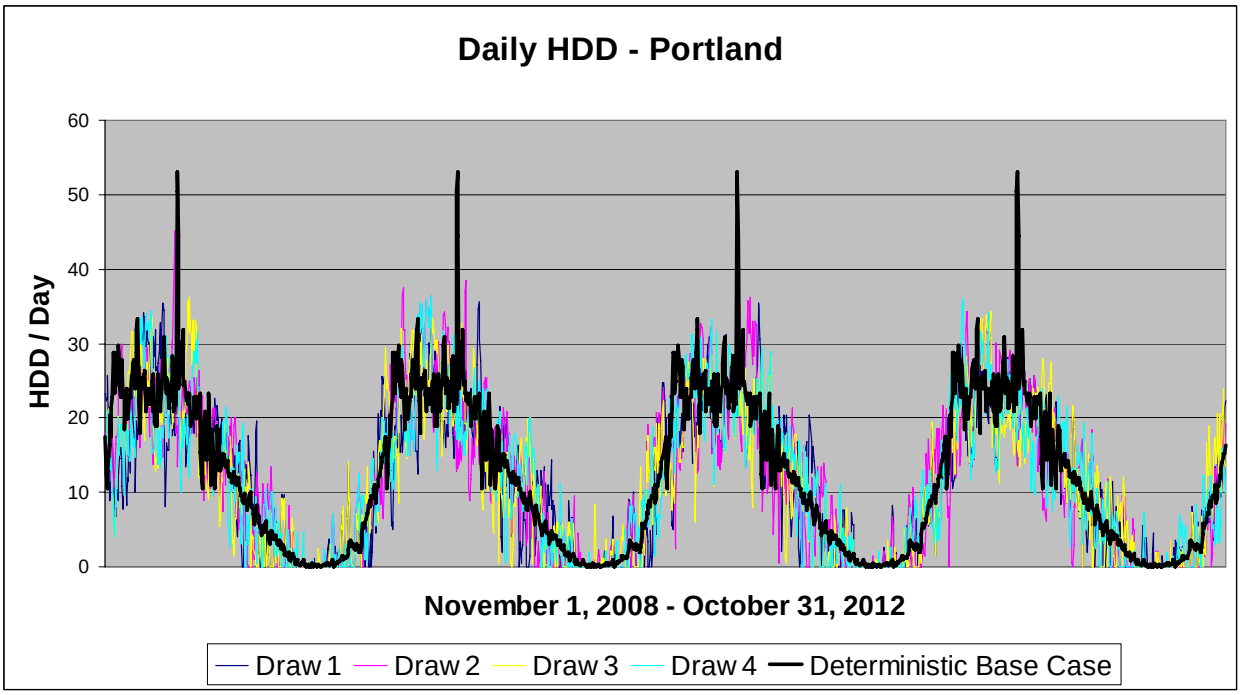
(P) Probability of Design Year = 5%
(n) Number of years in planning horizon
Probability of consecutive Design Years = $P^{(n)}$
Probability of Design Year in 2 consecutive years = $.05^{(2)} = 0.25\%$
Probability of Design Year in 20 consecutive years = $.05^{(20)}$ = statistically insignificant

Stochastic analysis, as employed by *SENDOUT*®, produces random monthly total HDD draw values (subject to Monte Carlo parameters consistent with expected values – see example of weather input data below), which are distributed on a daily basis based on a month from history with similar HDD totals. This procedure is repeated for every month of the study period. The resulting weather profile provides variability in the total HDD values, as well as variability in the shape of the weather pattern. As a result, stochastic analysis produces weather patterns that vary from month to month and year to year. This provides a more robust basis for stress testing than deterministic scenario analysis, because results can be evaluated based on their relative probabilities.

**Monte Carlo Weather Inputs (example):**

| | Jan-07 | Feb-07 | Mar-07 | Apr-07 | May-07 | Jun-07 | Jul-07 | Aug-07 | Sep-07 | Oct-07 | Nov-07 | Dec-07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HDD Mean | 737 | 640 | 561 | 422 | 284 | 145 | 36 | 31 | 97 | 348 | 583 | 769 |
| HDD Std Dev | 71.1 | 79.8 | 60.7 | 53.6 | 65.4 | 40.6 | 20.8 | 16.3 | 31.5 | 56.7 | 85.3 | 63.1 |
| HDD Distribution | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal |
| HDD Max | 950.4 | 865.3 | 742.7 | 583.4 | 479.7 | 266.8 | 98.5 | 80 | 192 | 518.1 | 839.3 | 958 |
| HDD Min | 523.9 | 386.7 | 378.5 | 261.6 | 87.4 | 23.4 | 0 | 0 | 2.9 | 177.9 | 327.2 | 579.6 |
| Scaling Year | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match | Best Match |

The graph below illustrates the recurring deterministic weather profile for Portland, compared to four random draw values produced by Monte Carlo simulations. The deterministic pattern remains constant year after year. This is important when selecting an optimal portfolio of resources, to assure design conditions and peak are met in each of the 20 years. The recurrence of the resulting high level of demand, along with the recurring peak event yields a high reliability portfolio, but also exaggerates costs over the 20 year period. On the other hand, Monte Carlo simulation generates a number of realistic weather patterns, which vary from year to year and draw to draw. Evaluating the selected portfolio over a number of random patterns provides a more realistic projection of expected costs and optimal dispatch. Ultimately, Monte Carlo assures the resources selected from the Base Case demonstrate reasonable costs and high reliability given a range of future weather and price events.




The design winter and peak event pattern recurs annually in the deterministic analysis, providing no "down-time," typical in real world weather patterns. Monte Carlo simulation, on the other hand, generates weather profiles that better represent real world activity, where a cold month may be followed by a warm month, producing monthly and annual profiles that vary throughout the study period.

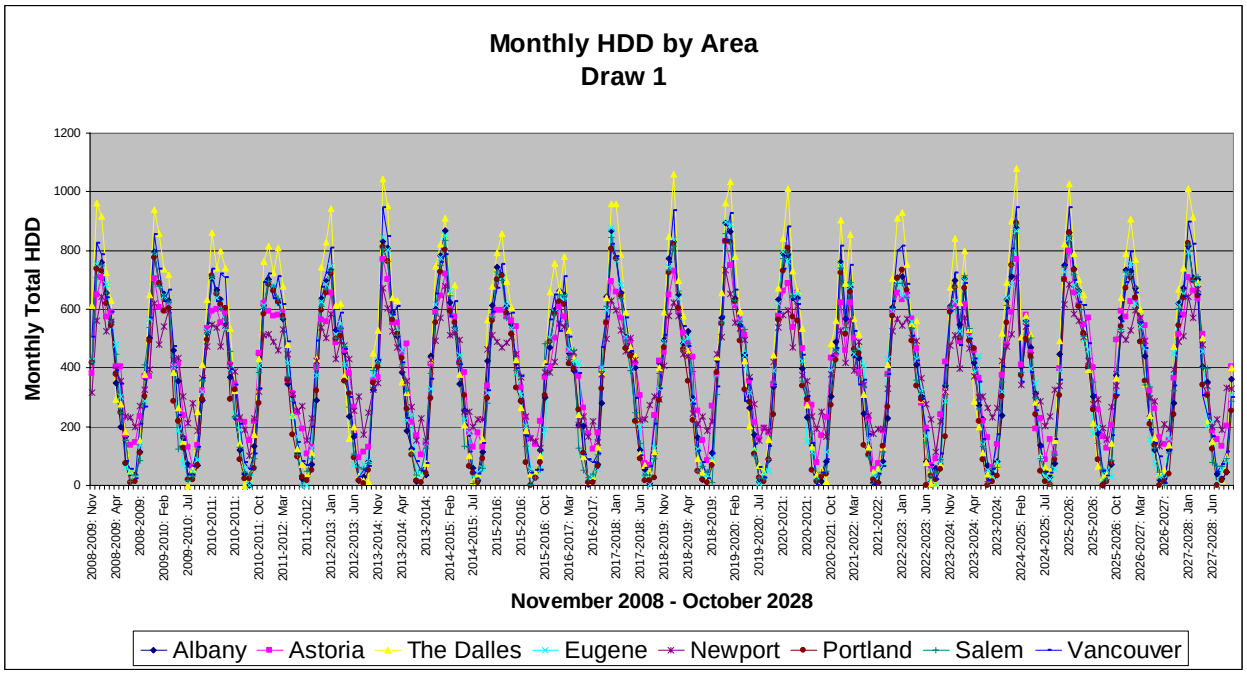
*SENDOUT*® also supports correlation of Monte Carlo variables. Correlation assures the behavior of draws from different variables and from month to month maintain reasonable consistency between one-another. A correlation of "1" assures draw results are in "lock step" with one another, while a correlation of "0" indicates there is no relationship between the two variables. Appendix 5-3 provides modeled correlation values between weather areas and price values.

Weather correlations are based on statistics calculated from 20 years of historical data. In contrast, historical price correlations typically are not a reliable predictor of future price movement. From a historical perspective, relative price patterns do not follow similar patterns, diminishing correlations over time. As a result of the inconsistency of historical price correlation matrixes, the Company has included correlations for price indexes at a factor of 0.8, allowing reasonable variation from price

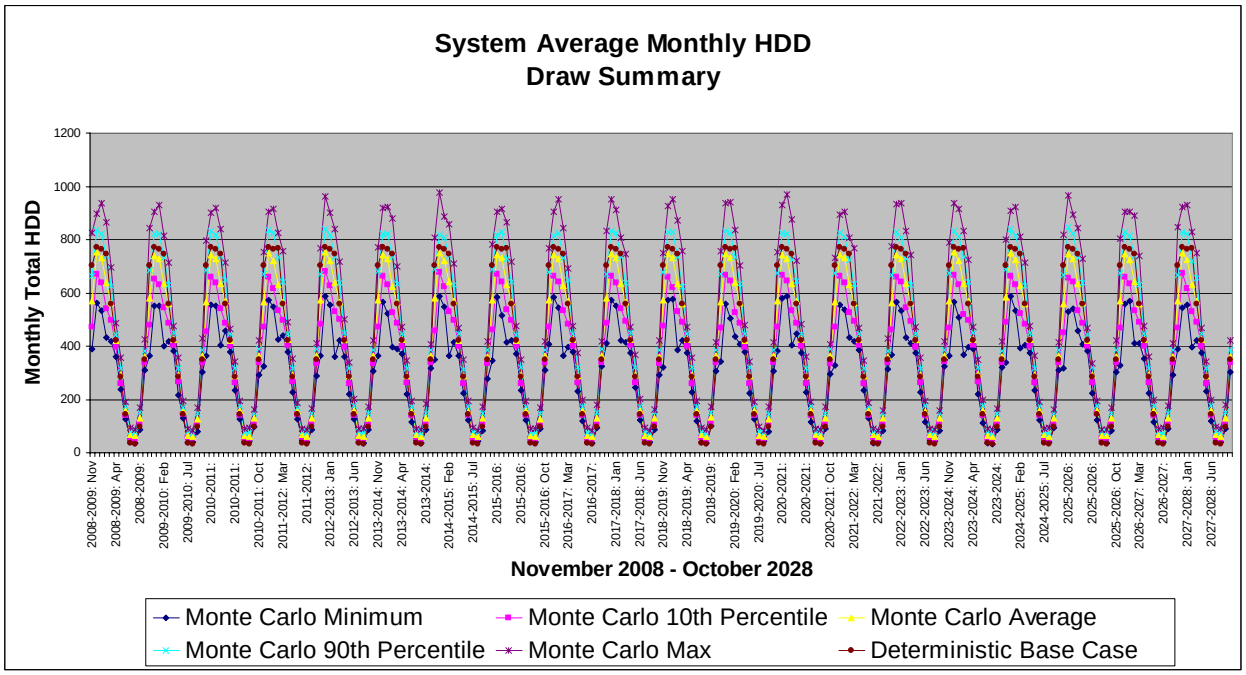
to price while also assuring prices maintain a relatively consistent pattern in relationship to one another. In addition, the Company correlates each price index to its prior month draw value at 0.5. This allows month to month price movement, while minimizing the "saw tooth" effect associated with uncorrelated random draws.

NW Natural applies Monte Carlo simulation to the weather patterns of the eight areas modeled (Portland, Astoria, The Dalles, Vancouver, Salem, Albany, Newport and Eugene) and three price indexes (Rockies, Sumas, and AECO) available in the Base Case. Results of the Monte Carlo simulation produce the following ranges of forecasted aggregate demand and average index price.

**HDD Draw Results by Area – Draw 1 of 200 (example):**

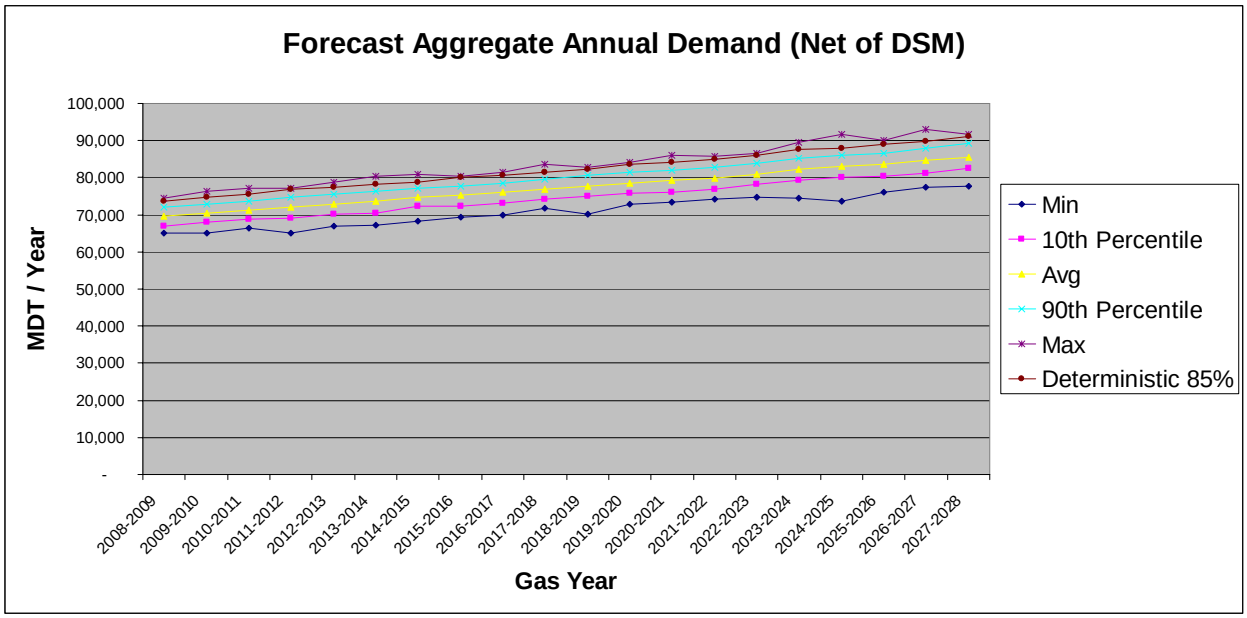


## System Average Monthly HDD Statistics across 200 Draws.[12]



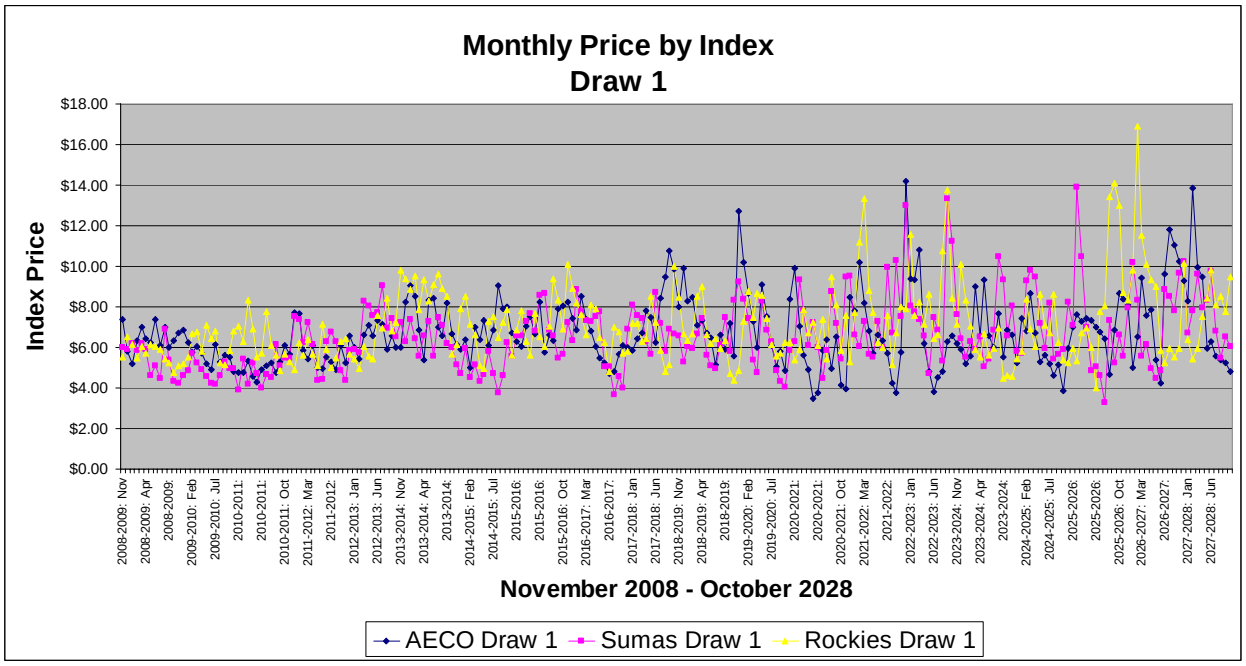

[12] Note: the statistical summary graphs do not represent a particular draw; rather, they represent statistics across all draws. For example, the minimum for January, 2008 occurred in draw 91, while the minimum for February, 2008 occurred in draw 126; and the maximum for January, 2008 occurred in draw 186, while the maximum for February 2008 occurred in draw 76.

**Resulting Aggregate Demand Forecast (Net of DSM) Statistics across 200 Draws**

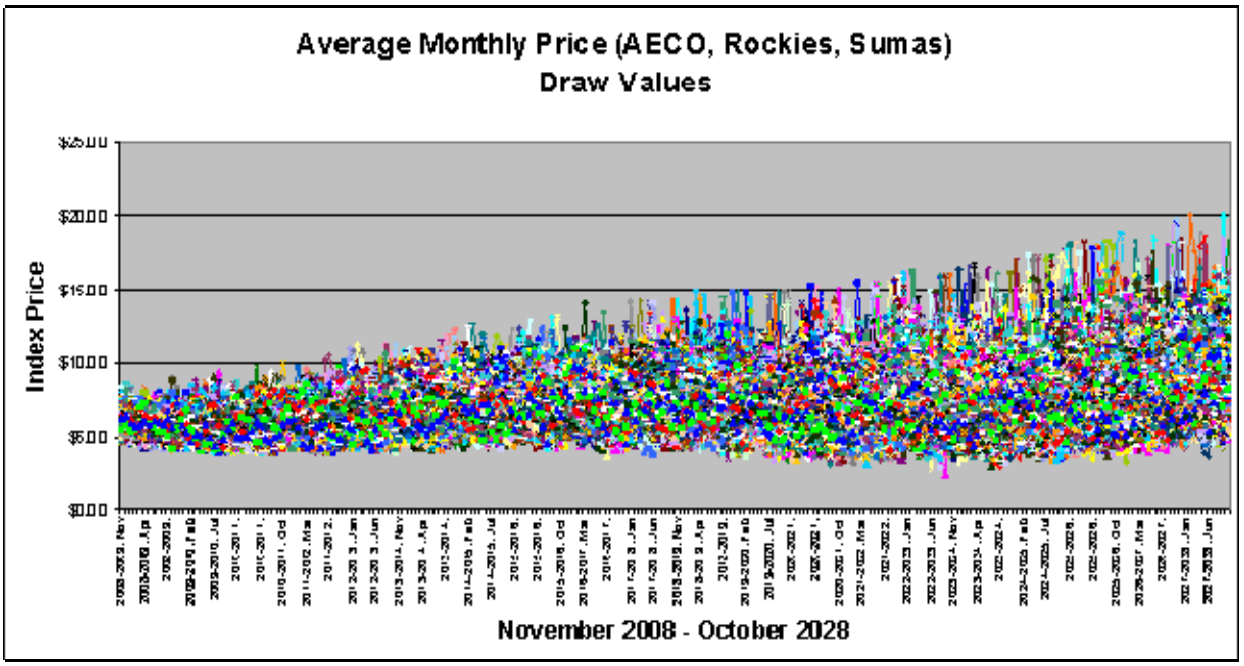



Similarly to the previous weather profile discussion, deterministic analysis is generally limited to evaluation of a subset of potential forward price curves. Monte Carlo simulation produces forward price curves with a wider range of month to month and year to year variability, compared to typical deterministic price forecasts. A range of forward prices and price patterns supports a more robust assessment of potential cost ranges and related cost risks. The following charts depict Monte Carlo price draw results.

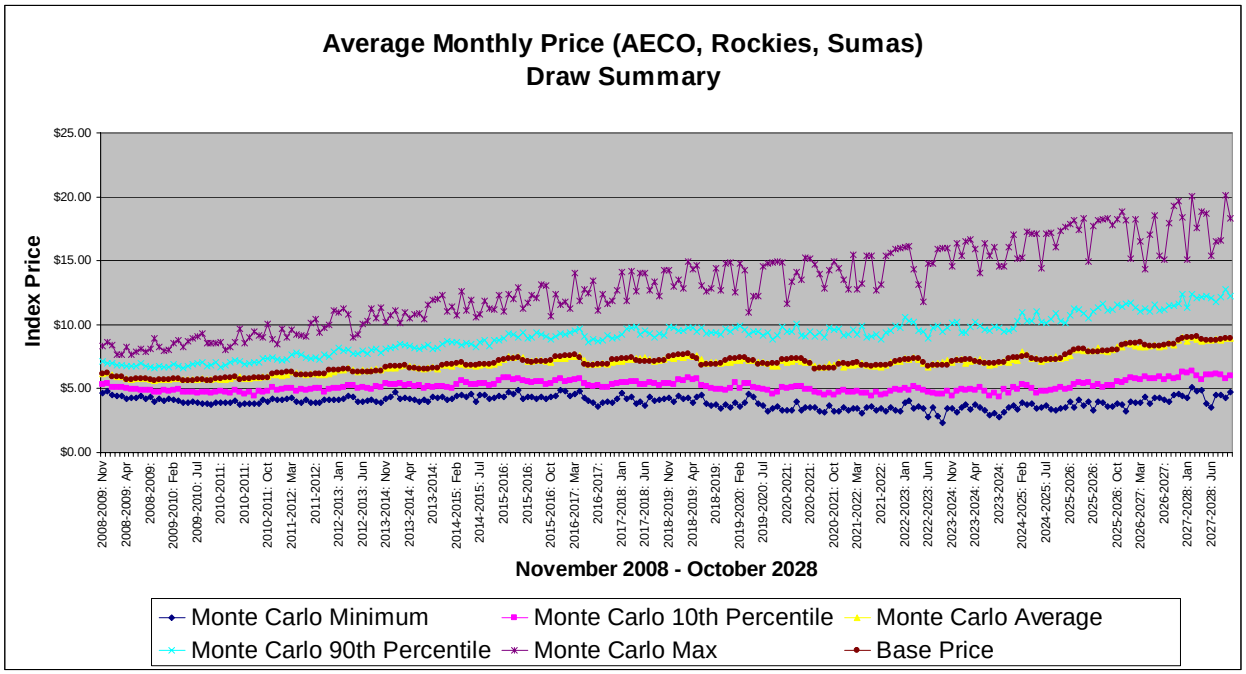
## Price Draw Results – Draw 1 of 200 (example):



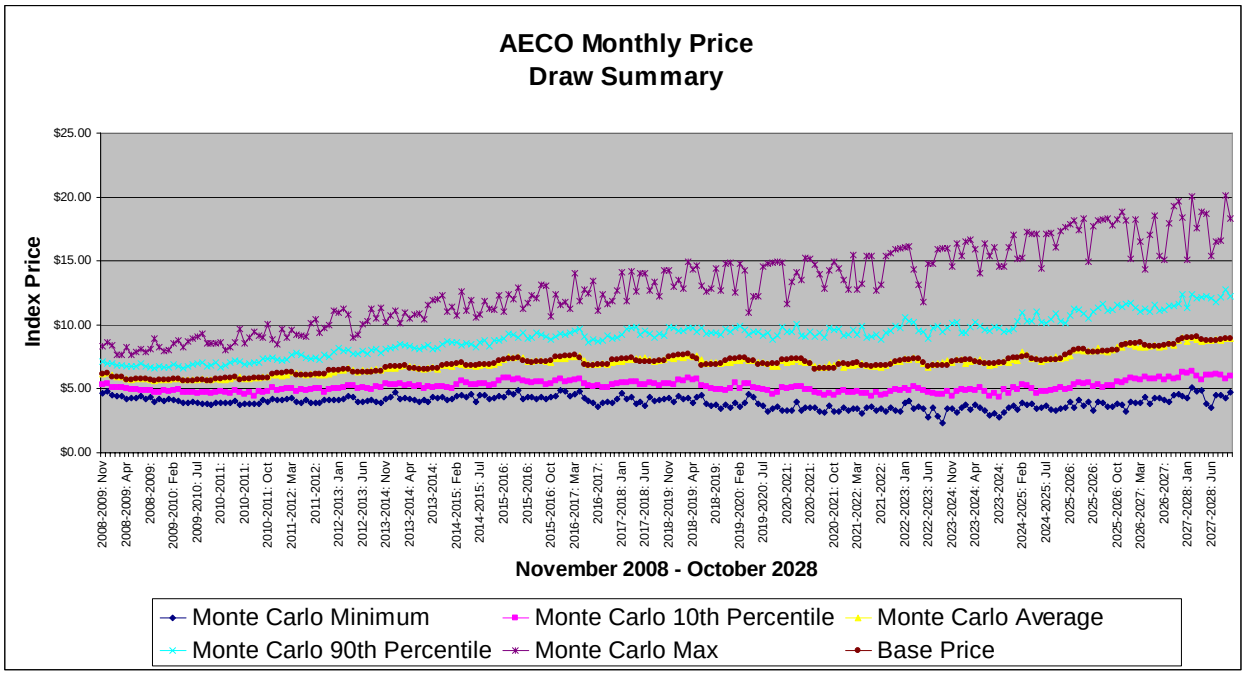

## System Average Monthly Price Results for all Indexes (200 Draws):



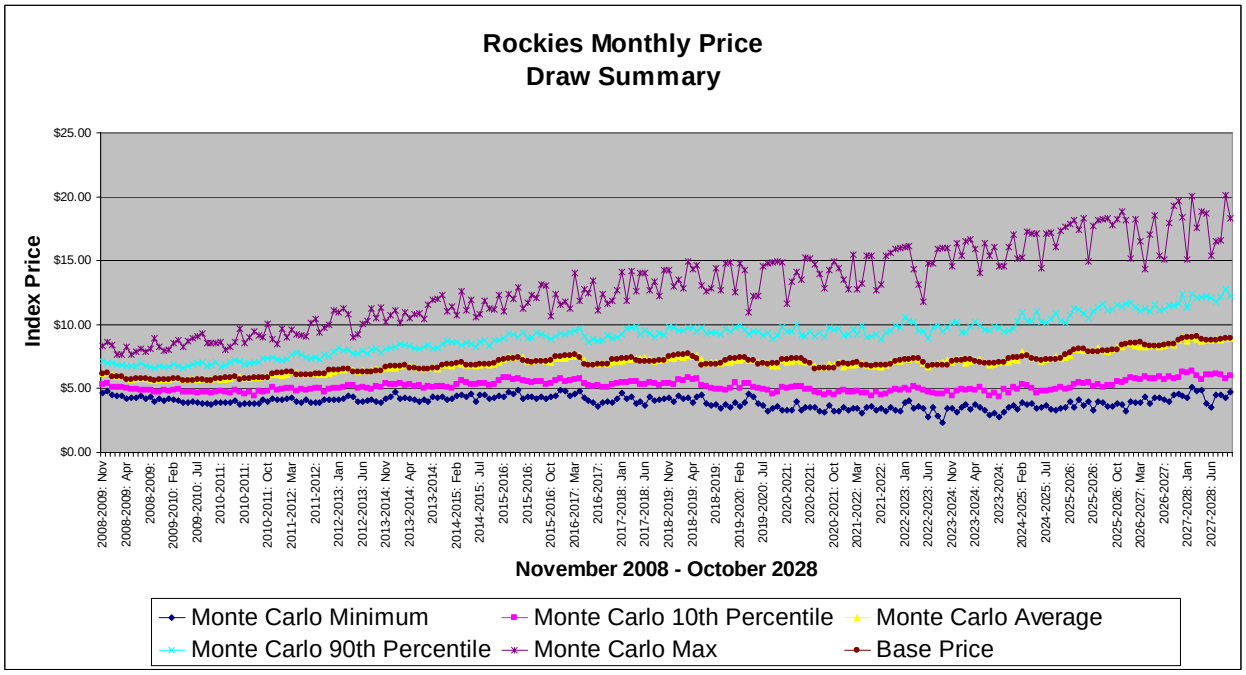
## System Average Monthly Price Statistics across 200 Draws:



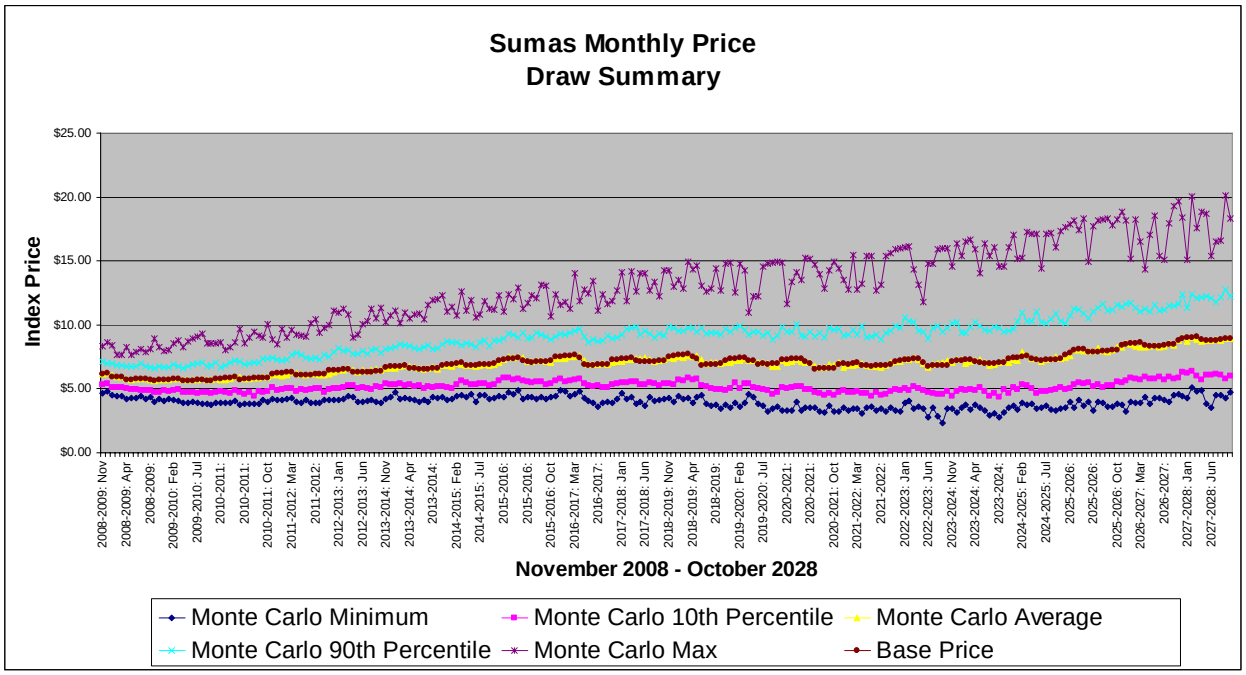
## AECO Monthly Price Statistics across 200 Draws:




## Rockies Monthly Price Statistics across 200 Draws:



**Sumas Monthly Price Statistics across 200 Draws:**

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## I. STOCHASTIC ANALYSIS RESULTS

The weather and price draw results presented above are the basis for the Company's stochastic analysis of both the Base Case portfolio and the Preferred Portfolio (Palomar at 100,000 Dth/d Minimum). The stochastic analysis reveals that the Base Case and Preferred Portfolio are comparable; both providing highly reliable portfolios with expected system costs well below levels associated with the deterministic analysis.

This section depicts high level results of the Company's comparative stochastic analysis of the reliability and cost of the Base Case and Preferred Portfolio by use of histograms. The histogram graphs depicted in this section include a number of meaningful statistics, including:

- Range: provides the minimum to maximum value across all draws
- Expected Value: the average of all draws of the simulation
- Standard deviation: provides a measure of the distribution of results around the mean. A low standard deviation indicates the draws are close to the

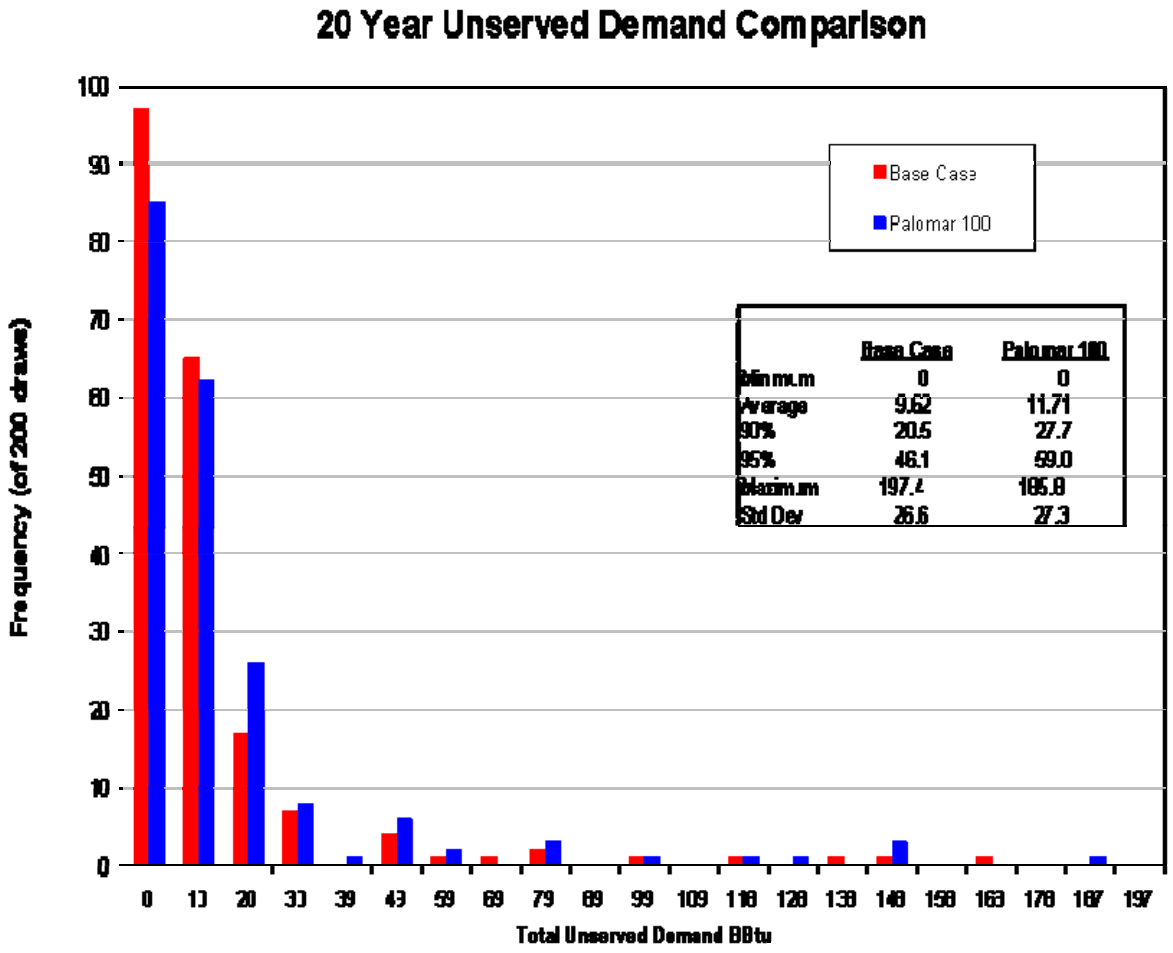
mean, while a high standard deviation indicates the results are spread out away from the mean

- Percentile ranges: provides the value at various levels of probability.

Reliability

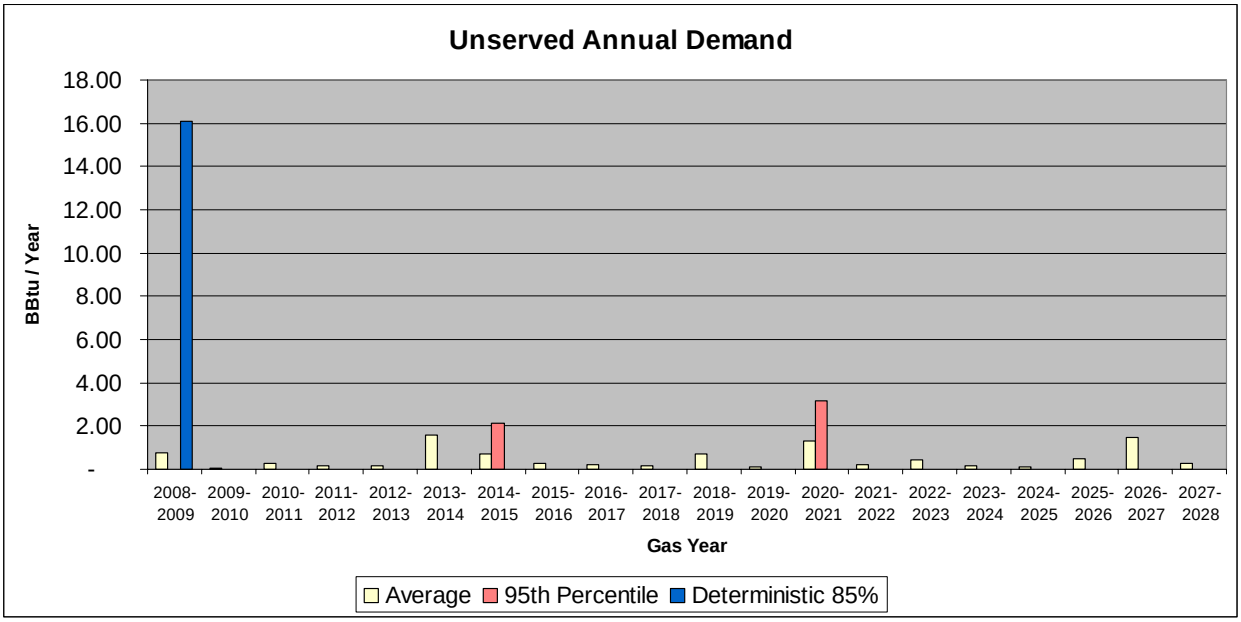
The histograms illustrate the range and distribution of results across draws. For example, the graph below compares the total unserved demand over the 20 year run horizon. The X Axis represents the range of total unserved demand over the 20 year period, where the first bin includes draws with zero unserved; the second bin includes draws with unserved between zero and 10, the third bin includes draws with unserved between 10 and 20, etc. The Y Axis represents the number of draws, from a total of 200, which are included in a particular bin. The analysis indicates that the Base Case provides a slightly higher level of reliability than the Preferred Portfolio, though the difference is minor from a statistical perspective.

**Unserved Demand - Comparison**

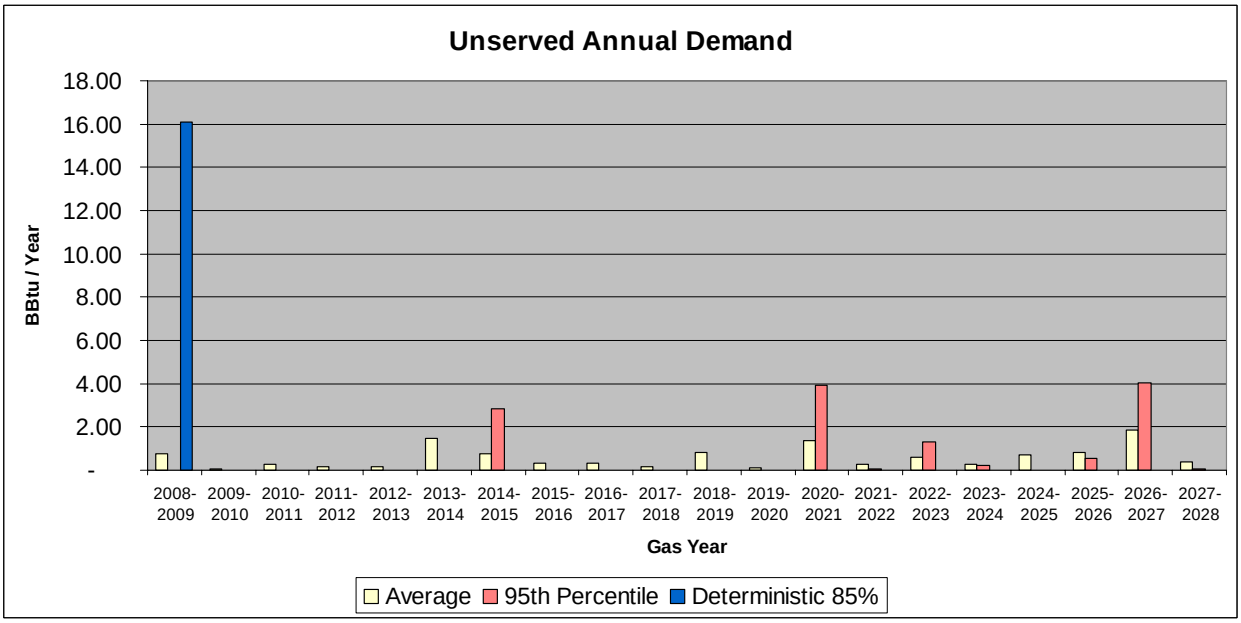



The graphs below represent unserved demand over each year of the run-horizon for the Base Case and Preferred Portfolio, respectively. There is little departure between the two below the 95th percentile; therefore, the Company does not include data below the 95 percentile in the graph. Only in the most extreme demand conditions is the Preferred Portfolio less reliable than the Base Case.

## Unserved Demand - Base Case

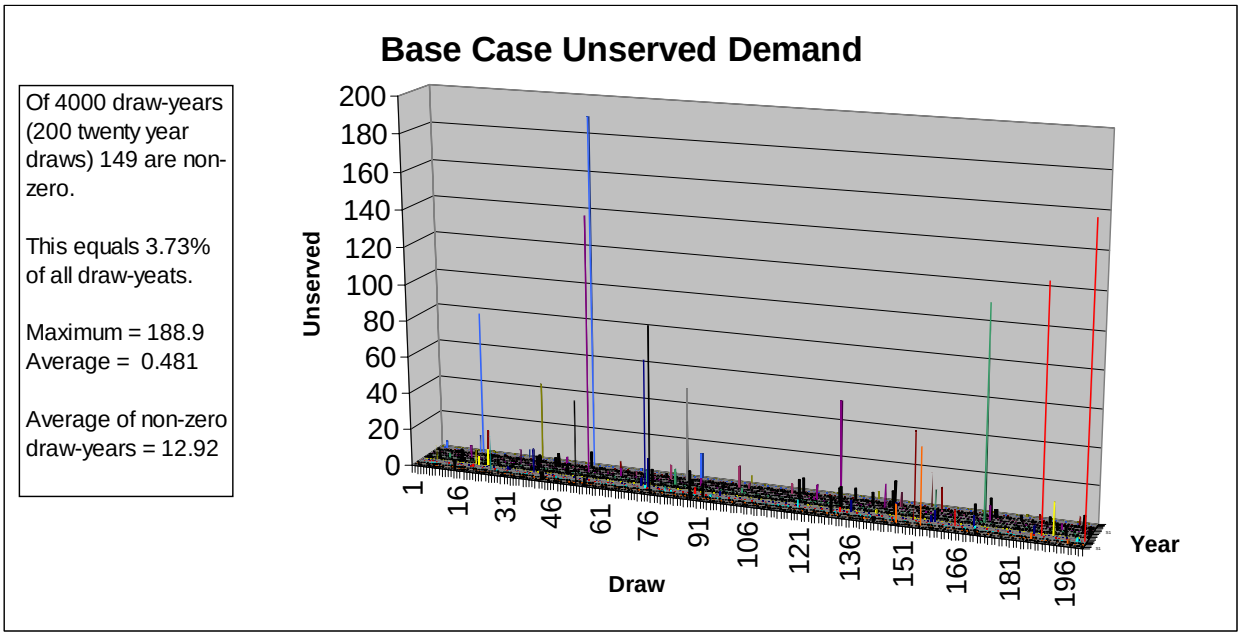



## Unserved - Preferred Portfolio

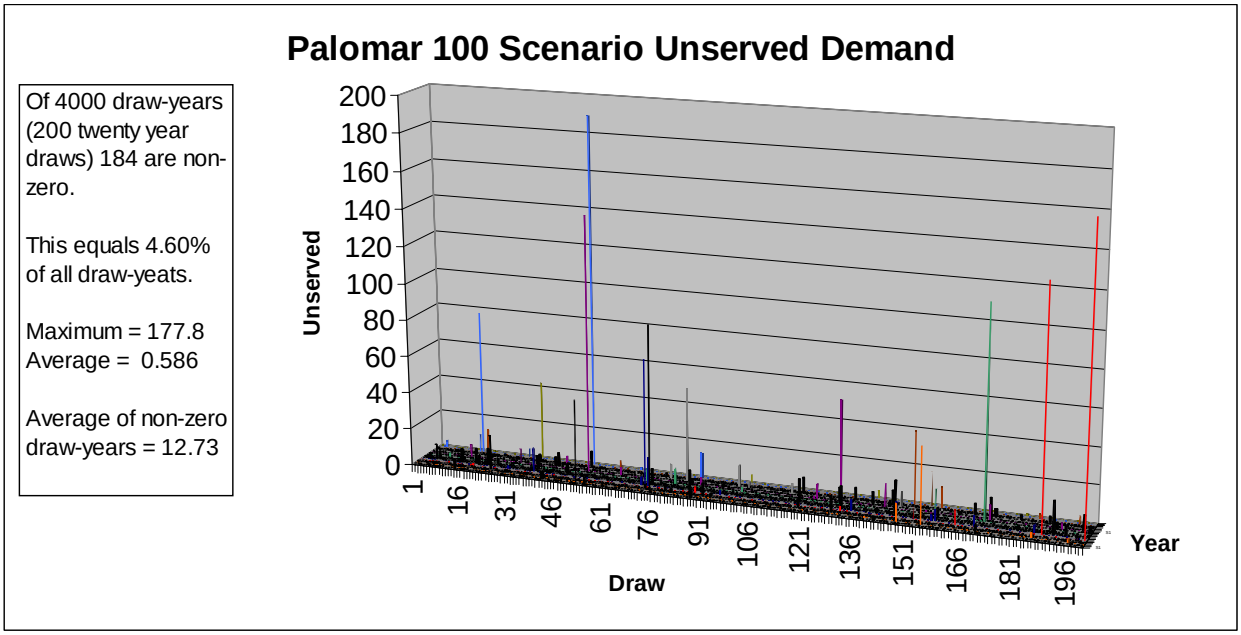


The three dimensional graphs below illustrate the relative infrequency of unserved demand in both portfolios. The graphs include three axes: the horizontal X Axis represents the draw (200 total), the horizontal Z Axis represents the year within each draw (20 total), and the vertical Y Axis represents total unserved demand in each year for each draw.

**Unserved by Year by Draw – Base Case**



**Unserved by Year by Draw – Preferred Portfolio**

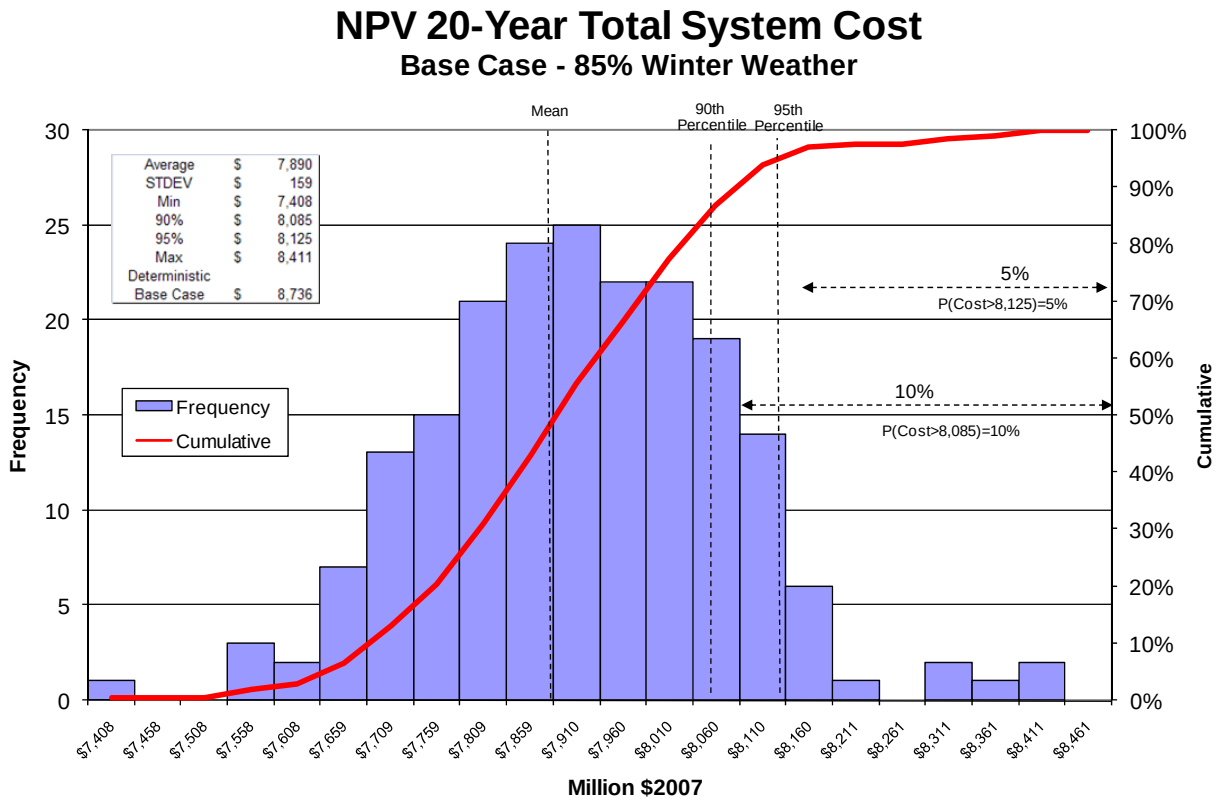



The stochastic analysis includes 4,000 distinct annual demand profiles (20 years x 200 draws = 4,000). The Base Case yields non-zero unserved demand in 149 of 4,000 draw years (3.73%), providing 96.27% reliability on an annual basis. The Preferred Portfolio yields non-zero unserved demand in 184 of 4,000 draw years (4.6%), providing 95.4% reliability on an annual basis.

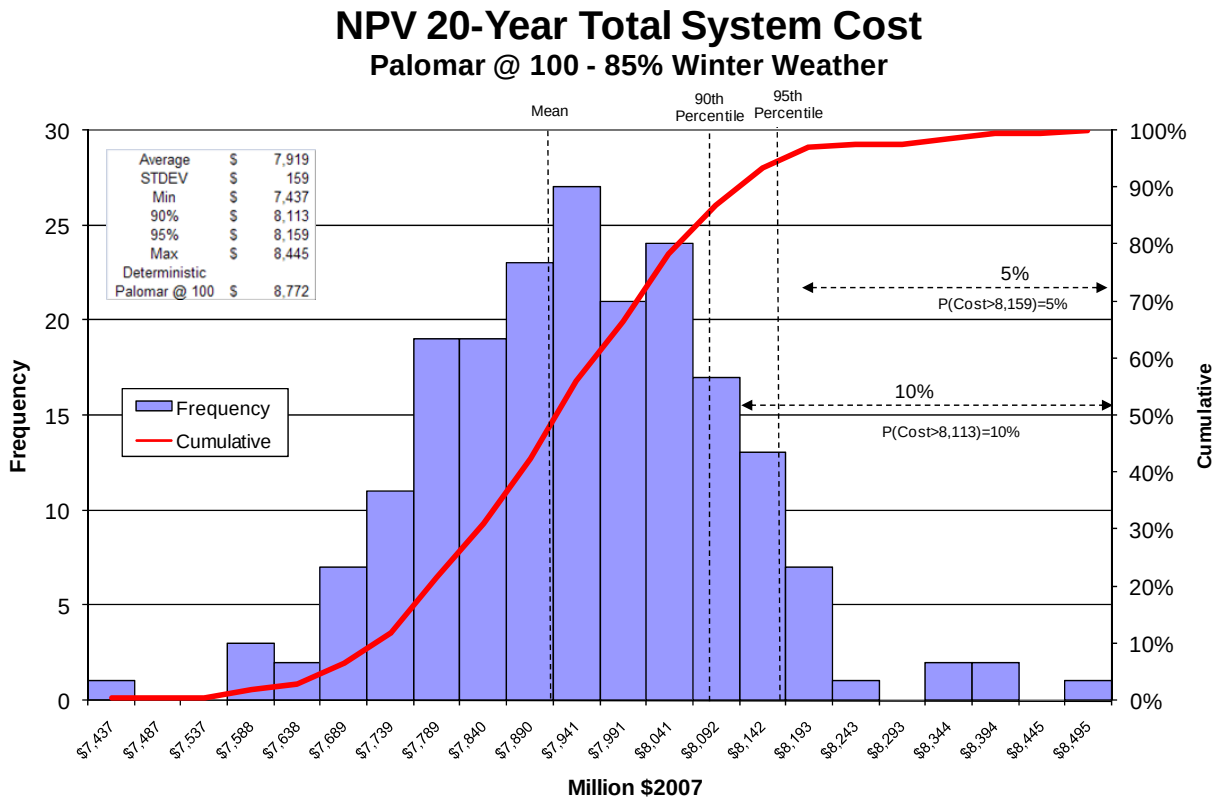
Total Resource Costs

The graphs below compare 20 year total costs between the Base Case and the Preferred Portfolio. Overall, the expected costs between the two cases vary by 0.4%. The two cases maintain a very similar cost profile over time. The histogram summaries below provide min, max, average (expected) and percentile information for total system costs over the run-horizon.

## Base Case


NPV 20-Year Total System Cost
Base Case - 85% Winter Weather
Mean
90th Percentile
95th Percentile
Average $ 7,890
STDEV $ 159
Min $ 7,408
90% $ 8,085
95% $ 8,125
Max $ 8,411
Deterministic Base Case $ 8,736
5%
P(Cost>8,125)=5%
10%
P(Cost>8,085)=10%
Frequency
Cumulative
Million $2007

## Preferred Portfolio




## Comparison

**NPV 20-Year Total System Costs**
**(Million $2007)**

| | | Base Case | | Preferred Portfolio | Variance |
|---|---|---|---|---|---|
| Average | $ | 7,890 | $ | 7,919 | 0.368% |
| STDEV | $ | 159 | $ | 159 | 0.000% |
| Min | $ | 7,408 | $ | 7,437 | 0.391% |
| 90th Percentile | $ | 8,085 | $ | 8,113 | 0.346% |
| 95th Percentile | $ | 8,125 | $ | 8,159 | 0.418% |
| Max | $ | 8,411 | $ | 8,445 | 0.404% |
| Deterministic | $ | 8,736 | $ | 8,772 | 0.412% |

The analysis indicates the Preferred Portfolio is comparable to the Base Case, providing nearly identical expected costs, along with a similar distribution of costs given a range of weather and price profiles. Of particular significance, both portfolios maintain the same Standard Deviation, providing the same level of cost stability. NW Natural concludes that the Preferred Portfolio provides a reliable, low cost, and high likelihood alternative to the Base Case.

## VI. KEY FINDINGS

* The use of *SENDOUT®* as a modeling tool and move away from load duration curves to a daily demand forecast and late winter peak event provides NW Natural a more realistic look at demand levels and capacity requirements than was previously possible. The added detail included in *SENDOUT®* exposes peak-day delivery limitations not revealed in the previous model. As a result, the need for capacity additions in the near and medium term significantly increased beyond the results in previous IRP studies.

* After consulting with stakeholders in this IRP, the Company has selected an 85% probability coldest winter planning standard against which to evaluate the cost and risk trade off of various supply and demand resources available to *SENDOUT®*. Although this planning standard incorporates a level of demand less than its traditional "design year" planning standard, it reflects the Company's evaluation and selection of a planning standard and resulting portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers.

* The Preferred Portfolio best balances reliability and cost over the 20-year planning horizon. The Preferred Portfolio provides significant added reliability in the form of the Palomar East Pipeline, while proving to be more economical than resource mixes that do not include Palomar East.

* The stochastic analysis reveals the Company's Preferred Portfolio maintains a highly reliable and low cost set of resources, comparable to the Base Case Scenario, while also representing a high likelihood of occurrence, while providing supply diversity and reliability at reasonable cost.

* Recall of pre-built Mist storage resources currently dedicated to the interstate storage service market into core-market service is an attractive choice to meet growing peak-day requirements and annual working gas requirements. This is a service that provides both seasonal and peak day deliverability benefits directly to Portland, Astoria, and by displacement to the Vancouver and The Dalles service areas; and to a lesser degree, to the southern areas of the system: Salem, Albany, Eugene and Newport. These areas are limited by current pipeline capacity limitations both on the NWPL Grant's Pass Lateral and on the Company's own downstream pipeline capacity.

* *SENDOUT®* selects the proposed Palomar East pipeline in each tested resource mix scenario, except the highly unlikely case where we assume gas supplies are simultaneously available from two separate LNG import terminals in Oregon. Subscribing to capacity on the proposed Palomar pipeline serves a dual purpose of securing cost-effective incremental pipeline resources to satisfy growth and enhancing reliability by adding a second path for delivering interstate gas supplies directly into the heart of the Company's distribution system. For this reason, the Company has selected the Palomar Min. at 100 case as its Preferred Portfolio. Although the *SENDOUT®* analysis shows that this portfolio is slightly less economical than the Base Case, it is more economical than not including Palomar in the resource mix at all. The Company has determined that in order to improve the long-term reliability of its distribution system, it must subscribe to a minimum level of capacity with Palomar and facilitate the development of this new pipeline.

* *SENDOUT®* confirms that the GP recall and March Point NWPL capacity resources are cost-effective resource options.

* Contracting for re-gasified LNG from the proposed Bradwood Landing or Jordon Cove LNG import terminals, should either be successfully developed, fits well with the Company's resource portfolio as it allows NW Natural to take advantage of likely favorable supply pricing associated with the Company's location adjacent to the regasification terminals while further reducing the Company's reliance on a single interstate pipeline for citygate delivery of supplies. The modeling results clearly demonstrate that gas supplies sourced from Oregon LNG import terminals are projected to be cost effective. Given the preliminary development status of the proposed terminals and NW Natural's inability to control their successful development, the Company is not predicating its resource selections on the availability of imported LNG. However, NW Natural believes imported LNG is an important long-term supply resource and would provide significant benefits to our customers.

* Satellite LNG is a cost effective resource alternative for meeting the growing peak day demand in the capacity constrained southern areas of the Company's system in the Willamette Valley. However, the Company faces siting and permitting challenges in developing this peaking resource. The Company's analysis suggests that alternative resources are available to substitute for this resource at only a slightly higher expected cost.

* With a subscription to new capacity on the proposed Palomar pipeline, the Company would be able to shed existing interstate pipeline capacity on NWPL, which notwithstanding the attendant reliability enhancements may provide cost savings over the 20 year planning horizon. The Company would then have the added flexibility to procure incremental interstate pipeline capacity as needed, in a potentially more competitive environment, at the then prevailing subscription rates

* NW Natural's pipeline facility investments in the Willamette Valley (Brownsville to Eugene river crossing, Newport pipeline enhancement, the Willamette Valley Feeder) can provide added reliability and improve the capability to serve the growing peak and seasonal demand on the capacity-constrained southern portion of the system.

* The Willamette Valley Feeder project is a cost-effective resource that is selected in 2010 all of the resource mix selections, except for those that modeled low demand. In order to get this project on line in 2010, the Company must proceed immediately to refine and finalize cost projections, develop final route plans, and investigate any impediments to proceeding with the project. NW Natural plans to update the OPUC in its 2009 Annual IRP update with information as to progress that has been made on this project, with more specific cost estimates and route analysis when it is available.

# CHAPTER 6: AVOIDED COST DETERMINATION

# CHAPTER 6: AVOIDED COST DETERMINATION

## I. OVERVIEW

As part of the IRP process, NW Natural produces a 20-year forecast of monthly avoided costs for the eight geographic regions in its service territory. These avoided cost estimates represent the changes in gas supply costs that result from changes in load served. For example, if DSM conservation measures reduced customer gas requirements, the Company theoretically sheds or "avoids" certain transmission and gas supply costs. Likewise, serving additional load leads to increased gas supply and infrastructure costs.

Avoided cost determination is an important part of the IRP process, as these estimates serve as the basis by which Stellar Processes evaluates the cost-effectiveness of individual DSM measures and identifies the achievable level of DSM conservation in NW Natural's service territory. The identification of achievable DSM conservation is discussed in more detail in Chapter 4.

## II. METHODOLOGY

The Company's avoided cost method focuses on the cost impact of small load changes. With load growth, the Company adds resources from time to time to serve these new requirements. As one of its functions, the IRP determines the least cost means of serving this growth. When load increases by a small amount, the incremental resource serves the increased load. The incremental resource's cost is the cost of meeting load increments. Avoided cost, then, is the marginal cost of serving small load increments (or the cost avoided by load decreases) as defined by the current incremental gas supply resource in each time period.

Computing marginal costs requires a forecast of probable load growth, a forecast of future trends in commodity gas costs, and a menu of capacity-augmenting investments or purchases that are optimal for meeting those load requirements. The Company generated a range of load growth forecasts and commodity price forecasts, which are presented in Chapter 2. The Company adopts the expected demand forecast and commodity price forecast as its Base Case, which underlies the Base Case avoided cost estimates. As an additional sensitivity, NW Natural also produced avoided cost estimates assuming commodity prices increase 20 percent over the Company's current High Price forecast thus simulating a decrease in North American supply.

*SENDOUT*® determines the least cost resource mix required to meet forecasted demand through linear programming and provides marginal cost data for each of the Company's geographic demand areas, by day, month, and year. This marginal cost data includes the cost of the next supply unit, transportation charges, and related storage costs. These avoidable cost components are discussed in more detail in the following Sections III and IV. NW Natural used the *SENDOUT*® model's functionality to produce marginal cost data for the selected Base Case resource portfolio under the design year weather planning criteria assuming no DSM conservation effects. To estimate avoided cost, the Company added an environmental compliance cost adder of $0.099 per therm to the marginal cost estimates provided by *SENDOUT*® to equally compare supply-side and demand-side resources.[1] Environmental compliance cost adders are further discussed in Section V.

## III. AVOIDABLE CAPACITY RESOURCES

To meet growing loads, the Company draws upon storage or pipeline capacity. Increased capacity on Northwest Pipeline Corporation (NPC), the Company's primary supplier, requires that NPC make physical investments to expand peak delivery capability into the various NW Natural market areas. And it is the point of delivery that drives the pricing of the pipeline capacity additions. For example, since NPC would need to build more additional pipe to add deliveries at, say, Eugene than it would at Portland, the rate for incremental pipeline capacity is greater at the southern end of the system than it is at Portland in the north. On the other hand, further investments by NPC north of Molalla could be postponed if the Palomar pipeline is built. In any case, incremental pipeline capacity down the valley is an essential incremental resource.

Incremental storage facilities that provide significant amounts of annual deliverability will most likely be underground storage. However, as described in Chapter 3, the west coast has a number of viable LNG projects that could become operational within the next five to ten years providing a direct impact on NW Natural's resource planning and acquisition. The two projects that are furthest along are the Bradwood and Jordan Cove facilities. Because neither Bradwood nor Jordan Cove has been constructed, NW Natural is including them in its modeling for scenario analysis purposes but has not included them for avoided cost determination.

Satellite LNG is an additional supply-side resource for the avoided cost analysis. This concept involves portable LNG tanks that can deliver 30,000 therms a

1 The $0.099 per therm environmental cost adder assumes a $15 per ton adder for $CO_2$ and $2,000 per ton adder for NOx.

day for three days. When placed at strategic points on the system, these facilities provide local capacity on peak load days.

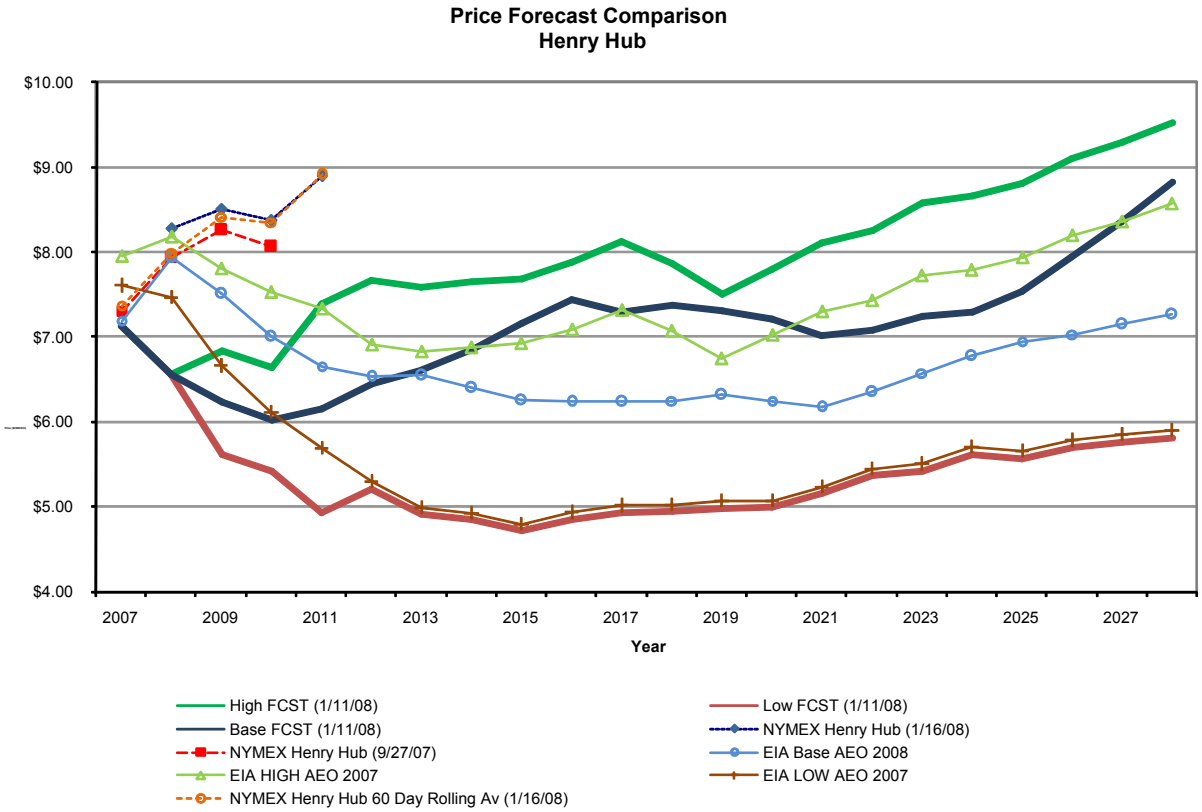
As an alternative to purchased pipeline capacity, the Company includes the option of building enhanced transmission capacity between the Portland area and Eugene. This involves new piping to move Mist gas or other incremental gas supplies delivered to Molalla south to Salem, Albany, and potentially even the Eugene area. This project could also work in conjunction with a pipeline capacity expansion project from the Company's Newport LNG facility to the Company's Willamette Valley service area, as further described in Chapter 3.

## IV. AVOIDABLE GAS COMMODITY COSTS

The Company considered several sources of long-term gas price forecasts. Figure 6-1 below contains a chart that compares some of the principal forecasts. The chart also includes recent New York Mercantile Exchange (NYMEX) "strip" of futures prices that reflects prices during the end of September, 2007 and mid-January 2008. While the 2007 U.S. Energy Information Administration (EIA) forecast falls far below the forward strip, EIA's projections traditionally under-project spot prices. The Company has relied on the Wood Mackenzie Long Term Outlook for its base case natural gas forecast, as it has traditionally outperformed projections released by the EIA. This consulting firm produces both a long-term market outlook as well as monthly and weekly updates. Therefore, NW Natural is able to rely on forecasts that have a long-term perspective – incorporating those elements that drive long range views, and also up to date information as the markets change

The resources summarized in Section III above allow additional load to be served from resource decisions such as the purchase of pipeline CD or construction of additional storage facilities. If the model chooses CD or storage as a supply source, the new resource delivers gas to meet customer requirements.

**Figure 6-1**




## V. ENVIRONMENTAL COSTS AND EXTERNALITIES

The OPUC's Order No. 07-002 in Docket UM 1056 (Investigation Into Integrated Resource Planning) enhanced the previous decision adopted in the OPUC's Order No. 93-695 in Docket UM 424 (Development of Guidelines for Treatment of External Environmental Costs), which established the following guideline for the treatment of environmental costs used by energy utilities that evaluate demand- and supply-side energy choices:

> *Guideline 8: 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 $CO_2$ 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 ($SO_2$), and mercury (Hg), if applicable.*

Unlike electric utilities, environmental cost issues rarely impact a gas utility's supply-side resource choices. For example, NW Natural cannot choose between "dirty" coal-fired generation and "clean" wind energy sources. The Company's only supply-side energy resource is natural gas. At present, the only supply-side implication of environmental externalities in the Company's direct gas distribution system is that some methods of natural gas storage require the combustion of the gas. An LNG facility, such as Newport, burns one therm of gas to liquefy five therms. Underground storage, such as Mist, uses one therm of gas to compress 100 therms of gas into storage. While upstream gas system infrastructure (i.e. pipelines, storage facilities and gathering systems) produce more $CO_2$ emissions via compressors, NW Natural concluded that it does not make an appreciable difference in supply-side resource selection. However, due to the energy requirements necessary to bring imported LNG to domestic markets, the Company sees the need to fully evaluate imported LNG, because of its potentially significant impact on gas supply resource decisions.

Environmental externality costs do make a difference in the comparison between supply-side and demand-side resources. To facilitate such comparisons, the Company's avoided cost estimates include a $0.099 per therm environmental externality adder to reflect assumed costs in the amount of $15 per ton for $CO_2$ and $2,000 per ton for NOx. These levels are similar to what the electric utilities are currently using. The derivation of this $0.099 per therm adder is illustrated in Table 6-2.

**Table 6-1**
Natural Gas Environmental Externality Adders
Included in Avoided Cost Estimates

| Compound | Emissions in Lbs./MMBtu | Damage Cost In $/Lb. | Externality Adder $/Therm |
|---|---|---|---|
| NOx $2000/ton | 0.11 | $1.00 | $0.011 |
| $CO_2$ $15/ton | 118 | $0.007 | $0.088 |
| Total | | | $0.099 |

Given the regulatory uncertainty surrounding the potential of a national carbon tax and specific tax level, Table 6-2 provides a range of potential alternative natural gas environmental externality adders.[2]

2 OPUC Order No. 07-002 established the environmental adders.

**Table 6-2**
Range of Potential
Natural Gas Environmental Externality Adders
OPUC Order No. 07-002

| Compound | Emissions in Lbs./MMBtu | Damage Cost In $/Lb. | Externality Adder $/Therm |
|---|---|---|---|
| NOx $2000/ton | 0.11 | $1.00 | $0.011 |
| $CO_2$ $10/ton | 118 | $0.005 | $0.059 |
| Total | | | $0.070 |
| NOx $2000/ton | 0.11 | $1.00 | $0.011 |
| $CO_2$ $15/ton | 118 | $0.007 | $0.088 |
| Total | | | $0.099 |
| NOx $2000/ton | 0.11 | $1.00 | $0.011 |
| $CO_2$ $25/ton | 118 | $0.0125 | $0.148 |
| Total | | | $0.159 |
| NOx $2000/ton | 0.11 | $1.00 | $0.011 |
| $CO_2$ $40/ton | 118 | $0.02 | $0.236 |
| Total | | | $0.247 |
| | | | |
| NOx $5000/ton | 0.11 | $2.50 | $0.0275 |
| $CO_2$ $10/ton | 118 | $0.005 | $0.059 |
| Total | | | $0.0865 |
| NOx $5000/ton | 0.11 | $2.50 | $0.0275 |
| $CO_2$ $15/ton | 118 | $0.007 | $0.088 |
| Total | | | $0.12 |
| NOx $5000/ton | 0.11 | $2.50 | $0.0275 |
| $CO_2$ $25/ton | 118 | $0.0125 | $0.148 |
| Total | | | $0.1755 |
| NOx $5000/ton | 0.11 | $2.50 | $0.0275 |
| $CO_2$ $40/ton | 118 | $0.02 | $0.236 |
| Total | | | $0.2635 |

At different assumed levels of environmental adders, several of the marginal non-cost-effective measures shown in Table 4-1would become cost effective.

## VI. DSM CONSERVATION LOAD SHAPES

Avoided costs vary with the pattern of the avoided load (i.e. seasonal or annual). Seasonal loads are typically heating loads. An extreme example of a seasonal load would be a customer who uses gas only on the coldest day of the year, with no other consumption. A winter-only avoided load causes a reduction in higher-priced, seasonal gas resource costs. In contrast, an annual load such as water heating causes a constant reduction in gas purchases each day of the year and affects a broad range of gas purchase contract volumes. For such a load, the weighted average cost of flowing gas adequately measures the average avoided commodity costs. The commodity costs avoided with various other DSM measures depends on the particular load shapes and commodity purchase avoidance options of each measure.

Of the different available load shape metrics, the Company measures the impact of conservation on load through the use of the Conservation Load Factor (CLF). The CLF equals the average reduction (per unit of time) in load divided by the peak reduction in load (per same unit of time). The CLF is used to compute the avoided cost of different conservation measures across various load types. Two examples are shown below.

- Water Heater Example: The removal of a water heater decreases load by about 0.66 therms on a peak day and by 0.66 therms on the average day. In this example the conservation load factor equals one.

- Space Heating Example: A similar action that reduces space heating load yields an approximate peak day reduction of 9.7 therms and reduces annual load by 602 therms. The average load reduction in this example equals (602/365) or 1.65 therms per day. In this example, the CLF equals 0.17 (i.e. 1.65/9.7 = 0.17).

Most loads fall somewhere between the load factor extremes of zero and one. By determining the “shape” of the avoided loads and their subsequent effects on avoided costs, the per-therm avoided cost for loads with different annual patterns can be computed. A seasonal load presents a higher per-therm avoided cost than a year-round, water heating-type load. In general, the lower the load factor, the higher the per therm avoided cost.

## VII. AVOIDED COST DETERMINATIONS

When assessing the cost effectiveness of DSM resources, the Company divides the supply side resource costs into *annual* and *winter* season costs. In

examining the avoided cost for a therm of seasonal load, for example, the relevant avoided cost is best represented by *winter* season costs. A mixture of winter season and *annual* contract prices can properly capture various DSM related costs. A *blended* supply resource cost that averages the seasonal or winter resource costs in winter months and the annual resource costs in the summer months, best represents water heating type load, commonly referred to as 100 percent load factor usage. The result is a figure fairly representative of the average DSM savings for a therm of load reduction per day throughout the year.

Graphical representations of avoided costs for the Base Case and High Commodity Price sensitivity (i.e. 20% increase over the High Price Forecast) for the annual and winter-only consumption are shown in Figure 6.2 through Figure 6.5 below. These avoided costs include a $0.099 per therm adder for environmental externalities and are shown below in real $2008 dollars. Appendix 6-1 and 6-2 lists the avoided cost figures in tabular form by demand area, by month, and are summarized by winter-only and annual costs. Avoided cost estimates for the High Commodity Price sensitivity increased by approximately 18% over the Base Case avoided cost estimates. The relatively high margin costs in the winter months of the early years of the planning horizon reflect the near-term need for higher cost incremental peaking resources to serve the peak day requirements in various demand areas under design winter weather conditions. The annual avoided cost estimates for both winter-only and annual average costs are used by, Stellar Processes to determine the cost-effectiveness limits for DSM measures of various life spans and seasonal patterns of gas use.

**Figure 6-2**

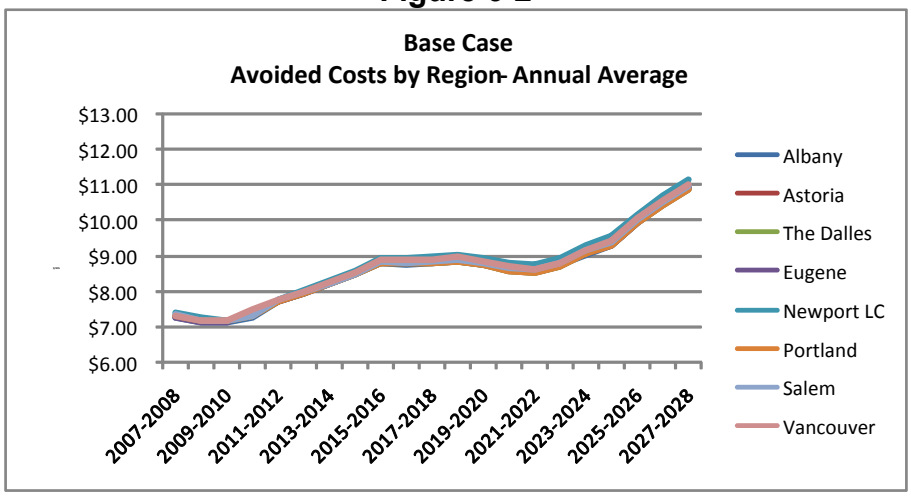


**Figure 6-3**

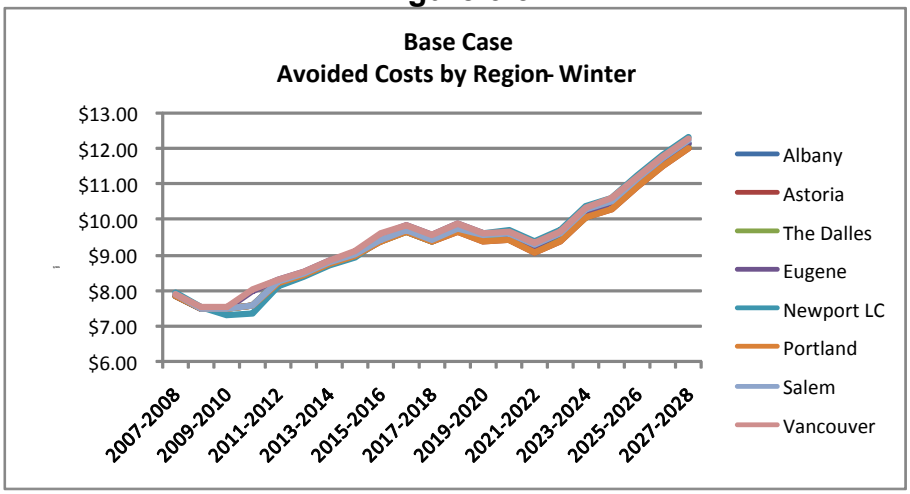



**Figure 6-4**

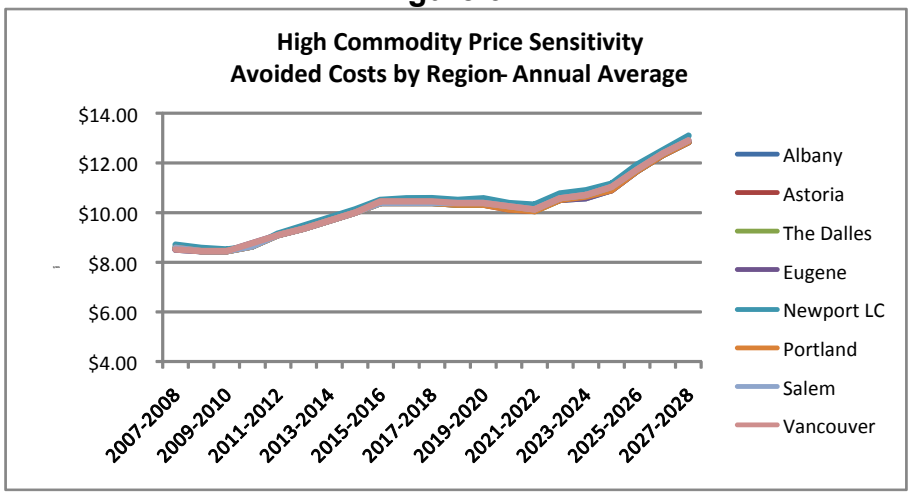
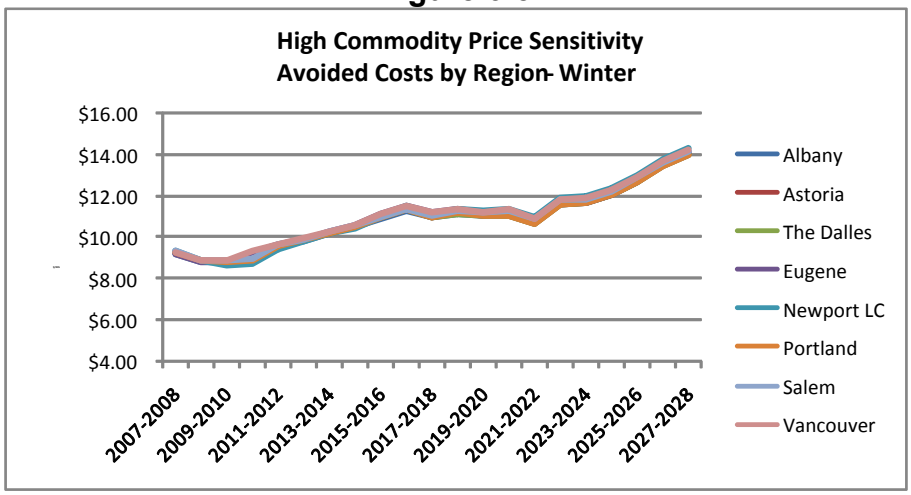


**Figure 6-5**




## VIII. AFTER-TAX REAL DISCOUNT RATE

*SENDOUT*® determines the least cost resource mix that meets forecasted demand for the 20-year planning period using a present value revenue requirement methodology. As required by UM 1056 Guideline 1, NW Natural discounts all future resource costs with the Company's after-tax real discount rate of 5.16 percent, the derivation of which is presented in Appendix 6-3.

In addition to determining the least cost resource mix, the after-tax real discount rate of 5.16 percent is also used by consultant, Stellar Processes to determine the appropriate cost-effective screening levels to apply to specific DSM measures. These Screening Costs vary by DSM measure to reflect lifetime and seasonality (i.e. conservation load factor). Specifically, the Screening Costs reflect the present value of avoided cost over the lifetime of each DSM measure, using either the winter or annual averages of avoided cost estimates depending on the DSM measure load factor. DSM cost-effective screening methodology is presented in more detail in Chapter 4.

## IX. KEY FINDINGS

- Base Case avoided cost estimates associated with gas supply resources increased in this Plan primarily due to the increase in the rather immediate need for additional higher cost peaking resources to serve certain demand areas of the Company's service territory in the early years of the study and the increase in the price of natural gas since the 2004 IRP.

- Avoided cost estimates for the High Commodity Price sensitivity increased by approximately 18% over the Base Case avoided cost estimates.

- The downward adjustment of the inflation rate caused an increase in the real after-tax discount rate (2004 IRP: 4.12 percent; 2007: 5.16 percent).

# CHAPTER 7: PUBLIC COMMUNICATION AND PARTICIPATION

# CHAPTER 7: PUBLIC COMMUNICATION AND PARTICIPATION

This chapter describes the steps NW Natural took to involve the public in developing this Plan.

## I. TECHNICAL WORKING GROUP

The Technical Working Group (TWG) is an integral part of developing the Company's resource plans. During this planning cycle NW Natural worked with representatives from the Energy Trust of Oregon; Northwest Power and Conservation Council; Northwest Industrial Gas Users; Northwest Pipeline Corporation; TransCanada-Gas Transmission Northwest, the Oregon Public Utility Commission; and the Washington Utilities & Transportation Commission.

NW Natural solicited TWG participation in February and March 2007 prior to filing its draft plan in Washington. The Company solicited TWG members from a list of TWG participants in prior planning cycles. Following the filing of the draft plan in Washington in March 2007, the Company held a third TWG meeting in May. Additional Technical Working Group meetings were held on November 20, 2007, and February 19, 2008, the later following the circulation of a revised draft plan to Technical Working Group members on February 7, 2008.

The following list of issues highlights a number of concerns that the groups discussed during these meetings, and have been addressed in the body of the Plan.

- Original set of customer growth forecast scenarios did not include a growth case that was greater than the Base Case, Company projected growth. The Company later revised its customer growth forecasts, and added an additional high growth case and a negative growth case. See customer growth discussion in Chapter 2.

- The departure from the 1985-86 to 1992-93 as the Company's design year profile led to a decrease of almost 8.4% in total HDDs. One participant suggested applying a band of no more than 5% in the event the shift is that large. The Company discussed with the TWG the possibility of moving in the future toward a statistically generated planning standard. The Company has added consideration of this issue as an action item.

- One interested party wanted to know if the Company was examining load forecast scenarios that reflect long-term paradigm shifts in load. The Company does examine the impact of paradigm shifts in load. The Company reflects this in its use of

declining load coefficients. The Company has also modeled a number of different paradigm shifts, such as long-term negative growth forecasts, and supply-basin shortages.

- It was suggested that in developing an action plan around solving the hybrid heat customer issue, the Company should evaluate its ability to isolate these customers and satisfy their peak demand through satellite LNG as opposed to adding pipeline contract demand. However, the Company is unable to isolate these customers in a way that enables the Company to meet hybrid heat customer demand with satellite LNG. The Company will be monitoring the spread of hybrid heat customers in future IRPs.

- Attendees wanted to better understand the how Mist Recall was incorporated into the resource mix and how it was modeled. These questions were answered in writing and in further discussions outside of the TWG meetings.

- Attendees wanted to better understand some of the growth forecasts as they related to industrial customers. An explanation of this issue was provided in the text of Chapter 2.

- Attendees wanted to see a chart with details about the cost of supply-side resources and availability dates provided to the model; this was added as an appendix to Chapter 3.

- Attendees were concerned about the Company's ability to site satellite LNG in the Eugene area, given the current political climate. The Company modeled both a delayed satellite LNG case and a no satellite LNG scenario and will be considering the appropriate sizing for the Willamette Valley Feeder and Brownville to Eugene River Crossing projects as cost-effective alternatives to satellite LNG.

## II. PUBLIC PARTICIPATION

NW Natural invited its customers, TWG members, and interested parties to participate in the public meeting process. The Company notified customers about the meeting by way of a bill insert in the March billings. NW Natural will also post a link to the plan on its website.

The Company held a public meeting in Portland at NW Natural's main office on March 22, 2007.

Attendance at the public meeting was sparse. Besides NW Natural employees, only two people attended the meeting.

The structure of the meetings was informal. NW Natural depicted the planning process through a slide show presentation, and presented the key elements that NW Natural looks at when developing the plan, along with the principal findings. The Company made the presentation available to interested persons electronically and by mail on request. Customers made multiple requests for electronic copies. Pages 7A-5 through 7A-25 of this chapter's appendix contains a copy of the presentation.

The following list of issues highlights the concerns that discussed during the public meeting and addressed in the body of this Plan.

- LNG – Its physical impact on the region as well as its impact on the cost of natural gas. See chapter 3 for further discussion of LNG.

- The Cost of Gas – What does the utility predict in the foreseeable future? In response: The Company expects the cost of gas to continue increasing for the foreseeable future. See the *Forecasting Future Prices & Market Volatility* section in Chapter 2.

- Palomar Pipeline Project – What benefits will it bring to Oregon? See Chapter 3 and 5.

# Public Utility Commission of Oregon
# Adopted IRP Guidelines

## Guideline 1: Substantive Requirements

a. *All resources must be evaluated on a consistent and comparable basis.*

- *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.*

- Explanation: NW Natural made every effort to include all known supply and demand side options. Supply side options studied include not only the gas itself, but also the pipeline capacity required to transport the gas, the Company's gas storage options, and the system enhancements necessary to distribute the gas. The demand side study looked at all the potential energy savings potentially available within the Company's service territory. Chapters 3 and 4 focus on supply and demand side resources, respectively, while the results of NW Natural's analyses can be found in Chapter 5.

- *Utilities should compare different resource fuel types, technologies, lead times, in-service dates, durations and locations in portfolio risk modeling.*

- Explanation: Chapters 3 and 4 focus on supply and demand side resources, respectively. The Supply-side options in Chapter 3 range from existing and proposed interstate pipeline capacity from multiple providers, the Company's Mist underground storage, to imported LNG, as well as Satellite LNG facilities located at various locations within the Company's service territory. The Company clearly defines each resource's in-service date before which the respective resource could not be a selected resource. Because the Company identified unserved demand in all areas of its service territory within the 20-year planning horizon, it considered a variety of supply side options to meet local, regional, and system-wide demand such as satellite LNG, NW Natural pipeline enhancements (including the Willamette Valley Feeder project), and interstate pipeline expansions. In-service dates considered in the plan range from short term, such as Mist Recall supplies available in Fall 2008, to near-term resources (such as the Palomar Pipeline, which has been modeled as first available in 2010). All resources are offered each year after they become available throughout the 20-year planning horizon. The Company has also considered technologies such as bio-gas, which are not currently available, but have been identified for continued monitoring and future assessment.

- *Consistent assumptions and methods should be used for evaluation of all resources.*

- Explanation: To the best of its ability, NW Natural evaluated all resources, both supply and demand side, on a consistent basis in the *SENDOUT®* model, which programmatically and objectively applied the same common assumptions, approaches and methodology to each supply option. Chapter 5 contains the specific descriptions of the resource evaluation methodology.

- *The after-tax marginal weighted-average cost of capital (WACC) should be used to discount all future resource costs.*

- Explanation: In the Company's 2004 IRP, NW Natural calculated its avoided cost figures using a stated real after-tax discount rate of 4.12 percent. In the 2007 IRP, the Company uses a real after-tax discount rate of 5.16 percent. A reduction in the assumed inflation rate primarily drove the increase in the rate.

*b. Risk and Uncertainty must be considered.*

Explanation: This study is characterized by risk and uncertainty because the Company cannot perfectly predict the contributing data such as future customer counts, economic conditions, market changes and weather conditions. However, this study analyzes risk-related data such that the Company can make reasonable assumptions.

- *At a minimum, utilities should address the following sources of risk and uncertainty:*

- *Natural gas utilities: demand (peak, swing and baseload), commodity supply and price, transportation availability and price, and cost to comply with any regulation of greenhouse gas emissions.*

- Explanation: First, NW Natural analyzes demand uncertainty (peak, swing, and baseload) through a deterministic set of load forecasts of the traditional low, base, and high scenarios. The Company first projected annual customer counts by customer sub-class. Customer growth forecasts were prepared for six scenarios, including no growth, negative growth, Company projected base case, and high growth forecasts. The Company then statistically estimated gas usage equations for each customer subclass (or market segment). Design year (including peak day) projections were derived from multiple regressions, separating out Base-use and Temperature Sensitive Load-use (TSL-use). Next, the Company applied design weather conditions, projected prices, and customers to gas usage equations to derive firm gas requirements for each forecast scenario. Price forecasts were prepared for three scenarios, including high, reference and low forecasts. The price forecasts are discussed in more detail in Chapter 2

Second, in addition to the six deterministic demand forecasts for High, Low and Base Case Scenarios, the Company is incorporating Monte Carlo simulations (i.e. stochastic analysis) in its evaluation of customer demand. The 2008 IRP marks the first time NW Natural is incorporating stochastic analysis, which allows the Company to consider the impact of resource decisions across a range of weather and forward price scenarios, along with evaluating the LP optimized least-cost supply portfolio solution at different levels of probable demand levels. Stochastic analysis (Monte Carlo simulation) and *SENDOUT*® linear programming analysis are explained in more detail in Chapter 5.

Third, the associated risk and uncertainty of commodity supply, prices and transportation availability are discussed in chapter 5, which includes the results of sensitivity analysis involving price simulations for future supply basin-specific and North American supply restrictions.

Finally, the cost to comply with greenhouse gas emissions regulation and the risk and uncertainty associated with potential regulation is discussed in Chapter 4. Chapter 4 contains the Company's evaluation of cost effective demand side management based on an avoided cost that included emission adders. The higher avoided cost resulted in more achievable demand side resource potential. Chapter 6 impacts the results derived in chapter 4 through the development of NW Natural's avoided cost figures.

- *Utilities should identify in their plans any additional sources of risk and uncertainty.*

- Explanation: In addition to the areas of risk and uncertainty described above that NW Natural has included in this Plan (weather, customer growth, and price), the Company has considered the likely impediments to the ultimate development and siting of certain potential resources such as imported LNG and satellite LNG. These are discussed in Chapter 3.

c. *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.*

- *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.*

- Explanation: This IRP contains the Company's long-range analysis of load and resources spanning a 20-year horizon.

- *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 for 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.*

- Explanation: The Company's *SENDOUT*® modeling software uses a PVRR cost metric methodology, which provides resource portfolio costs in both nominal and real (present value) dollars that is applied to resources of varying expected lives.

- *To address risk, the plan should include, at a minimum:*

    - *Two measures of PVRR risk: one that measures the variability of costs and one that measures the severity of bad outcomes.*

    - Explanation: Through application of the *SENDOUT*® software, the Company modeled 200 scenarios around varying gas price and weather inputs via Monte Carlo iterations thereby developing a distribution of annual cost estimates utilizing *SENDOUT*®'s PVRR methodology. Chapter 5 further describes this analysis. The variability of costs is plotted against the Mean of the Total Cost distribution, while the Unserved Demand distribution captures the severity of bad outcomes.

    - *Discussion of the proposed use and impact on costs and risks of physical and financial hedging.*

    - Explanation: NW Natural provides retail customers with a bundled gas product including gas storage by aggregating load and acquiring gas supplies through wholesale market physical purchases that may be hedged using physical storage or financial transactions. The following goals guide the physical or financial hedging of gas supply: 1) reliability, 2) lowest reasonable cost, 3) price stability, and 4) cost recovery. This is discussed in greater detail in Chapter 3.

- *The utility should explain in its plan how its resource choices appropriately balance cost and risk.*

- Explanation: For this IRP, the Company has selected an 85% probability coldest winter planning standard augmented by an historic three-day peak event against which to evaluate the cost and risk trade-off of various supply and demand resources available to *SENDOUT*®. Although this planning standard incorporates a level of demand that is less than its traditional "design year" planning standard, it reflects the Company's assessment that

the costs associated with the higher planning standard were not justified in comparison with the risk of that traditional "design year" occurring.

Further analysis of how the Company's resource choices appropriately balance cost and risk can be found in Chapter 5, in the analysis of the Company's selection of its Preferred Portfolio. In short, the Company considered the strictly economic data assessed by the *SENDOUT*® model, the likelihood of certain resources such as imported or satellite LNG being available, stochastic analysis of demand and price forecasting, and the non-economic but significant reliability benefits offered by certain resources, such as the Palomar East pipeline. After considering all these factors, the Company selected a Preferred Portfolio and identified for acquisition resources consistent with that portfolio.

d. *The plan must be consistent with the long-run public interest as expressed in Oregon and federal energy policies.*

Explanation: In preparing this IRP, NW Natural considered the guidelines contained in OPUC Order Nos. 07-047 as evidenced in this appendix and discussed in greater detail throughout the Plan.

The Company also considered the Commission's first 2007-2008 objective which is to "Adopt regulatory policies that encourage utilities and customers to meet energy needs at the lowest possible cost and risk." The Company believes it accomplished this goal because incremental resources selected in the Preferred Portfolio represent the best mix of reliable, cost-effective resources that the Company felt could reasonably be obtained with the planning horizon. The Company's choice not to rely on LNG import terminals because of regional market uncertainty demonstrates the Company's assessment of cost and risk, as does the preference for the Palomar East pipeline (to address reliability), and the analysis of the potential for satellite LNG to be delayed (to address risk).

State policy, as evidenced in SB 838, seeks to provide additional funding mechanisms for energy efficiency. Federal policy, likewise, is trending toward energy market transformation and environmental protection. This IRP supports aggressive energy efficiency acquisition, incorporates carbon adders in its avoided cost, and does not shift reliance onto LNG supplies which demonstrates the influence of State and Federal policies in the development of this Plan.

## Guideline 2: Procedural Requirements

a. *The public, which includes 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. Disputes*

*about whether information requests are relevant or unreasonably burdensome, or whether a utility is being properly responsive, may be submitted to the Commission for resolution.*

Explanation: The public has been given considerable opportunities to participate in the development of NW Natural's 2007 IRP. The Company has held five Technical Working Group (TWG) meetings, and one open house public participation meetings to date. In addition to these meetings the Company has periodically met with Commission staff to discuss the guidelines adopted in Order No. 07-047, as well as to identify areas of NW Natural's Plan that needed enhancement. The Company has also answered informal data requests from various stakeholders including OPUC Staff and the Citizen's Utility Board. Further discussion of the public participation process can be found in Chapter 7.

b. *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. Confidential information may be protected through use of a protective order, through aggregation or shielding of data, or through any other mechanism approved by the Commission.*

Explanation: As evidenced by the material included throughout the plan, the Company has put forth all relevant non-confidential information necessary to produce a comprehensive Plan.

c. *The utility must provide a draft IRP for public review and comment prior to filing a final plan with the Commission.*

Explanation: On March 28, 2007, after two TWG meetings NW Natural submitted an initial draft plan in both Oregon and Washington. This submission was driven by Washington's filing deadline for the Company's draft plan. After the third TWG in May 2007 and public participation meetings along with direct meetings with Commission Staff, a six-month extension of the Oregon filing deadline was requested by the Company on September 6, 2007, and was subsequently granted by the Commission. Additional Technical Working Group meetings were held on November 20, 2007 and February 19, 2008, the later following the circulation of a revised draft plan to Technical Working Group members on February 7, 2008.

## Guideline 3: Plan Filing, Review, and Updates

a. *The utility must file an IRP for within two years of its previous IRP acknowledgement order.*

On March 3, 2008, the OPUC granted NW Natural an extension of time until April 14, 2008 to file this 2008 IRP (Order No. 08-134, UM 1343).

*b. The utility must present the results of its filed plan to the Commission at a public meeting prior to the deadline for written public comment.*

NW Natural will comply with this guideline.

*c. Commission Staff and parties should complete their comments and recommendations within six months of IRP filing.*

The Company looks forward to working with Staff and interested parties in their review of this Plan.

## Guideline 4: Plan Components

*At a minimum the plan must include the following elements:*

*a. An explanation of how the utility met each of the substantive and procedural requirements.*

Explanation: This appendix is intended to comply with this guideline by providing an itemized response to each of the substantive and procedural requirements.

*b. Analysis of high and low load growth scenarios in addition to stochastic load risk analysis with an explanation of major assumptions.*

Explanation: The Base Case demand forecast uses the Company's projected customer growth and projected prices. This IRP considers five departures from the Base Case demand forecast, including negative, low, medium, and high demand growth forecasts, as well as stochastic risk analysis. This study is discussed in Chapter 2. Chapter 5 provides the scenario and risk analysis results. Assumptions are detailed in Appendix 2.

*c. For electric utilities … (Not applicable)*

*d. For natural gas utilities, 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.*

Explanation: Using the *SENDOUT*® optimization model, the Company determined the peaking, swing, and base-load gas supply and associated transportation and storage for each year of the 20-year planning horizon. Please see the appendix to Chapter 5 for the detail behind the twenty-four distinct scenarios and sensitivities

considered by the optimization model, and specific resources selected in each case for each year.

*e. Identification and estimated costs of all supply-side and demand-side resource options, taking into account anticipated advances in technology.*

Explanation: The best resource mix was determined by studying supply side options currently used, such as pipeline transportation contracts, gas supply contracts, and physical and financial hedging, as well as alternative options such as additional capacity or infrastructure enhancements. Future developments such as imported LNG and pipeline enhancements were considered. The various supply side options and their costs are identified and discussed in Chapter 3 and Appendix 3.

Demand side resource options were compiled from various local, regional and national sources. The measures that are marketable within NW Natural's service territory were identified through a demographical study of customer specific information such as historical gas usage, appliance holdings, and forecast economic growth. A societal cost was then determined for each measure making the demand side options comparable with supply side options. Demand-side resource options are identified in Chapter 4 and its Appendix 4.

*f. Analysis of measures the utility intends to take to provide reliable service, including cost-risk tradeoffs.*

Explanation: Chapter 3 discusses NW Natural's Gas Supply Risk Management Policies, modeling tools, and cost/risk considerations that form the basis for planning and maintaining reliable gas service. For example, the Company's Gas Supply Department uses *SENDOUT®* to perform its dispatch modeling from various pipeline supplies and storage facilities. The objective is to ensure reliable service during the heating season on an aggregate system-wide basis as well as achieve the maximum economic benefit from seasonal price differences and varying gas delivery terms. The Synergy software package also provides the Company the opportunity to evaluate performance of the distribution system under a variety of conditions, with the analysis typically focused on meeting growing peak day customer demands while maintaining system stability.

The Company's Precedent Agreement with the proposed Palomar pipeline is in response to its current reliance solely on NWPL for delivery of interstate gas supplies. A second interstate pipeline delivery corridor would assure both the security of gas supply as well as reliable gas service. The Preferred Portfolio recognizes the importance of the Palomar Pipeline as both a cost-effective resource (particularly in comparison with the "No Palomar" scenario), and an enhancement to overall reliability. Though the optimization model identified a smaller component of Palomar as being the "optimal" economic choice for the Company, the reality of the situation is that without a significant commitment on the pipeline, it was unlikely that plans for construction of Palomar East would proceeded.

*g. Identification of key assumptions about the future (e.g., fuel prices and environmental compliance costs) and alternative scenarios considered.*

Explanation: The Company combined deterministic analysis and stochastic analysis to construct an optimal portfolio that meets specific pre-determined planning criteria, while also stress-testing the decision against a range of future weather and price events. Chapter 5 describes the alternative resource mix scenarios and forward looking sensitivities involving commodity availability, commodity cost, transportation cost, and/or load forecast inputs evaluated in the IRP. The Company identified the price and gas forecasts that represent key assumptions underlying the Base Case and Preferred Portfolio. The Company also identified specific environmental compliance costs that were factored into the determination of the Company's avoided cost, which in turn factored into the identification of cost-effective demand side resources. Finally, the Company identified specific resources that may become available (such as imported LNG), but could not be relied upon to build the Company's Preferred Portfolio. The Company also considered certain alternative supply scenarios, such as a limitation of supply from Canada, and alternative growth scenarios (such as a continued and extensive economic recession).

*h. 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.*

Explanation: As described above, and in more detail in the Plan, the Company designed a total of nine alternate resource mix scenarios where each scenario allows for a single change to the incremental supply side resources that are available in the Base Case. The development of resource portfolio options evaluated in this IRP is documented in Chapter 5 and results are detailed in Appendix 5-3.

*i. Evaluation of the performance of the candidate portfolios over the range of identified risks and uncertainties.*

Explanation: In addition to the alternate scenarios mentioned in 4(h), above, NW Natural developed 14 Sensitivity cases to the Base Case Scenario. The Sensitivity cases differ from the alternate scenarios in that they do not provide for a new resource mix decision (i.e., the Base Case resource portfolio is locked down). Instead, the purpose of the Sensitivities is to stress test the Base Case resource portfolio to changes in certain underlying Base Case assumptions. Finally, the Company conducted a stochastic analysis of the Base Case and the Company's Preferred Portfolio scenarios using the Monte Carlo functionality of *SENDOUT®*. The stochastic analysis assesses the resiliency of the Base Case and Preferred Portfolio resource portfolios to variation in the level of demand and prices specified by assuming hundreds of normally distributed potential outcomes around the 20-

year average normal weather and forecasted gas prices. The comparative performance results of the stochastic analysis are presented in Chapter 5.

*j. Results of testing and rank ordering of the portfolios by cost and risk metric, and interpretation of those results.*

Explanation: Chapter 3 describes the resource options evaluated, including discussion on uncertainties in lead times and costs as well as viability and resource availability (e.g. LNG). Appendix 3 summarizes the potential resource options identifying investment costs and asset availability dates while results of resources selected are discussed in Chapter 5 and tabulated in Appendix 5-3.

*k. Analysis of the uncertainties associated with each portfolio evaluated.*

The Company combined deterministic analysis and stochastic analysis to construct an Preferred Portfolio that meets specific pre-determined planning criteria, while also stress testing the decision against a range of future weather and price events. This is further discussed in Chapter 5.

*l. Selection of a portfolio that represents the best combination of cost and risk for the utility and its customers.*

Explanation: NW Natural evaluated cost/risk tradeoffs for each of the resource mix portfolios considered. Chapter 5 describes the Company's portfolio risk analysis, as well as the determination of its Preferred Portfolio.

*m. 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.*

Explanation: NW Natural does not believe its preferred portfolio has any inconsistencies with State or Federal energy policies. Potential barriers to implementation may relate to the ultimate availability and timing of certain incremental resources selected for the Company's preferred portfolio (e.g., satellite LNG, imported LNG) due to siting / permitting challenges related to the facilities, market viability, and others; such potential barriers are discussed in Chapter 3 and Chapter 5.

*n. An action plan with resource activities the utility intends to undertake over the next two to four years to acquire the identified resources, regardless of whether the activity was acknowledged in a previous IRP, with the key attributes of each resource specified as in portfolio testing.*

Explanation: The Executive Summary presents the Company's multi-year action plan, which identifies the short term actions the Company plans to pursue related to the following:

- Demand forecasting
- Supply-side resources
- Demand-side resources
- *SENDOUT*® modeling
- Avoided costs determination
- Public involvement

## Guideline 5: Transmission

*Not applicable to NW Natural's gas utility operations*

## Guideline 6: Conservation

a. *Each utility should ensure that a conservation potential study is conducted periodically for its entire service territory.*

   Explanation: As discussed in Chapter 4, NW Natural retained the services of Stellar Processes to analyze the potential energy savings it can cost-effectively procure within its service territory for this IRP. The Stellar Processes study began by estimating all energy savings that could be acquired immediately without considering market constraints such as customer awareness. This was determined by analyzing customer demographics together with energy efficiency measure data. Cost-effective DSM measures were identified by comparing each measure's levelized program cost against its expected levelized value of avoided cost with adjustments for measure specific lifetime and load factor.

b. *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.*

   Explanation: Achievable potential DSM savings per customer class in NW Natural's Oregon and Washington service territories with cost-effective screening at the Company's Base Case avoided cost is summarized in Chapter 4. More detailed information on the Oregon and Washington DSM deployment scenarios are presented in tabular form in Appendix 4, including the conservation programs' annual savings targets.

c. *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.*

Explanation: Because the Company believes funding options may be available and understands Staff agrees with this assumption, this guideline is being treated as not applicable.

## Guideline 7: Demand Response

*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).*

Explanation: On NW Natural's system, customers taking service on interruptible rates represent approximately 42 percent of annual throughput. This is discussed further in Chapter 4.

As described in Chapter 5, NW Natural utilized the Program Totals method of DSM evaluation in *SENDOUT®*, which provided direct input of DSM program impact, allowing a comparison of DSM options with supply options.

## Guideline 8: Environmental Costs

*Utilities should include, in their base-case analyses, the regulatory compliance costs they expect for CO2, NOx, SO2, and Hg emissions. Utilities should analyze the range of potential CO2 regulatory costs in Order No. 93-695, from $0 - $40 (1990$). In addition, utilities should perform sensitivity analysis on a range of reasonably possible cost adders for NOx, SO2, and Hg, if applicable.*

Explanation: Unlike electric utilities, environmental cost issues rarely impact a gas utility's supply-side resource choices. At present, the only supply-side implication of environmental externalities in the Company's direct gas distribution system is that some methods of natural gas storage require the combustion of the gas. Upstream gas system infrastructure (pipelines and gathering systems) do produce some CO2 emissions from compressors used to pressurize and move gas throughout the system. However, environmental externality costs do make a difference in the comparison between supply-side and demand-side resources. To facilitate such comparisons, the Company's avoided cost estimates in Appendix 6 include a $0.099 per therm environmental externality adder to reflect assumed costs in the amount of $15 per ton for CO2 and $2,000 per ton for NOX.

## Guideline 9: Direct Access Loads

*Not applicable to NW Natural's gas utility operations*

## Guideline 10: Multi-state Utilities

*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.*

NW Natural's 2007 IRP includes its Washington service territory and will be filed simultaneously in Oregon and Washington on April 14, 2007.

## Guideline 11: Reliability

*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.*

Explanation: NW Natural analyzes on an integrated basis gas supply, transportation, and storage, along with demand-side resources to reliably meet peak, swing, and base-load system requirements. For this IRP, the Company has selected an 85% probability coldest winter planning standard augmented by an historic three-day peak event against which to evaluate the cost and risk trade off of various supply and demand resources available to *SENDOUT*®. Although this planning standard incorporates a level of demand less than its traditional "design year" planning standard, it reflects the Company's evaluation and selection of a planning standard and resulting portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers. Discussion of the Company's planning criteria and the determination of its Preferred Portfolio is in Chapter 5. Stochastic analysis and stress-testing of the Company's results demonstrate the reliability of the Preferred Portfolio and cost/risk balance.

## Guideline 12: Distributed Generation

*Electric utilities … Not applicable to NW Natural's gas utility operations*

## Guideline 13: Resource Acquisition

a. *Electric utilities … Not applicable to NW Natural's gas utility operations*

b. *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.*

Explanation: NW Natural's Gas Acquisition Plan detailing the Company's strategies and practices for acquiring gas supplies is described in Chapter 3 and is centered on the following goals:

- Reliability – sufficient to satisfy core customer requirements under design year weather conditions;
- Diversity – to acquire gas resources at the lowest reasonable cost;
- Price Stability – use of physical assets and financial instruments to hedge price variability; and
- Cost Recovery – minimize rise associated with the payment and recovery of gas acquisition costs.

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# Appendix 2-1: Demand Coefficients

## Residential and Commercial

**Residential**
**Base Year 2007-2008 Coefficients**

| Sub-Class & Region | Int-Base | Int-TSL | Price | HDD | |
|---|---|---|---|---|---|
| Res_Existing ALB | 0.4076 | (3.9089) | (0.1798) | 0.5724 | |
| Res_Existing AST | 0.4959 | (5.1916) | (0.1798) | 0.9832 | |
| Res_Existing DALO | 0.4221 | (4.5931) | (0.1798) | 0.7136 | |
| Res_Existing EUG+COOS | 0.4849 | (4.3332) | (0.1798) | 0.6784 | |
| Res_Existing LC | 0.4067 | (5.2085) | (0.1798) | 0.9793 | |
| Res_Existing POR | 0.4733 | (3.1363) | (0.1798) | 0.3784 | |
| Res_Existing SAL | 0.4634 | (4.0204) | (0.1798) | 0.6218 | |
| Res_Existing VAN+DALW | 0.5839 | (4.1729) | (0.1798) | 0.6725 | |
| Res_Existing SYS | 0.4707 | (3.5132) | (0.1798) | 0.4824 | |
| Res_Conv ALB | 0.3016 | (3.7906) | (0.1798) | 0.4940 | |
| Res_Conv AST | 0.4519 | (5.2313) | (0.1798) | 0.9551 | |
| Res_Conv DALO | 0.3426 | (4.3966) | (0.1798) | 0.6179 | |
| Res_Conv EUG+COOS | 0.3615 | (4.0520) | (0.1798) | 0.5681 | |
| Res_Conv LC | 0.4062 | (5.4001) | (0.1798) | 0.9822 | |
| Res_Conv POR | 0.3238 | (3.0919) | (0.1798) | 0.3367 | |
| Res_Conv SAL | 0.3200 | (3.8184) | (0.1798) | 0.5431 | |
| Res_Conv VAN+DALW | 0.4523 | (4.0394) | (0.1798) | 0.5809 | |
| Res_Conv SYS | 0.3335 | (3.4191) | (0.1798) | 0.4204 | |
| Res_NC_SF ALB | 0.5703 | (4.6791) | (0.1798) | 0.8090 | |
| Res_NC_SF AST | 0.7570 | (5.7828) | (0.1798) | 1.1811 | |
| Res_NC_SF DALO | 0.5775 | (4.8983) | (0.1798) | 0.7985 | |
| Res_NC_SF EUG+COOS | 0.6634 | (4.9594) | (0.1798) | 0.8724 | |
| Res_NC_SF LC | 0.5377 | (5.5138) | (0.1798) | 1.0726 | |
| Res_NC_SF POR | 0.6723 | (3.3406) | (0.1798) | 0.4618 | |
| Res_NC_SF SAL | 0.5985 | (4.3958) | (0.1798) | 0.7317 | |
| Res_NC_SF VAN+DALW | 0.6664 | (4.1381) | (0.1798) | 0.6910 | |
| Res_NC_SF SYS | 0.6449 | (3.7551) | (0.1798) | 0.5718 | |
| Res_NC_MF ALB | 0.2333 | (4.7704) | (0.1798) | 0.6378 | |
| Res_NC_MF AST | 0.5284 | (6.7579) | (0.1798) | 1.2242 | |
| Res_NC_MF DALO | 0.4080 | (5.9091) | (0.1798) | 0.8815 | |
| Res_NC_MF EUG+COOS | 0.3269 | (5.2886) | (0.1798) | 0.6364 | |
| Res_NC_MF LC | 0.5284 | (6.7579) | (0.1798) | 1.2242 | [1] |
| Res_NC_MF POR | 0.3850 | (4.1626) | (0.1798) | 0.4896 | |
| Res_NC_MF SAL | 0.3877 | (4.6165) | (0.1798) | 0.6358 | |
| Res_NC_MF VAN+DALW | 0.3921 | (5.1719) | (0.1798) | 0.7733 | |
| Res_NC_MF SYS | 0.3833 | (4.5693) | (0.1798) | 0.6105 | |

*[1] Regression results for Res_NC_MF LC (Lincoln City) produced a low R-Square with coefficients outside the range observed in other regions. Coefficients for AST (Astoria) are used as a proxy for LC. Similar to LC, AST is a coastal region.*

**Commercial**
**Base Year 2007-2008 Coefficients**

| Sub-Class & Region | Int-Base | Int-TSL | Price | HDD |
|---|---|---|---|---|
| Com_Existing ALB | 2.9663 | (2.2249) | (0.1947) | 0.5094 |
| Com_Existing AST | 4.6328 | (3.9657) | (0.1947) | 0.9879 |
| Com_Existing DALO | 3.8874 | (2.6024) | (0.1947) | 0.6020 |
| Com_Existing EUG+COOS | 4.3699 | (2.7212) | (0.1947) | 0.6917 |
| Com_Existing LC | 5.9330 | (3.5332) | (0.1947) | 0.8380 |
| Com_Existing POR | 4.3151 | (1.5179) | (0.1947) | 0.3529 |
| Com_Existing SAL | 3.9796 | (1.9595) | (0.1947) | 0.4838 |
| Com_Existing VAN+DALW | 4.9587 | (2.2784) | (0.1947) | 0.5404 |
| Com_Existing SYS | 4.2004 | (1.8670) | (0.1947) | 0.4461 |
| Com_Conv ALB | 1.7146 | (2.6051) | (0.1947) | 0.5180 |
| Com_Conv AST | 1.8736 | (5.1709) | (0.1947) | 1.1966 |
| Com_Conv DALO | 0.5812 | (2.7573) | (0.1947) | 0.4901 |
| Com_Conv EUG+COOS | 3.6360 | (3.0211) | (0.1947) | 0.6417 |
| Com_Conv LC | 2.1631 | (3.4090) | (0.1947) | 0.7345 |
| Com_Conv POR | 2.8654 | (1.7961) | (0.1947) | 0.3465 |
| Com_Conv SAL | 1.6783 | (3.0387) | (0.1947) | 0.6953 |
| Com_Conv VAN+DALW | 3.4533 | (2.1466) | (0.1947) | 0.3961 |
| Com_Conv SYS | 2.5907 | (2.1511) | (0.1947) | 0.4249 |
| Com_NC ALB | 4.0290 | (2.6275) | (0.1947) | 0.6727 |
| Com_NC AST | 7.4708 | (3.0114) | (0.1947) | 0.6554 |
| Com_NC DALO | 3.0216 | (3.8913) | (0.1947) | 0.9148 |
| Com_NC EUG+COOS | 3.6796 | (2.4433) | (0.1947) | 0.6376 |
| Com_NC LC | 7.9487 | (5.4656) | (0.1947) | 1.5038 |
| Com_NC POR | 5.9390 | (1.5709) | (0.1947) | 0.4023 |
| Com_NC SAL | 7.0739 | (2.3617) | (0.1947) | 0.6069 |
| Com_NC VAN+DALW | 6.1120 | (2.1208) | (0.1947) | 0.5376 |
| Com_NC SYS | 5.6881 | (1.8491) | (0.1947) | 0.4690 |

## Industrial Firm

# Appendix 2-2: Regression Statistics – Residential Demand

**Residential - Existing Customers**

**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 0.4076 | 0.4959 | 0.4221 | 0.4849 | 0.4067 | 0.4733 | 0.4634 | 0.5839 | 0.4707 |
| Std. Error | 0.0166 | 0.0347 | 0.0187 | 0.0309 | 0.0831 | 0.0168 | 0.0184 | 0.0270 | 0.0213 |
| t statistic | 24.5460 | 14.2797 | 22.5987 | 15.6715 | 4.8919 | 28.1828 | 25.1532 | 21.6570 | 22.0891 |
| Sig. | 4.75E-08 | 1.96E-06 | 8.41E-08 | 1.04E-06 | 1.77E-03 | 1.82E-08 | 4.01E-08 | 1.13E-07 | 9.85E-08 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.0437 | 0.0247 | 0.0233 | 0.0324 | 0.0340 | 0.0865 | 0.0485 | 0.0222 | 0.0615 |
| Std. Error | 0.0094 | 0.0077 | 0.0112 | 0.0169 | 0.0115 | 0.0191 | 0.0117 | 0.0132 | 0.0162 |
| t statistic | 4.6469 | 3.2143 | 2.0825 | 1.9180 | 2.9561 | 4.5210 | 4.1285 | 1.6872 | 3.7952 |
| Sig. | 0.0024 | 0.0148 | 0.0758 | 0.0966 | 0.0212 | 0.0027 | 0.0044 | 0.1354 | 0.0068 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.7552 | 0.5961 | 0.3825 | 0.3445 | 0.5552 | 0.7449 | 0.7089 | 0.2891 | 0.6730 |
| Std. Error | 0.0245 | 0.0314 | 0.0279 | 0.0434 | 0.0619 | 0.0286 | 0.0288 | 0.0367 | 0.0298 |
| F Statistic | 21.59 | 10.33 | 4.34 | 3.68 | 8.74 | 20.44 | 17.04 | 2.85 | 14.40 |
| Regression - Sum Sq. Error | 0.0130 | 0.0102 | 0.0034 | 0.0069 | 0.0335 | 0.0167 | 0.0141 | 0.0038 | 0.0128 |
| Residuals - Sum Sq. Error | 0.0042 | 0.0069 | 0.0055 | 0.0132 | 0.0269 | 0.0057 | 0.0058 | 0.0094 | 0.0062 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -3.9089 | -5.1916 | -4.5931 | -4.3332 | -5.2085 | -3.1363 | -4.0204 | -4.1729 | -3.5132 |
| Std. Error | 0.0788 | 0.1830 | 0.1438 | 0.1080 | 0.3456 | 0.0767 | 0.0906 | 0.1240 | 0.0748 |
| t statistic | -49.6130 | -28.3661 | -31.9422 | -40.1346 | -15.0718 | -40.8979 | -44.3703 | -33.6547 | -46.9390 |
| Sig. | 2.77E-27 | 4.35E-21 | 2.16E-22 | 6.40E-25 | 2.30E-14 | 3.95E-25 | 4.89E-26 | 5.73E-23 | 1.15E-26 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.5724 | 0.9832 | 0.7136 | 0.6784 | 0.9793 | 0.3784 | 0.6218 | 0.6725 | 0.4824 |
| Std. Error | 0.0276 | 0.0644 | 0.0485 | 0.0377 | 0.1237 | 0.0279 | 0.0318 | 0.0433 | 0.0268 |
| t statistic | 20.7105 | 15.2748 | 14.7279 | 17.9998 | 7.9165 | 13.5714 | 19.5255 | 15.5218 | 17.9959 |
| Sig. | 1.11E-17 | 1.68E-14 | 3.95E-14 | 3.37E-16 | 2.15E-08 | 2.62E-13 | 4.68E-17 | 1.15E-14 | 3.39E-16 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.9428 | 0.8997 | 0.8930 | 0.9257 | 0.7068 | 0.8763 | 0.9362 | 0.9026 | 0.9257 |
| Std. Error | 0.0580 | 0.0930 | 0.1146 | 0.0746 | 0.1449 | 0.0746 | 0.0679 | 0.0964 | 0.0645 |
| F Statistic | 429 | 233 | 217 | 324 | 63 | 184 | 381 | 241 | 324 |
| Regression - Sum Sq. Error | 1.4430 | 2.0200 | 2.8485 | 1.8019 | 1.3167 | 1.0246 | 1.7598 | 2.2388 | 1.3482 |
| Residuals - Sum Sq. Error | 0.0875 | 0.2251 | 0.3414 | 0.1446 | 0.5463 | 0.1446 | 0.1200 | 0.2416 | 0.1082 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

**Residential - New Construction Single-Family**
**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 0.5703 | 0.7570 | 0.5775 | 0.6634 | 0.5377 | 0.6723 | 0.5985 | 0.6664 | 0.6449 |
| Std. Error | 0.0167 | 0.0434 | 0.0227 | 0.0378 | 0.1061 | 0.0193 | 0.0199 | 0.0312 | 0.0226 |
| t statistic | 34.1885 | 17.4317 | 25.4323 | 17.5531 | 5.0660 | 34.7908 | 30.0565 | 21.3734 | 28.5959 |
| Sig. | 4.75E-09 | 5.03E-07 | 3.71E-08 | 4.80E-07 | 1.45E-03 | 4.20E-09 | 1.16E-08 | 1.24E-07 | 1.64E-08 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.0217 | 0.0225 | 0.0135 | 0.0238 | 0.0356 | 0.0799 | 0.0466 | 0.0265 | 0.0545 |
| Std. Error | 0.0096 | 0.0096 | 0.0132 | 0.0214 | 0.0146 | 0.0221 | 0.0128 | 0.0147 | 0.0172 |
| t statistic | 2.2632 | 2.3452 | 1.0191 | 1.1116 | 2.4278 | 3.6256 | 3.6273 | 1.7950 | 3.1749 |
| Sig. | 0.0581 | 0.0514 | 0.3421 | 0.3030 | 0.0456 | 0.0084 | 0.0084 | 0.1157 | 0.0156 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.4225 | 0.4400 | 0.1292 | 0.1500 | 0.4571 | 0.6525 | 0.6527 | 0.3152 | 0.5902 |
| Std. Error | 0.0253 | 0.0395 | 0.0376 | 0.0540 | 0.0801 | 0.0328 | 0.0309 | 0.0441 | 0.0314 |
| F Statistic | 5.12 | 5.50 | 1.04 | 1.24 | 5.89 | 13.14 | 13.16 | 3.22 | 10.08 |
| Regression - Sum Sq. Error | 0.0033 | 0.0086 | 0.0015 | 0.0036 | 0.0378 | 0.0142 | 0.0125 | 0.0063 | 0.0099 |
| Residuals - Sum Sq. Error | 0.0045 | 0.0109 | 0.0099 | 0.0204 | 0.0449 | 0.0075 | 0.0067 | 0.0136 | 0.0069 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -4.6791 | -5.7828 | -4.8983 | -4.9594 | -5.5138 | -3.3406 | -4.3958 | -4.1381 | -3.7551 |
| Std. Error | 0.0841 | 0.1923 | 0.1709 | 0.1205 | 0.3535 | 0.0748 | 0.1007 | 0.1220 | 0.0760 |
| t statistic | -55.6663 | -30.0704 | -28.6559 | -41.1448 | -15.5967 | -44.6354 | -43.6355 | -33.9099 | -49.4170 |
| Sig. | 1.43E-28 | 9.98E-22 | 3.37E-21 | 3.39E-25 | 1.03E-14 | 4.19E-26 | 7.50E-26 | 4.73E-23 | 3.07E-27 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.8090 | 1.1811 | 0.7985 | 0.8724 | 1.0726 | 0.4618 | 0.7317 | 0.6910 | 0.5718 |
| Std. Error | 0.0295 | 0.0677 | 0.0576 | 0.0421 | 0.1265 | 0.0272 | 0.0354 | 0.0427 | 0.0272 |
| t statistic | 27.4182 | 17.4473 | 13.8610 | 20.7391 | 8.4774 | 16.9709 | 20.6617 | 16.1996 | 21.0066 |
| Sig. | 1.03E-20 | 7.14E-16 | 1.61E-13 | 1.07E-17 | 5.87E-09 | 1.39E-15 | 1.17E-17 | 4.20E-15 | 7.80E-18 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.9666 | 0.9213 | 0.8808 | 0.9430 | 0.7343 | 0.9172 | 0.9426 | 0.9099 | 0.9444 |
| Std. Error | 0.0630 | 0.1005 | 0.1351 | 0.0823 | 0.1481 | 0.0725 | 0.0757 | 0.0943 | 0.0652 |
| F Statistic | 752 | 304 | 192 | 430 | 72 | 288 | 427 | 262 | 441 |
| Regression - Sum Sq. Error | 2.9818 | 3.0734 | 3.5082 | 2.9105 | 1.5753 | 1.5133 | 2.4447 | 2.3357 | 1.8746 |
| Residuals - Sum Sq. Error | 0.1031 | 0.2625 | 0.4748 | 0.1759 | 0.5699 | 0.1366 | 0.1489 | 0.2314 | 0.1104 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

**Residential - New Construction Multi-Family**
**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 0.2333 | 0.5284 | 0.4080 | 0.3269 | 1.4505 | 0.3850 | 0.3877 | 0.3921 | 0.3833 |
| Std. Error | 0.0209 | 0.0778 | 0.0319 | 0.0171 | 0.1801 | 0.0113 | 0.0151 | 0.0174 | 0.0154 |
| t statistic | 11.1848 | 6.7925 | 12.7948 | 19.0712 | 8.0557 | 34.0377 | 25.5975 | 22.4857 | 24.9269 |
| Sig. | 1.02E-05 | 2.55E-04 | 4.13E-06 | 2.71E-07 | 8.72E-05 | 4.90E-09 | 3.55E-08 | 8.71E-08 | 4.27E-08 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.0190 | 0.0142 | -0.0081 | 0.0067 | -0.0322 | 0.0514 | 0.0269 | 0.0094 | 0.0331 |
| Std. Error | 0.0117 | 0.0171 | 0.0176 | 0.0095 | 0.0247 | 0.0131 | 0.0095 | 0.0091 | 0.0120 |
| t statistic | 1.6303 | 0.8282 | -0.4580 | 0.7036 | -1.3027 | 3.9283 | 2.8340 | 1.0279 | 2.7505 |
| Sig. | 0.1471 | 0.4349 | 0.6608 | 0.5044 | 0.2339 | 0.0057 | 0.0253 | 0.3382 | 0.0285 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.2752 | 0.0892 | 0.0291 | 0.0660 | 0.1951 | 0.6879 | 0.5343 | 0.1311 | 0.5194 |
| Std. Error | 0.0303 | 0.0735 | 0.0520 | 0.0257 | 0.1373 | 0.0200 | 0.0230 | 0.0244 | 0.0219 |
| F Statistic | 2.66 | 0.69 | 0.21 | 0.50 | 1.70 | 15.43 | 8.03 | 1.06 | 7.57 |
| Regression - Sum Sq. Error | 0.0024 | 0.0037 | 0.0006 | 0.0003 | 0.0320 | 0.0061 | 0.0043 | 0.0006 | 0.0036 |
| Residuals - Sum Sq. Error | 0.0064 | 0.0378 | 0.0189 | 0.0046 | 0.1320 | 0.0028 | 0.0037 | 0.0042 | 0.0034 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -4.7704 | -6.7579 | -5.9091 | -5.2886 | -17.6462 | -4.1626 | -4.6165 | -5.1719 | -4.5693 |
| Std. Error | 0.1690 | 0.3472 | 0.2000 | 0.1844 | 5.1060 | 0.0997 | 0.1234 | 0.1668 | 0.1021 |
| t statistic | -28.2227 | -19.4663 | -29.5505 | -28.6841 | -3.4560 | -41.7471 | -37.4031 | -31.0142 | -44.7434 |
| Sig. | 4.95E-21 | 5.04E-17 | 1.55E-21 | 3.29E-21 | 1.90E-03 | 2.33E-25 | 3.88E-24 | 4.56E-22 | 3.94E-26 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.6378 | 1.2242 | 0.8815 | 0.6364 | 4.5813 | 0.4896 | 0.6358 | 0.7733 | 0.6105 |
| Std. Error | 0.0593 | 0.1220 | 0.0674 | 0.0644 | 1.8278 | 0.0363 | 0.0434 | 0.0583 | 0.0366 |
| t statistic | 10.7533 | 10.0361 | 13.0790 | 9.8769 | 2.5064 | 13.4997 | 14.6596 | 13.2704 | 16.6884 |
| Sig. | 4.57E-11 | 1.97E-10 | 6.08E-13 | 2.74E-10 | 1.88E-02 | 2.95E-13 | 4.40E-14 | 4.37E-13 | 2.07E-15 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.8164 | 0.7948 | 0.8681 | 0.7896 | 0.1946 | 0.8751 | 0.8921 | 0.8714 | 0.9146 |
| Std. Error | 0.1238 | 0.1708 | 0.1572 | 0.1311 | 2.1557 | 0.0989 | 0.0913 | 0.1302 | 0.0891 |
| F Statistic | 116 | 101 | 171 | 98 | 6 | 182 | 215 | 176 | 279 |
| Regression - Sum Sq. Error | 1.7729 | 2.9400 | 4.2288 | 1.6772 | 29.1943 | 1.7822 | 1.7916 | 2.9851 | 2.2095 |
| Residuals - Sum Sq. Error | 0.3986 | 0.7589 | 0.6428 | 0.4470 | 120.8284 | 0.2543 | 0.2167 | 0.4407 | 0.2063 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

**Residential - Conversion Customers**
**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 0.3016 | 0.4519 | 0.3426 | 0.3615 | 0.4062 | 0.3238 | 0.3200 | 0.4523 | 0.3335 |
| Std. Error | 0.0184 | 0.0408 | 0.0144 | 0.0291 | 0.0792 | 0.0153 | 0.0160 | 0.0299 | 0.0199 |
| t statistic | 16.3941 | 11.0692 | 23.8337 | 12.4041 | 5.1287 | 21.1031 | 19.9830 | 15.1492 | 16.7976 |
| Sig. | 7.66E-07 | 1.09E-05 | 5.82E-08 | 5.09E-06 | 1.36E-03 | 1.35E-07 | 1.97E-07 | 1.31E-06 | 6.49E-07 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.0477 | 0.0192 | 0.0238 | 0.0390 | 0.0235 | 0.0791 | 0.0512 | 0.0243 | 0.0600 |
| Std. Error | 0.0103 | 0.0091 | 0.0088 | 0.0159 | 0.0110 | 0.0177 | 0.0104 | 0.0151 | 0.0153 |
| t statistic | 4.6235 | 2.1099 | 2.7064 | 2.4450 | 2.1320 | 4.4760 | 4.9050 | 1.6118 | 3.9163 |
| Sig. | 0.0024 | 0.0728 | 0.0304 | 0.0444 | 0.0705 | 0.0029 | 0.0017 | 0.1510 | 0.0058 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.7533 | 0.3887 | 0.5113 | 0.4606 | 0.3937 | 0.7411 | 0.7746 | 0.2707 | 0.6866 |
| Std. Error | 0.0276 | 0.0369 | 0.0213 | 0.0410 | 0.0593 | 0.0260 | 0.0257 | 0.0391 | 0.0276 |
| F Statistic | 21.38 | 4.45 | 7.32 | 5.98 | 4.55 | 20.03 | 24.06 | 2.60 | 15.34 |
| Regression - Sum Sq. Error | 0.0163 | 0.0061 | 0.0033 | 0.0100 | 0.0160 | 0.0136 | 0.0159 | 0.0040 | 0.0117 |
| Residuals - Sum Sq. Error | 0.0053 | 0.0096 | 0.0032 | 0.0118 | 0.0246 | 0.0047 | 0.0046 | 0.0107 | 0.0053 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 | -0.1798 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -3.7906 | -5.2313 | -4.3966 | -4.0520 | -5.4001 | -3.0919 | -3.8184 | -4.0394 | -3.4191 |
| Std. Error | 0.0777 | 0.2017 | 0.1373 | 0.1128 | 0.3827 | 0.0710 | 0.0840 | 0.1189 | 0.0696 |
| t statistic | -48.8010 | -25.9369 | -32.0112 | -35.9155 | -14.1118 | -43.5188 | -45.4411 | -33.9836 | -49.1482 |
| Sig. | 4.23E-27 | 4.14E-20 | 2.04E-22 | 1.09E-23 | 1.07E-13 | 8.04E-26 | 2.65E-26 | 4.47E-23 | 3.53E-27 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.4940 | 0.9551 | 0.6179 | 0.5681 | 0.9822 | 0.3367 | 0.5431 | 0.5809 | 0.4204 |
| Std. Error | 0.0273 | 0.0709 | 0.0463 | 0.0394 | 0.1370 | 0.0258 | 0.0295 | 0.0416 | 0.0249 |
| t statistic | 18.1206 | 13.4625 | 13.3477 | 14.4190 | 7.1698 | 13.0318 | 18.3837 | 13.9789 | 16.8692 |
| Sig. | 2.87E-16 | 3.15E-13 | 3.83E-13 | 6.47E-14 | 1.29E-07 | 6.59E-13 | 2.02E-16 | 1.33E-13 | 1.60E-15 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.9266 | 0.8745 | 0.8726 | 0.8888 | 0.6641 | 0.8672 | 0.9286 | 0.8826 | 0.9163 |
| Std. Error | 0.0580 | 0.1034 | 0.1099 | 0.0787 | 0.1607 | 0.0693 | 0.0639 | 0.0948 | 0.0604 |
| F Statistic | 328 | 181 | 178 | 208 | 51 | 170 | 338 | 195 | 285 |
| Regression - Sum Sq. Error | 1.1057 | 1.9384 | 2.1518 | 1.2881 | 1.3279 | 0.8151 | 1.3802 | 1.7563 | 1.0365 |
| Residuals - Sum Sq. Error | 0.0876 | 0.2781 | 0.3140 | 0.1611 | 0.6716 | 0.1248 | 0.1062 | 0.2337 | 0.0947 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

# Appendix 2-3: Regression Statistics - Commercial

**Commercial - Existing Customers**

**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 2.9663 | 4.6328 | 3.8874 | 4.3699 | 5.9330 | 4.3151 | 3.9796 | 4.9587 | 4.2004 |
| Std. Error | 0.0988 | 0.1753 | 0.1539 | 0.0942 | 0.1338 | 0.1240 | 0.1356 | 0.2146 | 0.1247 |
| t statistic | 30.0152 | 26.4273 | 25.2617 | 46.3959 | 44.3419 | 34.8059 | 29.3460 | 23.1064 | 33.6893 |
| Sig. | 1.17E-08 | 2.84E-08 | 3.89E-08 | 5.65E-10 | 7.75E-10 | 4.19E-09 | 1.37E-08 | 7.21E-08 | 5.26E-09 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.2174 | 0.1008 | 0.2986 | 0.1585 | 0.2018 | 0.4502 | 0.2975 | 0.0716 | 0.3271 |
| Std. Error | 0.0568 | 0.0389 | 0.0895 | 0.0522 | 0.0186 | 0.1440 | 0.0887 | 0.1062 | 0.0893 |
| t statistic | 3.8298 | 2.5915 | 3.3365 | 3.0392 | 10.8384 | 3.1276 | 3.3552 | 0.6743 | 3.6614 |
| Sig. | 0.0065 | 0.0359 | 0.0125 | 0.0189 | 0.0000 | 0.0167 | 0.0122 | 0.5218 | 0.0081 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.6769 | 0.4896 | 0.6139 | 0.5689 | 0.9438 | 0.5829 | 0.6166 | 0.0610 | 0.6570 |
| Std. Error | 0.1478 | 0.1594 | 0.2220 | 0.1350 | 0.1000 | 0.2107 | 0.2151 | 0.2903 | 0.1665 |
| F Statistic | 14.67 | 6.72 | 11.13 | 9.24 | 117.47 | 9.78 | 11.26 | 0.45 | 13.41 |
| Regression - Sum Sq. Error | 0.3204 | 0.1707 | 0.5485 | 0.1683 | 1.1746 | 0.4343 | 0.5208 | 0.0383 | 0.3718 |
| Residuals - Sum Sq. Error | 0.1529 | 0.1780 | 0.3449 | 0.1276 | 0.0700 | 0.3108 | 0.3239 | 0.5899 | 0.1941 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -2.2249 | -3.9657 | -2.6024 | -2.7212 | -3.5332 | -1.5179 | -1.9595 | -2.2784 | -1.8670 |
| Std. Error | 0.1020 | 0.1970 | 0.1454 | 0.1133 | 0.2438 | 0.0802 | 0.1084 | 0.1520 | 0.0841 |
| t statistic | -21.8192 | -20.1331 | -17.8955 | -24.0105 | -14.4936 | -18.9253 | -18.0812 | -14.9880 | -22.2016 |
| Sig. | 3.06E-18 | 2.21E-17 | 3.88E-16 | 2.85E-19 | 5.74E-14 | 1.00E-16 | 3.02E-16 | 2.63E-14 | 1.99E-18 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.5094 | 0.9879 | 0.6020 | 0.6917 | 0.8380 | 0.3529 | 0.4838 | 0.5404 | 0.4461 |
| Std. Error | 0.0358 | 0.0692 | 0.0490 | 0.0396 | 0.0873 | 0.0292 | 0.0381 | 0.0531 | 0.0301 |
| t statistic | 14.2422 | 14.2685 | 12.2842 | 17.4861 | 9.6033 | 12.0993 | 12.7057 | 10.1747 | 14.8451 |
| Sig. | 8.61E-14 | 8.25E-14 | 2.49E-12 | 6.77E-16 | 4.89E-10 | 3.49E-12 | 1.17E-12 | 1.48E-10 | 3.29E-14 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.8864 | 0.8868 | 0.8530 | 0.9216 | 0.7801 | 0.8492 | 0.8613 | 0.7993 | 0.8945 |
| Std. Error | 0.0751 | 0.0995 | 0.1182 | 0.0783 | 0.1028 | 0.0782 | 0.0811 | 0.1183 | 0.0708 |
| F Statistic | 203 | 204 | 151 | 306 | 92 | 146 | 161 | 104 | 220 |
| Regression - Sum Sq. Error | 1.1441 | 2.0169 | 2.1097 | 1.8769 | 0.9741 | 0.8941 | 1.0626 | 1.4492 | 1.1056 |
| Residuals - Sum Sq. Error | 0.1466 | 0.2576 | 0.3635 | 0.1596 | 0.2746 | 0.1588 | 0.1711 | 0.3640 | 0.1304 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

**Commercial - New Construction Customers**
**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 4.0290 | 7.4708 | 3.0216 | 3.6796 | 7.9487 | 5.9390 | 7.0739 | 6.1120 | 5.6881 |
| Std. Error | 0.1842 | 0.5788 | 0.1765 | 0.1077 | 0.4034 | 0.2325 | 0.3812 | 0.2559 | 0.0939 |
| t statistic | 21.8769 | 12.9075 | 17.1191 | 34.1664 | 19.7030 | 25.5484 | 18.5562 | 23.8876 | 60.5991 |
| Sig. | 1.05E-07 | 3.89E-06 | 5.70E-07 | 4.77E-09 | 2.17E-07 | 3.60E-08 | 3.27E-07 | 5.73E-08 | 8.75E-11 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.3790 | 0.1906 | 0.0758 | 0.2828 | 0.0485 | 0.7281 | 0.2557 | 0.2329 | 0.4969 |
| Std. Error | 0.1051 | 0.1289 | 0.1031 | 0.0613 | 0.0561 | 0.2629 | 0.2500 | 0.1255 | 0.0669 |
| t statistic | 3.6049 | 1.4784 | 0.7356 | 4.6106 | 0.8660 | 2.7695 | 1.0231 | 1.8557 | 7.4318 |
| Sig. | 0.0087 | 0.1828 | 0.4859 | 0.0025 | 0.4152 | 0.0277 | 0.3403 | 0.1059 | 0.0001 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.6499 | 0.2379 | 0.0717 | 0.7523 | 0.0968 | 0.5228 | 0.1301 | 0.3297 | 0.8875 |
| Std. Error | 0.2702 | 0.5316 | 0.2550 | 0.1537 | 0.3071 | 0.3996 | 0.6043 | 0.3474 | 0.1246 |
| F Statistic | 13.00 | 2.19 | 0.54 | 21.26 | 0.75 | 7.67 | 1.05 | 3.44 | 55.23 |
| Regression - Sum Sq. Error | 0.9488 | 0.6176 | 0.0352 | 0.5024 | 0.0707 | 1.2246 | 0.3822 | 0.4156 | 0.8572 |
| Residuals - Sum Sq. Error | 0.5111 | 1.9780 | 0.4553 | 0.1654 | 0.6603 | 1.1176 | 2.5559 | 0.8448 | 0.1086 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -2.6275 | -3.0114 | -3.8913 | -2.4433 | -5.4656 | -1.5709 | -2.3617 | -2.1208 | -1.8491 |
| Std. Error | 0.2140 | 0.3153 | 0.2073 | 0.2187 | 0.5956 | 0.1371 | 0.1771 | 0.1583 | 0.1160 |
| t statistic | -12.2751 | -9.5523 | -18.7706 | -11.1728 | -9.1773 | -11.4595 | -13.3362 | -13.3987 | -15.9349 |
| Sig. | 2.53E-12 | 5.46E-10 | 1.22E-16 | 2.01E-11 | 1.23E-09 | 1.16E-11 | 3.90E-13 | 3.51E-13 | 6.21E-15 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.6727 | 0.6554 | 0.9148 | 0.6376 | 1.5038 | 0.4023 | 0.6069 | 0.5376 | 0.4690 |
| Std. Error | 0.0751 | 0.1110 | 0.0699 | 0.0763 | 0.2132 | 0.0499 | 0.0622 | 0.0553 | 0.0415 |
| t statistic | 8.9598 | 5.9042 | 13.0820 | 8.3591 | 7.0543 | 8.0678 | 9.7494 | 9.7204 | 11.3070 |
| Sig. | 1.98E-09 | 3.15E-06 | 6.04E-13 | 7.69E-09 | 1.72E-07 | 1.51E-08 | 3.59E-10 | 3.81E-10 | 1.55E-11 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.7554 | 0.5728 | 0.8681 | 0.7288 | 0.6568 | 0.7146 | 0.7852 | 0.7842 | 0.8310 |
| Std. Error | 0.1573 | 0.1640 | 0.1692 | 0.1482 | 0.2519 | 0.1352 | 0.1337 | 0.1229 | 0.0982 |
| F Statistic | 80 | 35 | 171 | 70 | 50 | 65 | 95 | 94 | 128 |
| Regression - Sum Sq. Error | 1.9859 | 0.9381 | 4.9004 | 1.5339 | 3.1587 | 1.1898 | 1.7000 | 1.4268 | 1.2324 |
| Residuals - Sum Sq. Error | 0.6432 | 0.6997 | 0.7445 | 0.5708 | 1.6504 | 0.4753 | 0.4650 | 0.3926 | 0.2506 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

**Commercial - Conversion Customers**
**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |
| **BASE LOAD DETERMINATION** | | | | | | | | | |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 1.7146 | 1.8736 | 0.5812 | 3.6360 | 2.1631 | 2.8654 | 1.6783 | 3.4533 | 2.5907 |
| Std. Error | 0.1544 | 0.1144 | 0.6801 | 0.1794 | 0.2773 | 0.0646 | 0.1583 | 0.4691 | 0.0649 |
| t statistic | 11.1069 | 16.3851 | 0.8546 | 20.2642 | 7.8017 | 44.3579 | 10.6023 | 7.3610 | 39.9474 |
| Sig. | 1.07E-05 | 7.69E-07 | 4.21E-01 | 1.79E-07 | 1.07E-04 | 7.73E-10 | 1.45E-05 | 1.54E-04 | 1.60E-09 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.2834 | 0.0399 | 0.5242 | 0.2086 | 0.2867 | 0.3817 | 0.1643 | 0.0440 | 0.2954 |
| Std. Error | 0.0892 | 0.0256 | 0.3968 | 0.1015 | 0.0387 | 0.0771 | 0.1074 | 0.2364 | 0.0475 |
| t statistic | 3.1761 | 1.5573 | 1.3210 | 2.0561 | 7.3994 | 4.9529 | 1.5301 | 0.1863 | 6.2195 |
| Sig. | 0.0156 | 0.1634 | 0.2280 | 0.0788 | 0.0001 | 0.0017 | 0.1698 | 0.8575 | 0.0004 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.5903 | 0.2573 | 0.1996 | 0.3765 | 0.8866 | 0.7780 | 0.2506 | 0.0049 | 0.8468 |
| Std. Error | 0.2350 | 0.1035 | 0.9737 | 0.2589 | 0.2106 | 0.1093 | 0.2527 | 0.6227 | 0.0863 |
| F Statistic | 10.09 | 2.43 | 1.75 | 4.23 | 54.75 | 24.53 | 2.34 | 0.03 | 38.68 |
| Regression - Sum Sq. Error | 0.5568 | 0.0260 | 1.6545 | 0.2833 | 2.4281 | 0.2932 | 0.1495 | 0.0135 | 0.2879 |
| Residuals - Sum Sq. Error | 0.3864 | 0.0750 | 6.6364 | 0.4691 | 0.3104 | 0.0837 | 0.4471 | 2.7144 | 0.0521 |
| Residuals - Degrees of Freedom | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **HEAT LOAD DETERMINATION** | | | | | | | | | |
| Assumed Price Coefficient | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 | -0.1947 |
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | -2.6051 | -5.1709 | -2.7573 | -3.0211 | -3.4090 | -1.7961 | -3.0387 | -2.1466 | -2.1511 |
| Std. Error | 0.1684 | 0.3445 | 0.3647 | 0.2284 | 0.4183 | 0.1203 | 0.1418 | 0.3652 | 0.1024 |
| t statistic | -15.4658 | -15.0079 | -7.5597 | -13.2277 | -8.1502 | -14.9354 | -21.4223 | -5.8772 | -21.0117 |
| Sig. | 1.26E-14 | 2.55E-14 | 5.03E-08 | 4.70E-13 | 1.25E-08 | 2.85E-14 | 4.81E-18 | 3.38E-06 | 7.75E-18 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 0.5180 | 1.1966 | 0.4901 | 0.6417 | 0.7345 | 0.3465 | 0.6953 | 0.3961 | 0.4249 |
| Std. Error | 0.0591 | 0.1211 | 0.1229 | 0.0797 | 0.1497 | 0.0437 | 0.0498 | 0.1276 | 0.0366 |
| t statistic | 8.7632 | 9.8789 | 3.9879 | 8.0513 | 4.9066 | 7.9244 | 13.9522 | 3.1037 | 11.6146 |
| Sig. | 3.07E-09 | 2.73E-10 | 4.82E-04 | 1.57E-08 | 4.30E-05 | 2.11E-08 | 1.39E-13 | 4.57E-03 | 8.61E-12 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.7471 | 0.7896 | 0.3795 | 0.7137 | 0.4808 | 0.7072 | 0.8822 | 0.2703 | 0.8384 |
| Std. Error | 0.1258 | 0.1763 | 0.2962 | 0.1579 | 0.1762 | 0.1173 | 0.1056 | 0.2851 | 0.0863 |
| F Statistic | 77 | 98 | 16 | 65 | 24 | 63 | 195 | 10 | 135 |
| Regression - Sum Sq. Error | 1.2144 | 3.0333 | 1.3954 | 1.6168 | 0.7475 | 0.8647 | 2.1721 | 0.7831 | 1.0055 |
| Residuals - Sum Sq. Error | 0.4111 | 0.8081 | 2.2814 | 0.6485 | 0.8073 | 0.3580 | 0.2901 | 2.1136 | 0.1938 |
| Residuals - Degrees of Freedom | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

# Appendix 2-4: Regression Statistics - Industrial

**Industrial Firm Sales**
**Regression Results by Region**

| Region | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
|---|---|---|---|---|---|---|---|---|---|
| DEP Variable: UPCperDay | ALB | AST | DALO | EUG+COOS | LC | POR | SAL | VAN+DALW | SYS |
| INDEP Variable(s): HDDperDay | ALB | AST | DALO | EUG | LC | POR | SAL | VAN | SYS |

| BASE & HEAT LOAD DETERMINATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| UNSTANDARDIZED COEFFICIENTS | | | | | | | | | |
| (Constant) | | | | | | | | | |
| Coefficient B | 150.827 | 18.040 | 114.724 | 117.310 | 299.482 | 162.163 | 212.838 | 122.526 | 158.282 |
| Std. Error | 8.010 | 5.881 | 5.316 | 5.513 | 33.391 | 3.832 | 12.118 | 11.821 | 4.422 |
| t statistic | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Sig. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| HDDperDay | | | | | | | | | |
| Coefficient B | 3.5632 | 1.3556 | 2.0413 | 4.7742 | -7.1086 | 5.4079 | 0.6897 | 9.1705 | 4.5428 |
| Std. Error | 0.5132 | 0.3885 | 0.2966 | 0.3485 | 2.2672 | 0.2629 | 0.7816 | 0.7408 | 0.2935 |
| t statistic | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Sig. | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| MODEL STATISTICS | | | | | | | | | |
| R Square | 0.5658 | 0.2476 | 0.5614 | 0.8353 | 0.2099 | 0.9196 | 0.0206 | 0.8055 | 0.8662 |
| Std. Error | 27.01 | 16.12 | 19.08 | 18.53 | 73.51 | 14.14 | 41.40 | 40.21 | 15.64 |
| F Statistic | 48 | 12 | 47 | 188 | 10 | 423 | 1 | 153 | 240 |
| Regression - Sum Sq. Error | 35,169 | 3,165 | 17,238 | 64,426 | 53,126 | 84,603 | 1,335 | 247,742 | 58,598 |
| Residuals - Sum Sq. Error | 26,994 | 9,620 | 13,465 | 12,699 | 199,955 | 7,398 | 63,416 | 59,822 | 9,049 |
| Residuals - Degrees of Freedom | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |

# Appendix 2-5: Customer Use Profiles

## NW Natural
## Customer Use Profiles (Base Year 2007-2008)

| 2007-2008 Summary | | Albany | Astoria | The Dalles (OR) | Eugene & Coos Bay | Lincoln City & Newport | Portland | Salem | Vancouver & The Dalles (WA) | Total System |
|---|---|---|---|---|---|---|---|---|---|---|
| | Normal Annual Use per Customer (Thrm/Cst) | 617 | 596 | 607 | 591 | 502 | 690 | 641 | 728 | 673 |
| | Base Use (Thrm/Cst) | 147 | 178 | 152 | 174 | 146 | 170 | 167 | 210 | 172 |
| | Heat Use (Thrm/Cst) | 471 | 418 | 455 | 417 | 355 | 520 | 474 | 518 | 501 |
| **Residential** | Normal Daily Use (Thrm/Cst/d) | 1.7 | 1.6 | 1.7 | 1.6 | 1.4 | 1.9 | 1.8 | 2.0 | 1.8 |
| **Existing** | Peak Daily Use (Thrm/Cst/d) | 9.3 | 11.8 | 9.3 | 9.3 | 11.1 | 9.9 | 10.5 | 11.0 | 10.0 |
| | Load Factor | 0.181 | 0.138 | 0.178 | 0.174 | 0.124 | 0.191 | 0.168 | 0.180 | 0.183 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,401 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 651 | 689 | 654 | 642 | 536 | 792 | 674 | 817 | 746 |
| | Base Use (Thrm/Cst) | 208 | 276 | 211 | 242 | 196 | 245 | 218 | 243 | 236 |
| **Residential** | Heat Use (Thrm/Cst) | 443 | 412 | 443 | 400 | 340 | 546 | 456 | 574 | 510 |
| **New** | Normal Daily Use (Thrm/Cst/d) | 1.8 | 1.9 | 1.8 | 1.8 | 1.5 | 2.2 | 1.8 | 2.2 | 2.0 |
| **Construction** | Peak Daily Use (Thrm/Cst/d) | 10.6 | 14.0 | 9.5 | 10.4 | 11.6 | 11.1 | 10.9 | 12.2 | 11.2 |
| **Single-Family** | Load Factor | 0.167 | 0.135 | 0.187 | 0.168 | 0.126 | 0.195 | 0.169 | 0.183 | 0.182 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,401 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 329 | 369 | 359 | 263 | 342 | 401 | 418 | 404 | 393 |
| | Base Use (Thrm/Cst) | 85 | 193 | 149 | 119 | 193 | 141 | 142 | 143 | 140 |
| **Residential** | Heat Use (Thrm/Cst) | 244 | 176 | 209 | 144 | 149 | 260 | 276 | 261 | 253 |
| **New** | Normal Daily Use (Thrm/Cst/d) | 0.9 | 1.0 | 1.0 | 0.7 | 0.9 | 1.1 | 1.1 | 1.1 | 1.1 |
| **Construction** | Peak Daily Use (Thrm/Cst/d) | 5.3 | 6.7 | 5.1 | 3.4 | 6.6 | 5.8 | 6.5 | 6.3 | 5.8 |
| **Multi-Family** | Load Factor | 0.170 | 0.150 | 0.191 | 0.214 | 0.143 | 0.190 | 0.176 | 0.175 | 0.185 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,401 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 530 | 533 | 535 | 530 | 442 | 599 | 577 | 614 | 582 |
| | Base Use (Thrm/Cst) | 108 | 162 | 123 | 130 | 146 | 116 | 115 | 162 | 122 |
| | Heat Use (Thrm/Cst) | 422 | 371 | 412 | 400 | 296 | 483 | 462 | 452 | 460 |
| **Residential** | Normal Daily Use (Thrm/Cst/d) | 1.4 | 1.5 | 1.5 | 1.4 | 1.2 | 1.6 | 1.6 | 1.7 | 1.6 |
| **Conversion** | Peak Daily Use (Thrm/Cst/d) | 7.7 | 10.2 | 7.8 | 8.0 | 9.2 | 8.6 | 9.3 | 8.8 | 8.6 |
| | Load Factor | 0.189 | 0.144 | 0.188 | 0.182 | 0.131 | 0.190 | 0.170 | 0.191 | 0.184 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,401 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 3,251 | 3,165 | 3,840 | 3,821 | 3,478 | 4,076 | 4,012 | 4,124 | 3,955 |
| | Base Use (Thrm/Cst) | 1,067 | 1,666 | 1,398 | 1,571 | 2,133 | 1,552 | 1,431 | 1,783 | 1,537 |
| | Heat Use (Thrm/Cst) | 2,185 | 1,499 | 2,442 | 2,250 | 1,344 | 2,524 | 2,581 | 2,340 | 2,418 |
| **Commercial** | Normal Daily Use (Thrm/Cst/d) | 8.9 | 8.6 | 10.5 | 10.4 | 9.5 | 11.1 | 11.0 | 11.3 | 10.8 |
| **Existing** | Peak Daily Use (Thrm/Cst/d) | 42.1 | 45.3 | 47.9 | 52.4 | 40.3 | 48.8 | 52.0 | 47.1 | 48.7 |
| | Load Factor | 0.211 | 0.191 | 0.219 | 0.199 | 0.236 | 0.228 | 0.211 | 0.239 | 0.222 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,428 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 3,845 | 4,203 | 2,899 | 3,904 | 4,058 | 4,934 | 5,041 | 4,952 | 4,712 |
| | Base Use (Thrm/Cst) | 1,428 | 2,648 | 1,071 | 1,304 | 2,817 | 2,105 | 2,507 | 2,166 | 2,082 |
| | Heat Use (Thrm/Cst) | 2,417 | 1,555 | 1,828 | 2,600 | 1,241 | 2,829 | 2,534 | 2,786 | 2,630 |
| **Commercial** | Normal Daily Use (Thrm/Cst/d) | 10.5 | 11.5 | 7.9 | 10.7 | 11.1 | 13.5 | 13.8 | 13.5 | 12.9 |
| **New** | Peak Daily Use (Thrm/Cst/d) | 52.0 | 36.7 | 42.3 | 54.6 | 69.8 | 56.1 | 57.5 | 54.2 | 55.1 |
| **Construction** | Load Factor | 0.202 | 0.313 | 0.187 | 0.195 | 0.159 | 0.240 | 0.239 | 0.250 | 0.234 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,428 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 2,126 | 1,463 | 1,685 | 2,693 | 1,898 | 2,867 | 2,209 | 2,940 | 2,660 |
| | Base Use (Thrm/Cst) | 589 | 643 | 200 | 1,248 | 743 | 984 | 576 | 1,186 | 948 |
| | Heat Use (Thrm/Cst) | 1,537 | 819 | 1,485 | 1,444 | 1,155 | 1,883 | 1,632 | 1,755 | 1,712 |
| **Commercial** | Normal Daily Use (Thrm/Cst/d) | 5.8 | 4.0 | 4.6 | 7.4 | 5.2 | 7.8 | 6.0 | 8.0 | 7.3 |
| **Conversion** | Peak Daily Use (Thrm/Cst/d) | 28.7 | 28.3 | 24.7 | 32.3 | 27.9 | 35.0 | 37.4 | 30.5 | 33.5 |
| | Load Factor | 0.202 | 0.141 | 0.186 | 0.227 | 0.186 | 0.224 | 0.161 | 0.263 | 0.217 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,428 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 71,736 | 13,351 | 52,688 | 65,083 | 79,791 | 82,099 | 80,849 | 89,260 | 78,010 |
| | Base Use (Thrm/Cst) | 55,052 | 6,585 | 41,875 | 42,819 | 57,774 | 59,190 | 77,687 | 44,722 | 57,931 |
| | Heat Use (Thrm/Cst) | 16,683 | 6,767 | 10,813 | 22,265 | 22,017 | 22,909 | 3,162 | 44,537 | 20,079 |
| **Industrial** | Normal Daily Use (Thrm/Cst/d) | 196.0 | 36.5 | 144.0 | 177.8 | 218.0 | 224.3 | 220.9 | 243.9 | 213.1 |
| **Firm Sales** | Peak Daily Use (Thrm/Cst/d) | 335.4 | 85.7 | 236.7 | 367.2 | 377.8 | 447.9 | 249.4 | 612.0 | 399.5 |
| | Load Factor | 0.584 | 0.426 | 0.608 | 0.484 | 0.577 | 0.501 | 0.886 | 0.398 | 0.533 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,420 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53 |
| | Normal Annual Use per Customer (Thrm/Cst) | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 |
| | Base Use (Thrm/Cst) | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 | 469,944 |
| **Interruptible** | Heat Use (Thrm/Cst) | - | - | - | - | - | - | - | - | - |
| (Excluded | Normal Daily Use (Thrm/Cst/d) | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 |
| from Core | Peak Daily Use (Thrm/Cst/d) | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 | 1,284 |
| Demand) | Load Factor | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| | Normal Annual HDD | 4,653 | 4,935 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 4,824 | 4,420 |
| | Design Day HDD | 52.0 | 50.0 | 60.0 | 52.5 | 48.5 | 53.0 | 54.0 | 53.5 | 53.1 |

# Appendix 2-6: Detailed Results – Base Demand Scenario

**Peak Day Demand, MDTh/day**
**Base Demand Scenario**
**Peak Day = February 3**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 50.92 | 51.75 | 52.73 | 53.50 | 54.29 | 55.17 | 56.06 | 56.94 | 57.81 | 58.87 | 59.81 | 60.81 | 61.77 | 62.83 | 63.74 | 64.60 | 65.47 | 66.25 | 66.92 | 67.66 | 68.39 |
| Astoria | 19.04 | 19.32 | 19.48 | 19.54 | 19.62 | 19.72 | 19.84 | 19.96 | 20.07 | 20.26 | 20.40 | 20.56 | 20.71 | 20.89 | 21.03 | 21.15 | 21.27 | 21.36 | 21.43 | 21.51 | 21.59 |
| Dalles (OR) | 9.08 | 9.42 | 9.69 | 9.92 | 10.15 | 10.39 | 10.63 | 10.87 | 11.11 | 11.38 | 11.63 | 11.89 | 12.14 | 12.41 | 12.65 | 12.88 | 13.11 | 13.32 | 13.50 | 13.70 | 13.90 |
| Eugene & Coos Bay | 60.81 | 62.13 | 63.45 | 64.50 | 65.55 | 66.70 | 67.87 | 69.04 | 70.18 | 71.56 | 72.80 | 74.11 | 75.37 | 76.76 | 77.96 | 79.10 | 80.26 | 81.31 | 82.23 | 83.22 | 84.22 |
| Lincoln City & Newport | 14.56 | 14.80 | 15.14 | 15.42 | 15.70 | 15.99 | 16.29 | 16.58 | 16.86 | 17.18 | 17.47 | 17.77 | 18.05 | 18.35 | 18.61 | 18.85 | 19.08 | 19.29 | 19.46 | 19.65 | 19.83 |
| Portland | 541.33 | 545.50 | 553.66 | 559.60 | 565.72 | 572.91 | 580.28 | 587.66 | 595.03 | 604.46 | 612.82 | 621.87 | 630.71 | 640.58 | 649.10 | 657.16 | 665.45 | 672.99 | 679.50 | 686.69 | 693.99 |
| Salem | 126.07 | 129.31 | 131.68 | 133.51 | 135.37 | 137.46 | 139.58 | 141.68 | 143.75 | 146.29 | 148.55 | 150.95 | 153.28 | 155.84 | 158.04 | 160.11 | 162.22 | 164.12 | 165.75 | 167.53 | 169.32 |
| Vancouver & Dalles (WA) | 93.47 | 95.36 | 98.55 | 101.41 | 104.29 | 107.39 | 110.51 | 113.59 | 116.63 | 120.04 | 123.20 | 126.48 | 129.68 | 133.07 | 136.15 | 139.11 | 142.08 | 144.86 | 147.39 | 150.04 | 152.69 |
| Total System | 915.29 | 927.58 | 944.38 | 957.40 | 970.68 | 985.72 | 1,001.07 | 1,016.32 | 1,031.44 | 1,050.03 | 1,066.67 | 1,084.43 | 1,101.72 | 1,120.72 | 1,137.29 | 1,152.95 | 1,168.93 | 1,183.51 | 1,196.19 | 1,209.99 | 1,223.92 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 32.93 | 33.55 | 34.41 | 35.16 | 35.93 | 36.78 | 37.64 | 38.48 | 39.31 | 40.26 | 41.13 | 42.04 | 42.92 | 43.86 | 44.69 | 45.49 | 46.29 | 47.04 | 47.70 | 48.40 | 49.09 |
| Astoria | 11.68 | 11.79 | 11.97 | 12.10 | 12.24 | 12.39 | 12.56 | 12.73 | 12.88 | 13.08 | 13.25 | 13.43 | 13.60 | 13.78 | 13.94 | 14.08 | 14.22 | 14.34 | 14.44 | 14.54 | 14.65 |
| Dalles (OR) | 3.91 | 4.04 | 4.20 | 4.35 | 4.50 | 4.66 | 4.83 | 5.00 | 5.16 | 5.34 | 5.50 | 5.68 | 5.84 | 6.02 | 6.18 | 6.34 | 6.49 | 6.64 | 6.77 | 6.91 | 7.05 |
| Eugene & Coos Bay | 30.24 | 30.92 | 31.83 | 32.64 | 33.47 | 34.36 | 35.29 | 36.20 | 37.10 | 38.10 | 39.03 | 40.00 | 40.93 | 41.93 | 42.82 | 43.68 | 44.55 | 45.35 | 46.08 | 46.84 | 47.60 |
| Lincoln City & Newport | 9.15 | 9.36 | 9.63 | 9.87 | 10.11 | 10.36 | 10.62 | 10.87 | 11.12 | 11.39 | 11.64 | 11.90 | 12.14 | 12.40 | 12.63 | 12.85 | 13.06 | 13.25 | 13.42 | 13.60 | 13.78 |
| Portland | 356.17 | 362.12 | 370.06 | 376.75 | 383.66 | 391.41 | 399.30 | 407.16 | 414.98 | 424.16 | 432.61 | 441.53 | 450.28 | 459.73 | 468.24 | 476.41 | 484.73 | 492.50 | 499.52 | 507.00 | 514.54 |
| Salem | 80.57 | 81.99 | 83.94 | 85.63 | 87.37 | 89.28 | 91.23 | 93.16 | 95.06 | 97.26 | 99.26 | 101.36 | 103.41 | 105.60 | 107.56 | 109.42 | 111.31 | 113.06 | 114.62 | 116.27 | 117.92 |
| Vancouver & Dalles (WA) | 67.23 | 69.01 | 71.43 | 73.65 | 75.92 | 78.38 | 80.88 | 83.33 | 85.75 | 88.44 | 90.94 | 93.53 | 96.06 | 98.72 | 101.16 | 103.49 | 105.84 | 108.05 | 110.07 | 112.17 | 114.26 |
| Total System | 591.88 | 602.78 | 617.46 | 630.15 | 643.19 | 657.62 | 672.35 | 686.93 | 701.36 | 718.03 | 733.38 | 749.45 | 765.18 | 782.04 | 797.22 | 811.76 | 826.49 | 840.23 | 852.61 | 865.72 | 878.89 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.80 | 16.80 | 16.92 | 16.93 | 16.93 | 16.96 | 16.99 | 17.03 | 17.06 | 17.16 | 17.23 | 17.32 | 17.40 | 17.52 | 17.59 | 17.65 | 17.71 | 17.75 | 17.76 | 17.79 | 17.82 |
| Astoria | 7.31 | 7.28 | 7.25 | 7.19 | 7.12 | 7.07 | 7.02 | 6.97 | 6.93 | 6.91 | 6.88 | 6.87 | 6.85 | 6.85 | 6.83 | 6.80 | 6.78 | 6.76 | 6.72 | 6.70 | 6.67 |
| Dalles (OR) | 4.92 | 4.93 | 5.04 | 5.12 | 5.19 | 5.26 | 5.34 | 5.42 | 5.49 | 5.58 | 5.66 | 5.75 | 5.83 | 5.93 | 6.00 | 6.07 | 6.14 | 6.21 | 6.26 | 6.31 | 6.37 |
| Eugene & Coos Bay | 27.35 | 27.74 | 28.13 | 28.34 | 28.54 | 28.78 | 29.02 | 29.27 | 29.51 | 29.87 | 30.17 | 30.51 | 30.83 | 31.21 | 31.52 | 31.79 | 32.08 | 32.32 | 32.50 | 32.72 | 32.95 |
| Lincoln City & Newport | 5.24 | 5.27 | 5.34 | 5.39 | 5.42 | 5.46 | 5.50 | 5.54 | 5.57 | 5.62 | 5.65 | 5.69 | 5.73 | 5.77 | 5.80 | 5.82 | 5.85 | 5.86 | 5.86 | 5.87 | 5.87 |
| Portland | 169.35 | 169.33 | 169.50 | 168.63 | 167.74 | 167.14 | 166.60 | 166.09 | 165.61 | 165.81 | 165.69 | 165.81 | 165.86 | 166.24 | 166.22 | 166.08 | 166.02 | 165.75 | 165.21 | 164.89 | 164.62 |
| Salem | 43.12 | 43.48 | 43.88 | 43.99 | 44.08 | 44.24 | 44.41 | 44.57 | 44.73 | 45.07 | 45.31 | 45.61 | 45.89 | 46.24 | 46.48 | 46.68 | 46.89 | 47.04 | 47.10 | 47.21 | 47.34 |
| Vancouver & Dalles (WA) | 24.44 | 25.17 | 25.94 | 26.56 | 27.17 | 27.80 | 28.43 | 29.05 | 29.67 | 30.38 | 31.04 | 31.73 | 32.40 | 33.12 | 33.76 | 34.38 | 35.00 | 35.58 | 36.09 | 36.63 | 37.18 |
| Total System | 298.53 | 300.00 | 302.00 | 302.14 | 302.18 | 302.71 | 303.31 | 303.93 | 304.56 | 306.42 | 307.65 | 309.29 | 310.79 | 312.89 | 314.21 | 315.27 | 316.46 | 317.25 | 317.49 | 318.12 | 318.82 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.40 | 1.40 | 1.41 | 1.42 | 1.43 | 1.43 | 1.43 | 1.44 | 1.44 | 1.44 | 1.45 | 1.45 | 1.45 | 1.46 | 1.46 | 1.46 | 1.47 | 1.47 | 1.47 | 1.48 |
| Astoria | 0.06 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Dalles (OR) | 0.25 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| Eugene & Coos Bay | 3.23 | 3.47 | 3.49 | 3.52 | 3.54 | 3.56 | 3.56 | 3.57 | 3.57 | 3.58 | 3.59 | 3.60 | 3.61 | 3.61 | 3.62 | 3.63 | 3.64 | 3.65 | 3.65 | 3.66 | 3.67 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| Portland | 15.81 | 14.04 | 14.10 | 14.21 | 14.32 | 14.37 | 14.38 | 14.41 | 14.45 | 14.48 | 14.51 | 14.54 | 14.57 | 14.61 | 14.64 | 14.67 | 14.70 | 14.73 | 14.77 | 14.80 | 14.83 |
| Salem | 2.38 | 3.84 | 3.86 | 3.89 | 3.92 | 3.93 | 3.93 | 3.94 | 3.95 | 3.96 | 3.97 | 3.98 | 3.99 | 3.99 | 4.00 | 4.01 | 4.02 | 4.03 | 4.04 | 4.05 | 4.06 |
| Vancouver & Dalles (WA) | 1.81 | 1.18 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 |
| Total System | 24.89 | 24.80 | 24.91 | 25.11 | 25.30 | 25.38 | 25.41 | 25.46 | 25.52 | 25.58 | 25.63 | 25.69 | 25.75 | 25.80 | 25.86 | 25.92 | 25.97 | 26.03 | 26.09 | 26.15 | 26.20 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.87 | 1.87 | 1.89 | 1.90 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.93 | 1.93 | 1.94 | 1.94 | 1.95 | 1.95 | 1.95 | 1.96 | 1.96 | 1.97 | 1.97 |
| Astoria | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.39 |
| Dalles (OR) | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 |
| Eugene & Coos Bay | 3.75 | 3.73 | 3.75 | 3.78 | 3.81 | 3.82 | 3.82 | 3.83 | 3.84 | 3.85 | 3.86 | 3.87 | 3.87 | 3.88 | 3.89 | 3.90 | 3.91 | 3.92 | 3.93 | 3.93 | 3.94 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Portland | 9.44 | 9.41 | 9.45 | 9.53 | 9.60 | 9.63 | 9.64 | 9.66 | 9.68 | 9.70 | 9.73 | 9.75 | 9.77 | 9.79 | 9.81 | 9.83 | 9.85 | 9.88 | 9.90 | 9.92 | 9.94 |
| Salem | 4.72 | 4.71 | 4.73 | 4.76 | 4.80 | 4.82 | 4.82 | 4.83 | 4.84 | 4.85 | 4.86 | 4.87 | 4.88 | 4.90 | 4.91 | 4.92 | 4.93 | 4.94 | 4.95 | 4.96 | 4.97 |
| Vancouver & Dalles (WA) | 1.59 | 1.58 | 1.59 | 1.60 | 1.61 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 1.66 | 1.67 | 1.67 |
| Total System | 22.47 | 22.39 | 22.49 | 22.67 | 22.84 | 22.92 | 22.94 | 22.99 | 23.04 | 23.09 | 23.14 | 23.19 | 23.24 | 23.29 | 23.34 | 23.40 | 23.45 | 23.50 | 23.55 | 23.60 | 23.65 |

**Annual Demand Total, MDth - Design Year (85% Probability Coldest Winter with 1989 Three Day Peak)**
**Base Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,992 | 4,050 | 4,125 | 4,190 | 4,274 | 4,327 | 4,400 | 4,472 | 4,563 | 4,627 | 4,703 | 4,784 | 4,883 | 4,946 | 5,022 | 5,094 | 5,190 | 5,237 | 5,299 | 5,365 | 5,454 |
| Astoria | 1,205 | 1,259 | 1,279 | 1,295 | 1,318 | 1,329 | 1,348 | 1,366 | 1,391 | 1,406 | 1,425 | 1,446 | 1,473 | 1,487 | 1,506 | 1,524 | 1,550 | 1,560 | 1,576 | 1,592 | 1,616 |
| Dalles (OR) | 755 | 794 | 816 | 835 | 858 | 874 | 894 | 914 | 938 | 956 | 976 | 998 | 1,023 | 1,041 | 1,061 | 1,080 | 1,105 | 1,119 | 1,136 | 1,154 | 1,177 |
| Eugene & Coos Bay | 4,804 | 4,998 | 5,114 | 5,219 | 5,348 | 5,432 | 5,542 | 5,652 | 5,787 | 5,882 | 5,995 | 6,113 | 6,257 | 6,350 | 6,462 | 6,571 | 6,711 | 6,784 | 6,880 | 6,980 | 7,113 |
| Lincoln City & Newport | 969 | 980 | 1,003 | 1,023 | 1,048 | 1,065 | 1,087 | 1,108 | 1,135 | 1,153 | 1,175 | 1,198 | 1,225 | 1,243 | 1,265 | 1,285 | 1,311 | 1,325 | 1,343 | 1,362 | 1,386 |
| Portland | 44,532 | 44,635 | 45,299 | 45,843 | 46,613 | 47,027 | 47,659 | 48,295 | 49,151 | 49,691 | 50,388 | 51,128 | 52,090 | 52,647 | 53,356 | 54,036 | 54,980 | 55,380 | 55,965 | 56,592 | 57,487 |
| Salem | 9,652 | 9,742 | 9,932 | 10,097 | 10,314 | 10,445 | 10,626 | 10,808 | 11,040 | 11,194 | 11,385 | 11,584 | 11,836 | 11,988 | 12,177 | 12,359 | 12,604 | 12,716 | 12,874 | 13,040 | 13,270 |
| Vancouver & Dalles (WA) | 7,291 | 7,450 | 7,721 | 7,978 | 8,273 | 8,511 | 8,787 | 9,060 | 9,372 | 9,624 | 9,903 | 10,189 | 10,516 | 10,764 | 11,039 | 11,306 | 11,625 | 11,833 | 12,075 | 12,325 | 12,628 |
| Total System | 73,201 | 73,908 | 75,288 | 76,479 | 78,047 | 79,011 | 80,343 | 81,676 | 83,378 | 84,534 | 85,953 | 87,440 | 89,304 | 90,466 | 91,887 | 93,257 | 95,076 | 95,954 | 97,148 | 98,410 | 100,132 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,351 | 2,387 | 2,449 | 2,507 | 2,578 | 2,630 | 2,696 | 2,761 | 2,838 | 2,898 | 2,965 | 3,035 | 3,117 | 3,175 | 3,241 | 3,306 | 3,385 | 3,432 | 3,489 | 3,548 | 3,623 |
| Astoria | 648 | 655 | 669 | 681 | 698 | 708 | 723 | 737 | 756 | 768 | 783 | 798 | 817 | 829 | 843 | 857 | 876 | 884 | 896 | 909 | 926 |
| Dalles (OR) | 279 | 288 | 301 | 314 | 328 | 339 | 353 | 367 | 382 | 395 | 409 | 423 | 439 | 452 | 465 | 479 | 494 | 505 | 517 | 529 | 544 |
| Eugene & Coos Bay | 2,084 | 2,126 | 2,195 | 2,260 | 2,338 | 2,397 | 2,471 | 2,544 | 2,629 | 2,694 | 2,769 | 2,845 | 2,935 | 2,999 | 3,072 | 3,144 | 3,231 | 3,284 | 3,349 | 3,415 | 3,499 |
| Lincoln City & Newport | 461 | 473 | 491 | 507 | 527 | 542 | 560 | 579 | 599 | 616 | 634 | 652 | 674 | 690 | 707 | 724 | 745 | 758 | 773 | 789 | 809 |
| Portland | 26,651 | 26,995 | 27,609 | 28,160 | 28,865 | 29,356 | 29,994 | 30,631 | 31,414 | 31,985 | 32,660 | 33,364 | 34,219 | 34,797 | 35,479 | 36,141 | 36,986 | 37,451 | 38,043 | 38,664 | 39,475 |
| Salem | 5,344 | 5,426 | 5,570 | 5,703 | 5,870 | 5,989 | 6,141 | 6,292 | 6,474 | 6,607 | 6,763 | 6,925 | 7,119 | 7,250 | 7,405 | 7,555 | 7,746 | 7,851 | 7,985 | 8,124 | 8,305 |
| Vancouver & Dalles (WA) | 4,765 | 4,887 | 5,075 | 5,256 | 5,467 | 5,642 | 5,845 | 6,045 | 6,272 | 6,459 | 6,664 | 6,873 | 7,111 | 7,294 | 7,496 | 7,693 | 7,926 | 8,080 | 8,259 | 8,443 | 8,665 |
| Total System | 42,583 | 43,237 | 44,359 | 45,388 | 46,670 | 47,604 | 48,784 | 49,956 | 51,365 | 52,422 | 53,647 | 54,915 | 56,432 | 57,486 | 58,710 | 59,898 | 61,389 | 62,244 | 63,311 | 64,421 | 65,846 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,383 | 1,380 | 1,391 | 1,396 | 1,407 | 1,407 | 1,413 | 1,420 | 1,432 | 1,437 | 1,446 | 1,456 | 1,471 | 1,476 | 1,485 | 1,493 | 1,507 | 1,508 | 1,512 | 1,518 | 1,531 |
| Astoria | 548 | 551 | 556 | 559 | 565 | 566 | 570 | 574 | 580 | 583 | 587 | 592 | 599 | 602 | 606 | 611 | 618 | 619 | 622 | 626 | 633 |
| Dalles (OR) | 420 | 419 | 427 | 434 | 441 | 446 | 452 | 458 | 466 | 471 | 478 | 485 | 494 | 499 | 505 | 511 | 520 | 523 | 528 | 533 | 541 |
| Eugene & Coos Bay | 2,137 | 2,171 | 2,215 | 2,250 | 2,293 | 2,318 | 2,354 | 2,389 | 2,435 | 2,465 | 2,503 | 2,542 | 2,593 | 2,623 | 2,660 | 2,695 | 2,744 | 2,765 | 2,795 | 2,827 | 2,872 |
| Lincoln City & Newport | 472 | 471 | 476 | 480 | 485 | 486 | 490 | 493 | 499 | 501 | 505 | 509 | 514 | 517 | 520 | 523 | 529 | 530 | 532 | 535 | 540 |
| Portland | 14,935 | 14,895 | 14,931 | 14,904 | 14,939 | 14,862 | 14,853 | 14,845 | 14,904 | 14,875 | 14,891 | 14,921 | 15,012 | 14,993 | 15,014 | 15,027 | 15,110 | 15,048 | 15,035 | 15,034 | 15,103 |
| Salem | 3,535 | 3,558 | 3,601 | 3,627 | 3,669 | 3,681 | 3,709 | 3,738 | 3,784 | 3,806 | 3,839 | 3,875 | 3,928 | 3,950 | 3,983 | 4,013 | 4,062 | 4,071 | 4,093 | 4,118 | 4,162 |
| Vancouver & Dalles (WA) | 2,256 | 2,325 | 2,408 | 2,481 | 2,563 | 2,626 | 2,699 | 2,771 | 2,854 | 2,921 | 2,995 | 3,070 | 3,157 | 3,222 | 3,295 | 3,365 | 3,450 | 3,503 | 3,566 | 3,632 | 3,712 |
| Total System | 25,685 | 25,770 | 26,006 | 26,130 | 26,362 | 26,392 | 26,540 | 26,688 | 26,954 | 27,059 | 27,242 | 27,449 | 27,769 | 27,882 | 28,068 | 28,238 | 28,539 | 28,567 | 28,683 | 28,823 | 29,092 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 258 | 283 | 285 | 287 | 290 | 290 | 290 | 291 | 292 | 292 | 293 | 293 | 295 | 295 | 295 | 296 | 298 | 297 | 298 | 299 | 300 |
| Astoria | 9 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 57 | 57 | 57 | 57 | 57 |
| Dalles (OR) | 56 | 87 | 87 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 90 | 90 | 90 | 90 | 90 | 90 | 91 | 91 | 91 | 91 | 92 |
| Eugene & Coos Bay | 583 | 700 | 704 | 709 | 717 | 717 | 718 | 719 | 723 | 722 | 724 | 725 | 729 | 729 | 730 | 732 | 736 | 735 | 737 | 738 | 742 |
| Lincoln City & Newport | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 38 | 37 | 38 | 38 | 38 |
| Portland | 2,947 | 2,745 | 2,758 | 2,780 | 2,809 | 2,810 | 2,812 | 2,819 | 2,834 | 2,831 | 2,837 | 2,844 | 2,859 | 2,856 | 2,862 | 2,869 | 2,884 | 2,881 | 2,888 | 2,894 | 2,910 |
| Salem | 774 | 757 | 761 | 767 | 775 | 775 | 776 | 778 | 782 | 781 | 783 | 784 | 789 | 788 | 790 | 791 | 796 | 795 | 797 | 798 | 803 |
| Vancouver & Dalles (WA) | 270 | 237 | 238 | 240 | 243 | 243 | 243 | 244 | 245 | 245 | 245 | 246 | 247 | 247 | 247 | 248 | 249 | 249 | 250 | 250 | 252 |
| Total System | 4,933 | 4,900 | 4,922 | 4,961 | 5,014 | 5,015 | 5,020 | 5,031 | 5,059 | 5,053 | 5,064 | 5,075 | 5,103 | 5,098 | 5,109 | 5,120 | 5,148 | 5,143 | 5,154 | 5,165 | 5,194 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

**Annual Demand Total, MDth - Normal Year**
**Base Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,730 | 3,784 | 3,854 | 3,915 | 3,995 | 4,044 | 4,112 | 4,179 | 4,266 | 4,324 | 4,396 | 4,471 | 4,565 | 4,623 | 4,694 | 4,763 | 4,854 | 4,896 | 4,955 | 5,017 | 5,103 |
| Astoria | 1,110 | 1,165 | 1,184 | 1,199 | 1,221 | 1,233 | 1,251 | 1,269 | 1,292 | 1,307 | 1,326 | 1,345 | 1,370 | 1,385 | 1,403 | 1,421 | 1,444 | 1,455 | 1,471 | 1,487 | 1,509 |
| Dalles (OR) | 704 | 741 | 761 | 779 | 801 | 815 | 834 | 853 | 875 | 892 | 911 | 931 | 955 | 971 | 990 | 1,008 | 1,031 | 1,044 | 1,060 | 1,076 | 1,098 |
| Eugene & Coos Bay | 4,491 | 4,683 | 4,792 | 4,892 | 5,013 | 5,094 | 5,198 | 5,302 | 5,428 | 5,519 | 5,626 | 5,737 | 5,871 | 5,961 | 6,067 | 6,170 | 6,300 | 6,372 | 6,463 | 6,558 | 6,682 |
| Lincoln City & Newport | 899 | 910 | 930 | 949 | 972 | 988 | 1,009 | 1,029 | 1,053 | 1,071 | 1,092 | 1,113 | 1,138 | 1,155 | 1,175 | 1,194 | 1,218 | 1,232 | 1,249 | 1,267 | 1,289 |
| Portland | 41,953 | 42,042 | 42,666 | 43,183 | 43,916 | 44,304 | 44,901 | 45,501 | 46,314 | 46,817 | 47,473 | 48,169 | 49,080 | 49,597 | 50,265 | 50,906 | 51,801 | 52,174 | 52,729 | 53,321 | 54,171 |
| Salem | 9,045 | 9,122 | 9,300 | 9,457 | 9,660 | 9,787 | 9,958 | 10,130 | 10,346 | 10,494 | 10,674 | 10,862 | 11,096 | 11,242 | 11,421 | 11,593 | 11,820 | 11,931 | 12,081 | 12,239 | 12,453 |
| Vancouver & Dalles (WA) | 6,843 | 6,994 | 7,250 | 7,493 | 7,775 | 7,999 | 8,260 | 8,519 | 8,816 | 9,053 | 9,317 | 9,588 | 9,898 | 10,131 | 10,391 | 10,645 | 10,949 | 11,145 | 11,376 | 11,613 | 11,904 |
| Total System | 68,774 | 69,440 | 70,738 | 71,868 | 73,352 | 74,264 | 75,523 | 76,782 | 78,390 | 79,477 | 80,815 | 82,216 | 83,973 | 85,065 | 86,406 | 87,700 | 89,418 | 90,250 | 91,384 | 92,579 | 94,209 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,177 | 2,210 | 2,268 | 2,322 | 2,388 | 2,437 | 2,498 | 2,559 | 2,632 | 2,686 | 2,749 | 2,814 | 2,891 | 2,945 | 3,007 | 3,067 | 3,142 | 3,185 | 3,239 | 3,294 | 3,366 |
| Astoria | 588 | 595 | 609 | 620 | 635 | 646 | 659 | 673 | 690 | 702 | 716 | 730 | 748 | 759 | 773 | 786 | 803 | 812 | 823 | 835 | 851 |
| Dalles (OR) | 256 | 264 | 276 | 288 | 301 | 312 | 325 | 338 | 352 | 364 | 377 | 390 | 405 | 416 | 429 | 442 | 456 | 466 | 478 | 489 | 503 |
| Eugene & Coos Bay | 1,923 | 1,963 | 2,027 | 2,088 | 2,160 | 2,216 | 2,285 | 2,353 | 2,432 | 2,494 | 2,564 | 2,635 | 2,718 | 2,779 | 2,847 | 2,914 | 2,995 | 3,046 | 3,107 | 3,170 | 3,247 |
| Lincoln City & Newport | 415 | 427 | 443 | 458 | 476 | 491 | 508 | 525 | 543 | 559 | 576 | 593 | 613 | 628 | 644 | 660 | 679 | 692 | 706 | 721 | 739 |
| Portland | 24,909 | 25,230 | 25,806 | 26,324 | 26,990 | 27,450 | 28,050 | 28,649 | 29,388 | 29,921 | 30,555 | 31,215 | 32,021 | 32,560 | 33,201 | 33,823 | 34,620 | 35,054 | 35,613 | 36,198 | 36,965 |
| Salem | 4,944 | 5,023 | 5,157 | 5,282 | 5,437 | 5,550 | 5,693 | 5,834 | 6,003 | 6,130 | 6,276 | 6,427 | 6,607 | 6,732 | 6,878 | 7,019 | 7,195 | 7,296 | 7,423 | 7,554 | 7,722 |
| Vancouver & Dalles (WA) | 4,436 | 4,549 | 4,725 | 4,896 | 5,096 | 5,260 | 5,450 | 5,639 | 5,854 | 6,028 | 6,221 | 6,418 | 6,643 | 6,814 | 7,004 | 7,190 | 7,411 | 7,555 | 7,725 | 7,898 | 8,110 |
| Total System | 39,648 | 40,261 | 41,312 | 42,279 | 43,484 | 44,361 | 45,469 | 46,570 | 47,894 | 48,883 | 50,033 | 51,223 | 52,646 | 53,633 | 54,783 | 55,900 | 57,301 | 58,107 | 59,113 | 60,160 | 61,502 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,298 | 1,295 | 1,306 | 1,310 | 1,321 | 1,321 | 1,327 | 1,334 | 1,346 | 1,350 | 1,359 | 1,368 | 1,383 | 1,388 | 1,396 | 1,404 | 1,418 | 1,418 | 1,423 | 1,429 | 1,441 |
| Astoria | 513 | 516 | 522 | 525 | 531 | 533 | 537 | 541 | 547 | 550 | 555 | 560 | 567 | 570 | 575 | 579 | 586 | 588 | 591 | 595 | 601 |
| Dalles (OR) | 393 | 392 | 399 | 405 | 412 | 416 | 422 | 428 | 435 | 440 | 446 | 452 | 461 | 466 | 472 | 477 | 485 | 488 | 493 | 498 | 505 |
| Eugene & Coos Bay | 1,996 | 2,030 | 2,072 | 2,105 | 2,147 | 2,172 | 2,206 | 2,240 | 2,284 | 2,314 | 2,350 | 2,388 | 2,435 | 2,465 | 2,501 | 2,535 | 2,581 | 2,602 | 2,631 | 2,662 | 2,704 |
| Lincoln City & Newport | 448 | 447 | 452 | 455 | 460 | 462 | 465 | 468 | 473 | 476 | 479 | 483 | 488 | 491 | 494 | 497 | 502 | 503 | 506 | 509 | 513 |
| Portland | 14,145 | 14,108 | 14,144 | 14,121 | 14,158 | 14,086 | 14,080 | 14,076 | 14,134 | 14,107 | 14,124 | 14,153 | 14,242 | 14,224 | 14,245 | 14,258 | 14,339 | 14,282 | 14,271 | 14,273 | 14,340 |
| Salem | 3,329 | 3,353 | 3,394 | 3,420 | 3,460 | 3,473 | 3,501 | 3,529 | 3,573 | 3,595 | 3,627 | 3,662 | 3,712 | 3,734 | 3,766 | 3,795 | 3,842 | 3,852 | 3,874 | 3,898 | 3,940 |
| Vancouver & Dalles (WA) | 2,144 | 2,210 | 2,290 | 2,360 | 2,440 | 2,500 | 2,570 | 2,640 | 2,721 | 2,784 | 2,855 | 2,928 | 3,012 | 3,074 | 3,143 | 3,211 | 3,293 | 3,344 | 3,405 | 3,468 | 3,546 |
| Total System | 24,266 | 24,351 | 24,578 | 24,702 | 24,928 | 24,963 | 25,110 | 25,256 | 25,513 | 25,616 | 25,794 | 25,994 | 26,300 | 26,410 | 26,591 | 26,756 | 27,045 | 27,077 | 27,193 | 27,331 | 27,591 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 255 | 279 | 280 | 283 | 286 | 286 | 286 | 287 | 288 | 288 | 289 | 289 | 291 | 290 | 291 | 292 | 293 | 293 | 294 | 294 | 296 |
| Astoria | 9 | 53 | 53 | 54 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 | 56 | 56 |
| Dalles (OR) | 55 | 85 | 86 | 86 | 87 | 87 | 87 | 87 | 88 | 88 | 88 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 90 | 90 | 90 |
| Eugene & Coos Bay | 572 | 690 | 693 | 698 | 706 | 706 | 707 | 708 | 712 | 711 | 713 | 714 | 718 | 718 | 719 | 721 | 725 | 724 | 725 | 727 | 731 |
| Lincoln City & Newport | 35 | 35 | 35 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Portland | 2,899 | 2,704 | 2,717 | 2,738 | 2,767 | 2,768 | 2,770 | 2,777 | 2,792 | 2,789 | 2,795 | 2,801 | 2,817 | 2,813 | 2,820 | 2,826 | 2,841 | 2,838 | 2,844 | 2,851 | 2,866 |
| Salem | 772 | 746 | 750 | 755 | 764 | 764 | 764 | 766 | 770 | 769 | 771 | 773 | 777 | 776 | 778 | 780 | 784 | 783 | 785 | 787 | 791 |
| Vancouver & Dalles (WA) | 263 | 234 | 235 | 237 | 240 | 240 | 240 | 240 | 242 | 241 | 242 | 242 | 244 | 244 | 244 | 245 | 246 | 246 | 246 | 247 | 248 |
| Total System | 4,860 | 4,827 | 4,849 | 4,887 | 4,940 | 4,940 | 4,945 | 4,956 | 4,983 | 4,978 | 4,989 | 5,000 | 5,027 | 5,022 | 5,033 | 5,044 | 5,072 | 5,066 | 5,077 | 5,088 | 5,116 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

# Appendix 2-7: Detailed Results – High Demand Scenario

**Peak Day Demand, MDTh/day**
**High Demand Scenario**
**Peak Day = February 3**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 51.44 | 53.31 | 54.88 | 56.76 | 58.10 | 59.98 | 61.74 | 63.60 | 65.19 | 66.81 | 68.51 | 70.20 | 71.87 | 73.53 | 75.19 | 76.96 | 78.61 | 80.44 | 82.11 | 83.91 | 85.74 |
| Astoria | 19.22 | 19.89 | 20.24 | 20.69 | 20.94 | 21.38 | 21.78 | 22.21 | 22.55 | 22.90 | 23.27 | 23.64 | 24.00 | 24.35 | 24.71 | 25.09 | 25.44 | 25.84 | 26.19 | 26.58 | 26.97 |
| Dalles (OR) | 9.19 | 9.75 | 10.18 | 10.67 | 11.05 | 11.52 | 11.98 | 12.46 | 12.88 | 13.31 | 13.75 | 14.19 | 14.62 | 15.05 | 15.48 | 15.93 | 16.36 | 16.82 | 17.24 | 17.70 | 18.16 |
| Eugene & Coos Bay | 61.53 | 64.33 | 66.47 | 68.99 | 70.83 | 73.31 | 75.66 | 78.14 | 80.28 | 82.45 | 84.74 | 87.00 | 89.24 | 91.48 | 93.71 | 96.07 | 98.29 | 100.72 | 102.96 | 105.36 | 107.81 |
| Lincoln City & Newport | 14.76 | 15.37 | 15.94 | 16.60 | 17.09 | 17.73 | 18.33 | 18.95 | 19.48 | 20.01 | 20.56 | 21.10 | 21.62 | 22.14 | 22.65 | 23.18 | 23.67 | 24.21 | 24.69 | 25.21 | 25.73 |
| Portland | 545.78 | 559.99 | 572.79 | 588.83 | 599.41 | 615.50 | 630.43 | 646.48 | 659.94 | 673.83 | 688.76 | 703.67 | 718.56 | 733.57 | 748.66 | 764.99 | 780.26 | 797.42 | 813.18 | 830.37 | 848.04 |
| Salem | 127.41 | 133.39 | 137.20 | 141.79 | 145.04 | 149.61 | 153.88 | 158.40 | 162.25 | 166.18 | 170.33 | 174.44 | 178.51 | 182.58 | 186.64 | 190.98 | 195.03 | 199.51 | 203.61 | 208.05 | 212.57 |
| Vancouver & Dalles (WA) | 94.38 | 98.19 | 102.43 | 107.37 | 111.35 | 116.42 | 121.30 | 126.41 | 130.99 | 135.65 | 140.51 | 145.35 | 150.17 | 155.01 | 159.85 | 164.95 | 169.80 | 175.06 | 180.00 | 185.24 | 190.58 |
| Total System | 923.72 | 954.23 | 980.14 | 1,011.70 | 1,033.82 | 1,065.44 | 1,095.10 | 1,126.66 | 1,153.58 | 1,181.13 | 1,210.43 | 1,239.58 | 1,268.59 | 1,297.73 | 1,326.90 | 1,358.16 | 1,387.46 | 1,420.02 | 1,449.97 | 1,482.41 | 1,515.59 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 33.30 | 34.62 | 35.88 | 37.38 | 38.56 | 40.09 | 41.56 | 43.10 | 44.47 | 45.85 | 47.29 | 48.72 | 50.14 | 51.56 | 52.98 | 54.46 | 55.87 | 57.40 | 58.82 | 60.34 | 61.88 |
| Astoria | 11.80 | 12.15 | 12.45 | 12.83 | 13.08 | 13.45 | 13.81 | 14.18 | 14.50 | 14.82 | 15.15 | 15.47 | 15.79 | 16.11 | 16.42 | 16.75 | 17.05 | 17.39 | 17.69 | 18.02 | 18.35 |
| Dalles (OR) | 3.98 | 4.21 | 4.45 | 4.72 | 4.94 | 5.21 | 5.49 | 5.77 | 6.03 | 6.29 | 6.56 | 6.83 | 7.10 | 7.37 | 7.64 | 7.92 | 8.19 | 8.47 | 8.75 | 9.03 | 9.32 |
| Eugene & Coos Bay | 30.63 | 32.03 | 33.38 | 34.93 | 36.20 | 37.79 | 39.36 | 40.99 | 42.46 | 43.95 | 45.50 | 47.03 | 48.56 | 50.08 | 51.61 | 53.20 | 54.72 | 56.36 | 57.89 | 59.52 | 61.17 |
| Lincoln City & Newport | 9.29 | 9.74 | 10.16 | 10.64 | 11.02 | 11.50 | 11.96 | 12.44 | 12.87 | 13.29 | 13.73 | 14.16 | 14.59 | 15.01 | 15.42 | 15.86 | 16.26 | 16.70 | 17.10 | 17.53 | 17.96 |
| Portland | 359.26 | 371.93 | 383.27 | 396.93 | 407.30 | 421.44 | 434.92 | 449.18 | 461.77 | 474.66 | 488.27 | 501.90 | 515.55 | 529.31 | 543.14 | 557.86 | 571.87 | 587.24 | 601.64 | 617.09 | 632.92 |
| Salem | 81.45 | 84.58 | 87.49 | 90.95 | 93.65 | 97.21 | 100.63 | 104.22 | 107.39 | 110.61 | 113.99 | 117.34 | 120.68 | 124.03 | 127.37 | 130.91 | 134.25 | 137.90 | 141.30 | 144.92 | 148.61 |
| Vancouver & Dalles (WA) | 67.90 | 71.11 | 74.31 | 78.06 | 81.17 | 85.09 | 88.91 | 92.89 | 96.48 | 100.13 | 103.92 | 107.70 | 111.47 | 115.24 | 119.02 | 122.99 | 126.78 | 130.87 | 134.72 | 138.79 | 142.95 |
| Total System | 597.61 | 620.37 | 641.39 | 666.44 | 685.92 | 711.78 | 736.65 | 762.78 | 785.97 | 809.60 | 834.41 | 859.17 | 883.88 | 908.71 | 933.60 | 959.95 | 985.00 | 1,012.32 | 1,037.91 | 1,065.25 | 1,093.15 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.95 | 17.30 | 17.59 | 17.97 | 18.12 | 18.46 | 18.75 | 19.07 | 19.28 | 19.51 | 19.77 | 20.03 | 20.27 | 20.52 | 20.76 | 21.04 | 21.28 | 21.57 | 21.81 | 22.10 | 22.39 |
| Astoria | 7.36 | 7.49 | 7.53 | 7.61 | 7.60 | 7.66 | 7.71 | 7.77 | 7.79 | 7.82 | 7.86 | 7.90 | 7.94 | 7.98 | 8.02 | 8.08 | 8.12 | 8.18 | 8.23 | 8.29 | 8.35 |
| Dalles (OR) | 4.96 | 5.09 | 5.28 | 5.50 | 5.65 | 5.85 | 6.04 | 6.23 | 6.39 | 6.56 | 6.73 | 6.89 | 7.06 | 7.22 | 7.38 | 7.55 | 7.70 | 7.87 | 8.03 | 8.19 | 8.36 |
| Eugene & Coos Bay | 27.68 | 28.82 | 29.61 | 30.54 | 31.09 | 31.96 | 32.74 | 33.58 | 34.24 | 34.92 | 35.65 | 36.37 | 37.08 | 37.78 | 38.48 | 39.24 | 39.93 | 40.72 | 41.41 | 42.18 | 42.97 |
| Lincoln City & Newport | 5.30 | 5.45 | 5.61 | 5.79 | 5.90 | 6.06 | 6.19 | 6.33 | 6.44 | 6.55 | 6.66 | 6.76 | 6.86 | 6.96 | 7.05 | 7.15 | 7.23 | 7.33 | 7.41 | 7.50 | 7.59 |
| Portland | 170.72 | 174.03 | 175.42 | 177.68 | 177.79 | 179.70 | 181.12 | 182.89 | 183.73 | 184.70 | 185.98 | 187.23 | 188.44 | 189.66 | 190.89 | 192.46 | 193.69 | 195.45 | 196.77 | 198.48 | 200.29 |
| Salem | 43.58 | 44.97 | 45.85 | 46.95 | 47.47 | 48.46 | 49.31 | 50.25 | 50.91 | 51.60 | 52.37 | 53.12 | 53.84 | 54.56 | 55.27 | 56.06 | 56.75 | 57.58 | 58.28 | 59.08 | 59.90 |
| Vancouver & Dalles (WA) | 24.67 | 25.91 | 26.94 | 28.11 | 28.98 | 30.12 | 31.18 | 32.31 | 33.30 | 34.31 | 35.37 | 36.43 | 37.48 | 38.54 | 39.60 | 40.73 | 41.79 | 42.96 | 44.04 | 45.20 | 46.39 |
| Total System | 301.22 | 309.06 | 313.83 | 320.15 | 322.61 | 328.27 | 333.04 | 338.42 | 342.09 | 345.95 | 350.38 | 354.72 | 358.97 | 363.22 | 367.44 | 372.30 | 376.48 | 381.66 | 385.97 | 391.02 | 396.24 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.40 | 1.40 | 1.41 | 1.42 | 1.43 | 1.43 | 1.43 | 1.44 | 1.44 | 1.44 | 1.45 | 1.45 | 1.45 | 1.46 | 1.46 | 1.46 | 1.47 | 1.47 | 1.47 | 1.48 |
| Astoria | 0.06 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Dalles (OR) | 0.25 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| Eugene & Coos Bay | 3.23 | 3.47 | 3.49 | 3.52 | 3.54 | 3.56 | 3.56 | 3.57 | 3.57 | 3.58 | 3.59 | 3.60 | 3.61 | 3.61 | 3.62 | 3.63 | 3.64 | 3.65 | 3.65 | 3.66 | 3.67 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| Portland | 15.81 | 14.04 | 14.10 | 14.21 | 14.32 | 14.37 | 14.38 | 14.41 | 14.45 | 14.48 | 14.51 | 14.54 | 14.57 | 14.61 | 14.64 | 14.67 | 14.70 | 14.73 | 14.77 | 14.80 | 14.83 |
| Salem | 2.38 | 3.84 | 3.86 | 3.89 | 3.92 | 3.93 | 3.93 | 3.94 | 3.95 | 3.96 | 3.97 | 3.98 | 3.99 | 3.99 | 4.00 | 4.01 | 4.02 | 4.03 | 4.04 | 4.05 | 4.06 |
| Vancouver & Dalles (WA) | 1.81 | 1.18 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 |
| Total System | 24.89 | 24.80 | 24.91 | 25.11 | 25.30 | 25.38 | 25.41 | 25.46 | 25.52 | 25.58 | 25.63 | 25.69 | 25.75 | 25.80 | 25.86 | 25.92 | 25.97 | 26.03 | 26.09 | 26.15 | 26.20 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.87 | 1.87 | 1.89 | 1.90 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.93 | 1.93 | 1.94 | 1.94 | 1.95 | 1.95 | 1.95 | 1.96 | 1.96 | 1.97 | 1.97 |
| Astoria | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.39 |
| Dalles (OR) | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 |
| Eugene & Coos Bay | 3.75 | 3.73 | 3.75 | 3.78 | 3.81 | 3.82 | 3.82 | 3.83 | 3.84 | 3.85 | 3.86 | 3.87 | 3.87 | 3.88 | 3.89 | 3.90 | 3.91 | 3.92 | 3.93 | 3.93 | 3.94 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Portland | 9.44 | 9.41 | 9.45 | 9.53 | 9.60 | 9.63 | 9.64 | 9.66 | 9.68 | 9.70 | 9.73 | 9.75 | 9.77 | 9.79 | 9.81 | 9.83 | 9.85 | 9.88 | 9.90 | 9.92 | 9.94 |
| Salem | 4.72 | 4.71 | 4.73 | 4.76 | 4.80 | 4.82 | 4.82 | 4.83 | 4.84 | 4.85 | 4.86 | 4.87 | 4.88 | 4.90 | 4.91 | 4.92 | 4.93 | 4.94 | 4.95 | 4.96 | 4.97 |
| Vancouver & Dalles (WA) | 1.59 | 1.58 | 1.59 | 1.60 | 1.61 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 1.66 | 1.67 | 1.67 |
| Total System | 22.47 | 22.39 | 22.49 | 22.67 | 22.84 | 22.92 | 22.94 | 22.99 | 23.04 | 23.09 | 23.14 | 23.19 | 23.24 | 23.29 | 23.34 | 23.40 | 23.45 | 23.50 | 23.55 | 23.60 | 23.65 |

**Annual Demand Total, MDth - Design Year (85% Probability Coldest Winter with 1989 Three Day Peak)**
**High Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 4,029 | 4,155 | 4,272 | 4,410 | 4,537 | 4,657 | 4,791 | 4,931 | 5,079 | 5,184 | 5,318 | 5,452 | 5,610 | 5,720 | 5,855 | 5,997 | 6,159 | 6,280 | 6,419 | 6,566 | 6,745 |
| Astoria | 1,217 | 1,293 | 1,327 | 1,365 | 1,402 | 1,433 | 1,471 | 1,510 | 1,553 | 1,581 | 1,619 | 1,656 | 1,701 | 1,731 | 1,768 | 1,807 | 1,854 | 1,886 | 1,924 | 1,965 | 2,015 |
| Dalles (OR) | 764 | 818 | 851 | 888 | 923 | 956 | 992 | 1,029 | 1,068 | 1,098 | 1,134 | 1,170 | 1,211 | 1,242 | 1,278 | 1,315 | 1,357 | 1,390 | 1,426 | 1,464 | 1,510 |
| Eugene & Coos Bay | 4,859 | 5,149 | 5,329 | 5,532 | 5,727 | 5,902 | 6,098 | 6,303 | 6,520 | 6,681 | 6,878 | 7,075 | 7,306 | 7,470 | 7,669 | 7,876 | 8,113 | 8,289 | 8,492 | 8,706 | 8,964 |
| Lincoln City & Newport | 981 | 1,010 | 1,046 | 1,086 | 1,125 | 1,160 | 1,200 | 1,241 | 1,284 | 1,317 | 1,356 | 1,396 | 1,441 | 1,474 | 1,514 | 1,555 | 1,601 | 1,636 | 1,677 | 1,719 | 1,769 |
| Portland | 44,889 | 45,685 | 46,720 | 47,972 | 49,125 | 50,173 | 51,375 | 52,654 | 54,024 | 54,937 | 56,164 | 57,395 | 58,898 | 59,880 | 61,140 | 62,482 | 64,055 | 65,171 | 66,495 | 67,916 | 69,689 |
| Salem | 9,749 | 10,014 | 10,310 | 10,655 | 10,982 | 11,276 | 11,609 | 11,958 | 12,331 | 12,592 | 12,926 | 13,261 | 13,660 | 13,931 | 14,268 | 14,623 | 15,036 | 15,331 | 15,679 | 16,047 | 16,502 |
| Vancouver & Dalles (WA) | 7,362 | 7,651 | 8,006 | 8,406 | 8,794 | 9,172 | 9,581 | 10,005 | 10,447 | 10,805 | 11,223 | 11,642 | 12,114 | 12,486 | 12,912 | 13,356 | 13,848 | 14,247 | 14,689 | 15,152 | 15,691 |
| Total System | 73,849 | 75,775 | 77,859 | 80,314 | 82,615 | 84,731 | 87,117 | 89,632 | 92,307 | 94,196 | 96,618 | 99,046 | 101,941 | 103,934 | 106,403 | 109,011 | 112,023 | 114,229 | 116,800 | 119,535 | 122,885 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,376 | 2,456 | 2,546 | 2,651 | 2,751 | 2,848 | 2,956 | 3,067 | 3,184 | 3,274 | 3,382 | 3,490 | 3,615 | 3,708 | 3,818 | 3,933 | 4,061 | 4,162 | 4,275 | 4,394 | 4,536 |
| Astoria | 655 | 673 | 695 | 719 | 744 | 765 | 790 | 817 | 845 | 865 | 891 | 916 | 946 | 967 | 992 | 1,018 | 1,049 | 1,071 | 1,097 | 1,124 | 1,158 |
| Dalles (OR) | 284 | 301 | 319 | 339 | 359 | 379 | 401 | 423 | 446 | 465 | 487 | 509 | 534 | 554 | 576 | 599 | 624 | 645 | 668 | 692 | 720 |
| Eugene & Coos Bay | 2,111 | 2,198 | 2,297 | 2,409 | 2,519 | 2,624 | 2,741 | 2,862 | 2,991 | 3,092 | 3,211 | 3,330 | 3,467 | 3,571 | 3,693 | 3,819 | 3,961 | 4,072 | 4,197 | 4,329 | 4,484 |
| Lincoln City & Newport | 468 | 492 | 517 | 545 | 573 | 600 | 629 | 659 | 691 | 716 | 745 | 775 | 808 | 834 | 864 | 894 | 928 | 956 | 986 | 1,017 | 1,054 |
| Portland | 26,884 | 27,679 | 28,551 | 29,577 | 30,559 | 31,491 | 32,535 | 33,630 | 34,793 | 35,651 | 36,723 | 37,800 | 39,066 | 39,977 | 41,081 | 42,245 | 43,575 | 44,585 | 45,745 | 46,975 | 48,461 |
| Salem | 5,403 | 5,587 | 5,796 | 6,037 | 6,274 | 6,495 | 6,743 | 7,002 | 7,277 | 7,483 | 7,735 | 7,987 | 8,283 | 8,496 | 8,753 | 9,022 | 9,329 | 9,560 | 9,826 | 10,107 | 10,445 |
| Vancouver & Dalles (WA) | 4,814 | 5,026 | 5,270 | 5,551 | 5,826 | 6,098 | 6,394 | 6,700 | 7,018 | 7,279 | 7,580 | 7,883 | 8,224 | 8,494 | 8,802 | 9,124 | 9,479 | 9,769 | 10,089 | 10,424 | 10,814 |
| Total System | 42,995 | 44,412 | 45,992 | 47,830 | 49,606 | 51,300 | 53,189 | 55,161 | 57,245 | 58,825 | 60,754 | 62,691 | 64,943 | 66,601 | 68,579 | 70,654 | 73,008 | 74,819 | 76,884 | 79,063 | 81,672 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,395 | 1,416 | 1,441 | 1,472 | 1,496 | 1,519 | 1,545 | 1,573 | 1,602 | 1,619 | 1,643 | 1,668 | 1,700 | 1,717 | 1,741 | 1,768 | 1,800 | 1,821 | 1,846 | 1,873 | 1,910 |
| Astoria | 553 | 566 | 578 | 591 | 603 | 613 | 625 | 638 | 652 | 660 | 672 | 684 | 699 | 708 | 720 | 733 | 748 | 758 | 770 | 784 | 800 |
| Dalles (OR) | 424 | 430 | 445 | 461 | 475 | 488 | 502 | 518 | 533 | 544 | 557 | 571 | 587 | 598 | 611 | 625 | 641 | 653 | 666 | 681 | 698 |
| Eugene & Coos Bay | 2,165 | 2,251 | 2,328 | 2,414 | 2,491 | 2,562 | 2,640 | 2,721 | 2,806 | 2,867 | 2,943 | 3,019 | 3,109 | 3,170 | 3,246 | 3,325 | 3,416 | 3,482 | 3,558 | 3,639 | 3,738 |
| Lincoln City & Newport | 476 | 482 | 493 | 504 | 515 | 524 | 534 | 545 | 556 | 564 | 574 | 584 | 596 | 603 | 613 | 623 | 635 | 643 | 653 | 664 | 677 |
| Portland | 15,058 | 15,260 | 15,410 | 15,615 | 15,756 | 15,873 | 16,028 | 16,205 | 16,397 | 16,455 | 16,604 | 16,752 | 16,973 | 17,047 | 17,196 | 17,368 | 17,595 | 17,705 | 17,863 | 18,047 | 18,318 |
| Salem | 3,573 | 3,670 | 3,753 | 3,851 | 3,933 | 4,006 | 4,089 | 4,178 | 4,272 | 4,328 | 4,409 | 4,489 | 4,589 | 4,647 | 4,726 | 4,810 | 4,911 | 4,976 | 5,056 | 5,142 | 5,254 |
| Vancouver & Dalles (WA) | 2,278 | 2,388 | 2,497 | 2,614 | 2,725 | 2,831 | 2,944 | 3,062 | 3,184 | 3,282 | 3,397 | 3,513 | 3,643 | 3,745 | 3,862 | 3,984 | 4,120 | 4,229 | 4,350 | 4,477 | 4,625 |
| Total System | 25,921 | 26,463 | 26,946 | 27,523 | 27,994 | 28,415 | 28,908 | 29,440 | 30,003 | 30,318 | 30,800 | 31,280 | 31,895 | 32,236 | 32,715 | 33,237 | 33,867 | 34,267 | 34,763 | 35,306 | 36,020 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 258 | 283 | 285 | 287 | 290 | 290 | 290 | 291 | 292 | 292 | 293 | 293 | 295 | 295 | 295 | 296 | 298 | 297 | 298 | 299 | 300 |
| Astoria | 9 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 57 | 57 | 57 | 57 | 57 |
| Dalles (OR) | 56 | 87 | 87 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 90 | 90 | 90 | 90 | 90 | 90 | 91 | 91 | 91 | 91 | 92 |
| Eugene & Coos Bay | 583 | 700 | 704 | 709 | 717 | 717 | 718 | 719 | 723 | 722 | 724 | 725 | 729 | 729 | 730 | 732 | 736 | 735 | 737 | 738 | 742 |
| Lincoln City & Newport | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 38 | 37 | 38 | 38 | 38 |
| Portland | 2,947 | 2,745 | 2,758 | 2,780 | 2,809 | 2,810 | 2,812 | 2,819 | 2,834 | 2,831 | 2,837 | 2,844 | 2,859 | 2,856 | 2,862 | 2,869 | 2,884 | 2,881 | 2,888 | 2,894 | 2,910 |
| Salem | 774 | 757 | 761 | 767 | 775 | 775 | 776 | 778 | 782 | 781 | 783 | 784 | 789 | 788 | 790 | 791 | 796 | 795 | 797 | 798 | 803 |
| Vancouver & Dalles (WA) | 270 | 237 | 238 | 240 | 243 | 243 | 243 | 244 | 245 | 245 | 245 | 246 | 247 | 247 | 247 | 248 | 249 | 249 | 250 | 250 | 252 |
| Total System | 4,933 | 4,900 | 4,922 | 4,961 | 5,014 | 5,015 | 5,020 | 5,031 | 5,059 | 5,053 | 5,064 | 5,075 | 5,103 | 5,098 | 5,109 | 5,120 | 5,148 | 5,143 | 5,154 | 5,165 | 5,194 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

**Annual Demand Total, MDth - Normal Year**
**High Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,764 | 3,880 | 3,990 | 4,118 | 4,238 | 4,349 | 4,473 | 4,604 | 4,742 | 4,840 | 4,965 | 5,090 | 5,239 | 5,341 | 5,467 | 5,600 | 5,754 | 5,866 | 5,996 | 6,134 | 6,304 |
| Astoria | 1,121 | 1,196 | 1,228 | 1,264 | 1,298 | 1,329 | 1,364 | 1,401 | 1,441 | 1,469 | 1,505 | 1,540 | 1,582 | 1,611 | 1,647 | 1,685 | 1,728 | 1,759 | 1,796 | 1,835 | 1,882 |
| Dalles (OR) | 712 | 763 | 793 | 828 | 861 | 891 | 924 | 959 | 995 | 1,023 | 1,056 | 1,090 | 1,128 | 1,156 | 1,190 | 1,225 | 1,264 | 1,294 | 1,328 | 1,364 | 1,407 |
| Eugene & Coos Bay | 4,542 | 4,823 | 4,991 | 5,181 | 5,364 | 5,529 | 5,714 | 5,905 | 6,108 | 6,261 | 6,447 | 6,632 | 6,848 | 7,005 | 7,192 | 7,387 | 7,608 | 7,776 | 7,968 | 8,169 | 8,411 |
| Lincoln City & Newport | 909 | 937 | 970 | 1,007 | 1,042 | 1,075 | 1,112 | 1,150 | 1,190 | 1,221 | 1,258 | 1,294 | 1,336 | 1,368 | 1,405 | 1,443 | 1,486 | 1,520 | 1,558 | 1,597 | 1,643 |
| Portland | 42,288 | 43,021 | 43,994 | 45,169 | 46,263 | 47,243 | 48,372 | 49,574 | 50,870 | 51,726 | 52,881 | 54,041 | 55,462 | 56,383 | 57,570 | 58,834 | 60,322 | 61,367 | 62,616 | 63,954 | 65,629 |
| Salem | 9,136 | 9,374 | 9,652 | 9,975 | 10,280 | 10,559 | 10,871 | 11,198 | 11,546 | 11,795 | 12,110 | 12,424 | 12,797 | 13,056 | 13,374 | 13,708 | 14,093 | 14,375 | 14,704 | 15,051 | 15,474 |
| Vancouver & Dalles (WA) | 6,910 | 7,181 | 7,516 | 7,893 | 8,262 | 8,616 | 9,002 | 9,402 | 9,822 | 10,159 | 10,553 | 10,949 | 11,398 | 11,748 | 12,152 | 12,572 | 13,040 | 13,415 | 13,834 | 14,273 | 14,786 |
| Total System | 69,381 | 71,175 | 73,133 | 75,434 | 77,607 | 79,590 | 81,832 | 84,193 | 86,714 | 88,494 | 90,775 | 93,062 | 95,790 | 97,669 | 99,997 | 102,454 | 105,295 | 107,373 | 109,800 | 112,377 | 115,535 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,201 | 2,274 | 2,357 | 2,454 | 2,548 | 2,637 | 2,737 | 2,840 | 2,950 | 3,033 | 3,134 | 3,235 | 3,351 | 3,437 | 3,540 | 3,647 | 3,768 | 3,861 | 3,967 | 4,078 | 4,211 |
| Astoria | 594 | 612 | 632 | 655 | 677 | 697 | 721 | 745 | 771 | 791 | 814 | 838 | 865 | 885 | 909 | 934 | 962 | 983 | 1,008 | 1,033 | 1,064 |
| Dalles (OR) | 261 | 276 | 293 | 312 | 330 | 348 | 368 | 389 | 411 | 428 | 449 | 469 | 492 | 511 | 531 | 553 | 577 | 596 | 618 | 640 | 666 |
| Eugene & Coos Bay | 1,948 | 2,029 | 2,121 | 2,225 | 2,327 | 2,424 | 2,534 | 2,647 | 2,765 | 2,860 | 2,972 | 3,083 | 3,210 | 3,308 | 3,422 | 3,540 | 3,671 | 3,776 | 3,894 | 4,016 | 4,160 |
| Lincoln City & Newport | 422 | 444 | 467 | 493 | 518 | 543 | 570 | 598 | 626 | 650 | 677 | 705 | 735 | 759 | 787 | 815 | 846 | 872 | 901 | 930 | 963 |
| Portland | 25,127 | 25,866 | 26,683 | 27,642 | 28,568 | 29,437 | 30,416 | 31,442 | 32,536 | 33,340 | 34,345 | 35,356 | 36,548 | 37,401 | 38,438 | 39,531 | 40,785 | 41,728 | 42,819 | 43,974 | 45,374 |
| Salem | 4,998 | 5,171 | 5,365 | 5,590 | 5,809 | 6,017 | 6,249 | 6,490 | 6,745 | 6,939 | 7,175 | 7,412 | 7,685 | 7,888 | 8,129 | 8,380 | 8,665 | 8,884 | 9,134 | 9,397 | 9,710 |
| Vancouver & Dalles (WA) | 4,481 | 4,677 | 4,907 | 5,169 | 5,429 | 5,682 | 5,960 | 6,246 | 6,547 | 6,790 | 7,074 | 7,358 | 7,680 | 7,933 | 8,223 | 8,525 | 8,861 | 9,133 | 9,434 | 9,751 | 10,120 |
| Total System | 40,032 | 41,348 | 42,825 | 44,540 | 46,206 | 47,787 | 49,554 | 51,397 | 53,351 | 54,832 | 56,639 | 58,455 | 60,567 | 62,122 | 63,979 | 65,925 | 68,136 | 69,834 | 71,774 | 73,819 | 76,268 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,309 | 1,328 | 1,352 | 1,381 | 1,404 | 1,426 | 1,450 | 1,477 | 1,504 | 1,520 | 1,543 | 1,567 | 1,597 | 1,613 | 1,636 | 1,662 | 1,693 | 1,712 | 1,735 | 1,762 | 1,797 |
| Astoria | 518 | 531 | 542 | 555 | 567 | 577 | 589 | 601 | 615 | 624 | 635 | 647 | 661 | 671 | 683 | 695 | 710 | 720 | 732 | 745 | 761 |
| Dalles (OR) | 396 | 402 | 415 | 430 | 443 | 455 | 468 | 482 | 497 | 507 | 519 | 532 | 547 | 557 | 570 | 583 | 598 | 609 | 621 | 634 | 651 |
| Eugene & Coos Bay | 2,022 | 2,104 | 2,177 | 2,258 | 2,331 | 2,399 | 2,473 | 2,551 | 2,631 | 2,689 | 2,762 | 2,835 | 2,919 | 2,979 | 3,051 | 3,127 | 3,212 | 3,276 | 3,349 | 3,426 | 3,519 |
| Lincoln City & Newport | 452 | 458 | 467 | 478 | 488 | 497 | 506 | 516 | 527 | 534 | 544 | 553 | 565 | 572 | 581 | 591 | 603 | 611 | 620 | 630 | 642 |
| Portland | 14,262 | 14,451 | 14,595 | 14,789 | 14,928 | 15,037 | 15,186 | 15,356 | 15,542 | 15,598 | 15,742 | 15,884 | 16,097 | 16,169 | 16,312 | 16,477 | 16,696 | 16,800 | 16,953 | 17,129 | 17,389 |
| Salem | 3,365 | 3,457 | 3,537 | 3,629 | 3,707 | 3,778 | 3,858 | 3,942 | 4,031 | 4,086 | 4,163 | 4,240 | 4,335 | 4,392 | 4,468 | 4,549 | 4,644 | 4,708 | 4,785 | 4,868 | 4,973 |
| Vancouver & Dalles (WA) | 2,166 | 2,270 | 2,374 | 2,486 | 2,594 | 2,694 | 2,803 | 2,915 | 3,033 | 3,127 | 3,238 | 3,349 | 3,474 | 3,572 | 3,685 | 3,802 | 3,933 | 4,037 | 4,154 | 4,275 | 4,418 |
| Total System | 24,489 | 25,000 | 25,460 | 26,007 | 26,461 | 26,863 | 27,334 | 27,841 | 28,380 | 28,685 | 29,147 | 29,607 | 30,195 | 30,524 | 30,985 | 31,485 | 32,088 | 32,472 | 32,949 | 33,470 | 34,151 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 255 | 279 | 280 | 283 | 286 | 286 | 286 | 287 | 288 | 288 | 289 | 289 | 291 | 290 | 291 | 292 | 293 | 293 | 294 | 294 | 296 |
| Astoria | 9 | 53 | 53 | 54 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 | 56 | 56 |
| Dalles (OR) | 55 | 85 | 86 | 86 | 87 | 87 | 87 | 87 | 88 | 88 | 88 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 90 | 90 | 90 |
| Eugene & Coos Bay | 572 | 690 | 693 | 698 | 706 | 706 | 707 | 708 | 712 | 711 | 713 | 714 | 718 | 718 | 719 | 721 | 725 | 724 | 725 | 727 | 731 |
| Lincoln City & Newport | 35 | 35 | 35 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Portland | 2,899 | 2,704 | 2,717 | 2,738 | 2,767 | 2,768 | 2,770 | 2,777 | 2,792 | 2,789 | 2,795 | 2,801 | 2,817 | 2,813 | 2,820 | 2,826 | 2,841 | 2,838 | 2,844 | 2,851 | 2,866 |
| Salem | 772 | 746 | 750 | 755 | 764 | 764 | 764 | 766 | 770 | 769 | 771 | 773 | 777 | 776 | 778 | 780 | 784 | 783 | 785 | 787 | 791 |
| Vancouver & Dalles (WA) | 263 | 234 | 235 | 237 | 240 | 240 | 240 | 240 | 242 | 241 | 242 | 242 | 244 | 244 | 244 | 245 | 246 | 246 | 246 | 247 | 248 |
| Total System | 4,860 | 4,827 | 4,849 | 4,887 | 4,940 | 4,940 | 4,945 | 4,956 | 4,983 | 4,978 | 4,989 | 5,000 | 5,027 | 5,022 | 5,033 | 5,044 | 5,072 | 5,066 | 5,077 | 5,088 | 5,116 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

# Appendix 2-8: Detailed Results – Low No Growth Demand Scenario

**Peak Day Demand, MDTh/day**
**Low Demand Scenario**
**Peak Day = February 3**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 50.92 | 50.37 | 50.21 | 49.41 | 49.03 | 48.84 | 48.61 | 48.42 | 48.12 | 47.80 | 47.70 | 47.63 | 47.27 | 46.98 | 46.75 | 46.47 | 46.25 | 46.02 | 45.72 | 45.50 | 45.28 |
| Astoria | 19.04 | 18.81 | 18.58 | 18.12 | 17.83 | 17.61 | 17.38 | 17.17 | 16.93 | 16.68 | 16.52 | 16.37 | 16.12 | 15.90 | 15.71 | 15.50 | 15.32 | 15.14 | 14.94 | 14.77 | 14.60 |
| Dalles (OR) | 9.08 | 9.14 | 9.14 | 9.03 | 8.99 | 8.98 | 8.97 | 8.97 | 8.95 | 8.92 | 8.93 | 8.95 | 8.91 | 8.88 | 8.87 | 8.84 | 8.83 | 8.82 | 8.79 | 8.77 | 8.76 |
| Eugene & Coos Bay | 60.81 | 60.27 | 60.10 | 59.19 | 58.78 | 58.59 | 58.35 | 58.16 | 57.85 | 57.52 | 57.45 | 57.42 | 57.05 | 56.76 | 56.55 | 56.28 | 56.08 | 55.87 | 55.60 | 55.41 | 55.22 |
| Lincoln City & Newport | 14.56 | 14.29 | 14.20 | 13.92 | 13.77 | 13.67 | 13.56 | 13.45 | 13.32 | 13.19 | 13.11 | 13.05 | 12.90 | 12.78 | 12.67 | 12.55 | 12.45 | 12.34 | 12.22 | 12.11 | 12.01 |
| Portland | 541.33 | 532.71 | 531.48 | 523.59 | 520.05 | 518.54 | 516.58 | 514.99 | 512.31 | 509.32 | 508.71 | 508.40 | 505.03 | 502.35 | 500.34 | 497.75 | 495.80 | 493.71 | 490.99 | 489.02 | 487.03 |
| Salem | 126.07 | 125.76 | 125.32 | 123.29 | 122.31 | 121.81 | 121.20 | 120.69 | 119.92 | 119.08 | 118.80 | 118.59 | 117.67 | 116.91 | 116.32 | 115.59 | 115.01 | 114.40 | 113.65 | 113.08 | 112.50 |
| Vancouver & Dalles (WA) | 93.47 | 91.37 | 90.87 | 89.24 | 88.36 | 87.84 | 87.26 | 86.74 | 86.05 | 85.31 | 84.98 | 84.70 | 83.92 | 83.26 | 82.72 | 82.08 | 81.56 | 81.02 | 80.39 | 79.88 | 79.37 |
| Total System | 915.29 | 902.72 | 899.90 | 885.79 | 879.10 | 875.88 | 871.92 | 868.59 | 863.45 | 857.81 | 856.18 | 855.10 | 848.88 | 843.82 | 839.93 | 835.06 | 831.30 | 827.32 | 822.29 | 818.55 | 814.78 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 32.93 | 32.52 | 32.45 | 31.98 | 31.76 | 31.67 | 31.56 | 31.46 | 31.30 | 31.12 | 31.08 | 31.06 | 30.85 | 30.69 | 30.56 | 30.40 | 30.28 | 30.15 | 29.99 | 29.86 | 29.74 |
| Astoria | 11.68 | 11.44 | 11.32 | 11.06 | 10.89 | 10.77 | 10.65 | 10.53 | 10.40 | 10.26 | 10.17 | 10.08 | 9.94 | 9.82 | 9.70 | 9.58 | 9.48 | 9.37 | 9.25 | 9.15 | 9.05 |
| Dalles (OR) | 3.91 | 3.87 | 3.86 | 3.81 | 3.78 | 3.77 | 3.76 | 3.75 | 3.73 | 3.71 | 3.71 | 3.71 | 3.69 | 3.67 | 3.66 | 3.64 | 3.63 | 3.62 | 3.60 | 3.59 | 3.58 |
| Eugene & Coos Bay | 30.24 | 29.84 | 29.74 | 29.29 | 29.06 | 28.95 | 28.82 | 28.71 | 28.54 | 28.35 | 28.29 | 28.25 | 28.05 | 27.88 | 27.75 | 27.59 | 27.46 | 27.33 | 27.16 | 27.04 | 26.91 |
| Lincoln City & Newport | 9.15 | 8.98 | 8.91 | 8.72 | 8.61 | 8.54 | 8.45 | 8.38 | 8.29 | 8.19 | 8.14 | 8.09 | 7.99 | 7.90 | 7.83 | 7.75 | 7.68 | 7.61 | 7.53 | 7.46 | 7.39 |
| Portland | 356.17 | 352.67 | 352.70 | 348.42 | 346.90 | 346.70 | 346.22 | 345.94 | 344.95 | 343.73 | 344.05 | 344.56 | 343.06 | 341.98 | 341.33 | 340.29 | 339.66 | 338.92 | 337.74 | 337.06 | 336.36 |
| Salem | 80.57 | 79.50 | 79.23 | 77.99 | 77.39 | 77.08 | 76.72 | 76.40 | 75.94 | 75.43 | 75.26 | 75.13 | 74.57 | 74.11 | 73.75 | 73.30 | 72.95 | 72.58 | 72.12 | 71.77 | 71.42 |
| Vancouver & Dalles (WA) | 67.23 | 66.17 | 65.82 | 64.64 | 64.02 | 63.65 | 63.24 | 62.88 | 62.38 | 61.86 | 61.63 | 61.44 | 60.88 | 60.41 | 60.02 | 59.57 | 59.20 | 58.82 | 58.37 | 58.01 | 57.65 |
| Total System | 591.88 | 584.98 | 584.02 | 575.91 | 572.41 | 571.14 | 569.41 | 568.06 | 565.52 | 562.65 | 562.32 | 562.32 | 559.03 | 556.46 | 554.62 | 552.13 | 550.35 | 548.41 | 545.76 | 543.95 | 542.10 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.80 | 16.45 | 16.36 | 16.02 | 15.84 | 15.74 | 15.62 | 15.52 | 15.39 | 15.24 | 15.18 | 15.13 | 14.97 | 14.84 | 14.73 | 14.61 | 14.50 | 14.40 | 14.27 | 14.17 | 14.07 |
| Astoria | 7.31 | 7.12 | 7.01 | 6.81 | 6.67 | 6.57 | 6.47 | 6.37 | 6.27 | 6.16 | 6.09 | 6.02 | 5.91 | 5.82 | 5.74 | 5.65 | 5.58 | 5.50 | 5.42 | 5.35 | 5.28 |
| Dalles (OR) | 4.92 | 4.82 | 4.83 | 4.76 | 4.75 | 4.75 | 4.75 | 4.76 | 4.75 | 4.74 | 4.75 | 4.77 | 4.75 | 4.74 | 4.74 | 4.73 | 4.73 | 4.72 | 4.71 | 4.71 | 4.70 |
| Eugene & Coos Bay | 27.35 | 26.96 | 26.87 | 26.39 | 26.17 | 26.08 | 25.97 | 25.89 | 25.74 | 25.58 | 25.56 | 25.57 | 25.40 | 25.27 | 25.18 | 25.06 | 24.98 | 24.90 | 24.78 | 24.70 | 24.63 |
| Lincoln City & Newport | 5.24 | 5.14 | 5.12 | 5.03 | 4.98 | 4.96 | 4.93 | 4.90 | 4.86 | 4.82 | 4.80 | 4.79 | 4.74 | 4.70 | 4.67 | 4.63 | 4.59 | 4.56 | 4.51 | 4.48 | 4.44 |
| Portland | 169.35 | 166.01 | 164.69 | 160.95 | 158.83 | 157.47 | 155.98 | 154.63 | 152.92 | 151.12 | 150.15 | 149.29 | 147.40 | 145.76 | 144.37 | 142.79 | 141.44 | 140.06 | 138.48 | 137.16 | 135.85 |
| Salem | 43.12 | 42.42 | 42.23 | 41.41 | 41.01 | 40.80 | 40.55 | 40.34 | 40.03 | 39.69 | 39.57 | 39.48 | 39.11 | 38.81 | 38.57 | 38.27 | 38.04 | 37.79 | 37.49 | 37.26 | 37.02 |
| Vancouver & Dalles (WA) | 24.44 | 24.02 | 23.87 | 23.40 | 23.14 | 22.99 | 22.81 | 22.65 | 22.45 | 22.24 | 22.13 | 22.04 | 21.81 | 21.62 | 21.46 | 21.28 | 21.12 | 20.96 | 20.78 | 20.63 | 20.48 |
| Total System | 298.53 | 292.93 | 290.96 | 284.77 | 281.39 | 279.36 | 277.09 | 275.07 | 272.41 | 269.58 | 268.23 | 267.08 | 264.10 | 261.56 | 259.45 | 257.01 | 254.98 | 252.89 | 250.44 | 248.46 | 246.48 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.40 | 1.40 | 1.41 | 1.42 | 1.43 | 1.43 | 1.43 | 1.44 | 1.44 | 1.44 | 1.45 | 1.45 | 1.45 | 1.46 | 1.46 | 1.46 | 1.47 | 1.47 | 1.47 | 1.48 |
| Astoria | 0.06 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Dalles (OR) | 0.25 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| Eugene & Coos Bay | 3.23 | 3.47 | 3.49 | 3.52 | 3.54 | 3.56 | 3.56 | 3.57 | 3.57 | 3.58 | 3.59 | 3.60 | 3.61 | 3.61 | 3.62 | 3.63 | 3.64 | 3.65 | 3.65 | 3.66 | 3.67 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| Portland | 15.81 | 14.04 | 14.10 | 14.21 | 14.32 | 14.37 | 14.38 | 14.41 | 14.45 | 14.48 | 14.51 | 14.54 | 14.57 | 14.61 | 14.64 | 14.67 | 14.70 | 14.73 | 14.77 | 14.80 | 14.83 |
| Salem | 2.38 | 3.84 | 3.86 | 3.89 | 3.92 | 3.93 | 3.93 | 3.94 | 3.95 | 3.96 | 3.97 | 3.98 | 3.99 | 3.99 | 4.00 | 4.01 | 4.02 | 4.03 | 4.04 | 4.05 | 4.06 |
| Vancouver & Dalles (WA) | 1.81 | 1.18 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 |
| Total System | 24.89 | 24.80 | 24.91 | 25.11 | 25.30 | 25.38 | 25.41 | 25.46 | 25.52 | 25.58 | 25.63 | 25.69 | 25.75 | 25.80 | 25.86 | 25.92 | 25.97 | 26.03 | 26.09 | 26.15 | 26.20 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.87 | 1.87 | 1.89 | 1.90 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.93 | 1.93 | 1.94 | 1.94 | 1.95 | 1.95 | 1.95 | 1.96 | 1.96 | 1.97 | 1.97 |
| Astoria | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.39 |
| Dalles (OR) | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 |
| Eugene & Coos Bay | 3.75 | 3.73 | 3.75 | 3.78 | 3.81 | 3.82 | 3.82 | 3.83 | 3.84 | 3.85 | 3.86 | 3.87 | 3.87 | 3.88 | 3.89 | 3.90 | 3.91 | 3.92 | 3.93 | 3.93 | 3.94 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Portland | 9.44 | 9.41 | 9.45 | 9.53 | 9.60 | 9.63 | 9.64 | 9.66 | 9.68 | 9.70 | 9.73 | 9.75 | 9.77 | 9.79 | 9.81 | 9.83 | 9.85 | 9.88 | 9.90 | 9.92 | 9.94 |
| Salem | 4.72 | 4.71 | 4.73 | 4.76 | 4.80 | 4.82 | 4.82 | 4.83 | 4.84 | 4.85 | 4.86 | 4.87 | 4.88 | 4.90 | 4.91 | 4.92 | 4.93 | 4.94 | 4.95 | 4.96 | 4.97 |
| Vancouver & Dalles (WA) | 1.59 | 1.58 | 1.59 | 1.60 | 1.61 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 1.66 | 1.67 | 1.67 |
| Total System | 22.47 | 22.39 | 22.49 | 22.67 | 22.84 | 22.92 | 22.94 | 22.99 | 23.04 | 23.09 | 23.14 | 23.19 | 23.24 | 23.29 | 23.34 | 23.40 | 23.45 | 23.50 | 23.55 | 23.60 | 23.65 |

**Annual Demand Total, MDth - Design Year (85% Probability Coldest Winter with 1989 Three Day Peak)**
**Low No Growth Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,992 | 3,959 | 3,954 | 3,911 | 3,910 | 3,887 | 3,877 | 3,869 | 3,872 | 3,840 | 3,838 | 3,837 | 3,836 | 3,805 | 3,795 | 3,782 | 3,788 | 3,761 | 3,747 | 3,737 | 3,743 |
| Astoria | 1,205 | 1,230 | 1,225 | 1,210 | 1,207 | 1,196 | 1,190 | 1,184 | 1,183 | 1,170 | 1,166 | 1,163 | 1,161 | 1,149 | 1,144 | 1,138 | 1,138 | 1,128 | 1,121 | 1,117 | 1,117 |
| Dalles (OR) | 755 | 775 | 776 | 770 | 772 | 770 | 770 | 770 | 773 | 769 | 770 | 772 | 774 | 770 | 770 | 769 | 773 | 769 | 768 | 769 | 772 |
| Eugene & Coos Bay | 4,804 | 4,873 | 4,880 | 4,848 | 4,864 | 4,846 | 4,846 | 4,849 | 4,867 | 4,840 | 4,849 | 4,860 | 4,874 | 4,848 | 4,849 | 4,846 | 4,868 | 4,846 | 4,842 | 4,843 | 4,866 |
| Lincoln City & Newport | 969 | 955 | 952 | 943 | 942 | 935 | 932 | 929 | 929 | 921 | 919 | 918 | 917 | 909 | 906 | 902 | 903 | 896 | 892 | 889 | 890 |
| Portland | 44,532 | 43,726 | 43,658 | 43,190 | 43,179 | 42,898 | 42,777 | 42,681 | 42,710 | 42,336 | 42,299 | 42,282 | 42,265 | 41,910 | 41,786 | 41,626 | 41,693 | 41,377 | 41,207 | 41,085 | 41,145 |
| Salem | 9,652 | 9,509 | 9,501 | 9,407 | 9,415 | 9,357 | 9,337 | 9,323 | 9,338 | 9,260 | 9,258 | 9,260 | 9,266 | 9,192 | 9,172 | 9,143 | 9,167 | 9,101 | 9,071 | 9,051 | 9,073 |
| Vancouver & Dalles (WA) | 7,291 | 7,153 | 7,134 | 7,050 | 7,039 | 6,987 | 6,961 | 6,938 | 6,935 | 6,870 | 6,858 | 6,849 | 6,839 | 6,778 | 6,753 | 6,722 | 6,726 | 6,672 | 6,640 | 6,616 | 6,620 |
| Total System | 73,201 | 72,180 | 72,079 | 71,329 | 71,330 | 70,875 | 70,689 | 70,544 | 70,607 | 70,005 | 69,957 | 69,940 | 69,931 | 69,362 | 69,174 | 68,927 | 69,056 | 68,550 | 68,289 | 68,105 | 68,225 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,351 | 2,320 | 2,319 | 2,295 | 2,296 | 2,283 | 2,280 | 2,277 | 2,281 | 2,263 | 2,264 | 2,266 | 2,267 | 2,250 | 2,246 | 2,239 | 2,245 | 2,230 | 2,223 | 2,218 | 2,223 |
| Astoria | 648 | 637 | 634 | 625 | 623 | 616 | 613 | 610 | 609 | 601 | 599 | 597 | 596 | 589 | 586 | 582 | 582 | 575 | 572 | 569 | 568 |
| Dalles (OR) | 279 | 276 | 276 | 274 | 274 | 273 | 273 | 273 | 274 | 272 | 272 | 273 | 273 | 272 | 272 | 271 | 272 | 271 | 270 | 270 | 271 |
| Eugene & Coos Bay | 2,084 | 2,056 | 2,055 | 2,035 | 2,037 | 2,024 | 2,021 | 2,018 | 2,023 | 2,006 | 2,007 | 2,008 | 2,011 | 1,995 | 1,991 | 1,986 | 1,992 | 1,978 | 1,972 | 1,969 | 1,975 |
| Lincoln City & Newport | 461 | 455 | 454 | 449 | 449 | 445 | 444 | 443 | 444 | 439 | 439 | 439 | 439 | 435 | 434 | 432 | 433 | 430 | 428 | 427 | 428 |
| Portland | 26,651 | 26,331 | 26,350 | 26,108 | 26,154 | 26,036 | 26,022 | 26,022 | 26,100 | 25,918 | 25,954 | 26,001 | 26,047 | 25,874 | 25,850 | 25,801 | 25,900 | 25,748 | 25,690 | 25,663 | 25,756 |
| Salem | 5,344 | 5,270 | 5,264 | 5,208 | 5,211 | 5,177 | 5,166 | 5,158 | 5,168 | 5,122 | 5,121 | 5,123 | 5,127 | 5,084 | 5,072 | 5,056 | 5,070 | 5,032 | 5,014 | 5,002 | 5,016 |
| Vancouver & Dalles (WA) | 4,765 | 4,693 | 4,681 | 4,624 | 4,616 | 4,582 | 4,566 | 4,552 | 4,551 | 4,508 | 4,501 | 4,497 | 4,491 | 4,451 | 4,435 | 4,415 | 4,419 | 4,383 | 4,363 | 4,348 | 4,352 |
| Total System | 42,583 | 42,038 | 42,033 | 41,616 | 41,660 | 41,437 | 41,385 | 41,353 | 41,449 | 41,131 | 41,158 | 41,205 | 41,251 | 40,950 | 40,885 | 40,782 | 40,912 | 40,647 | 40,532 | 40,466 | 40,588 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,383 | 1,355 | 1,350 | 1,330 | 1,325 | 1,314 | 1,307 | 1,301 | 1,298 | 1,284 | 1,281 | 1,278 | 1,274 | 1,261 | 1,254 | 1,247 | 1,246 | 1,234 | 1,226 | 1,220 | 1,219 |
| Astoria | 548 | 540 | 537 | 530 | 529 | 524 | 521 | 519 | 518 | 513 | 511 | 510 | 509 | 504 | 502 | 500 | 500 | 495 | 493 | 491 | 491 |
| Dalles (OR) | 420 | 412 | 412 | 409 | 409 | 408 | 408 | 408 | 410 | 407 | 408 | 410 | 410 | 408 | 408 | 408 | 409 | 408 | 407 | 407 | 409 |
| Eugene & Coos Bay | 2,137 | 2,117 | 2,121 | 2,104 | 2,111 | 2,105 | 2,108 | 2,111 | 2,121 | 2,111 | 2,118 | 2,126 | 2,134 | 2,125 | 2,127 | 2,128 | 2,140 | 2,133 | 2,133 | 2,136 | 2,149 |
| Lincoln City & Newport | 472 | 464 | 462 | 458 | 457 | 453 | 451 | 449 | 449 | 444 | 443 | 442 | 441 | 437 | 435 | 433 | 432 | 429 | 426 | 424 | 424 |
| Portland | 14,935 | 14,649 | 14,551 | 14,303 | 14,216 | 14,052 | 13,942 | 13,841 | 13,776 | 13,586 | 13,508 | 13,437 | 13,358 | 13,179 | 13,074 | 12,956 | 12,909 | 12,748 | 12,629 | 12,528 | 12,480 |
| Salem | 3,535 | 3,483 | 3,476 | 3,433 | 3,429 | 3,405 | 3,395 | 3,387 | 3,388 | 3,357 | 3,354 | 3,353 | 3,350 | 3,320 | 3,310 | 3,296 | 3,301 | 3,275 | 3,260 | 3,250 | 3,254 |
| Vancouver & Dalles (WA) | 2,256 | 2,222 | 2,214 | 2,186 | 2,180 | 2,162 | 2,152 | 2,143 | 2,139 | 2,117 | 2,111 | 2,106 | 2,100 | 2,080 | 2,070 | 2,059 | 2,057 | 2,039 | 2,027 | 2,018 | 2,017 |
| Total System | 25,685 | 25,241 | 25,123 | 24,752 | 24,655 | 24,423 | 24,284 | 24,159 | 24,100 | 23,820 | 23,734 | 23,661 | 23,577 | 23,314 | 23,180 | 23,025 | 22,995 | 22,760 | 22,603 | 22,474 | 22,442 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 258 | 283 | 285 | 287 | 290 | 290 | 290 | 291 | 292 | 292 | 293 | 293 | 295 | 295 | 295 | 296 | 298 | 297 | 298 | 299 | 300 |
| Astoria | 9 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 57 | 57 | 57 | 57 | 57 |
| Dalles (OR) | 56 | 87 | 87 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 90 | 90 | 90 | 90 | 90 | 90 | 91 | 91 | 91 | 91 | 92 |
| Eugene & Coos Bay | 583 | 700 | 704 | 709 | 717 | 717 | 718 | 719 | 723 | 722 | 724 | 725 | 729 | 729 | 730 | 732 | 736 | 735 | 737 | 738 | 742 |
| Lincoln City & Newport | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 38 | 37 | 38 | 38 | 38 |
| Portland | 2,947 | 2,745 | 2,758 | 2,780 | 2,809 | 2,810 | 2,812 | 2,819 | 2,834 | 2,831 | 2,837 | 2,844 | 2,859 | 2,856 | 2,862 | 2,869 | 2,884 | 2,881 | 2,888 | 2,894 | 2,910 |
| Salem | 774 | 757 | 761 | 767 | 775 | 775 | 776 | 778 | 782 | 781 | 783 | 784 | 789 | 788 | 790 | 791 | 796 | 795 | 797 | 798 | 803 |
| Vancouver & Dalles (WA) | 270 | 237 | 238 | 240 | 243 | 243 | 243 | 244 | 245 | 245 | 245 | 246 | 247 | 247 | 247 | 248 | 249 | 249 | 250 | 250 | 252 |
| Total System | 4,933 | 4,900 | 4,922 | 4,961 | 5,014 | 5,015 | 5,020 | 5,031 | 5,059 | 5,053 | 5,064 | 5,075 | 5,103 | 5,098 | 5,109 | 5,120 | 5,148 | 5,143 | 5,154 | 5,165 | 5,194 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

**Annual Demand Total, MDth - Normal Year**
**Low Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,730 | 3,700 | 3,696 | 3,658 | 3,659 | 3,637 | 3,628 | 3,621 | 3,625 | 3,595 | 3,594 | 3,594 | 3,594 | 3,565 | 3,556 | 3,544 | 3,552 | 3,527 | 3,514 | 3,505 | 3,512 |
| Astoria | 1,110 | 1,138 | 1,134 | 1,121 | 1,119 | 1,110 | 1,105 | 1,100 | 1,099 | 1,089 | 1,086 | 1,083 | 1,081 | 1,072 | 1,067 | 1,062 | 1,062 | 1,053 | 1,048 | 1,044 | 1,044 |
| Dalles (OR) | 704 | 723 | 724 | 719 | 722 | 719 | 720 | 720 | 723 | 719 | 720 | 722 | 724 | 721 | 721 | 720 | 724 | 720 | 720 | 720 | 723 |
| Eugene & Coos Bay | 4,491 | 4,568 | 4,575 | 4,549 | 4,565 | 4,550 | 4,552 | 4,555 | 4,573 | 4,550 | 4,559 | 4,570 | 4,584 | 4,563 | 4,564 | 4,563 | 4,584 | 4,566 | 4,564 | 4,565 | 4,586 |
| Lincoln City & Newport | 899 | 886 | 884 | 876 | 875 | 870 | 867 | 865 | 864 | 858 | 856 | 855 | 854 | 848 | 845 | 842 | 842 | 836 | 833 | 831 | 831 |
| Portland | 41,953 | 41,196 | 41,134 | 40,705 | 40,705 | 40,438 | 40,327 | 40,238 | 40,272 | 39,920 | 39,886 | 39,869 | 39,862 | 39,527 | 39,413 | 39,266 | 39,335 | 39,036 | 38,879 | 38,767 | 38,830 |
| Salem | 9,045 | 8,907 | 8,901 | 8,818 | 8,825 | 8,775 | 8,758 | 8,746 | 8,760 | 8,692 | 8,691 | 8,694 | 8,699 | 8,635 | 8,617 | 8,592 | 8,614 | 8,557 | 8,530 | 8,513 | 8,533 |
| Vancouver & Dalles (WA) | 6,843 | 6,716 | 6,700 | 6,624 | 6,617 | 6,568 | 6,545 | 6,526 | 6,525 | 6,464 | 6,454 | 6,446 | 6,440 | 6,382 | 6,360 | 6,332 | 6,339 | 6,288 | 6,259 | 6,238 | 6,244 |
| Total System | 68,774 | 67,835 | 67,748 | 67,071 | 67,087 | 66,667 | 66,500 | 66,371 | 66,442 | 65,886 | 65,846 | 65,834 | 65,839 | 65,312 | 65,144 | 64,922 | 65,051 | 64,583 | 64,347 | 64,182 | 64,303 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,177 | 2,149 | 2,148 | 2,127 | 2,129 | 2,117 | 2,114 | 2,112 | 2,116 | 2,100 | 2,101 | 2,103 | 2,105 | 2,089 | 2,085 | 2,080 | 2,086 | 2,072 | 2,066 | 2,062 | 2,068 |
| Astoria | 588 | 579 | 576 | 569 | 567 | 562 | 559 | 557 | 556 | 550 | 548 | 546 | 545 | 539 | 536 | 533 | 533 | 528 | 525 | 522 | 522 |
| Dalles (OR) | 256 | 253 | 253 | 251 | 252 | 251 | 251 | 251 | 252 | 250 | 251 | 251 | 252 | 250 | 250 | 250 | 251 | 250 | 249 | 249 | 250 |
| Eugene & Coos Bay | 1,923 | 1,899 | 1,898 | 1,880 | 1,882 | 1,872 | 1,869 | 1,867 | 1,871 | 1,857 | 1,858 | 1,859 | 1,861 | 1,848 | 1,845 | 1,841 | 1,846 | 1,834 | 1,829 | 1,826 | 1,832 |
| Lincoln City & Newport | 415 | 410 | 410 | 406 | 405 | 403 | 402 | 401 | 402 | 398 | 398 | 398 | 398 | 395 | 394 | 393 | 394 | 391 | 390 | 389 | 390 |
| Portland | 24,909 | 24,613 | 24,631 | 24,411 | 24,460 | 24,347 | 24,336 | 24,336 | 24,414 | 24,244 | 24,278 | 24,322 | 24,371 | 24,208 | 24,187 | 24,143 | 24,240 | 24,097 | 24,045 | 24,021 | 24,112 |
| Salem | 4,944 | 4,878 | 4,874 | 4,825 | 4,827 | 4,798 | 4,789 | 4,782 | 4,791 | 4,751 | 4,751 | 4,754 | 4,757 | 4,719 | 4,709 | 4,695 | 4,708 | 4,675 | 4,659 | 4,649 | 4,661 |
| Vancouver & Dalles (WA) | 4,436 | 4,370 | 4,359 | 4,308 | 4,303 | 4,271 | 4,257 | 4,245 | 4,247 | 4,206 | 4,201 | 4,197 | 4,194 | 4,156 | 4,142 | 4,125 | 4,131 | 4,097 | 4,079 | 4,066 | 4,071 |
| Total System | 39,648 | 39,151 | 39,151 | 38,776 | 38,825 | 38,620 | 38,577 | 38,552 | 38,648 | 38,357 | 38,385 | 38,431 | 38,483 | 38,206 | 38,150 | 38,060 | 38,188 | 37,944 | 37,842 | 37,785 | 37,906 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,298 | 1,272 | 1,267 | 1,249 | 1,245 | 1,234 | 1,228 | 1,223 | 1,221 | 1,207 | 1,204 | 1,202 | 1,198 | 1,186 | 1,180 | 1,173 | 1,173 | 1,162 | 1,154 | 1,149 | 1,148 |
| Astoria | 513 | 506 | 504 | 498 | 497 | 493 | 491 | 489 | 489 | 484 | 483 | 482 | 481 | 477 | 475 | 473 | 473 | 470 | 468 | 466 | 466 |
| Dalles (OR) | 393 | 385 | 385 | 382 | 383 | 381 | 382 | 382 | 383 | 381 | 382 | 383 | 384 | 382 | 382 | 381 | 383 | 381 | 381 | 381 | 382 |
| Eugene & Coos Bay | 1,996 | 1,979 | 1,984 | 1,970 | 1,977 | 1,973 | 1,976 | 1,980 | 1,990 | 1,982 | 1,989 | 1,997 | 2,004 | 1,997 | 2,000 | 2,002 | 2,013 | 2,008 | 2,009 | 2,012 | 2,024 |
| Lincoln City & Newport | 448 | 441 | 439 | 435 | 434 | 431 | 429 | 427 | 426 | 423 | 421 | 420 | 419 | 416 | 414 | 412 | 412 | 408 | 406 | 404 | 404 |
| Portland | 14,145 | 13,878 | 13,786 | 13,557 | 13,478 | 13,323 | 13,220 | 13,125 | 13,066 | 12,887 | 12,813 | 12,746 | 12,675 | 12,506 | 12,407 | 12,297 | 12,254 | 12,101 | 11,990 | 11,895 | 11,852 |
| Salem | 3,329 | 3,282 | 3,277 | 3,238 | 3,235 | 3,214 | 3,205 | 3,198 | 3,199 | 3,171 | 3,169 | 3,168 | 3,165 | 3,139 | 3,130 | 3,118 | 3,122 | 3,099 | 3,086 | 3,077 | 3,080 |
| Vancouver & Dalles (WA) | 2,144 | 2,113 | 2,105 | 2,080 | 2,075 | 2,058 | 2,048 | 2,040 | 2,037 | 2,017 | 2,011 | 2,006 | 2,002 | 1,983 | 1,973 | 1,963 | 1,962 | 1,945 | 1,934 | 1,925 | 1,925 |
| Total System | 24,266 | 23,857 | 23,749 | 23,409 | 23,322 | 23,106 | 22,979 | 22,864 | 22,811 | 22,551 | 22,472 | 22,403 | 22,329 | 22,085 | 21,961 | 21,818 | 21,792 | 21,573 | 21,428 | 21,309 | 21,281 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 255 | 279 | 280 | 283 | 286 | 286 | 286 | 287 | 288 | 288 | 289 | 289 | 291 | 290 | 291 | 292 | 293 | 293 | 294 | 294 | 296 |
| Astoria | 9 | 53 | 53 | 54 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 56 | 56 | 56 | 56 | 56 | 56 |
| Dalles (OR) | 55 | 85 | 86 | 86 | 87 | 87 | 87 | 87 | 88 | 88 | 88 | 88 | 89 | 89 | 89 | 89 | 89 | 89 | 90 | 90 | 90 |
| Eugene & Coos Bay | 572 | 690 | 693 | 698 | 706 | 706 | 707 | 708 | 712 | 711 | 713 | 714 | 718 | 718 | 719 | 721 | 725 | 724 | 725 | 727 | 731 |
| Lincoln City & Newport | 35 | 35 | 35 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| Portland | 2,899 | 2,704 | 2,717 | 2,738 | 2,767 | 2,768 | 2,770 | 2,777 | 2,792 | 2,789 | 2,795 | 2,801 | 2,817 | 2,813 | 2,820 | 2,826 | 2,841 | 2,838 | 2,844 | 2,851 | 2,866 |
| Salem | 772 | 746 | 750 | 755 | 764 | 764 | 764 | 766 | 770 | 769 | 771 | 773 | 777 | 776 | 778 | 780 | 784 | 783 | 785 | 787 | 791 |
| Vancouver & Dalles (WA) | 263 | 234 | 235 | 237 | 240 | 240 | 240 | 240 | 242 | 241 | 242 | 242 | 244 | 244 | 244 | 245 | 246 | 246 | 246 | 247 | 248 |
| Total System | 4,860 | 4,827 | 4,849 | 4,887 | 4,940 | 4,940 | 4,945 | 4,956 | 4,983 | 4,978 | 4,989 | 5,000 | 5,027 | 5,022 | 5,033 | 5,044 | 5,072 | 5,066 | 5,077 | 5,088 | 5,116 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

# Appendix 2-9: Detailed Results – Historical Coldest Season in 20 Years

**Peak Day Demand, MDTh/day**

**Base Old Design Weather Demand Scenario**

**Peak Day = February 3**

**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 50.92 | 51.75 | 52.73 | 53.50 | 54.29 | 55.17 | 56.06 | 56.94 | 57.81 | 58.87 | 59.81 | 60.81 | 61.77 | 62.83 | 63.74 | 64.60 | 65.47 | 66.25 | 66.92 | 67.66 | 68.39 |
| Astoria | 19.04 | 19.32 | 19.48 | 19.54 | 19.62 | 19.72 | 19.84 | 19.96 | 20.07 | 20.26 | 20.40 | 20.56 | 20.71 | 20.89 | 21.03 | 21.15 | 21.27 | 21.36 | 21.43 | 21.51 | 21.59 |
| Dalles (OR) | 9.08 | 9.42 | 9.69 | 9.92 | 10.15 | 10.39 | 10.63 | 10.87 | 11.11 | 11.38 | 11.63 | 11.89 | 12.14 | 12.41 | 12.65 | 12.88 | 13.11 | 13.32 | 13.50 | 13.70 | 13.90 |
| Eugene & Coos Bay | 60.81 | 62.13 | 63.45 | 64.50 | 65.55 | 66.70 | 67.87 | 69.04 | 70.18 | 71.56 | 72.80 | 74.11 | 75.37 | 76.76 | 77.96 | 79.10 | 80.26 | 81.31 | 82.23 | 83.22 | 84.22 |
| Lincoln City & Newport | 14.56 | 14.80 | 15.14 | 15.42 | 15.70 | 15.99 | 16.29 | 16.58 | 16.86 | 17.18 | 17.47 | 17.77 | 18.05 | 18.35 | 18.61 | 18.85 | 19.08 | 19.29 | 19.46 | 19.65 | 19.83 |
| Portland | 541.33 | 545.50 | 553.66 | 559.60 | 565.72 | 572.91 | 580.28 | 587.66 | 595.03 | 604.46 | 612.82 | 621.87 | 630.71 | 640.58 | 649.10 | 657.16 | 665.45 | 672.99 | 679.50 | 686.69 | 693.99 |
| Salem | 126.07 | 129.31 | 131.68 | 133.51 | 135.37 | 137.46 | 139.58 | 141.68 | 143.75 | 146.29 | 148.55 | 150.95 | 153.28 | 155.84 | 158.04 | 160.11 | 162.22 | 164.12 | 165.75 | 167.53 | 169.32 |
| Vancouver & Dalles (WA) | 93.47 | 95.36 | 98.55 | 101.41 | 104.29 | 107.39 | 110.51 | 113.59 | 116.63 | 120.04 | 123.20 | 126.48 | 129.68 | 133.07 | 136.15 | 139.11 | 142.08 | 144.86 | 147.39 | 150.04 | 152.69 |
| Total System | 915.29 | 927.58 | 944.38 | 957.40 | 970.68 | 985.72 | 1,001.07 | 1,016.32 | 1,031.44 | 1,050.03 | 1,066.67 | 1,084.43 | 1,101.72 | 1,120.72 | 1,137.29 | 1,152.95 | 1,168.93 | 1,183.51 | 1,196.19 | 1,209.99 | 1,223.92 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 32.93 | 33.55 | 34.41 | 35.16 | 35.93 | 36.78 | 37.64 | 38.48 | 39.31 | 40.26 | 41.13 | 42.04 | 42.92 | 43.86 | 44.69 | 45.49 | 46.29 | 47.04 | 47.70 | 48.40 | 49.09 |
| Astoria | 11.68 | 11.79 | 11.97 | 12.10 | 12.24 | 12.39 | 12.56 | 12.73 | 12.88 | 13.08 | 13.25 | 13.43 | 13.60 | 13.78 | 13.94 | 14.08 | 14.22 | 14.34 | 14.44 | 14.54 | 14.65 |
| Dalles (OR) | 3.91 | 4.04 | 4.20 | 4.35 | 4.50 | 4.66 | 4.83 | 5.00 | 5.16 | 5.34 | 5.50 | 5.68 | 5.84 | 6.02 | 6.18 | 6.34 | 6.49 | 6.64 | 6.77 | 6.91 | 7.05 |
| Eugene & Coos Bay | 30.24 | 30.92 | 31.83 | 32.64 | 33.47 | 34.36 | 35.29 | 36.20 | 37.10 | 38.10 | 39.03 | 40.00 | 40.93 | 41.93 | 42.82 | 43.68 | 44.55 | 45.35 | 46.08 | 46.84 | 47.60 |
| Lincoln City & Newport | 9.15 | 9.36 | 9.63 | 9.87 | 10.11 | 10.36 | 10.62 | 10.87 | 11.12 | 11.39 | 11.64 | 11.90 | 12.14 | 12.40 | 12.63 | 12.85 | 13.06 | 13.25 | 13.42 | 13.60 | 13.78 |
| Portland | 356.17 | 362.12 | 370.06 | 376.75 | 383.66 | 391.41 | 399.30 | 407.16 | 414.98 | 424.16 | 432.61 | 441.53 | 450.28 | 459.73 | 468.24 | 476.41 | 484.73 | 492.50 | 499.52 | 507.00 | 514.54 |
| Salem | 80.57 | 81.99 | 83.94 | 85.63 | 87.37 | 89.28 | 91.23 | 93.16 | 95.06 | 97.26 | 99.26 | 101.36 | 103.41 | 105.60 | 107.56 | 109.42 | 111.31 | 113.06 | 114.62 | 116.27 | 117.92 |
| Vancouver & Dalles (WA) | 67.23 | 69.01 | 71.43 | 73.65 | 75.92 | 78.38 | 80.88 | 83.33 | 85.75 | 88.44 | 90.94 | 93.53 | 96.06 | 98.72 | 101.16 | 103.49 | 105.84 | 108.05 | 110.07 | 112.17 | 114.26 |
| Total System | 591.88 | 602.78 | 617.46 | 630.15 | 643.19 | 657.62 | 672.35 | 686.93 | 701.36 | 718.03 | 733.38 | 749.45 | 765.18 | 782.04 | 797.22 | 811.76 | 826.49 | 840.23 | 852.61 | 865.72 | 878.89 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.80 | 16.80 | 16.92 | 16.93 | 16.93 | 16.96 | 16.99 | 17.03 | 17.06 | 17.16 | 17.23 | 17.32 | 17.40 | 17.52 | 17.59 | 17.65 | 17.71 | 17.75 | 17.76 | 17.79 | 17.82 |
| Astoria | 7.31 | 7.28 | 7.25 | 7.19 | 7.12 | 7.07 | 7.02 | 6.97 | 6.93 | 6.91 | 6.88 | 6.87 | 6.85 | 6.85 | 6.83 | 6.80 | 6.78 | 6.76 | 6.72 | 6.70 | 6.67 |
| Dalles (OR) | 4.92 | 4.93 | 5.04 | 5.12 | 5.19 | 5.26 | 5.34 | 5.42 | 5.49 | 5.58 | 5.66 | 5.75 | 5.83 | 5.93 | 6.00 | 6.07 | 6.14 | 6.21 | 6.26 | 6.31 | 6.37 |
| Eugene & Coos Bay | 27.35 | 27.74 | 28.13 | 28.34 | 28.54 | 28.78 | 29.02 | 29.27 | 29.51 | 29.87 | 30.17 | 30.51 | 30.83 | 31.21 | 31.52 | 31.79 | 32.08 | 32.32 | 32.50 | 32.72 | 32.95 |
| Lincoln City & Newport | 5.24 | 5.27 | 5.34 | 5.39 | 5.42 | 5.46 | 5.50 | 5.54 | 5.57 | 5.62 | 5.65 | 5.69 | 5.73 | 5.77 | 5.80 | 5.82 | 5.85 | 5.86 | 5.86 | 5.87 | 5.87 |
| Portland | 169.35 | 169.33 | 169.50 | 168.63 | 167.74 | 167.14 | 166.60 | 166.09 | 165.61 | 165.81 | 165.69 | 165.81 | 165.86 | 166.24 | 166.22 | 166.08 | 166.02 | 165.75 | 165.21 | 164.89 | 164.62 |
| Salem | 43.12 | 43.48 | 43.88 | 43.99 | 44.08 | 44.24 | 44.41 | 44.57 | 44.73 | 45.07 | 45.31 | 45.61 | 45.89 | 46.24 | 46.48 | 46.68 | 46.89 | 47.04 | 47.10 | 47.21 | 47.34 |
| Vancouver & Dalles (WA) | 24.44 | 25.17 | 25.94 | 26.56 | 27.17 | 27.80 | 28.43 | 29.05 | 29.67 | 30.38 | 31.04 | 31.73 | 32.40 | 33.12 | 33.76 | 34.38 | 35.00 | 35.58 | 36.09 | 36.63 | 37.18 |
| Total System | 298.53 | 300.00 | 302.00 | 302.14 | 302.18 | 302.71 | 303.31 | 303.93 | 304.56 | 306.42 | 307.65 | 309.29 | 310.79 | 312.89 | 314.21 | 315.27 | 316.46 | 317.25 | 317.49 | 318.12 | 318.82 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.40 | 1.40 | 1.41 | 1.42 | 1.43 | 1.43 | 1.43 | 1.44 | 1.44 | 1.44 | 1.45 | 1.45 | 1.45 | 1.46 | 1.46 | 1.46 | 1.47 | 1.47 | 1.47 | 1.48 |
| Astoria | 0.06 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 |
| Dalles (OR) | 0.25 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| Eugene & Coos Bay | 3.23 | 3.47 | 3.49 | 3.52 | 3.54 | 3.56 | 3.56 | 3.57 | 3.57 | 3.58 | 3.59 | 3.60 | 3.61 | 3.61 | 3.62 | 3.63 | 3.64 | 3.65 | 3.65 | 3.66 | 3.67 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| Portland | 15.81 | 14.04 | 14.10 | 14.21 | 14.32 | 14.37 | 14.38 | 14.41 | 14.45 | 14.48 | 14.51 | 14.54 | 14.57 | 14.61 | 14.64 | 14.67 | 14.70 | 14.73 | 14.77 | 14.80 | 14.83 |
| Salem | 2.38 | 3.84 | 3.86 | 3.89 | 3.92 | 3.93 | 3.93 | 3.94 | 3.95 | 3.96 | 3.97 | 3.98 | 3.99 | 3.99 | 4.00 | 4.01 | 4.02 | 4.03 | 4.04 | 4.05 | 4.06 |
| Vancouver & Dalles (WA) | 1.81 | 1.18 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.21 | 1.21 | 1.22 | 1.22 | 1.22 | 1.22 | 1.23 | 1.23 | 1.23 | 1.24 | 1.24 | 1.24 | 1.24 | 1.25 |
| Total System | 24.89 | 24.80 | 24.91 | 25.11 | 25.30 | 25.38 | 25.41 | 25.46 | 25.52 | 25.58 | 25.63 | 25.69 | 25.75 | 25.80 | 25.86 | 25.92 | 25.97 | 26.03 | 26.09 | 26.15 | 26.20 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.87 | 1.87 | 1.89 | 1.90 | 1.91 | 1.91 | 1.92 | 1.92 | 1.92 | 1.93 | 1.93 | 1.94 | 1.94 | 1.95 | 1.95 | 1.95 | 1.96 | 1.96 | 1.97 | 1.97 |
| Astoria | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.39 |
| Dalles (OR) | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.63 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 | 0.64 |
| Eugene & Coos Bay | 3.75 | 3.73 | 3.75 | 3.78 | 3.81 | 3.82 | 3.82 | 3.83 | 3.84 | 3.85 | 3.86 | 3.87 | 3.87 | 3.88 | 3.89 | 3.90 | 3.91 | 3.92 | 3.93 | 3.93 | 3.94 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| Portland | 9.44 | 9.41 | 9.45 | 9.53 | 9.60 | 9.63 | 9.64 | 9.66 | 9.68 | 9.70 | 9.73 | 9.75 | 9.77 | 9.79 | 9.81 | 9.83 | 9.85 | 9.88 | 9.90 | 9.92 | 9.94 |
| Salem | 4.72 | 4.71 | 4.73 | 4.76 | 4.80 | 4.82 | 4.82 | 4.83 | 4.84 | 4.85 | 4.86 | 4.87 | 4.88 | 4.90 | 4.91 | 4.92 | 4.93 | 4.94 | 4.95 | 4.96 | 4.97 |
| Vancouver & Dalles (WA) | 1.59 | 1.58 | 1.59 | 1.60 | 1.61 | 1.62 | 1.62 | 1.62 | 1.63 | 1.63 | 1.63 | 1.64 | 1.64 | 1.65 | 1.65 | 1.65 | 1.66 | 1.66 | 1.66 | 1.67 | 1.67 |
| Total System | 22.47 | 22.39 | 22.49 | 22.67 | 22.84 | 22.92 | 22.94 | 22.99 | 23.04 | 23.09 | 23.14 | 23.19 | 23.24 | 23.29 | 23.34 | 23.40 | 23.45 | 23.50 | 23.55 | 23.60 | 23.65 |

**Annual Demand Total, MDth - Historical Coldest Season in 20 Years (Colder of 1992-1993 Season or Normal with 1989 Three Day Peak)**
**Base Old Design Weather Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 4,415 | 4,476 | 4,560 | 4,631 | 4,725 | 4,782 | 4,862 | 4,941 | 5,043 | 5,112 | 5,196 | 5,285 | 5,396 | 5,464 | 5,548 | 5,628 | 5,735 | 5,784 | 5,852 | 5,924 | 6,024 |
| Astoria | 1,345 | 1,401 | 1,422 | 1,439 | 1,462 | 1,474 | 1,494 | 1,514 | 1,539 | 1,556 | 1,576 | 1,598 | 1,626 | 1,642 | 1,662 | 1,681 | 1,708 | 1,719 | 1,735 | 1,752 | 1,777 |
| Dalles (OR) | 852 | 892 | 916 | 938 | 966 | 982 | 1,004 | 1,027 | 1,056 | 1,074 | 1,098 | 1,122 | 1,153 | 1,170 | 1,193 | 1,215 | 1,245 | 1,258 | 1,277 | 1,297 | 1,326 |
| Eugene & Coos Bay | 5,272 | 5,474 | 5,600 | 5,713 | 5,851 | 5,944 | 6,063 | 6,182 | 6,326 | 6,432 | 6,555 | 6,683 | 6,838 | 6,942 | 7,063 | 7,181 | 7,331 | 7,412 | 7,515 | 7,623 | 7,764 |
| Lincoln City & Newport | 1,035 | 1,048 | 1,072 | 1,094 | 1,119 | 1,138 | 1,161 | 1,184 | 1,211 | 1,232 | 1,256 | 1,280 | 1,308 | 1,328 | 1,350 | 1,372 | 1,399 | 1,414 | 1,433 | 1,453 | 1,477 |
| Portland | 48,560 | 48,626 | 49,352 | 49,940 | 50,828 | 51,224 | 51,912 | 52,603 | 53,591 | 54,127 | 54,887 | 55,697 | 56,807 | 57,359 | 58,133 | 58,875 | 59,967 | 60,340 | 60,975 | 61,657 | 62,697 |
| Salem | 10,536 | 10,652 | 10,858 | 11,036 | 11,269 | 11,411 | 11,608 | 11,804 | 12,054 | 12,222 | 12,429 | 12,646 | 12,917 | 13,084 | 13,289 | 13,486 | 13,748 | 13,871 | 14,040 | 14,219 | 14,465 |
| Vancouver & Dalles (WA) | 8,005 | 8,167 | 8,464 | 8,742 | 9,070 | 9,322 | 9,621 | 9,919 | 10,265 | 10,533 | 10,836 | 11,148 | 11,512 | 11,774 | 12,073 | 12,364 | 12,720 | 12,936 | 13,199 | 13,469 | 13,809 |
| Total System | 80,021 | 80,737 | 82,244 | 83,533 | 85,290 | 86,277 | 87,726 | 89,173 | 91,086 | 92,288 | 93,834 | 95,457 | 97,557 | 98,763 | 100,312 | 101,802 | 103,853 | 104,734 | 106,026 | 107,394 | 109,339 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,628 | 2,667 | 2,737 | 2,800 | 2,880 | 2,937 | 3,010 | 3,082 | 3,169 | 3,233 | 3,308 | 3,385 | 3,477 | 3,540 | 3,614 | 3,685 | 3,774 | 3,824 | 3,886 | 3,951 | 4,036 |
| Astoria | 736 | 744 | 759 | 773 | 790 | 802 | 818 | 834 | 853 | 867 | 883 | 900 | 921 | 934 | 950 | 965 | 984 | 994 | 1,007 | 1,020 | 1,038 |
| Dalles (OR) | 322 | 331 | 346 | 360 | 377 | 389 | 405 | 420 | 438 | 452 | 467 | 483 | 503 | 515 | 531 | 546 | 565 | 575 | 589 | 603 | 621 |
| Eugene & Coos Bay | 2,322 | 2,370 | 2,446 | 2,518 | 2,602 | 2,668 | 2,749 | 2,829 | 2,922 | 2,995 | 3,077 | 3,161 | 3,258 | 3,330 | 3,411 | 3,489 | 3,584 | 3,643 | 3,713 | 3,786 | 3,876 |
| Lincoln City & Newport | 504 | 518 | 537 | 554 | 575 | 591 | 611 | 630 | 652 | 670 | 690 | 709 | 732 | 749 | 768 | 786 | 807 | 822 | 838 | 855 | 875 |
| Portland | 29,355 | 29,699 | 30,373 | 30,974 | 31,781 | 32,280 | 32,978 | 33,674 | 34,569 | 35,156 | 35,895 | 36,667 | 37,648 | 38,240 | 38,986 | 39,710 | 40,682 | 41,143 | 41,789 | 42,467 | 43,403 |
| Salem | 5,921 | 6,012 | 6,170 | 6,315 | 6,496 | 6,627 | 6,793 | 6,957 | 7,155 | 7,302 | 7,473 | 7,649 | 7,861 | 8,005 | 8,174 | 8,338 | 8,544 | 8,660 | 8,805 | 8,956 | 9,152 |
| Vancouver & Dalles (WA) | 5,282 | 5,412 | 5,618 | 5,817 | 6,053 | 6,239 | 6,461 | 6,681 | 6,935 | 7,134 | 7,358 | 7,588 | 7,856 | 8,050 | 8,271 | 8,487 | 8,749 | 8,910 | 9,105 | 9,306 | 9,556 |
| Total System | 47,072 | 47,752 | 48,986 | 50,110 | 51,553 | 52,533 | 53,824 | 55,107 | 56,693 | 57,810 | 59,151 | 60,543 | 62,255 | 63,364 | 64,705 | 66,005 | 67,689 | 68,571 | 69,732 | 70,944 | 72,556 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,522 | 1,518 | 1,530 | 1,535 | 1,547 | 1,546 | 1,553 | 1,560 | 1,574 | 1,578 | 1,587 | 1,598 | 1,615 | 1,621 | 1,630 | 1,638 | 1,654 | 1,654 | 1,659 | 1,665 | 1,679 |
| Astoria | 600 | 602 | 607 | 610 | 615 | 616 | 619 | 623 | 629 | 631 | 635 | 640 | 647 | 650 | 654 | 659 | 665 | 667 | 670 | 673 | 680 |
| Dalles (OR) | 472 | 471 | 480 | 487 | 497 | 500 | 508 | 514 | 525 | 530 | 537 | 545 | 556 | 561 | 568 | 575 | 586 | 588 | 594 | 599 | 609 |
| Eugene & Coos Bay | 2,346 | 2,383 | 2,430 | 2,466 | 2,511 | 2,538 | 2,575 | 2,612 | 2,660 | 2,693 | 2,733 | 2,776 | 2,829 | 2,862 | 2,901 | 2,939 | 2,990 | 3,013 | 3,044 | 3,078 | 3,124 |
| Lincoln City & Newport | 494 | 494 | 499 | 503 | 508 | 510 | 513 | 517 | 522 | 525 | 528 | 533 | 538 | 541 | 544 | 548 | 553 | 554 | 557 | 559 | 564 |
| Portland | 16,170 | 16,109 | 16,148 | 16,114 | 16,163 | 16,060 | 16,048 | 16,036 | 16,112 | 16,065 | 16,080 | 16,111 | 16,223 | 16,187 | 16,208 | 16,220 | 16,323 | 16,240 | 16,222 | 16,220 | 16,307 |
| Salem | 3,838 | 3,863 | 3,908 | 3,935 | 3,978 | 3,989 | 4,019 | 4,049 | 4,096 | 4,119 | 4,154 | 4,192 | 4,247 | 4,271 | 4,305 | 4,336 | 4,388 | 4,396 | 4,418 | 4,444 | 4,490 |
| Vancouver & Dalles (WA) | 2,439 | 2,512 | 2,600 | 2,678 | 2,767 | 2,832 | 2,910 | 2,987 | 3,078 | 3,147 | 3,226 | 3,307 | 3,402 | 3,470 | 3,547 | 3,622 | 3,715 | 3,769 | 3,837 | 3,906 | 3,994 |
| Total System | 27,881 | 27,951 | 28,202 | 28,327 | 28,585 | 28,592 | 28,745 | 28,898 | 29,195 | 29,288 | 29,480 | 29,701 | 30,059 | 30,162 | 30,359 | 30,537 | 30,874 | 30,881 | 30,999 | 31,144 | 31,446 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 265 | 292 | 293 | 295 | 298 | 298 | 299 | 299 | 301 | 301 | 301 | 302 | 304 | 303 | 304 | 305 | 306 | 306 | 307 | 307 | 309 |
| Astoria | 10 | 55 | 56 | 56 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 57 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 59 |
| Dalles (OR) | 57 | 90 | 91 | 91 | 92 | 92 | 92 | 93 | 93 | 93 | 93 | 93 | 94 | 94 | 94 | 94 | 95 | 95 | 95 | 95 | 96 |
| Eugene & Coos Bay | 604 | 721 | 724 | 730 | 737 | 737 | 738 | 740 | 744 | 743 | 745 | 746 | 750 | 750 | 751 | 753 | 757 | 756 | 758 | 760 | 764 |
| Lincoln City & Newport | 37 | 36 | 36 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| Portland | 3,035 | 2,818 | 2,831 | 2,853 | 2,885 | 2,884 | 2,887 | 2,893 | 2,910 | 2,906 | 2,912 | 2,919 | 2,936 | 2,932 | 2,938 | 2,944 | 2,962 | 2,957 | 2,964 | 2,970 | 2,988 |
| Salem | 777 | 777 | 781 | 787 | 795 | 795 | 796 | 798 | 802 | 801 | 803 | 805 | 809 | 809 | 810 | 812 | 817 | 816 | 817 | 819 | 824 |
| Vancouver & Dalles (WA) | 284 | 244 | 245 | 247 | 250 | 250 | 250 | 251 | 252 | 252 | 252 | 253 | 254 | 254 | 255 | 255 | 257 | 256 | 257 | 258 | 259 |
| Total System | 5,068 | 5,034 | 5,056 | 5,096 | 5,152 | 5,151 | 5,157 | 5,168 | 5,197 | 5,191 | 5,202 | 5,214 | 5,243 | 5,237 | 5,248 | 5,260 | 5,290 | 5,283 | 5,294 | 5,306 | 5,336 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 698 | 699 | 703 | 702 | 704 | 705 | 709 | 709 | 710 | 712 | 715 | 715 | 716 | 718 | 721 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 137 | 137 | 137 | 137 | 138 | 138 | 139 | 139 | 139 | 139 | 140 | 140 | 140 | 140 | 141 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 228 | 228 | 229 | 229 | 230 | 230 | 231 | 231 | 232 | 232 | 233 | 233 | 234 | 234 | 235 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,395 | 1,398 | 1,405 | 1,405 | 1,408 | 1,411 | 1,418 | 1,417 | 1,420 | 1,423 | 1,430 | 1,430 | 1,433 | 1,436 | 1,443 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 46 | 47 | 47 | 47 | 47 | 47 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,519 | 3,527 | 3,544 | 3,542 | 3,550 | 3,558 | 3,575 | 3,573 | 3,581 | 3,589 | 3,607 | 3,605 | 3,613 | 3,621 | 3,639 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,759 | 1,763 | 1,772 | 1,771 | 1,775 | 1,779 | 1,788 | 1,787 | 1,791 | 1,795 | 1,803 | 1,802 | 1,806 | 1,810 | 1,819 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 592 | 593 | 596 | 595 | 597 | 598 | 601 | 601 | 602 | 603 | 606 | 606 | 607 | 609 | 612 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,372 | 8,391 | 8,432 | 8,428 | 8,446 | 8,465 | 8,507 | 8,502 | 8,521 | 8,540 | 8,582 | 8,577 | 8,596 | 8,615 | 8,658 |

# Appendix 2-10: Detailed Results – Negative Growth Scenario

**Peak Day Demand, MDTh/day**
**Negative Growth Demand Scenario**
**Peak Day = February 3**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 50.92 | 50.36 | 49.65 | 48.70 | 47.76 | 46.91 | 46.08 | 45.27 | 44.49 | 43.87 | 43.19 | 42.57 | 41.95 | 41.41 | 40.78 | 40.15 | 39.53 | 38.89 | 38.20 | 37.57 | 36.96 |
| Astoria | 19.04 | 18.80 | 18.38 | 17.88 | 17.39 | 16.94 | 16.51 | 16.10 | 15.69 | 15.36 | 15.01 | 14.68 | 14.36 | 14.07 | 13.76 | 13.45 | 13.15 | 12.85 | 12.54 | 12.25 | 11.97 |
| Dalles (OR) | 9.08 | 9.12 | 8.99 | 8.82 | 8.64 | 8.49 | 8.34 | 8.19 | 8.05 | 7.94 | 7.82 | 7.71 | 7.60 | 7.50 | 7.39 | 7.28 | 7.18 | 7.07 | 6.95 | 6.84 | 6.74 |
| Eugene & Coos Bay | 60.81 | 60.07 | 59.13 | 57.91 | 56.71 | 55.62 | 54.57 | 53.56 | 52.57 | 51.79 | 50.94 | 50.17 | 49.40 | 48.73 | 47.97 | 47.20 | 46.46 | 45.69 | 44.88 | 44.14 | 43.42 |
| Lincoln City & Newport | 14.56 | 14.25 | 13.97 | 13.62 | 13.28 | 12.97 | 12.67 | 12.38 | 12.10 | 11.87 | 11.62 | 11.39 | 11.17 | 10.97 | 10.75 | 10.52 | 10.31 | 10.10 | 9.87 | 9.66 | 9.46 |
| Portland | 541.33 | 533.00 | 526.86 | 518.08 | 509.33 | 501.42 | 493.76 | 486.26 | 478.91 | 473.32 | 466.98 | 461.26 | 455.45 | 450.46 | 444.58 | 438.47 | 432.62 | 426.38 | 419.62 | 413.42 | 407.39 |
| Salem | 126.07 | 125.61 | 123.79 | 121.36 | 118.97 | 116.78 | 114.68 | 112.63 | 110.62 | 109.05 | 107.31 | 105.72 | 104.14 | 102.74 | 101.16 | 99.54 | 97.99 | 96.36 | 94.62 | 93.02 | 91.48 |
| Vancouver & Dalles (WA) | 93.47 | 91.32 | 89.89 | 88.02 | 86.18 | 84.50 | 82.88 | 81.31 | 79.77 | 78.55 | 77.21 | 75.99 | 74.77 | 73.69 | 72.48 | 71.24 | 70.06 | 68.82 | 67.52 | 66.31 | 65.14 |
| Total System | 915.29 | 902.53 | 890.67 | 874.40 | 858.26 | 843.64 | 829.50 | 815.70 | 802.21 | 791.74 | 780.07 | 769.49 | 758.83 | 749.56 | 738.87 | 727.85 | 717.30 | 706.16 | 694.20 | 683.20 | 672.55 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 32.93 | 32.48 | 32.05 | 31.48 | 30.91 | 30.39 | 29.88 | 29.39 | 28.91 | 28.54 | 28.12 | 27.74 | 27.35 | 27.02 | 26.64 | 26.24 | 25.86 | 25.46 | 25.04 | 24.64 | 24.26 |
| Astoria | 11.68 | 11.42 | 11.18 | 10.90 | 10.61 | 10.35 | 10.10 | 9.86 | 9.63 | 9.43 | 9.23 | 9.03 | 8.84 | 8.67 | 8.49 | 8.30 | 8.13 | 7.95 | 7.76 | 7.59 | 7.42 |
| Dalles (OR) | 3.91 | 3.85 | 3.80 | 3.72 | 3.65 | 3.58 | 3.51 | 3.45 | 3.39 | 3.34 | 3.28 | 3.23 | 3.18 | 3.14 | 3.09 | 3.04 | 2.99 | 2.94 | 2.88 | 2.83 | 2.79 |
| Eugene & Coos Bay | 30.24 | 29.77 | 29.33 | 28.75 | 28.18 | 27.66 | 27.16 | 26.67 | 26.19 | 25.81 | 25.39 | 25.01 | 24.62 | 24.29 | 23.91 | 23.52 | 23.14 | 22.75 | 22.34 | 21.96 | 21.59 |
| Lincoln City & Newport | 9.15 | 8.95 | 8.77 | 8.55 | 8.33 | 8.12 | 7.93 | 7.74 | 7.56 | 7.41 | 7.25 | 7.10 | 6.95 | 6.82 | 6.68 | 6.53 | 6.40 | 6.26 | 6.11 | 5.97 | 5.84 |
| Portland | 356.17 | 352.46 | 349.05 | 343.94 | 338.83 | 334.23 | 329.77 | 325.39 | 321.09 | 317.91 | 314.23 | 310.94 | 307.59 | 304.75 | 301.32 | 297.74 | 294.30 | 290.61 | 286.55 | 282.84 | 279.24 |
| Salem | 80.57 | 79.38 | 78.27 | 76.79 | 75.32 | 73.98 | 72.69 | 71.42 | 70.18 | 69.21 | 68.13 | 67.15 | 66.16 | 65.29 | 64.30 | 63.29 | 62.33 | 61.31 | 60.23 | 59.23 | 58.26 |
| Vancouver & Dalles (WA) | 67.23 | 66.12 | 65.10 | 63.75 | 62.42 | 61.22 | 60.05 | 58.91 | 57.81 | 56.93 | 55.97 | 55.09 | 54.21 | 53.44 | 52.57 | 51.68 | 50.83 | 49.94 | 49.00 | 48.13 | 47.29 |
| Total System | 591.88 | 584.43 | 577.54 | 567.87 | 558.25 | 549.54 | 541.10 | 532.84 | 524.76 | 518.57 | 511.59 | 505.29 | 498.91 | 493.41 | 486.99 | 480.34 | 473.98 | 467.21 | 459.91 | 453.19 | 446.69 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.80 | 16.50 | 16.23 | 15.87 | 15.51 | 15.19 | 14.88 | 14.58 | 14.28 | 14.06 | 13.81 | 13.58 | 13.35 | 13.15 | 12.93 | 12.70 | 12.48 | 12.25 | 12.00 | 11.77 | 11.55 |
| Astoria | 7.31 | 7.12 | 6.95 | 6.74 | 6.53 | 6.35 | 6.17 | 6.00 | 5.83 | 5.69 | 5.55 | 5.42 | 5.29 | 5.17 | 5.05 | 4.92 | 4.80 | 4.68 | 4.56 | 4.45 | 4.34 |
| Dalles (OR) | 4.92 | 4.82 | 4.75 | 4.66 | 4.56 | 4.48 | 4.40 | 4.32 | 4.25 | 4.19 | 4.13 | 4.07 | 4.02 | 3.97 | 3.92 | 3.86 | 3.81 | 3.75 | 3.69 | 3.63 | 3.58 |
| Eugene & Coos Bay | 27.35 | 26.85 | 26.39 | 25.78 | 25.18 | 24.64 | 24.13 | 23.64 | 23.16 | 22.80 | 22.40 | 22.04 | 21.68 | 21.38 | 21.03 | 20.68 | 20.35 | 20.00 | 19.63 | 19.30 | 18.98 |
| Lincoln City & Newport | 5.24 | 5.13 | 5.03 | 4.91 | 4.79 | 4.68 | 4.58 | 4.48 | 4.38 | 4.30 | 4.22 | 4.14 | 4.07 | 4.00 | 3.92 | 3.85 | 3.77 | 3.70 | 3.62 | 3.55 | 3.48 |
| Portland | 169.35 | 166.59 | 164.01 | 160.47 | 156.96 | 153.79 | 150.73 | 147.74 | 144.82 | 142.54 | 140.00 | 137.70 | 135.38 | 133.35 | 131.02 | 128.62 | 126.32 | 123.90 | 121.32 | 118.94 | 116.62 |
| Salem | 43.12 | 42.41 | 41.75 | 40.84 | 39.94 | 39.14 | 38.36 | 37.61 | 36.88 | 36.32 | 35.69 | 35.13 | 34.56 | 34.07 | 33.51 | 32.93 | 32.38 | 31.80 | 31.18 | 30.61 | 30.06 |
| Vancouver & Dalles (WA) | 24.44 | 24.02 | 23.63 | 23.12 | 22.62 | 22.16 | 21.72 | 21.29 | 20.87 | 20.54 | 20.17 | 19.84 | 19.51 | 19.21 | 18.88 | 18.55 | 18.22 | 17.89 | 17.53 | 17.20 | 16.89 |
| Total System | 298.53 | 293.45 | 288.74 | 282.38 | 276.10 | 270.43 | 264.97 | 259.65 | 254.48 | 250.44 | 245.97 | 241.92 | 237.85 | 234.30 | 230.25 | 226.10 | 222.13 | 217.97 | 213.53 | 209.45 | 205.50 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.39 | 1.37 | 1.36 | 1.35 | 1.33 | 1.32 | 1.31 | 1.29 | 1.28 | 1.27 | 1.25 | 1.24 | 1.23 | 1.22 | 1.21 | 1.19 | 1.18 | 1.17 | 1.16 | 1.15 |
| Astoria | 0.06 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 |
| Dalles (OR) | 0.25 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 |
| Eugene & Coos Bay | 3.23 | 3.45 | 3.42 | 3.38 | 3.35 | 3.32 | 3.28 | 3.25 | 3.22 | 3.18 | 3.15 | 3.12 | 3.09 | 3.06 | 3.03 | 3.00 | 2.97 | 2.94 | 2.91 | 2.88 | 2.85 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| Portland | 15.81 | 13.95 | 13.81 | 13.67 | 13.53 | 13.40 | 13.26 | 13.13 | 13.00 | 12.87 | 12.74 | 12.61 | 12.49 | 12.36 | 12.24 | 12.12 | 12.00 | 11.88 | 11.76 | 11.64 | 11.52 |
| Salem | 2.38 | 3.82 | 3.78 | 3.74 | 3.70 | 3.66 | 3.63 | 3.59 | 3.56 | 3.52 | 3.49 | 3.45 | 3.42 | 3.38 | 3.35 | 3.31 | 3.28 | 3.25 | 3.22 | 3.18 | 3.15 |
| Vancouver & Dalles (WA) | 1.81 | 1.17 | 1.16 | 1.15 | 1.14 | 1.13 | 1.11 | 1.10 | 1.09 | 1.08 | 1.07 | 1.06 | 1.05 | 1.04 | 1.03 | 1.02 | 1.01 | 1.00 | 0.99 | 0.98 | 0.97 |
| Total System | 24.89 | 24.64 | 24.39 | 24.15 | 23.91 | 23.67 | 23.43 | 23.20 | 22.97 | 22.74 | 22.51 | 22.29 | 22.06 | 21.84 | 21.62 | 21.41 | 21.19 | 20.98 | 20.77 | 20.56 | 20.36 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.85 | 1.84 | 1.82 | 1.80 | 1.78 | 1.76 | 1.75 | 1.73 | 1.71 | 1.69 | 1.68 | 1.66 | 1.64 | 1.63 | 1.61 | 1.59 | 1.58 | 1.56 | 1.55 | 1.53 |
| Astoria | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 |
| Dalles (OR) | 0.61 | 0.60 | 0.60 | 0.59 | 0.59 | 0.58 | 0.57 | 0.57 | 0.56 | 0.56 | 0.55 | 0.55 | 0.54 | 0.54 | 0.53 | 0.53 | 0.52 | 0.51 | 0.51 | 0.50 | 0.50 |
| Eugene & Coos Bay | 3.75 | 3.71 | 3.67 | 3.63 | 3.60 | 3.56 | 3.53 | 3.49 | 3.46 | 3.42 | 3.39 | 3.35 | 3.32 | 3.29 | 3.25 | 3.22 | 3.19 | 3.16 | 3.13 | 3.09 | 3.06 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| Portland | 9.44 | 9.35 | 9.26 | 9.16 | 9.07 | 8.98 | 8.89 | 8.80 | 8.71 | 8.63 | 8.54 | 8.46 | 8.37 | 8.29 | 8.20 | 8.12 | 8.04 | 7.96 | 7.88 | 7.80 | 7.72 |
| Salem | 4.72 | 4.67 | 4.63 | 4.58 | 4.54 | 4.49 | 4.45 | 4.40 | 4.36 | 4.31 | 4.27 | 4.23 | 4.19 | 4.14 | 4.10 | 4.06 | 4.02 | 3.98 | 3.94 | 3.90 | 3.86 |
| Vancouver & Dalles (WA) | 1.59 | 1.57 | 1.56 | 1.54 | 1.52 | 1.51 | 1.49 | 1.48 | 1.46 | 1.45 | 1.44 | 1.42 | 1.41 | 1.39 | 1.38 | 1.37 | 1.35 | 1.34 | 1.32 | 1.31 | 1.30 |
| Total System | 22.47 | 22.25 | 22.02 | 21.80 | 21.58 | 21.37 | 21.16 | 20.94 | 20.73 | 20.53 | 20.32 | 20.12 | 19.92 | 19.72 | 19.52 | 19.33 | 19.13 | 18.94 | 18.75 | 18.56 | 18.38 |

**Annual Demand Total, MDth - Design Year (85% Probability Coldest Winter with 1989 Three Day Peak)**
**Negative Growth Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,992 | 3,950 | 3,903 | 3,841 | 3,796 | 3,723 | 3,669 | 3,615 | 3,577 | 3,520 | 3,473 | 3,431 | 3,402 | 3,350 | 3,307 | 3,263 | 3,234 | 3,176 | 3,128 | 3,084 | 3,055 |
| Astoria | 1,205 | 1,224 | 1,206 | 1,183 | 1,166 | 1,140 | 1,120 | 1,101 | 1,087 | 1,066 | 1,049 | 1,033 | 1,022 | 1,003 | 988 | 972 | 962 | 942 | 926 | 911 | 901 |
| Dalles (OR) | 755 | 772 | 762 | 750 | 741 | 727 | 716 | 705 | 698 | 687 | 678 | 669 | 664 | 654 | 646 | 637 | 632 | 621 | 612 | 604 | 599 |
| Eugene & Coos Bay | 4,804 | 4,842 | 4,783 | 4,710 | 4,658 | 4,570 | 4,505 | 4,442 | 4,400 | 4,330 | 4,275 | 4,225 | 4,194 | 4,130 | 4,080 | 4,030 | 4,000 | 3,931 | 3,879 | 3,830 | 3,799 |
| Lincoln City & Newport | 969 | 950 | 936 | 920 | 907 | 888 | 874 | 859 | 849 | 833 | 821 | 809 | 801 | 786 | 775 | 763 | 755 | 740 | 728 | 717 | 709 |
| Portland | 44,532 | 43,646 | 43,170 | 42,534 | 42,089 | 41,318 | 40,751 | 40,193 | 39,824 | 39,207 | 38,722 | 38,276 | 37,996 | 37,426 | 36,971 | 36,503 | 36,215 | 35,576 | 35,068 | 34,594 | 34,287 |
| Salem | 9,652 | 9,474 | 9,359 | 9,211 | 9,107 | 8,929 | 8,797 | 8,669 | 8,584 | 8,440 | 8,329 | 8,226 | 8,162 | 8,031 | 7,928 | 7,823 | 7,759 | 7,616 | 7,504 | 7,399 | 7,333 |
| Vancouver & Dalles (WA) | 7,291 | 7,130 | 7,036 | 6,918 | 6,831 | 6,693 | 6,588 | 6,485 | 6,412 | 6,302 | 6,213 | 6,130 | 6,073 | 5,972 | 5,890 | 5,806 | 5,749 | 5,640 | 5,552 | 5,469 | 5,411 |
| Total System | 73,201 | 71,988 | 71,156 | 70,067 | 69,296 | 67,988 | 67,020 | 66,070 | 65,432 | 64,384 | 63,559 | 62,799 | 62,314 | 61,351 | 60,584 | 59,797 | 59,304 | 58,242 | 57,396 | 56,608 | 56,093 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,351 | 2,313 | 2,288 | 2,254 | 2,230 | 2,189 | 2,158 | 2,128 | 2,109 | 2,076 | 2,050 | 2,027 | 2,012 | 1,983 | 1,959 | 1,934 | 1,919 | 1,886 | 1,859 | 1,834 | 1,818 |
| Astoria | 648 | 634 | 625 | 613 | 605 | 591 | 580 | 570 | 563 | 552 | 543 | 535 | 529 | 519 | 511 | 503 | 497 | 487 | 478 | 470 | 465 |
| Dalles (OR) | 279 | 274 | 271 | 267 | 263 | 258 | 254 | 250 | 247 | 243 | 240 | 237 | 235 | 231 | 228 | 225 | 223 | 218 | 215 | 212 | 210 |
| Eugene & Coos Bay | 2,084 | 2,047 | 2,022 | 1,990 | 1,968 | 1,929 | 1,901 | 1,873 | 1,855 | 1,823 | 1,799 | 1,777 | 1,763 | 1,734 | 1,712 | 1,689 | 1,675 | 1,643 | 1,619 | 1,596 | 1,581 |
| Lincoln City & Newport | 461 | 452 | 446 | 438 | 432 | 422 | 415 | 408 | 403 | 396 | 390 | 384 | 380 | 374 | 368 | 362 | 359 | 351 | 346 | 340 | 336 |
| Portland | 26,651 | 26,270 | 26,032 | 25,693 | 25,473 | 25,044 | 24,743 | 24,447 | 24,269 | 23,932 | 23,679 | 23,450 | 23,326 | 23,015 | 22,777 | 22,530 | 22,397 | 22,037 | 21,760 | 21,505 | 21,357 |
| Salem | 5,344 | 5,252 | 5,191 | 5,110 | 5,056 | 4,957 | 4,885 | 4,815 | 4,770 | 4,691 | 4,630 | 4,575 | 4,542 | 4,469 | 4,413 | 4,355 | 4,321 | 4,241 | 4,179 | 4,121 | 4,085 |
| Vancouver & Dalles (WA) | 4,765 | 4,680 | 4,620 | 4,542 | 4,485 | 4,395 | 4,326 | 4,259 | 4,212 | 4,140 | 4,083 | 4,029 | 3,994 | 3,928 | 3,875 | 3,821 | 3,785 | 3,714 | 3,656 | 3,602 | 3,565 |
| Total System | 42,583 | 41,923 | 41,495 | 40,907 | 40,512 | 39,784 | 39,263 | 38,751 | 38,429 | 37,854 | 37,414 | 37,013 | 36,781 | 36,252 | 35,842 | 35,418 | 35,176 | 34,577 | 34,111 | 33,679 | 33,417 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,383 | 1,356 | 1,337 | 1,312 | 1,292 | 1,264 | 1,243 | 1,221 | 1,206 | 1,184 | 1,166 | 1,149 | 1,137 | 1,117 | 1,101 | 1,084 | 1,072 | 1,050 | 1,032 | 1,015 | 1,003 |
| Astoria | 548 | 537 | 528 | 517 | 510 | 498 | 489 | 480 | 474 | 465 | 457 | 450 | 445 | 436 | 430 | 423 | 418 | 410 | 403 | 396 | 392 |
| Dalles (OR) | 420 | 411 | 406 | 399 | 394 | 386 | 380 | 374 | 370 | 364 | 359 | 355 | 352 | 347 | 342 | 338 | 335 | 329 | 325 | 320 | 317 |
| Eugene & Coos Bay | 2,137 | 2,099 | 2,072 | 2,037 | 2,013 | 1,972 | 1,943 | 1,914 | 1,895 | 1,864 | 1,841 | 1,819 | 1,806 | 1,779 | 1,758 | 1,737 | 1,725 | 1,696 | 1,673 | 1,653 | 1,641 |
| Lincoln City & Newport | 472 | 462 | 455 | 447 | 441 | 432 | 425 | 418 | 412 | 405 | 399 | 393 | 388 | 381 | 376 | 370 | 366 | 359 | 353 | 347 | 343 |
| Portland | 14,935 | 14,648 | 14,438 | 14,168 | 13,961 | 13,654 | 13,414 | 13,179 | 13,005 | 12,757 | 12,551 | 12,360 | 12,220 | 11,993 | 11,801 | 11,604 | 11,464 | 11,217 | 11,009 | 10,813 | 10,669 |
| Salem | 3,535 | 3,469 | 3,423 | 3,363 | 3,319 | 3,249 | 3,196 | 3,145 | 3,110 | 3,055 | 3,011 | 2,971 | 2,945 | 2,895 | 2,855 | 2,815 | 2,788 | 2,734 | 2,691 | 2,651 | 2,624 |
| Vancouver & Dalles (WA) | 2,256 | 2,214 | 2,183 | 2,145 | 2,116 | 2,072 | 2,038 | 2,004 | 1,980 | 1,944 | 1,915 | 1,887 | 1,867 | 1,835 | 1,808 | 1,780 | 1,760 | 1,726 | 1,697 | 1,670 | 1,651 |
| Total System | 25,685 | 25,197 | 24,842 | 24,389 | 24,046 | 23,528 | 23,127 | 22,736 | 22,451 | 22,038 | 21,698 | 21,383 | 21,160 | 20,784 | 20,470 | 20,150 | 19,928 | 19,520 | 19,182 | 18,866 | 18,640 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 258 | 281 | 279 | 276 | 274 | 270 | 268 | 265 | 263 | 260 | 257 | 255 | 253 | 249 | 247 | 244 | 243 | 240 | 237 | 235 | 233 |
| Astoria | 9 | 54 | 53 | 53 | 52 | 52 | 51 | 51 | 50 | 50 | 49 | 49 | 48 | 48 | 47 | 47 | 46 | 46 | 45 | 45 | 44 |
| Dalles (OR) | 56 | 86 | 85 | 84 | 84 | 83 | 82 | 81 | 80 | 79 | 79 | 78 | 77 | 76 | 76 | 75 | 74 | 73 | 73 | 72 | 71 |
| Eugene & Coos Bay | 583 | 696 | 689 | 682 | 677 | 668 | 662 | 655 | 651 | 642 | 636 | 629 | 625 | 617 | 611 | 605 | 600 | 592 | 587 | 581 | 577 |
| Lincoln City & Newport | 36 | 35 | 35 | 35 | 35 | 34 | 34 | 33 | 33 | 33 | 32 | 32 | 32 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 29 |
| Portland | 2,947 | 2,727 | 2,700 | 2,673 | 2,655 | 2,620 | 2,594 | 2,568 | 2,551 | 2,517 | 2,492 | 2,467 | 2,450 | 2,418 | 2,393 | 2,370 | 2,354 | 2,322 | 2,299 | 2,276 | 2,261 |
| Salem | 774 | 752 | 745 | 737 | 733 | 723 | 716 | 708 | 704 | 694 | 687 | 681 | 676 | 667 | 660 | 654 | 649 | 641 | 634 | 628 | 624 |
| Vancouver & Dalles (WA) | 270 | 236 | 233 | 231 | 230 | 227 | 224 | 222 | 221 | 218 | 215 | 213 | 212 | 209 | 207 | 205 | 203 | 201 | 199 | 197 | 195 |
| Total System | 4,933 | 4,868 | 4,820 | 4,771 | 4,739 | 4,676 | 4,630 | 4,583 | 4,553 | 4,492 | 4,447 | 4,403 | 4,373 | 4,315 | 4,272 | 4,229 | 4,201 | 4,145 | 4,104 | 4,063 | 4,035 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 677 | 670 | 663 | 658 | 650 | 643 | 637 | 632 | 624 | 618 | 612 | 607 | 600 | 594 | 588 | 584 | 576 | 570 | 565 | 561 |
| Astoria | 134 | 132 | 131 | 130 | 129 | 127 | 126 | 125 | 124 | 122 | 121 | 120 | 119 | 117 | 116 | 115 | 114 | 113 | 112 | 110 | 110 |
| Dalles (OR) | 223 | 221 | 218 | 216 | 215 | 212 | 210 | 208 | 206 | 204 | 202 | 200 | 198 | 196 | 194 | 192 | 190 | 188 | 186 | 184 | 183 |
| Eugene & Coos Bay | 1,371 | 1,353 | 1,340 | 1,326 | 1,317 | 1,300 | 1,287 | 1,274 | 1,265 | 1,249 | 1,236 | 1,224 | 1,215 | 1,200 | 1,188 | 1,176 | 1,167 | 1,152 | 1,141 | 1,129 | 1,121 |
| Lincoln City & Newport | 45 | 44 | 44 | 43 | 43 | 42 | 42 | 42 | 41 | 41 | 40 | 40 | 40 | 39 | 39 | 38 | 38 | 38 | 37 | 37 | 37 |
| Portland | 3,456 | 3,413 | 3,378 | 3,345 | 3,320 | 3,278 | 3,245 | 3,213 | 3,189 | 3,149 | 3,117 | 3,086 | 3,064 | 3,025 | 2,995 | 2,965 | 2,943 | 2,906 | 2,877 | 2,848 | 2,827 |
| Salem | 1,728 | 1,706 | 1,689 | 1,672 | 1,660 | 1,639 | 1,623 | 1,606 | 1,595 | 1,574 | 1,559 | 1,543 | 1,532 | 1,512 | 1,497 | 1,482 | 1,472 | 1,453 | 1,438 | 1,424 | 1,414 |
| Vancouver & Dalles (WA) | 581 | 574 | 568 | 562 | 558 | 551 | 546 | 540 | 536 | 529 | 524 | 519 | 515 | 508 | 503 | 498 | 495 | 488 | 484 | 479 | 475 |
| Total System | 8,224 | 8,120 | 8,038 | 7,958 | 7,900 | 7,800 | 7,722 | 7,644 | 7,589 | 7,492 | 7,417 | 7,343 | 7,290 | 7,197 | 7,125 | 7,054 | 7,002 | 6,913 | 6,844 | 6,776 | 6,726 |

**Annual Demand Total, MDth - Normal Year**
**Negative Growth Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,730 | 3,692 | 3,648 | 3,591 | 3,551 | 3,483 | 3,432 | 3,383 | 3,349 | 3,295 | 3,252 | 3,213 | 3,188 | 3,138 | 3,098 | 3,057 | 3,032 | 2,977 | 2,933 | 2,893 | 2,866 |
| Astoria | 1,110 | 1,132 | 1,116 | 1,095 | 1,080 | 1,057 | 1,039 | 1,022 | 1,009 | 990 | 975 | 961 | 951 | 934 | 920 | 906 | 896 | 879 | 864 | 851 | 841 |
| Dalles (OR) | 704 | 721 | 712 | 701 | 693 | 679 | 669 | 660 | 653 | 643 | 634 | 627 | 622 | 612 | 605 | 597 | 592 | 582 | 574 | 566 | 561 |
| Eugene & Coos Bay | 4,491 | 4,537 | 4,483 | 4,416 | 4,369 | 4,289 | 4,229 | 4,171 | 4,132 | 4,068 | 4,018 | 3,972 | 3,942 | 3,884 | 3,838 | 3,792 | 3,764 | 3,701 | 3,653 | 3,608 | 3,579 |
| Lincoln City & Newport | 899 | 882 | 869 | 854 | 843 | 826 | 813 | 800 | 790 | 776 | 765 | 754 | 746 | 733 | 723 | 712 | 704 | 691 | 680 | 670 | 662 |
| Portland | 41,953 | 41,113 | 40,666 | 40,073 | 39,662 | 38,936 | 38,406 | 37,884 | 37,544 | 36,959 | 36,505 | 36,086 | 35,827 | 35,286 | 34,860 | 34,421 | 34,154 | 33,551 | 33,075 | 32,632 | 32,347 |
| Salem | 9,045 | 8,872 | 8,766 | 8,629 | 8,532 | 8,369 | 8,248 | 8,130 | 8,050 | 7,919 | 7,816 | 7,721 | 7,660 | 7,540 | 7,445 | 7,348 | 7,286 | 7,156 | 7,052 | 6,955 | 6,892 |
| Vancouver & Dalles (WA) | 6,843 | 6,693 | 6,607 | 6,498 | 6,419 | 6,290 | 6,193 | 6,098 | 6,032 | 5,928 | 5,845 | 5,768 | 5,717 | 5,622 | 5,545 | 5,467 | 5,416 | 5,314 | 5,231 | 5,154 | 5,102 |
| Total System | 68,774 | 67,642 | 66,867 | 65,858 | 65,148 | 63,930 | 63,031 | 62,148 | 61,560 | 60,579 | 59,810 | 59,101 | 58,651 | 57,749 | 57,034 | 56,300 | 55,844 | 54,851 | 54,064 | 53,329 | 52,852 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,177 | 2,142 | 2,119 | 2,088 | 2,067 | 2,029 | 2,001 | 1,974 | 1,957 | 1,926 | 1,903 | 1,881 | 1,869 | 1,841 | 1,819 | 1,797 | 1,783 | 1,752 | 1,728 | 1,705 | 1,691 |
| Astoria | 588 | 577 | 568 | 558 | 550 | 538 | 529 | 520 | 514 | 504 | 496 | 489 | 484 | 475 | 468 | 460 | 455 | 446 | 438 | 431 | 426 |
| Dalles (OR) | 256 | 252 | 249 | 245 | 242 | 237 | 233 | 230 | 228 | 224 | 221 | 218 | 216 | 213 | 210 | 207 | 205 | 201 | 198 | 195 | 194 |
| Eugene & Coos Bay | 1,923 | 1,890 | 1,867 | 1,839 | 1,818 | 1,783 | 1,757 | 1,732 | 1,715 | 1,687 | 1,665 | 1,645 | 1,632 | 1,606 | 1,585 | 1,564 | 1,551 | 1,523 | 1,501 | 1,480 | 1,467 |
| Lincoln City & Newport | 415 | 408 | 402 | 395 | 390 | 382 | 376 | 370 | 365 | 359 | 353 | 349 | 345 | 339 | 334 | 329 | 326 | 320 | 315 | 310 | 306 |
| Portland | 24,909 | 24,552 | 24,331 | 24,016 | 23,816 | 23,415 | 23,136 | 22,861 | 22,700 | 22,383 | 22,147 | 21,934 | 21,822 | 21,529 | 21,308 | 21,078 | 20,958 | 20,620 | 20,363 | 20,126 | 19,991 |
| Salem | 4,944 | 4,861 | 4,806 | 4,733 | 4,682 | 4,593 | 4,528 | 4,464 | 4,422 | 4,351 | 4,295 | 4,244 | 4,213 | 4,148 | 4,096 | 4,043 | 4,011 | 3,939 | 3,882 | 3,829 | 3,796 |
| Vancouver & Dalles (WA) | 4,436 | 4,356 | 4,301 | 4,230 | 4,180 | 4,095 | 4,033 | 3,971 | 3,930 | 3,863 | 3,809 | 3,761 | 3,729 | 3,668 | 3,619 | 3,569 | 3,537 | 3,470 | 3,417 | 3,368 | 3,335 |
| Total System | 39,648 | 39,038 | 38,643 | 38,104 | 37,744 | 37,072 | 36,593 | 36,122 | 35,829 | 35,296 | 34,890 | 34,520 | 34,309 | 33,817 | 33,439 | 33,048 | 32,828 | 32,272 | 31,842 | 31,444 | 31,206 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,298 | 1,272 | 1,254 | 1,231 | 1,214 | 1,188 | 1,167 | 1,148 | 1,134 | 1,113 | 1,096 | 1,081 | 1,070 | 1,051 | 1,036 | 1,020 | 1,009 | 989 | 972 | 956 | 945 |
| Astoria | 513 | 503 | 495 | 486 | 478 | 468 | 460 | 452 | 446 | 438 | 431 | 424 | 420 | 412 | 406 | 400 | 395 | 388 | 381 | 376 | 371 |
| Dalles (OR) | 393 | 384 | 380 | 373 | 369 | 361 | 356 | 350 | 347 | 341 | 336 | 332 | 330 | 325 | 321 | 316 | 314 | 308 | 304 | 300 | 298 |
| Eugene & Coos Bay | 1,996 | 1,962 | 1,938 | 1,906 | 1,883 | 1,847 | 1,820 | 1,794 | 1,776 | 1,749 | 1,727 | 1,707 | 1,695 | 1,671 | 1,652 | 1,632 | 1,621 | 1,595 | 1,574 | 1,556 | 1,545 |
| Lincoln City & Newport | 448 | 439 | 433 | 425 | 419 | 411 | 404 | 397 | 392 | 385 | 380 | 374 | 370 | 363 | 358 | 352 | 348 | 342 | 336 | 331 | 327 |
| Portland | 14,145 | 13,874 | 13,675 | 13,423 | 13,231 | 12,941 | 12,715 | 12,494 | 12,331 | 12,097 | 11,903 | 11,722 | 11,591 | 11,376 | 11,194 | 11,009 | 10,877 | 10,643 | 10,448 | 10,264 | 10,129 |
| Salem | 3,329 | 3,269 | 3,226 | 3,170 | 3,129 | 3,065 | 3,016 | 2,968 | 2,935 | 2,884 | 2,844 | 2,806 | 2,781 | 2,736 | 2,698 | 2,660 | 2,635 | 2,586 | 2,545 | 2,508 | 2,482 |
| Vancouver & Dalles (WA) | 2,144 | 2,104 | 2,075 | 2,040 | 2,013 | 1,971 | 1,939 | 1,908 | 1,885 | 1,851 | 1,823 | 1,797 | 1,779 | 1,748 | 1,722 | 1,696 | 1,678 | 1,645 | 1,618 | 1,593 | 1,574 |
| Total System | 24,266 | 23,808 | 23,476 | 23,054 | 22,735 | 22,251 | 21,877 | 21,512 | 21,246 | 20,858 | 20,539 | 20,244 | 20,035 | 19,681 | 19,386 | 19,086 | 18,878 | 18,495 | 18,179 | 17,883 | 17,671 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 255 | 277 | 275 | 272 | 270 | 266 | 264 | 261 | 259 | 256 | 253 | 251 | 249 | 246 | 243 | 241 | 239 | 236 | 234 | 231 | 230 |
| Astoria | 9 | 53 | 52 | 52 | 51 | 51 | 50 | 50 | 49 | 49 | 48 | 48 | 47 | 47 | 46 | 46 | 46 | 45 | 45 | 44 | 44 |
| Dalles (OR) | 55 | 85 | 84 | 83 | 82 | 81 | 80 | 80 | 79 | 78 | 77 | 77 | 76 | 75 | 74 | 73 | 73 | 72 | 71 | 71 | 70 |
| Eugene & Coos Bay | 572 | 685 | 678 | 672 | 667 | 658 | 652 | 645 | 641 | 632 | 626 | 620 | 616 | 607 | 601 | 595 | 591 | 583 | 578 | 572 | 568 |
| Lincoln City & Newport | 35 | 35 | 35 | 34 | 34 | 34 | 33 | 33 | 33 | 32 | 32 | 32 | 31 | 31 | 31 | 30 | 30 | 30 | 29 | 29 | 29 |
| Portland | 2,899 | 2,687 | 2,660 | 2,633 | 2,616 | 2,581 | 2,555 | 2,530 | 2,513 | 2,479 | 2,454 | 2,430 | 2,414 | 2,381 | 2,358 | 2,334 | 2,318 | 2,288 | 2,265 | 2,242 | 2,227 |
| Salem | 772 | 741 | 734 | 727 | 722 | 712 | 705 | 698 | 693 | 684 | 677 | 670 | 666 | 657 | 650 | 644 | 640 | 631 | 625 | 619 | 614 |
| Vancouver & Dalles (WA) | 263 | 233 | 230 | 228 | 226 | 223 | 221 | 219 | 217 | 215 | 212 | 210 | 209 | 206 | 204 | 202 | 201 | 198 | 196 | 194 | 193 |
| Total System | 4,860 | 4,796 | 4,748 | 4,700 | 4,669 | 4,607 | 4,561 | 4,515 | 4,485 | 4,425 | 4,381 | 4,337 | 4,308 | 4,251 | 4,208 | 4,166 | 4,138 | 4,083 | 4,042 | 4,002 | 3,975 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 677 | 670 | 663 | 658 | 650 | 643 | 637 | 632 | 624 | 618 | 612 | 607 | 600 | 594 | 588 | 584 | 576 | 570 | 565 | 561 |
| Astoria | 134 | 132 | 131 | 130 | 129 | 127 | 126 | 125 | 124 | 122 | 121 | 120 | 119 | 117 | 116 | 115 | 114 | 113 | 112 | 110 | 110 |
| Dalles (OR) | 223 | 221 | 218 | 216 | 215 | 212 | 210 | 208 | 206 | 204 | 202 | 200 | 198 | 196 | 194 | 192 | 190 | 188 | 186 | 184 | 183 |
| Eugene & Coos Bay | 1,371 | 1,353 | 1,340 | 1,326 | 1,317 | 1,300 | 1,287 | 1,274 | 1,265 | 1,249 | 1,236 | 1,224 | 1,215 | 1,200 | 1,188 | 1,176 | 1,167 | 1,152 | 1,141 | 1,129 | 1,121 |
| Lincoln City & Newport | 45 | 44 | 44 | 43 | 43 | 42 | 42 | 42 | 41 | 41 | 40 | 40 | 40 | 39 | 39 | 38 | 38 | 38 | 37 | 37 | 37 |
| Portland | 3,456 | 3,413 | 3,378 | 3,345 | 3,320 | 3,278 | 3,245 | 3,213 | 3,189 | 3,149 | 3,117 | 3,086 | 3,064 | 3,025 | 2,995 | 2,965 | 2,943 | 2,906 | 2,877 | 2,848 | 2,827 |
| Salem | 1,728 | 1,706 | 1,689 | 1,672 | 1,660 | 1,639 | 1,623 | 1,606 | 1,595 | 1,574 | 1,559 | 1,543 | 1,532 | 1,512 | 1,497 | 1,482 | 1,472 | 1,453 | 1,438 | 1,424 | 1,414 |
| Vancouver & Dalles (WA) | 581 | 574 | 568 | 562 | 558 | 551 | 546 | 540 | 536 | 529 | 524 | 519 | 515 | 508 | 503 | 498 | 495 | 488 | 484 | 479 | 475 |
| Total System | 8,224 | 8,120 | 8,038 | 7,958 | 7,900 | 7,800 | 7,722 | 7,644 | 7,589 | 7,492 | 7,417 | 7,343 | 7,290 | 7,197 | 7,125 | 7,054 | 7,002 | 6,913 | 6,844 | 6,776 | 6,726 |

# Appendix 2-11: Detailed Results – Negative Short Term Growth Scenario

**Peak Day Demand, MDTh/day**
**Negative Growth (Short Term Only) Demand Scenario**
**Peak Day = February 3**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 50.92 | 50.36 | 49.65 | 48.70 | 47.76 | 46.91 | 46.45 | 46.38 | 46.69 | 47.55 | 48.32 | 49.14 | 49.92 | 50.79 | 51.53 | 52.23 | 52.94 | 53.58 | 54.13 | 54.72 | 55.32 |
| Astoria | 19.04 | 18.80 | 18.38 | 17.88 | 17.39 | 16.94 | 16.64 | 16.47 | 16.42 | 16.56 | 16.67 | 16.80 | 16.92 | 17.06 | 17.17 | 17.26 | 17.35 | 17.43 | 17.47 | 17.54 | 17.60 |
| Dalles (OR) | 9.08 | 9.12 | 8.99 | 8.82 | 8.64 | 8.49 | 8.41 | 8.44 | 8.55 | 8.78 | 9.00 | 9.22 | 9.44 | 9.67 | 9.88 | 10.08 | 10.28 | 10.46 | 10.62 | 10.80 | 10.97 |
| Eugene & Coos Bay | 60.81 | 60.07 | 59.13 | 57.91 | 56.71 | 55.62 | 55.04 | 54.98 | 55.43 | 56.59 | 57.64 | 58.75 | 59.82 | 60.98 | 62.00 | 62.97 | 63.95 | 64.85 | 65.64 | 66.49 | 67.34 |
| Lincoln City & Newport | 14.56 | 14.25 | 13.97 | 13.62 | 13.28 | 12.97 | 12.79 | 12.75 | 12.86 | 13.14 | 13.39 | 13.65 | 13.90 | 14.16 | 14.39 | 14.60 | 14.81 | 14.99 | 15.15 | 15.31 | 15.47 |
| Portland | 541.33 | 533.00 | 526.86 | 518.08 | 509.33 | 501.42 | 497.22 | 496.26 | 498.55 | 505.86 | 512.29 | 519.31 | 526.15 | 533.85 | 540.42 | 546.61 | 553.00 | 558.77 | 563.68 | 569.17 | 574.75 |
| Salem | 126.07 | 125.61 | 123.79 | 121.36 | 118.97 | 116.78 | 115.59 | 115.36 | 116.07 | 118.13 | 119.97 | 121.93 | 123.82 | 125.90 | 127.69 | 129.38 | 131.09 | 132.63 | 133.96 | 135.40 | 136.85 |
| Vancouver & Dalles (WA) | 93.47 | 91.32 | 89.89 | 88.02 | 86.18 | 84.50 | 83.81 | 84.06 | 85.24 | 87.69 | 89.97 | 92.33 | 94.63 | 97.08 | 99.30 | 101.42 | 103.56 | 105.57 | 107.39 | 109.29 | 111.20 |
| Total System | 915.29 | 902.53 | 890.67 | 874.40 | 858.26 | 843.64 | 835.95 | 834.69 | 839.80 | 854.33 | 867.27 | 881.13 | 894.61 | 909.49 | 922.38 | 934.55 | 946.98 | 958.28 | 968.04 | 978.72 | 989.50 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 32.93 | 32.48 | 32.05 | 31.48 | 30.91 | 30.39 | 30.16 | 30.24 | 30.60 | 31.37 | 32.08 | 32.81 | 33.53 | 34.29 | 34.97 | 35.61 | 36.26 | 36.87 | 37.41 | 37.97 | 38.54 |
| Astoria | 11.68 | 11.42 | 11.18 | 10.90 | 10.61 | 10.35 | 10.20 | 10.13 | 10.17 | 10.32 | 10.46 | 10.60 | 10.74 | 10.89 | 11.01 | 11.13 | 11.24 | 11.34 | 11.41 | 11.50 | 11.59 |
| Dalles (OR) | 3.91 | 3.85 | 3.80 | 3.72 | 3.65 | 3.58 | 3.55 | 3.58 | 3.66 | 3.80 | 3.94 | 4.08 | 4.22 | 4.36 | 4.49 | 4.62 | 4.75 | 4.87 | 4.98 | 5.10 | 5.21 |
| Eugene & Coos Bay | 30.24 | 29.77 | 29.33 | 28.75 | 28.18 | 27.66 | 27.43 | 27.52 | 27.92 | 28.73 | 29.49 | 30.27 | 31.03 | 31.84 | 32.57 | 33.26 | 33.96 | 34.62 | 35.22 | 35.84 | 36.46 |
| Lincoln City & Newport | 9.15 | 8.95 | 8.77 | 8.55 | 8.33 | 8.12 | 8.01 | 8.01 | 8.11 | 8.34 | 8.55 | 8.76 | 8.97 | 9.18 | 9.38 | 9.56 | 9.74 | 9.90 | 10.05 | 10.20 | 10.35 |
| Portland | 356.17 | 352.46 | 349.05 | 343.94 | 338.83 | 334.23 | 332.58 | 333.49 | 336.95 | 344.19 | 350.83 | 357.85 | 364.73 | 372.19 | 378.88 | 385.30 | 391.83 | 397.92 | 403.41 | 409.26 | 415.17 |
| Salem | 80.57 | 79.38 | 78.27 | 76.79 | 75.32 | 73.98 | 73.36 | 73.44 | 74.23 | 75.98 | 77.59 | 79.26 | 80.90 | 82.65 | 84.21 | 85.70 | 87.21 | 88.61 | 89.86 | 91.18 | 92.50 |
| Vancouver & Dalles (WA) | 67.23 | 66.12 | 65.10 | 63.75 | 62.42 | 61.22 | 60.76 | 61.01 | 61.99 | 63.93 | 65.73 | 67.59 | 69.42 | 71.34 | 73.09 | 74.77 | 76.47 | 78.06 | 79.51 | 81.02 | 82.53 |
| Total System | 591.88 | 584.43 | 577.54 | 567.87 | 558.25 | 549.54 | 546.05 | 547.42 | 553.62 | 566.67 | 578.67 | 591.24 | 603.53 | 616.73 | 628.59 | 639.95 | 651.46 | 662.18 | 671.84 | 682.07 | 692.35 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.80 | 16.50 | 16.23 | 15.87 | 15.51 | 15.19 | 14.96 | 14.82 | 14.77 | 14.86 | 14.92 | 15.00 | 15.07 | 15.17 | 15.23 | 15.28 | 15.33 | 15.37 | 15.37 | 15.40 | 15.43 |
| Astoria | 7.31 | 7.12 | 6.95 | 6.74 | 6.53 | 6.35 | 6.20 | 6.09 | 6.02 | 6.00 | 5.97 | 5.95 | 5.94 | 5.93 | 5.91 | 5.89 | 5.87 | 5.84 | 5.81 | 5.79 | 5.76 |
| Dalles (OR) | 4.92 | 4.82 | 4.75 | 4.66 | 4.56 | 4.48 | 4.44 | 4.43 | 4.47 | 4.56 | 4.64 | 4.72 | 4.80 | 4.89 | 4.96 | 5.03 | 5.10 | 5.16 | 5.21 | 5.27 | 5.32 |
| Eugene & Coos Bay | 27.35 | 26.85 | 26.39 | 25.78 | 25.18 | 24.64 | 24.32 | 24.18 | 24.24 | 24.58 | 24.86 | 25.18 | 25.48 | 25.83 | 26.12 | 26.38 | 26.65 | 26.89 | 27.08 | 27.29 | 27.52 |
| Lincoln City & Newport | 5.24 | 5.13 | 5.03 | 4.91 | 4.79 | 4.68 | 4.62 | 4.59 | 4.59 | 4.64 | 4.69 | 4.73 | 4.77 | 4.82 | 4.85 | 4.88 | 4.91 | 4.93 | 4.94 | 4.95 | 4.96 |
| Portland | 169.35 | 166.59 | 164.01 | 160.47 | 156.96 | 153.79 | 151.33 | 149.52 | 148.35 | 148.40 | 148.16 | 148.13 | 148.05 | 148.27 | 148.12 | 147.87 | 147.69 | 147.34 | 146.74 | 146.34 | 145.99 |
| Salem | 43.12 | 42.41 | 41.75 | 40.84 | 39.94 | 39.14 | 38.59 | 38.29 | 38.22 | 38.52 | 38.75 | 39.02 | 39.27 | 39.59 | 39.81 | 39.99 | 40.19 | 40.33 | 40.40 | 40.51 | 40.63 |
| Vancouver & Dalles (WA) | 24.44 | 24.02 | 23.63 | 23.12 | 22.62 | 22.16 | 21.94 | 21.93 | 22.14 | 22.65 | 23.12 | 23.61 | 24.09 | 24.61 | 25.08 | 25.52 | 25.96 | 26.38 | 26.74 | 27.13 | 27.53 |
| Total System | 298.53 | 293.45 | 288.74 | 282.38 | 276.10 | 270.43 | 266.39 | 263.86 | 262.79 | 264.21 | 265.10 | 266.34 | 267.47 | 269.11 | 270.08 | 270.84 | 271.71 | 272.23 | 272.29 | 272.68 | 273.14 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.39 | 1.37 | 1.36 | 1.35 | 1.33 | 1.32 | 1.32 | 1.32 | 1.32 | 1.32 | 1.33 | 1.33 | 1.33 | 1.33 | 1.34 | 1.34 | 1.34 | 1.35 | 1.35 | 1.35 |
| Astoria | 0.06 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| Dalles (OR) | 0.25 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.44 |
| Eugene & Coos Bay | 3.23 | 3.45 | 3.42 | 3.38 | 3.35 | 3.32 | 3.29 | 3.28 | 3.28 | 3.28 | 3.29 | 3.30 | 3.31 | 3.31 | 3.32 | 3.33 | 3.33 | 3.34 | 3.35 | 3.36 | 3.36 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Portland | 15.81 | 13.95 | 13.81 | 13.67 | 13.53 | 13.40 | 13.31 | 13.25 | 13.24 | 13.27 | 13.30 | 13.33 | 13.36 | 13.39 | 13.42 | 13.45 | 13.48 | 13.51 | 13.54 | 13.57 | 13.60 |
| Salem | 2.38 | 3.82 | 3.78 | 3.74 | 3.70 | 3.66 | 3.64 | 3.63 | 3.62 | 3.63 | 3.64 | 3.65 | 3.65 | 3.66 | 3.67 | 3.68 | 3.69 | 3.69 | 3.70 | 3.71 | 3.72 |
| Vancouver & Dalles (WA) | 1.81 | 1.17 | 1.16 | 1.15 | 1.14 | 1.13 | 1.12 | 1.11 | 1.11 | 1.12 | 1.12 | 1.12 | 1.12 | 1.13 | 1.13 | 1.13 | 1.13 | 1.14 | 1.14 | 1.14 | 1.14 |
| Total System | 24.89 | 24.64 | 24.39 | 24.15 | 23.91 | 23.67 | 23.51 | 23.41 | 23.39 | 23.45 | 23.50 | 23.55 | 23.60 | 23.65 | 23.70 | 23.76 | 23.81 | 23.86 | 23.91 | 23.97 | 24.02 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.85 | 1.84 | 1.82 | 1.80 | 1.78 | 1.77 | 1.76 | 1.76 | 1.76 | 1.77 | 1.77 | 1.78 | 1.78 | 1.78 | 1.79 | 1.79 | 1.80 | 1.80 | 1.80 | 1.81 |
| Astoria | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 |
| Dalles (OR) | 0.61 | 0.60 | 0.60 | 0.59 | 0.59 | 0.58 | 0.58 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.58 | 0.59 | 0.59 | 0.59 | 0.59 |
| Eugene & Coos Bay | 3.75 | 3.71 | 3.67 | 3.63 | 3.60 | 3.56 | 3.54 | 3.52 | 3.52 | 3.53 | 3.54 | 3.54 | 3.55 | 3.56 | 3.57 | 3.57 | 3.58 | 3.59 | 3.60 | 3.61 | 3.61 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| Portland | 9.44 | 9.35 | 9.26 | 9.16 | 9.07 | 8.98 | 8.92 | 8.88 | 8.88 | 8.90 | 8.92 | 8.94 | 8.95 | 8.97 | 8.99 | 9.01 | 9.03 | 9.05 | 9.07 | 9.09 | 9.11 |
| Salem | 4.72 | 4.67 | 4.63 | 4.58 | 4.54 | 4.49 | 4.46 | 4.44 | 4.44 | 4.45 | 4.46 | 4.47 | 4.48 | 4.49 | 4.50 | 4.51 | 4.52 | 4.53 | 4.54 | 4.55 | 4.56 |
| Vancouver & Dalles (WA) | 1.59 | 1.57 | 1.56 | 1.54 | 1.52 | 1.51 | 1.50 | 1.49 | 1.49 | 1.50 | 1.50 | 1.50 | 1.51 | 1.51 | 1.51 | 1.52 | 1.52 | 1.52 | 1.53 | 1.53 | 1.53 |
| Total System | 22.47 | 22.25 | 22.02 | 21.80 | 21.58 | 21.37 | 21.22 | 21.14 | 21.12 | 21.17 | 21.21 | 21.26 | 21.31 | 21.35 | 21.40 | 21.45 | 21.49 | 21.54 | 21.59 | 21.64 | 21.68 |

**Annual Demand Total, MDth - Design Year (85% Probability Coldest Winter with 1989 Three Day Peak)**
**Negative Growth (Short Term Only) Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,992 | 3,950 | 3,903 | 3,841 | 3,796 | 3,723 | 3,696 | 3,697 | 3,742 | 3,793 | 3,855 | 3,920 | 4,001 | 4,052 | 4,113 | 4,172 | 4,250 | 4,287 | 4,337 | 4,391 | 4,463 |
| Astoria | 1,205 | 1,224 | 1,206 | 1,183 | 1,166 | 1,140 | 1,129 | 1,126 | 1,138 | 1,150 | 1,166 | 1,183 | 1,205 | 1,216 | 1,232 | 1,247 | 1,268 | 1,276 | 1,289 | 1,303 | 1,322 |
| Dalles (OR) | 755 | 772 | 762 | 750 | 741 | 727 | 722 | 724 | 737 | 753 | 771 | 789 | 810 | 825 | 842 | 859 | 880 | 892 | 906 | 922 | 941 |
| Eugene & Coos Bay | 4,804 | 4,842 | 4,783 | 4,710 | 4,658 | 4,570 | 4,542 | 4,554 | 4,627 | 4,708 | 4,805 | 4,905 | 5,026 | 5,105 | 5,201 | 5,293 | 5,411 | 5,474 | 5,557 | 5,642 | 5,754 |
| Lincoln City & Newport | 969 | 950 | 936 | 920 | 907 | 888 | 881 | 882 | 895 | 911 | 929 | 948 | 970 | 985 | 1,003 | 1,020 | 1,042 | 1,054 | 1,069 | 1,084 | 1,104 |
| Portland | 44,532 | 43,646 | 43,170 | 42,534 | 42,089 | 41,318 | 41,025 | 40,991 | 41,401 | 41,810 | 42,351 | 42,929 | 43,692 | 44,116 | 44,668 | 45,196 | 45,943 | 46,238 | 46,687 | 47,171 | 47,878 |
| Salem | 9,652 | 9,474 | 9,359 | 9,211 | 9,107 | 8,929 | 8,864 | 8,870 | 8,988 | 9,114 | 9,270 | 9,433 | 9,639 | 9,763 | 9,918 | 10,067 | 10,266 | 10,358 | 10,487 | 10,622 | 10,810 |
| Vancouver & Dalles (WA) | 7,291 | 7,130 | 7,036 | 6,918 | 6,831 | 6,693 | 6,661 | 6,704 | 6,850 | 7,033 | 7,235 | 7,442 | 7,680 | 7,859 | 8,059 | 8,253 | 8,484 | 8,635 | 8,811 | 8,992 | 9,212 |
| Total System | 73,201 | 71,988 | 71,156 | 70,067 | 69,296 | 67,988 | 67,520 | 67,547 | 68,378 | 69,272 | 70,382 | 71,548 | 73,022 | 73,923 | 75,036 | 76,106 | 77,544 | 78,214 | 79,143 | 80,127 | 81,485 |
| | | 71,985 | 71,153 | 70,064 | 69,293 | 67,985 | 67,517 | 67,544 | 68,375 | 69,269 | 70,379 | 71,545 | 73,019 | 73,920 | 75,033 | 76,103 | 77,540 | 78,210 | 79,139 | 80,123 | 81,481 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,351 | 2,313 | 2,288 | 2,254 | 2,230 | 2,189 | 2,178 | 2,188 | 2,228 | 2,276 | 2,330 | 2,386 | 2,451 | 2,498 | 2,551 | 2,603 | 2,667 | 2,704 | 2,750 | 2,797 | 2,857 |
| Astoria | 648 | 634 | 625 | 613 | 605 | 591 | 586 | 586 | 595 | 604 | 616 | 629 | 644 | 653 | 665 | 676 | 690 | 697 | 707 | 717 | 730 |
| Dalles (OR) | 279 | 274 | 271 | 267 | 263 | 258 | 257 | 260 | 268 | 279 | 290 | 301 | 314 | 324 | 335 | 346 | 359 | 368 | 378 | 388 | 400 |
| Eugene & Coos Bay | 2,084 | 2,047 | 2,022 | 1,990 | 1,968 | 1,929 | 1,920 | 1,932 | 1,977 | 2,030 | 2,090 | 2,152 | 2,223 | 2,275 | 2,334 | 2,392 | 2,462 | 2,505 | 2,557 | 2,611 | 2,678 |
| Lincoln City & Newport | 461 | 452 | 446 | 438 | 432 | 422 | 420 | 423 | 433 | 447 | 462 | 477 | 494 | 507 | 522 | 536 | 552 | 563 | 576 | 589 | 605 |
| Portland | 26,651 | 26,270 | 26,032 | 25,693 | 25,473 | 25,044 | 24,954 | 25,058 | 25,475 | 25,922 | 26,454 | 27,009 | 27,687 | 28,141 | 28,678 | 29,198 | 29,867 | 30,229 | 30,693 | 31,181 | 31,822 |
| Salem | 5,344 | 5,252 | 5,191 | 5,110 | 5,056 | 4,957 | 4,930 | 4,952 | 5,047 | 5,154 | 5,278 | 5,407 | 5,561 | 5,666 | 5,790 | 5,909 | 6,061 | 6,145 | 6,252 | 6,363 | 6,507 |
| Vancouver & Dalles (WA) | 4,765 | 4,680 | 4,620 | 4,542 | 4,485 | 4,395 | 4,377 | 4,412 | 4,520 | 4,655 | 4,802 | 4,954 | 5,126 | 5,258 | 5,404 | 5,546 | 5,714 | 5,826 | 5,955 | 6,088 | 6,248 |
| Total System | 42,583 | 41,923 | 41,495 | 40,907 | 40,512 | 39,784 | 39,622 | 39,811 | 40,543 | 41,367 | 42,323 | 43,314 | 44,501 | 45,323 | 46,279 | 47,206 | 48,372 | 49,037 | 49,867 | 50,733 | 51,847 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,383 | 1,356 | 1,337 | 1,312 | 1,292 | 1,264 | 1,249 | 1,241 | 1,245 | 1,250 | 1,257 | 1,265 | 1,279 | 1,284 | 1,291 | 1,298 | 1,310 | 1,311 | 1,314 | 1,320 | 1,331 |
| Astoria | 548 | 537 | 528 | 517 | 510 | 498 | 492 | 489 | 492 | 494 | 498 | 503 | 509 | 512 | 516 | 520 | 526 | 527 | 530 | 534 | 540 |
| Dalles (OR) | 420 | 411 | 406 | 399 | 394 | 386 | 383 | 383 | 387 | 392 | 399 | 405 | 413 | 418 | 424 | 430 | 437 | 441 | 445 | 450 | 457 |
| Eugene & Coos Bay | 2,137 | 2,099 | 2,072 | 2,037 | 2,013 | 1,972 | 1,958 | 1,960 | 1,987 | 2,016 | 2,051 | 2,088 | 2,134 | 2,162 | 2,197 | 2,230 | 2,274 | 2,296 | 2,324 | 2,354 | 2,396 |
| Lincoln City & Newport | 472 | 462 | 455 | 447 | 441 | 432 | 427 | 425 | 428 | 430 | 433 | 437 | 442 | 444 | 447 | 450 | 455 | 456 | 458 | 461 | 465 |
| Portland | 14,935 | 14,648 | 14,438 | 14,168 | 13,961 | 13,654 | 13,469 | 13,341 | 13,328 | 13,293 | 13,296 | 13,313 | 13,384 | 13,358 | 13,366 | 13,368 | 13,432 | 13,368 | 13,347 | 13,337 | 13,389 |
| Salem | 3,535 | 3,469 | 3,423 | 3,363 | 3,319 | 3,249 | 3,216 | 3,203 | 3,225 | 3,245 | 3,275 | 3,307 | 3,355 | 3,375 | 3,404 | 3,432 | 3,476 | 3,484 | 3,505 | 3,528 | 3,567 |
| Vancouver & Dalles (WA) | 2,256 | 2,214 | 2,183 | 2,145 | 2,116 | 2,072 | 2,059 | 2,067 | 2,106 | 2,154 | 2,208 | 2,263 | 2,327 | 2,375 | 2,428 | 2,479 | 2,542 | 2,581 | 2,627 | 2,675 | 2,734 |
| Total System | 25,685 | 25,197 | 24,842 | 24,389 | 24,046 | 23,528 | 23,254 | 23,111 | 23,197 | 23,273 | 23,417 | 23,582 | 23,843 | 23,927 | 24,074 | 24,207 | 24,452 | 24,463 | 24,551 | 24,659 | 24,877 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 258 | 281 | 279 | 276 | 274 | 270 | 268 | 267 | 268 | 268 | 268 | 269 | 270 | 270 | 271 | 271 | 273 | 273 | 273 | 274 | 275 |
| Astoria | 9 | 54 | 53 | 53 | 52 | 52 | 51 | 51 | 51 | 51 | 51 | 51 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 |
| Dalles (OR) | 56 | 86 | 85 | 84 | 84 | 83 | 82 | 82 | 82 | 82 | 82 | 82 | 83 | 83 | 83 | 83 | 83 | 84 | 84 | 84 | 84 |
| Eugene & Coos Bay | 583 | 696 | 689 | 682 | 677 | 668 | 664 | 661 | 663 | 662 | 664 | 665 | 669 | 668 | 669 | 671 | 675 | 674 | 675 | 677 | 681 |
| Lincoln City & Newport | 36 | 35 | 35 | 35 | 35 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 35 | 35 |
| Portland | 2,947 | 2,727 | 2,700 | 2,673 | 2,655 | 2,620 | 2,602 | 2,592 | 2,598 | 2,595 | 2,601 | 2,607 | 2,621 | 2,618 | 2,624 | 2,630 | 2,644 | 2,641 | 2,647 | 2,653 | 2,667 |
| Salem | 774 | 752 | 745 | 737 | 733 | 723 | 718 | 715 | 717 | 716 | 718 | 719 | 723 | 722 | 724 | 725 | 730 | 729 | 730 | 732 | 736 |
| Vancouver & Dalles (WA) | 270 | 236 | 233 | 231 | 230 | 227 | 225 | 224 | 225 | 224 | 225 | 225 | 227 | 226 | 227 | 227 | 229 | 228 | 229 | 229 | 231 |
| Total System | 4,933 | 4,868 | 4,820 | 4,771 | 4,739 | 4,676 | 4,644 | 4,626 | 4,637 | 4,632 | 4,642 | 4,652 | 4,678 | 4,673 | 4,683 | 4,693 | 4,719 | 4,714 | 4,725 | 4,735 | 4,761 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 677 | 670 | 663 | 658 | 650 | 645 | 643 | 644 | 644 | 645 | 647 | 650 | 649 | 651 | 652 | 656 | 655 | 657 | 658 | 661 |
| Astoria | 134 | 132 | 131 | 130 | 129 | 127 | 126 | 126 | 126 | 126 | 126 | 127 | 127 | 127 | 127 | 128 | 128 | 128 | 128 | 129 | 129 |
| Dalles (OR) | 223 | 221 | 218 | 216 | 215 | 212 | 210 | 210 | 210 | 210 | 210 | 211 | 212 | 212 | 212 | 213 | 214 | 214 | 214 | 215 | 216 |
| Eugene & Coos Bay | 1,371 | 1,353 | 1,340 | 1,326 | 1,317 | 1,300 | 1,291 | 1,286 | 1,288 | 1,288 | 1,290 | 1,293 | 1,300 | 1,299 | 1,302 | 1,305 | 1,311 | 1,310 | 1,313 | 1,316 | 1,323 |
| Lincoln City & Newport | 45 | 44 | 44 | 43 | 43 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 43 | 43 | 43 | 43 | 43 | 43 |
| Portland | 3,456 | 3,413 | 3,378 | 3,345 | 3,320 | 3,278 | 3,255 | 3,243 | 3,249 | 3,247 | 3,254 | 3,261 | 3,277 | 3,276 | 3,283 | 3,290 | 3,306 | 3,305 | 3,312 | 3,319 | 3,336 |
| Salem | 1,728 | 1,706 | 1,689 | 1,672 | 1,660 | 1,639 | 1,628 | 1,621 | 1,624 | 1,623 | 1,627 | 1,631 | 1,639 | 1,638 | 1,641 | 1,645 | 1,653 | 1,652 | 1,656 | 1,660 | 1,668 |
| Vancouver & Dalles (WA) | 581 | 574 | 568 | 562 | 558 | 551 | 547 | 545 | 546 | 546 | 547 | 548 | 551 | 551 | 552 | 553 | 556 | 556 | 557 | 558 | 561 |
| Total System | 8,224 | 8,120 | 8,038 | 7,958 | 7,900 | 7,800 | 7,745 | 7,715 | 7,730 | 7,726 | 7,743 | 7,760 | 7,798 | 7,794 | 7,811 | 7,828 | 7,867 | 7,863 | 7,880 | 7,897 | 7,936 |

**Annual Demand Total, MDth - Normal Year**
**Negative Growth (Short Term Only) Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,730 | 3,692 | 3,648 | 3,591 | 3,551 | 3,483 | 3,458 | 3,459 | 3,502 | 3,549 | 3,608 | 3,668 | 3,745 | 3,792 | 3,849 | 3,904 | 3,978 | 4,013 | 4,060 | 4,110 | 4,179 |
| Astoria | 1,110 | 1,132 | 1,116 | 1,095 | 1,080 | 1,057 | 1,047 | 1,046 | 1,056 | 1,069 | 1,084 | 1,100 | 1,120 | 1,133 | 1,148 | 1,162 | 1,182 | 1,191 | 1,204 | 1,217 | 1,235 |
| Dalles (OR) | 704 | 721 | 712 | 701 | 693 | 679 | 675 | 677 | 690 | 704 | 720 | 737 | 757 | 771 | 787 | 803 | 822 | 833 | 847 | 861 | 880 |
| Eugene & Coos Bay | 4,491 | 4,537 | 4,483 | 4,416 | 4,369 | 4,289 | 4,263 | 4,276 | 4,344 | 4,422 | 4,514 | 4,608 | 4,720 | 4,797 | 4,887 | 4,975 | 5,084 | 5,147 | 5,225 | 5,306 | 5,410 |
| Lincoln City & Newport | 899 | 882 | 869 | 854 | 843 | 826 | 820 | 821 | 832 | 847 | 865 | 882 | 903 | 917 | 934 | 950 | 969 | 981 | 996 | 1,010 | 1,029 |
| Portland | 41,953 | 41,113 | 40,666 | 40,073 | 39,662 | 38,936 | 38,664 | 38,634 | 39,026 | 39,407 | 39,917 | 40,461 | 41,184 | 41,578 | 42,098 | 42,596 | 43,305 | 43,580 | 44,005 | 44,464 | 45,136 |
| Salem | 9,045 | 8,872 | 8,766 | 8,629 | 8,532 | 8,369 | 8,311 | 8,318 | 8,428 | 8,549 | 8,697 | 8,850 | 9,041 | 9,161 | 9,307 | 9,448 | 9,633 | 9,724 | 9,847 | 9,975 | 10,150 |
| Vancouver & Dalles (WA) | 6,843 | 6,693 | 6,607 | 6,498 | 6,419 | 6,290 | 6,262 | 6,303 | 6,444 | 6,616 | 6,807 | 7,003 | 7,229 | 7,398 | 7,587 | 7,771 | 7,992 | 8,134 | 8,302 | 8,474 | 8,685 |
| Total System | 68,774 | 67,642 | 66,867 | 65,858 | 65,148 | 63,930 | 63,499 | 63,534 | 64,322 | 65,163 | 66,211 | 67,310 | 68,700 | 69,547 | 70,597 | 71,609 | 72,966 | 73,602 | 74,485 | 75,417 | 76,704 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,177 | 2,142 | 2,119 | 2,088 | 2,067 | 2,029 | 2,019 | 2,029 | 2,067 | 2,111 | 2,162 | 2,214 | 2,275 | 2,318 | 2,368 | 2,416 | 2,476 | 2,511 | 2,554 | 2,598 | 2,655 |
| Astoria | 588 | 577 | 568 | 558 | 550 | 538 | 534 | 535 | 543 | 552 | 563 | 575 | 589 | 598 | 609 | 619 | 633 | 640 | 649 | 659 | 671 |
| Dalles (OR) | 256 | 252 | 249 | 245 | 242 | 237 | 236 | 239 | 246 | 256 | 267 | 277 | 289 | 299 | 309 | 319 | 331 | 339 | 349 | 358 | 369 |
| Eugene & Coos Bay | 1,923 | 1,890 | 1,867 | 1,839 | 1,818 | 1,783 | 1,775 | 1,787 | 1,829 | 1,879 | 1,935 | 1,992 | 2,058 | 2,108 | 2,163 | 2,217 | 2,281 | 2,323 | 2,372 | 2,423 | 2,484 |
| Lincoln City & Newport | 415 | 408 | 402 | 395 | 390 | 382 | 380 | 383 | 392 | 405 | 419 | 433 | 449 | 461 | 475 | 488 | 503 | 513 | 525 | 538 | 552 |
| Portland | 24,909 | 24,552 | 24,331 | 24,016 | 23,816 | 23,415 | 23,334 | 23,433 | 23,828 | 24,246 | 24,745 | 25,266 | 25,905 | 26,328 | 26,832 | 27,322 | 27,954 | 28,291 | 28,730 | 29,189 | 29,796 |
| Salem | 4,944 | 4,861 | 4,806 | 4,733 | 4,682 | 4,593 | 4,570 | 4,591 | 4,679 | 4,780 | 4,897 | 5,017 | 5,160 | 5,260 | 5,376 | 5,488 | 5,628 | 5,710 | 5,811 | 5,915 | 6,049 |
| Vancouver & Dalles (WA) | 4,436 | 4,356 | 4,301 | 4,230 | 4,180 | 4,095 | 4,081 | 4,114 | 4,217 | 4,343 | 4,482 | 4,624 | 4,787 | 4,911 | 5,048 | 5,182 | 5,342 | 5,446 | 5,569 | 5,694 | 5,847 |
| Total System | 39,648 | 39,038 | 38,643 | 38,104 | 37,744 | 37,072 | 36,928 | 37,110 | 37,801 | 38,572 | 39,470 | 40,399 | 41,513 | 42,283 | 43,180 | 44,052 | 45,148 | 45,774 | 46,558 | 47,374 | 48,423 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,298 | 1,272 | 1,254 | 1,231 | 1,214 | 1,188 | 1,174 | 1,167 | 1,171 | 1,174 | 1,182 | 1,190 | 1,203 | 1,207 | 1,214 | 1,221 | 1,233 | 1,233 | 1,237 | 1,242 | 1,253 |
| Astoria | 513 | 503 | 495 | 486 | 478 | 468 | 463 | 461 | 463 | 466 | 470 | 475 | 481 | 484 | 488 | 492 | 498 | 500 | 503 | 507 | 512 |
| Dalles (OR) | 393 | 384 | 380 | 373 | 369 | 361 | 358 | 358 | 362 | 367 | 373 | 379 | 386 | 391 | 396 | 402 | 409 | 412 | 416 | 421 | 427 |
| Eugene & Coos Bay | 1,996 | 1,962 | 1,938 | 1,906 | 1,883 | 1,847 | 1,835 | 1,838 | 1,863 | 1,891 | 1,925 | 1,960 | 2,003 | 2,032 | 2,065 | 2,097 | 2,139 | 2,160 | 2,188 | 2,217 | 2,256 |
| Lincoln City & Newport | 448 | 439 | 433 | 425 | 419 | 411 | 406 | 405 | 407 | 409 | 412 | 416 | 420 | 422 | 425 | 428 | 433 | 434 | 436 | 439 | 443 |
| Portland | 14,145 | 13,874 | 13,675 | 13,423 | 13,231 | 12,941 | 12,767 | 12,648 | 12,639 | 12,605 | 12,610 | 12,627 | 12,697 | 12,671 | 12,681 | 12,684 | 12,747 | 12,687 | 12,668 | 12,661 | 12,712 |
| Salem | 3,329 | 3,269 | 3,226 | 3,170 | 3,129 | 3,065 | 3,034 | 3,023 | 3,043 | 3,064 | 3,093 | 3,125 | 3,169 | 3,189 | 3,218 | 3,245 | 3,286 | 3,296 | 3,316 | 3,339 | 3,376 |
| Vancouver & Dalles (WA) | 2,144 | 2,104 | 2,075 | 2,040 | 2,013 | 1,971 | 1,959 | 1,968 | 2,005 | 2,051 | 2,104 | 2,157 | 2,219 | 2,264 | 2,315 | 2,365 | 2,425 | 2,462 | 2,507 | 2,553 | 2,610 |
| Total System | 24,266 | 23,808 | 23,476 | 23,054 | 22,735 | 22,251 | 21,997 | 21,867 | 21,953 | 22,028 | 22,169 | 22,328 | 22,578 | 22,661 | 22,803 | 22,933 | 23,169 | 23,184 | 23,273 | 23,379 | 23,590 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 255 | 277 | 275 | 272 | 270 | 266 | 265 | 264 | 264 | 264 | 264 | 265 | 267 | 266 | 267 | 267 | 269 | 269 | 269 | 270 | 271 |
| Astoria | 9 | 53 | 52 | 52 | 51 | 51 | 50 | 50 | 50 | 50 | 50 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 51 | 52 |
| Dalles (OR) | 55 | 85 | 84 | 83 | 82 | 81 | 81 | 80 | 81 | 80 | 81 | 81 | 81 | 81 | 81 | 82 | 82 | 82 | 82 | 82 | 83 |
| Eugene & Coos Bay | 572 | 685 | 678 | 672 | 667 | 658 | 654 | 651 | 653 | 652 | 653 | 655 | 658 | 658 | 659 | 661 | 664 | 664 | 665 | 666 | 670 |
| Lincoln City & Newport | 35 | 35 | 35 | 34 | 34 | 34 | 33 | 33 | 33 | 33 | 33 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Portland | 2,899 | 2,687 | 2,660 | 2,633 | 2,616 | 2,581 | 2,563 | 2,553 | 2,559 | 2,556 | 2,562 | 2,568 | 2,582 | 2,579 | 2,585 | 2,590 | 2,605 | 2,602 | 2,607 | 2,613 | 2,628 |
| Salem | 772 | 741 | 734 | 727 | 722 | 712 | 707 | 704 | 706 | 705 | 707 | 708 | 712 | 712 | 713 | 715 | 719 | 718 | 719 | 721 | 725 |
| Vancouver & Dalles (WA) | 263 | 233 | 230 | 228 | 226 | 223 | 222 | 221 | 222 | 221 | 222 | 222 | 223 | 223 | 224 | 224 | 225 | 225 | 226 | 226 | 227 |
| Total System | 4,860 | 4,796 | 4,748 | 4,700 | 4,669 | 4,607 | 4,575 | 4,557 | 4,568 | 4,563 | 4,573 | 4,583 | 4,608 | 4,603 | 4,613 | 4,623 | 4,649 | 4,644 | 4,654 | 4,664 | 4,690 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 677 | 670 | 663 | 658 | 650 | 645 | 643 | 644 | 644 | 645 | 647 | 650 | 649 | 651 | 652 | 656 | 655 | 657 | 658 | 661 |
| Astoria | 134 | 132 | 131 | 130 | 129 | 127 | 126 | 126 | 126 | 126 | 126 | 127 | 127 | 127 | 127 | 128 | 128 | 128 | 128 | 129 | 129 |
| Dalles (OR) | 223 | 221 | 218 | 216 | 215 | 212 | 210 | 210 | 210 | 210 | 210 | 211 | 212 | 212 | 212 | 213 | 214 | 214 | 214 | 215 | 216 |
| Eugene & Coos Bay | 1,371 | 1,353 | 1,340 | 1,326 | 1,317 | 1,300 | 1,291 | 1,286 | 1,288 | 1,288 | 1,290 | 1,293 | 1,300 | 1,299 | 1,302 | 1,305 | 1,311 | 1,310 | 1,313 | 1,316 | 1,323 |
| Lincoln City & Newport | 45 | 44 | 44 | 43 | 43 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 42 | 43 | 43 | 43 | 43 | 43 | 43 |
| Portland | 3,456 | 3,413 | 3,378 | 3,345 | 3,320 | 3,278 | 3,255 | 3,243 | 3,249 | 3,247 | 3,254 | 3,261 | 3,277 | 3,276 | 3,283 | 3,290 | 3,306 | 3,305 | 3,312 | 3,319 | 3,336 |
| Salem | 1,728 | 1,706 | 1,689 | 1,672 | 1,660 | 1,639 | 1,628 | 1,621 | 1,624 | 1,623 | 1,627 | 1,631 | 1,639 | 1,638 | 1,641 | 1,645 | 1,653 | 1,652 | 1,656 | 1,660 | 1,668 |
| Vancouver & Dalles (WA) | 581 | 574 | 568 | 562 | 558 | 551 | 547 | 545 | 546 | 546 | 547 | 548 | 551 | 551 | 552 | 553 | 556 | 556 | 557 | 558 | 561 |
| Total System | 8,224 | 8,120 | 8,038 | 7,958 | 7,900 | 7,800 | 7,745 | 7,715 | 7,730 | 7,726 | 7,743 | 7,760 | 7,798 | 7,794 | 7,811 | 7,828 | 7,867 | 7,863 | 7,880 | 7,897 | 7,936 |

# Appendix 2-12: Detailed Results – Negative Long Term Growth Scenario

**Peak Day Demand, MDTh/day**
**Negative Growth (Long Term Only) Demand Scenario**
**Peak Day = February 3**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 50.92 | 51.75 | 52.73 | 53.50 | 54.29 | 55.17 | 55.60 | 55.56 | 55.04 | 54.27 | 53.42 | 52.64 | 51.87 | 51.18 | 50.41 | 49.61 | 48.85 | 48.04 | 47.19 | 46.40 | 45.63 |
| Astoria | 19.04 | 19.32 | 19.48 | 19.54 | 19.62 | 19.72 | 19.69 | 19.51 | 19.17 | 18.77 | 18.34 | 17.94 | 17.55 | 17.20 | 16.82 | 16.44 | 16.08 | 15.71 | 15.33 | 14.97 | 14.63 |
| Dalles (OR) | 9.08 | 9.42 | 9.69 | 9.92 | 10.15 | 10.39 | 10.52 | 10.55 | 10.46 | 10.31 | 10.15 | 10.01 | 9.86 | 9.74 | 9.60 | 9.45 | 9.31 | 9.17 | 9.01 | 8.87 | 8.73 |
| Eugene & Coos Bay | 60.81 | 62.13 | 63.45 | 64.50 | 65.55 | 66.70 | 67.27 | 67.22 | 66.55 | 65.57 | 64.49 | 63.52 | 62.55 | 61.70 | 60.74 | 59.76 | 58.82 | 57.85 | 56.82 | 55.87 | 54.96 |
| Lincoln City & Newport | 14.56 | 14.80 | 15.14 | 15.42 | 15.70 | 15.99 | 16.12 | 16.07 | 15.85 | 15.54 | 15.22 | 14.92 | 14.62 | 14.35 | 14.06 | 13.77 | 13.49 | 13.21 | 12.91 | 12.63 | 12.37 |
| Portland | 541.33 | 545.50 | 553.66 | 559.60 | 565.72 | 572.91 | 576.44 | 576.10 | 571.82 | 565.14 | 557.58 | 550.75 | 543.81 | 537.84 | 530.82 | 523.53 | 516.54 | 509.09 | 501.01 | 493.59 | 486.39 |
| Salem | 126.07 | 129.31 | 131.68 | 133.51 | 135.37 | 137.46 | 138.45 | 138.28 | 136.95 | 134.99 | 132.84 | 130.87 | 128.90 | 127.17 | 125.21 | 123.20 | 121.27 | 119.25 | 117.10 | 115.12 | 113.20 |
| Vancouver & Dalles (WA) | 93.47 | 95.36 | 98.55 | 101.41 | 104.29 | 107.39 | 109.31 | 109.94 | 109.24 | 107.58 | 105.76 | 104.10 | 102.44 | 100.97 | 99.33 | 97.65 | 96.04 | 94.36 | 92.58 | 90.93 | 89.35 |
| Total System | 915.29 | 927.58 | 944.38 | 957.40 | 970.68 | 985.72 | 993.40 | 993.22 | 985.08 | 972.17 | 957.79 | 944.75 | 931.60 | 920.16 | 906.98 | 893.40 | 880.40 | 866.67 | 851.94 | 838.39 | 825.26 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 32.93 | 33.55 | 34.41 | 35.16 | 35.93 | 36.78 | 37.27 | 37.38 | 37.12 | 36.63 | 36.08 | 35.58 | 35.08 | 34.64 | 34.14 | 33.63 | 33.13 | 32.61 | 32.06 | 31.54 | 31.04 |
| Astoria | 11.68 | 11.79 | 11.97 | 12.10 | 12.24 | 12.39 | 12.45 | 12.38 | 12.20 | 11.95 | 11.69 | 11.44 | 11.20 | 10.98 | 10.75 | 10.51 | 10.29 | 10.06 | 9.82 | 9.60 | 9.38 |
| Dalles (OR) | 3.91 | 4.04 | 4.20 | 4.35 | 4.50 | 4.66 | 4.77 | 4.80 | 4.77 | 4.70 | 4.63 | 4.56 | 4.50 | 4.44 | 4.37 | 4.31 | 4.24 | 4.18 | 4.10 | 4.04 | 3.97 |
| Eugene & Coos Bay | 30.24 | 30.92 | 31.83 | 32.64 | 33.47 | 34.36 | 34.89 | 35.03 | 34.75 | 34.25 | 33.71 | 33.21 | 32.71 | 32.27 | 31.78 | 31.27 | 30.79 | 30.28 | 29.74 | 29.24 | 28.76 |
| Lincoln City & Newport | 9.15 | 9.36 | 9.63 | 9.87 | 10.11 | 10.36 | 10.49 | 10.48 | 10.35 | 10.15 | 9.93 | 9.74 | 9.54 | 9.36 | 9.17 | 8.98 | 8.80 | 8.61 | 8.42 | 8.24 | 8.06 |
| Portland | 356.17 | 362.12 | 370.06 | 376.75 | 383.66 | 391.41 | 396.15 | 397.72 | 396.03 | 391.99 | 387.34 | 383.18 | 378.93 | 375.31 | 370.98 | 366.45 | 362.11 | 357.44 | 352.34 | 347.67 | 343.13 |
| Salem | 80.57 | 81.99 | 83.94 | 85.63 | 87.37 | 89.28 | 90.36 | 90.56 | 89.86 | 88.61 | 87.23 | 85.98 | 84.72 | 83.61 | 82.35 | 81.06 | 79.83 | 78.53 | 77.15 | 75.87 | 74.64 |
| Vancouver & Dalles (WA) | 67.23 | 69.01 | 71.43 | 73.65 | 75.92 | 78.38 | 79.94 | 80.51 | 80.05 | 78.84 | 77.51 | 76.30 | 75.09 | 74.03 | 72.83 | 71.60 | 70.43 | 69.21 | 67.91 | 66.71 | 65.55 |
| Total System | 591.88 | 602.78 | 617.46 | 630.15 | 643.19 | 657.62 | 666.32 | 668.86 | 665.12 | 657.12 | 648.12 | 639.99 | 631.77 | 624.65 | 616.37 | 607.81 | 599.61 | 590.91 | 581.53 | 572.90 | 564.54 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 16.80 | 16.80 | 16.92 | 16.93 | 16.93 | 16.96 | 16.90 | 16.75 | 16.50 | 16.24 | 15.95 | 15.69 | 15.42 | 15.19 | 14.93 | 14.66 | 14.41 | 14.14 | 13.85 | 13.59 | 13.34 |
| Astoria | 7.31 | 7.28 | 7.25 | 7.19 | 7.12 | 7.07 | 6.98 | 6.86 | 6.71 | 6.56 | 6.40 | 6.25 | 6.10 | 5.97 | 5.83 | 5.69 | 5.55 | 5.42 | 5.28 | 5.15 | 5.02 |
| Dalles (OR) | 4.92 | 4.93 | 5.04 | 5.12 | 5.19 | 5.26 | 5.30 | 5.29 | 5.23 | 5.16 | 5.08 | 5.00 | 4.93 | 4.87 | 4.79 | 4.72 | 4.65 | 4.58 | 4.50 | 4.42 | 4.35 |
| Eugene & Coos Bay | 27.35 | 27.74 | 28.13 | 28.34 | 28.54 | 28.78 | 28.82 | 28.65 | 28.28 | 27.83 | 27.33 | 26.89 | 26.45 | 26.07 | 25.64 | 25.20 | 24.79 | 24.36 | 23.90 | 23.48 | 23.08 |
| Lincoln City & Newport | 5.24 | 5.27 | 5.34 | 5.39 | 5.42 | 5.46 | 5.46 | 5.42 | 5.33 | 5.23 | 5.12 | 5.02 | 4.91 | 4.83 | 4.73 | 4.63 | 4.54 | 4.44 | 4.34 | 4.25 | 4.16 |
| Portland | 169.35 | 169.33 | 169.50 | 168.63 | 167.74 | 167.14 | 165.93 | 164.06 | 161.56 | 159.07 | 156.29 | 153.77 | 151.22 | 149.00 | 146.45 | 143.82 | 141.30 | 138.65 | 135.81 | 133.19 | 130.65 |
| Salem | 43.12 | 43.48 | 43.88 | 43.99 | 44.08 | 44.24 | 44.15 | 43.81 | 43.21 | 42.54 | 41.79 | 41.12 | 40.45 | 39.87 | 39.20 | 38.51 | 37.86 | 37.17 | 36.43 | 35.76 | 35.11 |
| Vancouver & Dalles (WA) | 24.44 | 25.17 | 25.94 | 26.56 | 27.17 | 27.80 | 28.16 | 28.23 | 28.00 | 27.56 | 27.07 | 26.64 | 26.20 | 25.81 | 25.37 | 24.93 | 24.50 | 24.06 | 23.59 | 23.15 | 22.73 |
| Total System | 298.53 | 300.00 | 302.00 | 302.14 | 302.18 | 302.71 | 301.70 | 299.06 | 294.83 | 290.17 | 285.03 | 280.37 | 275.68 | 271.61 | 266.94 | 262.16 | 257.60 | 252.80 | 247.68 | 242.98 | 238.44 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.19 | 1.40 | 1.40 | 1.41 | 1.42 | 1.43 | 1.43 | 1.42 | 1.42 | 1.40 | 1.39 | 1.37 | 1.36 | 1.35 | 1.33 | 1.32 | 1.31 | 1.29 | 1.28 | 1.27 | 1.25 |
| Astoria | 0.06 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 |
| Dalles (OR) | 0.25 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 |
| Eugene & Coos Bay | 3.23 | 3.47 | 3.49 | 3.52 | 3.54 | 3.56 | 3.56 | 3.54 | 3.52 | 3.49 | 3.45 | 3.42 | 3.38 | 3.35 | 3.31 | 3.28 | 3.25 | 3.22 | 3.18 | 3.15 | 3.12 |
| Lincoln City & Newport | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 |
| Portland | 15.81 | 14.04 | 14.10 | 14.21 | 14.32 | 14.37 | 14.37 | 14.32 | 14.23 | 14.08 | 13.94 | 13.80 | 13.67 | 13.53 | 13.39 | 13.26 | 13.13 | 13.00 | 12.87 | 12.74 | 12.61 |
| Salem | 2.38 | 3.84 | 3.86 | 3.89 | 3.92 | 3.93 | 3.93 | 3.92 | 3.89 | 3.85 | 3.81 | 3.78 | 3.74 | 3.70 | 3.66 | 3.63 | 3.59 | 3.55 | 3.52 | 3.48 | 3.45 |
| Vancouver & Dalles (WA) | 1.81 | 1.18 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.20 | 1.20 | 1.18 | 1.17 | 1.16 | 1.15 | 1.14 | 1.13 | 1.11 | 1.10 | 1.09 | 1.08 | 1.07 | 1.06 |
| Total System | 24.89 | 24.80 | 24.91 | 25.11 | 25.30 | 25.38 | 25.38 | 25.30 | 25.13 | 24.88 | 24.63 | 24.39 | 24.14 | 23.90 | 23.66 | 23.43 | 23.19 | 22.96 | 22.73 | 22.50 | 22.28 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1.87 | 1.87 | 1.87 | 1.89 | 1.90 | 1.91 | 1.91 | 1.90 | 1.89 | 1.87 | 1.85 | 1.83 | 1.82 | 1.80 | 1.78 | 1.76 | 1.74 | 1.73 | 1.71 | 1.69 | 1.68 |
| Astoria | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 |
| Dalles (OR) | 0.61 | 0.61 | 0.61 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.62 | 0.61 | 0.60 | 0.60 | 0.59 | 0.59 | 0.58 | 0.57 | 0.57 | 0.56 | 0.56 | 0.55 | 0.55 |
| Eugene & Coos Bay | 3.75 | 3.73 | 3.75 | 3.78 | 3.81 | 3.82 | 3.82 | 3.81 | 3.78 | 3.74 | 3.71 | 3.67 | 3.63 | 3.60 | 3.56 | 3.52 | 3.49 | 3.45 | 3.42 | 3.39 | 3.35 |
| Lincoln City & Newport | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| Portland | 9.44 | 9.41 | 9.45 | 9.53 | 9.60 | 9.63 | 9.63 | 9.60 | 9.54 | 9.44 | 9.35 | 9.25 | 9.16 | 9.07 | 8.98 | 8.89 | 8.80 | 8.71 | 8.62 | 8.54 | 8.45 |
| Salem | 4.72 | 4.71 | 4.73 | 4.76 | 4.80 | 4.82 | 4.82 | 4.80 | 4.77 | 4.72 | 4.67 | 4.63 | 4.58 | 4.53 | 4.49 | 4.44 | 4.40 | 4.36 | 4.31 | 4.27 | 4.23 |
| Vancouver & Dalles (WA) | 1.59 | 1.58 | 1.59 | 1.60 | 1.61 | 1.62 | 1.62 | 1.61 | 1.60 | 1.59 | 1.57 | 1.56 | 1.54 | 1.52 | 1.51 | 1.49 | 1.48 | 1.46 | 1.45 | 1.44 | 1.42 |
| Total System | 22.47 | 22.39 | 22.49 | 22.67 | 22.84 | 22.92 | 22.92 | 22.84 | 22.69 | 22.46 | 22.24 | 22.01 | 21.79 | 21.58 | 21.36 | 21.15 | 20.94 | 20.73 | 20.52 | 20.31 | 20.11 |

**Annual Demand Total, MDth - Design Year (85% Probability Coldest Winter with 1989 Three Day Peak)**
**Negative Growth (Long Term Only) Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,992 | 4,050 | 4,125 | 4,190 | 4,274 | 4,327 | 4,367 | 4,372 | 4,360 | 4,290 | 4,233 | 4,180 | 4,145 | 4,081 | 4,028 | 3,974 | 3,938 | 3,867 | 3,809 | 3,755 | 3,719 |
| Astoria | 1,205 | 1,259 | 1,279 | 1,295 | 1,318 | 1,329 | 1,338 | 1,336 | 1,329 | 1,303 | 1,283 | 1,263 | 1,250 | 1,226 | 1,207 | 1,188 | 1,176 | 1,151 | 1,132 | 1,114 | 1,101 |
| Dalles (OR) | 755 | 794 | 816 | 835 | 858 | 874 | 886 | 889 | 887 | 872 | 861 | 850 | 844 | 831 | 820 | 810 | 803 | 789 | 778 | 767 | 760 |
| Eugene & Coos Bay | 4,804 | 4,998 | 5,114 | 5,219 | 5,348 | 5,432 | 5,496 | 5,512 | 5,504 | 5,415 | 5,347 | 5,283 | 5,243 | 5,163 | 5,100 | 5,036 | 4,997 | 4,911 | 4,844 | 4,782 | 4,743 |
| Lincoln City & Newport | 969 | 980 | 1,003 | 1,023 | 1,048 | 1,065 | 1,077 | 1,078 | 1,074 | 1,055 | 1,039 | 1,024 | 1,014 | 996 | 982 | 967 | 957 | 939 | 924 | 910 | 900 |
| Portland | 44,532 | 44,635 | 45,299 | 45,843 | 46,613 | 47,027 | 47,357 | 47,378 | 47,294 | 46,560 | 45,985 | 45,455 | 45,123 | 44,445 | 43,905 | 43,349 | 43,006 | 42,247 | 41,644 | 41,081 | 40,716 |
| Salem | 9,652 | 9,742 | 9,932 | 10,097 | 10,314 | 10,445 | 10,545 | 10,560 | 10,540 | 10,364 | 10,227 | 10,100 | 10,021 | 9,860 | 9,733 | 9,603 | 9,524 | 9,348 | 9,210 | 9,082 | 8,999 |
| Vancouver & Dalles (WA) | 7,291 | 7,450 | 7,721 | 7,978 | 8,273 | 8,511 | 8,692 | 8,771 | 8,781 | 8,630 | 8,509 | 8,396 | 8,319 | 8,182 | 8,070 | 7,956 | 7,879 | 7,731 | 7,611 | 7,498 | 7,420 |
| Total System | 73,201 | 73,908 | 75,288 | 76,479 | 78,047 | 79,011 | 79,757 | 79,895 | 79,771 | 78,490 | 77,482 | 76,553 | 75,959 | 74,783 | 73,845 | 72,884 | 72,281 | 70,984 | 69,951 | 68,988 | 68,358 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,351 | 2,387 | 2,449 | 2,507 | 2,578 | 2,630 | 2,671 | 2,685 | 2,685 | 2,644 | 2,611 | 2,580 | 2,561 | 2,523 | 2,492 | 2,460 | 2,440 | 2,397 | 2,363 | 2,331 | 2,310 |
| Astoria | 648 | 655 | 669 | 681 | 698 | 708 | 716 | 717 | 715 | 701 | 690 | 679 | 672 | 659 | 649 | 638 | 631 | 618 | 607 | 597 | 590 |
| Dalles (OR) | 279 | 288 | 301 | 314 | 328 | 339 | 348 | 352 | 352 | 347 | 342 | 338 | 336 | 331 | 327 | 322 | 320 | 314 | 310 | 306 | 303 |
| Eugene & Coos Bay | 2,084 | 2,126 | 2,195 | 2,260 | 2,338 | 2,397 | 2,443 | 2,461 | 2,462 | 2,422 | 2,390 | 2,362 | 2,344 | 2,307 | 2,278 | 2,248 | 2,231 | 2,190 | 2,158 | 2,129 | 2,110 |
| Lincoln City & Newport | 461 | 473 | 491 | 507 | 527 | 542 | 553 | 557 | 557 | 547 | 539 | 531 | 527 | 518 | 510 | 503 | 498 | 488 | 481 | 474 | 469 |
| Portland | 26,651 | 26,995 | 27,609 | 28,160 | 28,865 | 29,356 | 29,756 | 29,916 | 29,970 | 29,545 | 29,224 | 28,933 | 28,771 | 28,379 | 28,077 | 27,764 | 27,592 | 27,141 | 26,791 | 26,469 | 26,278 |
| Salem | 5,344 | 5,426 | 5,570 | 5,703 | 5,870 | 5,989 | 6,082 | 6,115 | 6,117 | 6,016 | 5,939 | 5,868 | 5,826 | 5,733 | 5,661 | 5,587 | 5,544 | 5,442 | 5,363 | 5,289 | 5,244 |
| Vancouver & Dalles (WA) | 4,765 | 4,887 | 5,075 | 5,256 | 5,467 | 5,642 | 5,777 | 5,839 | 5,851 | 5,752 | 5,672 | 5,598 | 5,549 | 5,459 | 5,385 | 5,310 | 5,261 | 5,162 | 5,082 | 5,007 | 4,957 |
| Total System | 42,583 | 43,237 | 44,359 | 45,388 | 46,670 | 47,604 | 48,346 | 48,642 | 48,710 | 47,973 | 47,406 | 46,889 | 46,586 | 45,907 | 45,379 | 44,833 | 44,518 | 43,753 | 43,155 | 42,601 | 42,261 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,383 | 1,380 | 1,391 | 1,396 | 1,407 | 1,407 | 1,406 | 1,397 | 1,387 | 1,362 | 1,341 | 1,322 | 1,308 | 1,285 | 1,266 | 1,246 | 1,232 | 1,207 | 1,187 | 1,167 | 1,153 |
| Astoria | 548 | 551 | 556 | 559 | 565 | 566 | 566 | 563 | 559 | 548 | 539 | 531 | 525 | 515 | 507 | 499 | 493 | 483 | 475 | 468 | 462 |
| Dalles (OR) | 420 | 419 | 427 | 434 | 441 | 446 | 449 | 448 | 446 | 439 | 433 | 427 | 423 | 416 | 411 | 405 | 402 | 394 | 388 | 383 | 379 |
| Eugene & Coos Bay | 2,137 | 2,171 | 2,215 | 2,250 | 2,293 | 2,318 | 2,336 | 2,337 | 2,330 | 2,291 | 2,261 | 2,233 | 2,215 | 2,181 | 2,154 | 2,126 | 2,110 | 2,073 | 2,044 | 2,017 | 2,001 |
| Lincoln City & Newport | 472 | 471 | 476 | 480 | 485 | 486 | 487 | 485 | 481 | 472 | 465 | 458 | 453 | 444 | 437 | 431 | 426 | 417 | 410 | 404 | 399 |
| Portland | 14,935 | 14,895 | 14,931 | 14,904 | 14,939 | 14,862 | 14,792 | 14,661 | 14,534 | 14,261 | 14,034 | 13,823 | 13,671 | 13,420 | 13,209 | 12,992 | 12,839 | 12,566 | 12,336 | 12,121 | 11,964 |
| Salem | 3,535 | 3,558 | 3,601 | 3,627 | 3,669 | 3,681 | 3,688 | 3,673 | 3,653 | 3,588 | 3,536 | 3,488 | 3,456 | 3,397 | 3,349 | 3,301 | 3,269 | 3,205 | 3,153 | 3,105 | 3,073 |
| Vancouver & Dalles (WA) | 2,256 | 2,325 | 2,408 | 2,481 | 2,563 | 2,626 | 2,673 | 2,690 | 2,688 | 2,640 | 2,601 | 2,565 | 2,538 | 2,495 | 2,459 | 2,422 | 2,396 | 2,350 | 2,311 | 2,275 | 2,249 |
| Total System | 25,685 | 25,770 | 26,006 | 26,130 | 26,362 | 26,392 | 26,396 | 26,254 | 26,078 | 25,602 | 25,209 | 24,846 | 24,588 | 24,154 | 23,792 | 23,422 | 23,166 | 22,695 | 22,305 | 21,941 | 21,681 |

**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDTH | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 258 | 283 | 285 | 287 | 290 | 290 | 290 | 289 | 288 | 284 | 281 | 279 | 277 | 273 | 270 | 268 | 266 | 262 | 260 | 257 | 255 |
| Astoria | 9 | 54 | 54 | 55 | 55 | 55 | 55 | 55 | 55 | 54 | 54 | 53 | 53 | 52 | 52 | 51 | 51 | 50 | 49 | 49 | 49 |
| Dalles (OR) | 56 | 87 | 87 | 88 | 89 | 89 | 89 | 88 | 88 | 87 | 86 | 85 | 85 | 83 | 83 | 82 | 81 | 80 | 79 | 79 | 78 |
| Eugene & Coos Bay | 583 | 700 | 704 | 709 | 717 | 717 | 717 | 714 | 712 | 703 | 696 | 689 | 684 | 675 | 668 | 661 | 657 | 648 | 642 | 635 | 631 |
| Lincoln City & Newport | 36 | 36 | 36 | 36 | 37 | 37 | 37 | 36 | 36 | 36 | 35 | 35 | 35 | 34 | 34 | 34 | 34 | 33 | 33 | 32 | 32 |
| Portland | 2,947 | 2,745 | 2,758 | 2,780 | 2,809 | 2,810 | 2,810 | 2,801 | 2,791 | 2,754 | 2,727 | 2,699 | 2,681 | 2,646 | 2,619 | 2,593 | 2,575 | 2,541 | 2,516 | 2,491 | 2,474 |
| Salem | 774 | 757 | 761 | 767 | 775 | 775 | 775 | 773 | 770 | 760 | 752 | 745 | 740 | 730 | 723 | 715 | 711 | 701 | 694 | 687 | 683 |
| Vancouver & Dalles (WA) | 270 | 237 | 238 | 240 | 243 | 243 | 243 | 242 | 241 | 238 | 236 | 233 | 232 | 229 | 226 | 224 | 223 | 220 | 218 | 215 | 214 |
| Total System | 4,933 | 4,900 | 4,922 | 4,961 | 5,014 | 5,015 | 5,015 | 4,999 | 4,982 | 4,916 | 4,866 | 4,818 | 4,785 | 4,722 | 4,675 | 4,628 | 4,597 | 4,536 | 4,491 | 4,446 | 4,416 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 697 | 695 | 692 | 683 | 676 | 670 | 665 | 656 | 650 | 643 | 639 | 630 | 624 | 618 | 613 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 136 | 136 | 135 | 134 | 132 | 131 | 130 | 128 | 127 | 126 | 125 | 123 | 122 | 121 | 120 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 227 | 227 | 226 | 223 | 221 | 218 | 217 | 214 | 212 | 210 | 208 | 206 | 204 | 201 | 200 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,394 | 1,389 | 1,384 | 1,366 | 1,353 | 1,339 | 1,329 | 1,313 | 1,299 | 1,286 | 1,277 | 1,261 | 1,248 | 1,236 | 1,227 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 44 | 44 | 43 | 43 | 42 | 42 | 42 | 41 | 41 | 40 | 40 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,516 | 3,504 | 3,490 | 3,446 | 3,411 | 3,377 | 3,353 | 3,310 | 3,277 | 3,244 | 3,221 | 3,180 | 3,148 | 3,116 | 3,094 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,758 | 1,752 | 1,745 | 1,723 | 1,706 | 1,689 | 1,676 | 1,655 | 1,638 | 1,622 | 1,610 | 1,590 | 1,574 | 1,558 | 1,547 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 591 | 589 | 587 | 579 | 573 | 568 | 564 | 556 | 551 | 545 | 541 | 534 | 529 | 524 | 520 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,364 | 8,337 | 8,304 | 8,199 | 8,117 | 8,035 | 7,977 | 7,876 | 7,797 | 7,719 | 7,663 | 7,565 | 7,490 | 7,415 | 7,361 |

**Annual Demand Total, MDth - Normal Year**
**Negative Growth (Long Term Only) Demand Scenario**
**(Gross Demand - without reduction for DSM)**

**Total Core Demand**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 3,730 | 3,784 | 3,854 | 3,915 | 3,995 | 4,044 | 4,081 | 4,086 | 4,078 | 4,011 | 3,959 | 3,910 | 3,879 | 3,818 | 3,770 | 3,720 | 3,688 | 3,621 | 3,568 | 3,518 | 3,485 |
| Astoria | 1,110 | 1,165 | 1,184 | 1,199 | 1,221 | 1,233 | 1,241 | 1,240 | 1,234 | 1,212 | 1,193 | 1,175 | 1,163 | 1,142 | 1,125 | 1,108 | 1,096 | 1,074 | 1,057 | 1,040 | 1,028 |
| Dalles (OR) | 704 | 741 | 761 | 779 | 801 | 815 | 826 | 829 | 828 | 814 | 804 | 794 | 788 | 776 | 766 | 757 | 751 | 738 | 727 | 718 | 712 |
| Eugene & Coos Bay | 4,491 | 4,683 | 4,792 | 4,892 | 5,013 | 5,094 | 5,155 | 5,171 | 5,164 | 5,083 | 5,020 | 4,962 | 4,924 | 4,851 | 4,793 | 4,734 | 4,698 | 4,619 | 4,557 | 4,500 | 4,463 |
| Lincoln City & Newport | 899 | 910 | 930 | 949 | 972 | 988 | 1,000 | 1,002 | 998 | 980 | 966 | 953 | 943 | 927 | 914 | 901 | 891 | 875 | 861 | 848 | 839 |
| Portland | 41,953 | 42,042 | 42,666 | 43,183 | 43,916 | 44,304 | 44,617 | 44,639 | 44,568 | 43,874 | 43,334 | 42,837 | 42,530 | 41,887 | 41,381 | 40,860 | 40,543 | 39,827 | 39,262 | 38,735 | 38,398 |
| Salem | 9,045 | 9,122 | 9,300 | 9,457 | 9,660 | 9,787 | 9,882 | 9,898 | 9,879 | 9,718 | 9,591 | 9,474 | 9,399 | 9,251 | 9,134 | 9,014 | 8,939 | 8,778 | 8,651 | 8,532 | 8,454 |
| Vancouver & Dalles (WA) | 6,843 | 6,994 | 7,250 | 7,493 | 7,775 | 7,999 | 8,171 | 8,247 | 8,260 | 8,118 | 8,006 | 7,901 | 7,832 | 7,702 | 7,598 | 7,492 | 7,423 | 7,284 | 7,172 | 7,067 | 6,996 |
| Total System | 68,774 | 69,440 | 70,738 | 71,868 | 73,352 | 74,264 | 74,974 | 75,113 | 75,008 | 73,811 | 72,872 | 72,006 | 71,457 | 70,355 | 69,481 | 68,586 | 68,028 | 66,816 | 65,855 | 64,958 | 64,375 |

**Residential**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 2,177 | 2,210 | 2,268 | 2,322 | 2,388 | 2,437 | 2,475 | 2,489 | 2,490 | 2,451 | 2,421 | 2,393 | 2,377 | 2,341 | 2,313 | 2,284 | 2,267 | 2,227 | 2,195 | 2,166 | 2,148 |
| Astoria | 588 | 595 | 609 | 620 | 635 | 646 | 653 | 655 | 653 | 641 | 631 | 621 | 615 | 603 | 594 | 585 | 579 | 567 | 557 | 548 | 542 |
| Dalles (OR) | 256 | 264 | 276 | 288 | 301 | 312 | 320 | 324 | 324 | 319 | 315 | 312 | 309 | 305 | 301 | 297 | 295 | 290 | 286 | 282 | 280 |
| Eugene & Coos Bay | 1,923 | 1,963 | 2,027 | 2,088 | 2,160 | 2,216 | 2,259 | 2,277 | 2,278 | 2,241 | 2,213 | 2,187 | 2,170 | 2,137 | 2,111 | 2,084 | 2,067 | 2,031 | 2,002 | 1,975 | 1,958 |
| Lincoln City & Newport | 415 | 427 | 443 | 458 | 476 | 491 | 501 | 505 | 505 | 496 | 489 | 483 | 478 | 471 | 464 | 458 | 453 | 445 | 438 | 432 | 428 |
| Portland | 24,909 | 25,230 | 25,806 | 26,324 | 26,990 | 27,450 | 27,827 | 27,980 | 28,036 | 27,637 | 27,338 | 27,067 | 26,920 | 26,551 | 26,270 | 25,979 | 25,823 | 25,400 | 25,075 | 24,776 | 24,602 |
| Salem | 4,944 | 5,023 | 5,157 | 5,282 | 5,437 | 5,550 | 5,638 | 5,670 | 5,672 | 5,581 | 5,510 | 5,445 | 5,406 | 5,322 | 5,256 | 5,189 | 5,149 | 5,056 | 4,984 | 4,916 | 4,874 |
| Vancouver & Dalles (WA) | 4,436 | 4,549 | 4,725 | 4,896 | 5,096 | 5,260 | 5,386 | 5,446 | 5,460 | 5,367 | 5,294 | 5,226 | 5,183 | 5,098 | 5,031 | 4,961 | 4,918 | 4,825 | 4,752 | 4,683 | 4,638 |
| Total System | 39,648 | 40,261 | 41,312 | 42,279 | 43,484 | 44,361 | 45,061 | 45,345 | 45,418 | 44,733 | 44,212 | 43,735 | 43,458 | 42,828 | 42,341 | 41,837 | 41,550 | 40,840 | 40,289 | 39,778 | 39,469 |

**Commercial**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 1,298 | 1,295 | 1,306 | 1,310 | 1,321 | 1,321 | 1,320 | 1,313 | 1,304 | 1,280 | 1,260 | 1,242 | 1,230 | 1,208 | 1,190 | 1,172 | 1,160 | 1,136 | 1,117 | 1,099 | 1,086 |
| Astoria | 513 | 516 | 522 | 525 | 531 | 533 | 534 | 531 | 527 | 518 | 509 | 502 | 496 | 487 | 480 | 473 | 467 | 458 | 451 | 444 | 439 |
| Dalles (OR) | 393 | 392 | 399 | 405 | 412 | 416 | 419 | 418 | 417 | 410 | 404 | 399 | 396 | 389 | 384 | 379 | 376 | 369 | 363 | 358 | 355 |
| Eugene & Coos Bay | 1,996 | 2,030 | 2,072 | 2,105 | 2,147 | 2,172 | 2,190 | 2,191 | 2,185 | 2,150 | 2,122 | 2,097 | 2,080 | 2,049 | 2,024 | 1,999 | 1,983 | 1,950 | 1,923 | 1,899 | 1,884 |
| Lincoln City & Newport | 448 | 447 | 452 | 455 | 460 | 462 | 462 | 460 | 457 | 449 | 442 | 435 | 430 | 423 | 416 | 410 | 405 | 397 | 391 | 385 | 380 |
| Portland | 14,145 | 14,108 | 14,144 | 14,121 | 14,158 | 14,086 | 14,022 | 13,901 | 13,783 | 13,524 | 13,310 | 13,111 | 12,968 | 12,730 | 12,531 | 12,327 | 12,183 | 11,924 | 11,708 | 11,506 | 11,358 |
| Salem | 3,329 | 3,353 | 3,394 | 3,420 | 3,460 | 3,473 | 3,480 | 3,467 | 3,448 | 3,389 | 3,340 | 3,295 | 3,265 | 3,210 | 3,166 | 3,121 | 3,090 | 3,031 | 2,983 | 2,939 | 2,908 |
| Vancouver & Dalles (WA) | 2,144 | 2,210 | 2,290 | 2,360 | 2,440 | 2,500 | 2,545 | 2,562 | 2,562 | 2,516 | 2,479 | 2,445 | 2,420 | 2,379 | 2,344 | 2,310 | 2,286 | 2,242 | 2,205 | 2,171 | 2,147 |
| Total System | 24,266 | 24,351 | 24,578 | 24,702 | 24,928 | 24,963 | 24,973 | 24,844 | 24,683 | 24,235 | 23,867 | 23,526 | 23,285 | 22,876 | 22,536 | 22,189 | 21,950 | 21,507 | 21,142 | 20,800 | 20,557 |

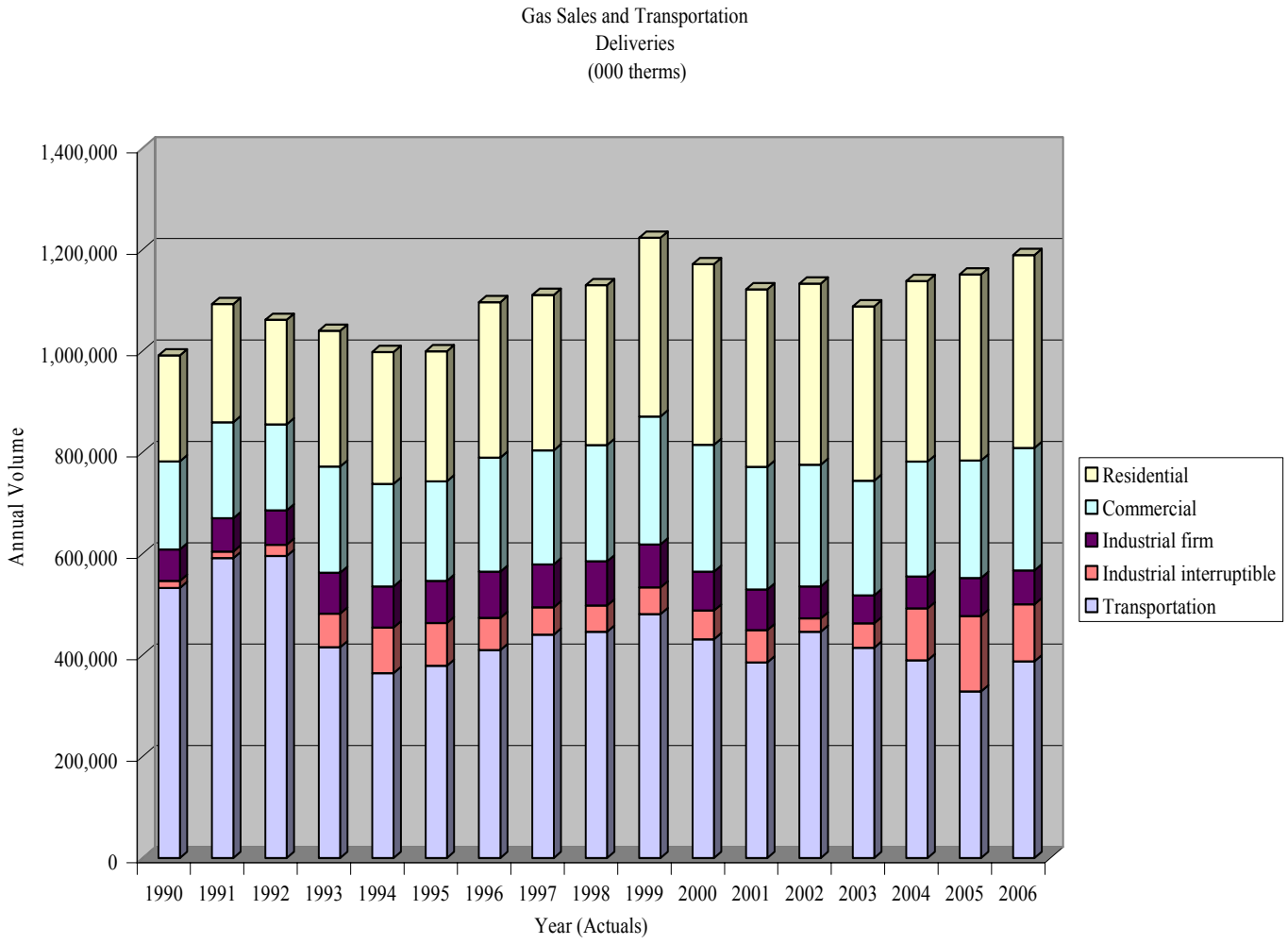
**Industrial Firm Sales**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 255 | 279 | 280 | 283 | 286 | 286 | 286 | 285 | 284 | 280 | 277 | 274 | 273 | 269 | 266 | 264 | 262 | 258 | 256 | 253 | 252 |
| Astoria | 9 | 53 | 53 | 54 | 54 | 54 | 54 | 54 | 54 | 53 | 53 | 52 | 52 | 51 | 51 | 50 | 50 | 49 | 49 | 48 | 48 |
| Dalles (OR) | 55 | 85 | 86 | 86 | 87 | 87 | 87 | 87 | 87 | 85 | 85 | 84 | 83 | 82 | 81 | 80 | 80 | 79 | 78 | 77 | 77 |
| Eugene & Coos Bay | 572 | 690 | 693 | 698 | 706 | 706 | 706 | 704 | 701 | 692 | 685 | 678 | 674 | 665 | 658 | 651 | 647 | 638 | 632 | 626 | 622 |
| Lincoln City & Newport | 35 | 35 | 35 | 36 | 36 | 36 | 36 | 36 | 36 | 35 | 35 | 35 | 34 | 34 | 34 | 33 | 33 | 33 | 32 | 32 | 32 |
| Portland | 2,899 | 2,704 | 2,717 | 2,738 | 2,767 | 2,768 | 2,768 | 2,759 | 2,749 | 2,713 | 2,686 | 2,659 | 2,641 | 2,606 | 2,580 | 2,554 | 2,537 | 2,503 | 2,478 | 2,454 | 2,437 |
| Salem | 772 | 746 | 750 | 755 | 764 | 764 | 764 | 761 | 759 | 749 | 741 | 734 | 729 | 719 | 712 | 705 | 700 | 691 | 684 | 677 | 672 |
| Vancouver & Dalles (WA) | 263 | 234 | 235 | 237 | 240 | 240 | 240 | 239 | 238 | 235 | 232 | 230 | 229 | 226 | 223 | 221 | 220 | 217 | 215 | 212 | 211 |
| Total System | 4,860 | 4,827 | 4,849 | 4,887 | 4,940 | 4,940 | 4,940 | 4,924 | 4,907 | 4,842 | 4,794 | 4,746 | 4,714 | 4,651 | 4,605 | 4,559 | 4,528 | 4,468 | 4,424 | 4,379 | 4,350 |

**Interruptible (Excluded from Core Demand)**

| Gas Year/ | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Albany | 685 | 681 | 684 | 690 | 697 | 697 | 697 | 695 | 692 | 683 | 676 | 670 | 665 | 656 | 650 | 643 | 639 | 630 | 624 | 618 | 613 |
| Astoria | 134 | 133 | 134 | 135 | 136 | 136 | 136 | 136 | 135 | 134 | 132 | 131 | 130 | 128 | 127 | 126 | 125 | 123 | 122 | 121 | 120 |
| Dalles (OR) | 223 | 222 | 223 | 225 | 227 | 227 | 227 | 227 | 226 | 223 | 221 | 218 | 217 | 214 | 212 | 210 | 208 | 206 | 204 | 201 | 200 |
| Eugene & Coos Bay | 1,371 | 1,362 | 1,368 | 1,379 | 1,393 | 1,394 | 1,394 | 1,389 | 1,384 | 1,366 | 1,353 | 1,339 | 1,329 | 1,313 | 1,299 | 1,286 | 1,277 | 1,261 | 1,248 | 1,236 | 1,227 |
| Lincoln City & Newport | 45 | 44 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 45 | 44 | 44 | 43 | 43 | 42 | 42 | 42 | 41 | 41 | 40 | 40 |
| Portland | 3,456 | 3,435 | 3,450 | 3,478 | 3,513 | 3,515 | 3,516 | 3,504 | 3,490 | 3,446 | 3,411 | 3,377 | 3,353 | 3,310 | 3,277 | 3,244 | 3,221 | 3,180 | 3,148 | 3,116 | 3,094 |
| Salem | 1,728 | 1,717 | 1,725 | 1,739 | 1,757 | 1,758 | 1,758 | 1,752 | 1,745 | 1,723 | 1,706 | 1,689 | 1,676 | 1,655 | 1,638 | 1,622 | 1,610 | 1,590 | 1,574 | 1,558 | 1,547 |
| Vancouver & Dalles (WA) | 581 | 577 | 580 | 585 | 591 | 591 | 591 | 589 | 587 | 579 | 573 | 568 | 564 | 556 | 551 | 545 | 541 | 534 | 529 | 524 | 520 |
| Total System | 8,224 | 8,173 | 8,210 | 8,274 | 8,359 | 8,364 | 8,364 | 8,337 | 8,304 | 8,199 | 8,117 | 8,035 | 7,977 | 7,876 | 7,797 | 7,719 | 7,663 | 7,565 | 7,490 | 7,415 | 7,361 |

# Appendix 2-13: Historical Gas Sales and Transportation Deliveries



# Appendix 2-14: Customer Forecast – Base Case

| End of Year | Albany | | | | | | | | | Astoria | | | | | | | | | Eugene & Coos Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible |
| 2007 | 34,268 | 176 | 103 | 765 | 3,904 | 61 | 40 | 36 | 15 | 9,587 | 122 | 34 | 128 | 1,582 | 19 | 23 | 7 | 3 | 31,387 | 422 | 84 | 671 | 5,049 | 136 | 79 | 88 | 29 |
| 2008 | 34,120 | 349 | 149 | 1,452 | 3,842 | 102 | 91 | 35 | 15 | 9,545 | 244 | 63 | 241 | 1,557 | 50 | 52 | 7 | 3 | 31,252 | 843 | 159 | 1,272 | 4,968 | 283 | 195 | 88 | 29 |
| 2009 | 33,973 | 555 | 262 | 2,299 | 3,780 | 178 | 142 | 36 | 15 | 9,504 | 387 | 99 | 383 | 1,531 | 80 | 81 | 7 | 3 | 31,117 | 1,345 | 249 | 2,014 | 4,888 | 444 | 297 | 88 | 29 |
| 2010 | 33,825 | 772 | 384 | 3,211 | 3,718 | 254 | 193 | 36 | 15 | 9,463 | 537 | 136 | 533 | 1,506 | 110 | 110 | 7 | 3 | 30,982 | 1,865 | 348 | 2,810 | 4,808 | 605 | 399 | 89 | 29 |
| 2011 | 33,678 | 991 | 509 | 4,161 | 3,656 | 330 | 244 | 36 | 15 | 9,421 | 691 | 174 | 690 | 1,481 | 140 | 139 | 7 | 3 | 30,847 | 2,398 | 449 | 3,636 | 4,727 | 766 | 501 | 89 | 30 |
| 2012 | 33,530 | 1,219 | 639 | 5,146 | 3,593 | 406 | 295 | 36 | 15 | 9,380 | 852 | 212 | 849 | 1,456 | 170 | 168 | 7 | 3 | 30,712 | 2,947 | 553 | 4,492 | 4,647 | 927 | 603 | 90 | 30 |
| 2013 | 33,383 | 1,456 | 769 | 6,150 | 3,531 | 482 | 346 | 36 | 15 | 9,339 | 1,013 | 250 | 1,023 | 1,431 | 200 | 197 | 7 | 3 | 30,577 | 3,511 | 657 | 5,381 | 4,566 | 1,088 | 705 | 90 | 30 |
| 2014 | 33,235 | 1,693 | 899 | 7,154 | 3,469 | 558 | 397 | 36 | 15 | 9,298 | 1,174 | 288 | 1,197 | 1,406 | 230 | 226 | 7 | 3 | 30,441 | 4,075 | 761 | 6,270 | 4,486 | 1,249 | 807 | 90 | 30 |
| 2015 | 33,088 | 1,930 | 1,029 | 8,158 | 3,407 | 634 | 448 | 36 | 15 | 9,256 | 1,335 | 326 | 1,371 | 1,380 | 260 | 255 | 7 | 3 | 30,306 | 4,639 | 865 | 7,159 | 4,405 | 1,410 | 909 | 90 | 30 |
| 2016 | 32,940 | 2,167 | 1,159 | 9,162 | 3,345 | 710 | 499 | 37 | 15 | 9,215 | 1,496 | 364 | 1,545 | 1,355 | 290 | 284 | 7 | 3 | 30,171 | 5,203 | 969 | 8,048 | 4,325 | 1,571 | 1,011 | 90 | 30 |
| 2017 | 32,793 | 2,404 | 1,289 | 10,166 | 3,282 | 786 | 550 | 37 | 15 | 9,174 | 1,657 | 402 | 1,719 | 1,330 | 320 | 313 | 7 | 3 | 30,036 | 5,767 | 1,073 | 8,937 | 4,245 | 1,732 | 1,113 | 90 | 30 |
| 2018 | 32,645 | 2,641 | 1,419 | 11,170 | 3,220 | 862 | 601 | 37 | 15 | 9,133 | 1,818 | 440 | 1,893 | 1,305 | 350 | 342 | 7 | 3 | 29,901 | 6,331 | 1,177 | 9,826 | 4,164 | 1,893 | 1,215 | 91 | 30 |
| 2019 | 32,498 | 2,878 | 1,549 | 12,174 | 3,158 | 938 | 652 | 37 | 15 | 9,091 | 1,979 | 478 | 2,067 | 1,280 | 380 | 371 | 7 | 3 | 29,766 | 6,895 | 1,281 | 10,715 | 4,084 | 2,054 | 1,317 | 91 | 30 |
| 2020 | 32,350 | 3,115 | 1,679 | 13,178 | 3,096 | 1,014 | 703 | 37 | 15 | 9,050 | 2,140 | 516 | 2,241 | 1,254 | 410 | 400 | 7 | 3 | 29,631 | 7,459 | 1,385 | 11,604 | 4,003 | 2,215 | 1,419 | 91 | 30 |
| 2021 | 32,203 | 3,352 | 1,809 | 14,182 | 3,034 | 1,090 | 754 | 37 | 15 | 9,009 | 2,301 | 554 | 2,415 | 1,229 | 440 | 429 | 7 | 3 | 29,496 | 8,023 | 1,489 | 12,493 | 3,923 | 2,376 | 1,521 | 91 | 30 |
| 2022 | 32,055 | 3,589 | 1,939 | 15,186 | 2,972 | 1,166 | 805 | 37 | 15 | 8,968 | 2,462 | 592 | 2,589 | 1,204 | 470 | 458 | 7 | 3 | 29,361 | 8,587 | 1,593 | 13,382 | 3,843 | 2,537 | 1,623 | 91 | 30 |
| 2023 | 31,908 | 3,826 | 2,069 | 16,190 | 2,909 | 1,242 | 856 | 37 | 15 | 8,926 | 2,623 | 630 | 2,763 | 1,179 | 500 | 487 | 7 | 3 | 29,226 | 9,151 | 1,697 | 14,271 | 3,762 | 2,698 | 1,725 | 92 | 30 |
| 2024 | 31,760 | 4,063 | 2,199 | 17,194 | 2,847 | 1,318 | 907 | 37 | 15 | 8,885 | 2,784 | 668 | 2,937 | 1,154 | 530 | 516 | 7 | 3 | 29,090 | 9,715 | 1,801 | 15,160 | 3,682 | 2,859 | 1,827 | 92 | 31 |
| 2025 | 31,613 | 4,300 | 2,329 | 18,198 | 2,785 | 1,394 | 958 | 37 | 15 | 8,844 | 2,945 | 706 | 3,111 | 1,128 | 560 | 545 | 7 | 3 | 28,955 | 10,279 | 1,905 | 16,049 | 3,601 | 3,020 | 1,929 | 92 | 31 |
| 2026 | 31,465 | 4,537 | 2,459 | 19,202 | 2,723 | 1,470 | 1,009 | 37 | 15 | 8,803 | 3,106 | 744 | 3,285 | 1,103 | 590 | 574 | 7 | 3 | 28,820 | 10,843 | 2,009 | 16,938 | 3,521 | 3,181 | 2,031 | 92 | 31 |
| 2027 | 31,318 | 4,774 | 2,589 | 20,206 | 2,661 | 1,546 | 1,060 | 37 | 15 | 8,761 | 3,267 | 782 | 3,459 | 1,078 | 620 | 603 | 7 | 3 | 28,685 | 11,407 | 2,113 | 17,827 | 3,441 | 3,342 | 2,133 | 93 | 31 |

| End of Year | The Dalles (OR) | | | | | | | | | Lincoln City & Newport | | | | | | | | | Portland | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible |
| 2007 | 4,021 | 57 | 33 | 121 | 1,000 | 19 | 19 | 10 | 5 | 7,928 | 96 | 65 | 208 | 1,258 | 17 | 18 | 4 | 1 | 352,573 | 2,683 | 1,960 | 4,370 | 33,956 | 471 | 345 | 353 | 74 |
| 2008 | 4,003 | 118 | 61 | 229 | 984 | 40 | 39 | 10 | 5 | 7,893 | 184 | 119 | 419 | 1,238 | 32 | 37 | 4 | 1 | 351,056 | 5,256 | 3,729 | 8,302 | 33,415 | 909 | 684 | 352 | 73 |
| 2009 | 3,986 | 189 | 98 | 362 | 968 | 70 | 75 | 10 | 5 | 7,859 | 301 | 184 | 649 | 1,218 | 58 | 59 | 4 | 1 | 349,538 | 8,363 | 5,913 | 13,147 | 32,875 | 1,346 | 1,021 | 353 | 74 |
| 2010 | 3,969 | 263 | 137 | 505 | 952 | 100 | 111 | 11 | 5 | 7,825 | 421 | 252 | 896 | 1,198 | 84 | 81 | 4 | 1 | 348,021 | 11,599 | 8,275 | 18,384 | 32,334 | 1,783 | 1,358 | 356 | 74 |
| 2011 | 3,951 | 337 | 176 | 653 | 937 | 130 | 147 | 11 | 5 | 7,791 | 543 | 322 | 1,153 | 1,178 | 110 | 103 | 5 | 1 | 346,503 | 14,943 | 10,740 | 23,836 | 31,793 | 2,220 | 1,695 | 359 | 75 |
| 2012 | 3,934 | 412 | 215 | 806 | 921 | 160 | 183 | 11 | 5 | 7,757 | 667 | 393 | 1,418 | 1,158 | 136 | 125 | 5 | 1 | 344,985 | 18,386 | 13,334 | 29,512 | 31,252 | 2,657 | 2,032 | 360 | 75 |
| 2013 | 3,917 | 487 | 254 | 970 | 905 | 190 | 219 | 11 | 5 | 7,723 | 793 | 464 | 1,694 | 1,138 | 162 | 147 | 5 | 1 | 343,468 | 21,944 | 15,952 | 35,199 | 30,711 | 3,094 | 2,369 | 360 | 75 |
| 2014 | 3,899 | 562 | 293 | 1,134 | 889 | 220 | 255 | 11 | 5 | 7,689 | 919 | 535 | 1,970 | 1,118 | 188 | 169 | 5 | 1 | 341,950 | 25,502 | 18,570 | 40,886 | 30,170 | 3,531 | 2,706 | 361 | 75 |
| 2015 | 3,882 | 637 | 332 | 1,298 | 873 | 250 | 291 | 11 | 5 | 7,655 | 1,045 | 606 | 2,246 | 1,098 | 214 | 191 | 5 | 1 | 340,433 | 29,060 | 21,188 | 46,573 | 29,630 | 3,968 | 3,043 | 362 | 75 |
| 2016 | 3,865 | 712 | 371 | 1,462 | 857 | 280 | 327 | 11 | 5 | 7,620 | 1,171 | 677 | 2,522 | 1,078 | 240 | 213 | 5 | 1 | 338,915 | 32,618 | 23,806 | 52,260 | 29,089 | 4,405 | 3,380 | 363 | 76 |
| 2017 | 3,847 | 787 | 410 | 1,626 | 841 | 310 | 363 | 11 | 5 | 7,586 | 1,297 | 748 | 2,798 | 1,058 | 266 | 235 | 5 | 1 | 337,397 | 36,176 | 26,424 | 57,947 | 28,548 | 4,842 | 3,717 | 364 | 76 |
| 2018 | 3,830 | 862 | 449 | 1,790 | 825 | 340 | 399 | 11 | 5 | 7,552 | 1,423 | 819 | 3,074 | 1,038 | 292 | 257 | 5 | 1 | 335,880 | 39,734 | 29,042 | 63,634 | 28,007 | 5,279 | 4,054 | 364 | 76 |
| 2019 | 3,813 | 937 | 488 | 1,954 | 809 | 370 | 435 | 11 | 5 | 7,518 | 1,549 | 890 | 3,350 | 1,018 | 318 | 279 | 5 | 1 | 334,362 | 43,292 | 31,660 | 69,321 | 27,466 | 5,716 | 4,391 | 365 | 76 |
| 2020 | 3,796 | 1,012 | 527 | 2,118 | 793 | 400 | 471 | 11 | 5 | 7,484 | 1,675 | 961 | 3,626 | 998 | 344 | 301 | 5 | 1 | 332,845 | 46,850 | 34,278 | 75,008 | 26,925 | 6,153 | 4,728 | 366 | 76 |
| 2021 | 3,778 | 1,087 | 566 | 2,282 | 777 | 430 | 507 | 11 | 5 | 7,450 | 1,801 | 1,032 | 3,902 | 977 | 370 | 323 | 5 | 1 | 331,327 | 50,408 | 36,896 | 80,695 | 26,384 | 6,590 | 5,065 | 367 | 76 |
| 2022 | 3,761 | 1,162 | 605 | 2,446 | 761 | 460 | 543 | 11 | 5 | 7,416 | 1,927 | 1,103 | 4,178 | 957 | 396 | 345 | 5 | 1 | 329,809 | 53,966 | 39,514 | 86,382 | 25,844 | 7,027 | 5,402 | 368 | 77 |
| 2023 | 3,744 | 1,237 | 644 | 2,610 | 745 | 490 | 579 | 11 | 5 | 7,382 | 2,053 | 1,174 | 4,454 | 937 | 422 | 367 | 5 | 1 | 328,292 | 57,524 | 42,132 | 92,069 | 25,303 | 7,464 | 5,739 | 368 | 77 |
| 2024 | 3,726 | 1,312 | 683 | 2,774 | 729 | 520 | 615 | 11 | 5 | 7,347 | 2,179 | 1,245 | 4,730 | 917 | 448 | 389 | 5 | 1 | 326,774 | 61,082 | 44,750 | 97,756 | 24,762 | 7,901 | 6,076 | 369 | 77 |
| 2025 | 3,709 | 1,387 | 722 | 2,938 | 714 | 550 | 651 | 11 | 5 | 7,313 | 2,305 | 1,316 | 5,006 | 897 | 474 | 411 | 5 | 1 | 325,257 | 64,640 | 47,368 | 103,443 | 24,221 | 8,338 | 6,413 | 370 | 77 |
| 2026 | 3,692 | 1,462 | 761 | 3,102 | 698 | 580 | 687 | 11 | 5 | 7,279 | 2,431 | 1,387 | 5,282 | 877 | 500 | 433 | 5 | 1 | 323,739 | 68,198 | 49,986 | 109,130 | 23,680 | 8,775 | 6,750 | 371 | 77 |
| 2027 | 3,674 | 1,537 | 800 | 3,266 | 682 | 610 | 723 | 11 | 5 | 7,245 | 2,557 | 1,458 | 5,558 | 857 | 526 | 455 | 5 | 1 | 322,221 | 71,756 | 52,604 | 114,817 | 23,139 | 9,212 | 7,087 | 372 | 77 |

| End of Year | Salem | | | | | | | | | Vancouver & The Dalles (WA) | | | | | | | | | System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 74,832 | 433 | 137 | 1,714 | 8,061 | 100 | 144 | 95 | 37 | 58,531 | 284 | 328 | 1,767 | 4,966 | 107 | 131 | 30 | 12 | 573,126 | 4,274 | 2,743 | 9,743 | 59,777 | 930 | 798 | 623 | 175 |
| 2008 | 74,510 | 859 | 264 | 3,255 | 7,933 | 219 | 300 | 95 | 37 | 58,397 | 566 | 629 | 3,364 | 4,931 | 222 | 264 | 29 | 12 | 570,777 | 8,420 | 5,173 | 18,534 | 58,869 | 1,856 | 1,662 | 621 | 174 |
| 2009 | 74,188 | 1,369 | 419 | 5,154 | 7,805 | 337 | 456 | 96 | 37 | 58,263 | 910 | 1,007 | 5,368 | 4,896 | 339 | 400 | 30 | 12 | 568,428 | 13,420 | 8,231 | 29,376 | 57,961 | 2,851 | 2,531 | 624 | 175 |
| 2010 | 73,866 | 1,897 | 583 | 7,202 | 7,676 | 455 | 612 | 96 | 37 | 58,129 | 1,265 | 1,414 | 7,530 | 4,861 | 456 | 536 | 30 | 12 | 566,079 | 18,620 | 11,529 | 41,071 | 57,053 | 3,846 | 3,400 | 629 | 177 |
| 2011 | 73,544 | 2,442 | 755 | 9,330 | 7,548 | 573 | 768 | 97 | 37 | 57,995 | 1,630 | 1,836 | 9,780 | 4,826 | 573 | 672 | 30 | 13 | 563,730 | 23,976 | 14,961 | 53,239 | 56,145 | 4,841 | 4,269 | 633 | 178 |
| 2012 | 73,221 | 3,001 | 930 | 11,540 | 7,419 | 691 | 924 | 97 | 38 | 57,861 | 2,008 | 2,276 | 12,117 | 4,791 | 690 | 808 | 30 | 13 | 561,381 | 29,493 | 18,552 | 65,880 | 55,237 | 5,836 | 5,138 | 635 | 178 |
| 2013 | 72,899 | 3,576 | 1,105 | 13,786 | 7,291 | 809 | 1,080 | 97 | 38 | 57,727 | 2,394 | 2,716 | 14,496 | 4,756 | 807 | 944 | 30 | 13 | 559,032 | 35,175 | 22,167 | 78,699 | 54,329 | 6,831 | 6,007 | 636 | 179 |
| 2014 | 72,577 | 4,151 | 1,280 | 16,032 | 7,163 | 927 | 1,236 | 98 | 38 | 57,593 | 2,780 | 3,156 | 16,875 | 4,721 | 924 | 1,080 | 30 | 13 | 556,683 | 40,857 | 25,782 | 91,518 | 53,421 | 7,826 | 6,876 | 637 | 179 |
| 2015 | 72,255 | 4,726 | 1,455 | 18,278 | 7,034 | 1,045 | 1,392 | 98 | 38 | 57,459 | 3,166 | 3,596 | 19,254 | 4,686 | 1,041 | 1,216 | 30 | 13 | 554,334 | 46,539 | 29,397 | 104,337 | 52,513 | 8,821 | 7,745 | 639 | 179 |
| 2016 | 71,933 | 5,301 | 1,630 | 20,524 | 6,906 | 1,163 | 1,548 | 98 | 38 | 57,325 | 3,552 | 4,036 | 21,633 | 4,651 | 1,158 | 1,352 | 30 | 13 | 551,985 | 52,221 | 33,012 | 117,156 | 51,605 | 9,816 | 8,614 | 640 | 180 |
| 2017 | 71,611 | 5,876 | 1,805 | 22,770 | 6,777 | 1,281 | 1,704 | 98 | 38 | 57,191 | 3,938 | 4,476 | 24,012 | 4,616 | 1,275 | 1,488 | 30 | 13 | 549,636 | 57,903 | 36,627 | 129,975 | 50,697 | 10,811 | 9,483 | 642 | 180 |
| 2018 | 71,289 | 6,451 | 1,980 | 25,016 | 6,649 | 1,399 | 1,860 | 99 | 38 | 57,057 | 4,324 | 4,916 | 26,391 | 4,581 | 1,392 | 1,624 | 30 | 13 | 547,287 | 63,585 | 40,242 | 142,794 | 49,789 | 11,806 | 10,352 | 643 | 181 |
| 2019 | 70,967 | 7,026 | 2,155 | 27,262 | 6,521 | 1,517 | 2,016 | 99 | 38 | 56,923 | 4,710 | 5,356 | 28,770 | 4,546 | 1,509 | 1,760 | 31 | 13 | 544,938 | 69,267 | 43,857 | 155,613 | 48,881 | 12,801 | 11,221 | 644 | 181 |
| 2020 | 70,645 | 7,601 | 2,330 | 29,508 | 6,392 | 1,635 | 2,172 | 99 | 38 | 56,789 | 5,096 | 5,796 | 31,149 | 4,511 | 1,626 | 1,896 | 31 | 13 | 542,589 | 74,949 | 47,472 | 168,432 | 47,973 | 13,796 | 12,090 | 646 | 181 |
| 2021 | 70,323 | 8,176 | 2,505 | 31,754 | 6,264 | 1,753 | 2,328 | 99 | 38 | 56,655 | 5,482 | 6,236 | 33,528 | 4,476 | 1,743 | 2,032 | 31 | 13 | 540,240 | 80,631 | 51,087 | 181,251 | 47,065 | 14,791 | 12,959 | 647 | 182 |
| 2022 | 70,000 | 8,751 | 2,680 | 34,000 | 6,136 | 1,871 | 2,484 | 99 | 38 | 56,521 | 5,868 | 6,676 | 35,907 | 4,441 | 1,860 | 2,168 | 31 | 13 | 537,891 | 86,313 | 54,702 | 194,070 | 46,157 | 15,786 | 13,828 | 649 | 182 |
| 2023 | 69,678 | 9,326 | 2,855 | 36,246 | 6,007 | 1,989 | 2,640 | 100 | 38 | 56,387 | 6,254 | 7,116 | 38,286 | 4,406 | 1,977 | 2,304 | 31 | 13 | 535,542 | 91,995 | 58,317 | 206,889 | 45,249 | 16,781 | 14,697 | 650 | 183 |
| 2024 | 69,356 | 9,901 | 3,030 | 38,492 | 5,879 | 2,107 | 2,796 | 100 | 38 | 56,253 | 6,640 | 7,556 | 40,665 | 4,371 | 2,094 | 2,440 | 31 | 13 | 533,193 | 97,677 | 61,932 | 219,708 | 44,341 | 17,776 | 15,566 | 652 | 183 |
| 2025 | 69,034 | 10,476 | 3,205 | 40,738 | 5,750 | 2,225 | 2,952 | 100 | 39 | 56,119 | 7,026 | 7,996 | 43,044 | 4,336 | 2,211 | 2,576 | 31 | 13 | 530,844 | 103,359 | 65,547 | 232,527 | 43,433 | 18,771 | 16,435 | 653 | 183 |
| 2026 | 68,712 | 11,051 | 3,380 | 42,984 | 5,622 | 2,343 | 3,108 | 100 | 39 | 55,985 | 7,412 | 8,436 | 45,423 | 4,301 | 2,328 | 2,712 | 31 | 13 | 528,495 | 109,041 | 69,162 | 245,346 | 42,525 | 19,766 | 17,304 | 654 | 184 |
| 2027 | 68,390 | 11,626 | 3,555 | 45,230 | 5,494 | 2,461 | 3,264 | 101 | 39 | 55,851 | 7,798 | 8,876 | 47,802 | 4,266 | 2,445 | 2,848 | 31 | 13 | 526,146 | 114,723 | 72,777 | 258,165 | 41,617 | 20,761 | 18,173 | 656 | 184 |

# Appendix 2-15: Customer Forecast – High Growth Scenario

| | Albany | | | | | | | | | Astoria | | | | | | | | | Eugene & Coos Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | |
| End of Year | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible |
| 2007 | 34,268 | 241 | 141 | 1,049 | 3,904 | 85 | 55 | 36 | 15 | 9,587 | 168 | 46 | 176 | 1,582 | 26 | 32 | 7 | 3 | 31,387 | 578 | 115 | 920 | 5,049 | 187 | 109 | 88 | 29 |
| 2008 | 34,120 | 488 | 207 | 2,028 | 3,842 | 141 | 126 | 35 | 15 | 9,545 | 342 | 88 | 336 | 1,557 | 69 | 72 | 7 | 3 | 31,252 | 1,179 | 222 | 1,777 | 4,968 | 391 | 270 | 88 | 29 |
| 2009 | 33,973 | 770 | 362 | 3,188 | 3,780 | 246 | 196 | 36 | 15 | 9,504 | 538 | 137 | 531 | 1,531 | 110 | 112 | 7 | 3 | 31,117 | 1,866 | 345 | 2,793 | 4,888 | 613 | 410 | 88 | 29 |
| 2010 | 33,825 | 1,067 | 529 | 4,435 | 3,718 | 352 | 267 | 36 | 15 | 9,463 | 743 | 188 | 736 | 1,506 | 152 | 153 | 7 | 3 | 30,982 | 2,578 | 480 | 3,882 | 4,808 | 837 | 552 | 89 | 29 |
| 2011 | 33,678 | 1,368 | 701 | 5,743 | 3,656 | 459 | 339 | 36 | 15 | 9,421 | 955 | 240 | 952 | 1,481 | 194 | 193 | 7 | 3 | 30,847 | 3,312 | 619 | 5,019 | 4,727 | 1,063 | 695 | 89 | 30 |
| 2012 | 33,530 | 1,684 | 881 | 7,108 | 3,593 | 566 | 411 | 36 | 15 | 9,380 | 1,178 | 293 | 1,172 | 1,456 | 236 | 234 | 7 | 3 | 30,712 | 4,072 | 763 | 6,206 | 4,647 | 1,291 | 840 | 90 | 30 |
| 2013 | 33,383 | 2,017 | 1,064 | 8,516 | 3,531 | 675 | 484 | 36 | 15 | 9,339 | 1,404 | 346 | 1,416 | 1,431 | 279 | 276 | 7 | 3 | 30,577 | 4,863 | 909 | 7,452 | 4,566 | 1,521 | 986 | 90 | 30 |
| 2014 | 33,235 | 2,354 | 1,249 | 9,946 | 3,469 | 785 | 558 | 36 | 15 | 9,298 | 1,633 | 400 | 1,664 | 1,406 | 323 | 318 | 7 | 3 | 30,441 | 5,667 | 1,057 | 8,718 | 4,486 | 1,754 | 1,133 | 90 | 30 |
| 2015 | 33,088 | 2,697 | 1,437 | 11,398 | 3,407 | 896 | 632 | 36 | 15 | 9,256 | 1,866 | 455 | 1,916 | 1,380 | 366 | 360 | 7 | 3 | 30,306 | 6,482 | 1,208 | 10,004 | 4,405 | 1,989 | 1,282 | 90 | 30 |
| 2016 | 32,940 | 3,045 | 1,628 | 12,874 | 3,345 | 1,008 | 707 | 37 | 15 | 9,215 | 2,102 | 511 | 2,171 | 1,355 | 411 | 403 | 7 | 3 | 30,171 | 7,311 | 1,361 | 11,310 | 4,325 | 2,226 | 1,432 | 90 | 30 |
| 2017 | 32,793 | 3,399 | 1,822 | 14,372 | 3,282 | 1,121 | 783 | 37 | 15 | 9,174 | 2,343 | 568 | 2,431 | 1,330 | 455 | 446 | 7 | 3 | 30,036 | 8,153 | 1,516 | 12,637 | 4,245 | 2,465 | 1,584 | 90 | 30 |
| 2018 | 32,645 | 3,758 | 2,019 | 15,893 | 3,220 | 1,235 | 860 | 37 | 15 | 9,133 | 2,587 | 625 | 2,695 | 1,305 | 500 | 489 | 7 | 3 | 29,901 | 9,007 | 1,673 | 13,984 | 4,164 | 2,707 | 1,737 | 91 | 30 |
| 2019 | 32,498 | 4,123 | 2,219 | 17,439 | 3,158 | 1,350 | 937 | 37 | 15 | 9,091 | 2,834 | 684 | 2,963 | 1,280 | 546 | 533 | 7 | 3 | 29,766 | 9,876 | 1,833 | 15,353 | 4,084 | 2,951 | 1,892 | 91 | 30 |
| 2020 | 32,350 | 4,493 | 2,422 | 19,008 | 3,096 | 1,466 | 1,015 | 37 | 15 | 9,050 | 3,086 | 743 | 3,235 | 1,254 | 592 | 578 | 7 | 3 | 29,631 | 10,757 | 1,996 | 16,742 | 4,003 | 3,198 | 2,048 | 91 | 30 |
| 2021 | 32,203 | 4,870 | 2,629 | 20,602 | 3,034 | 1,584 | 1,094 | 37 | 15 | 9,009 | 3,342 | 804 | 3,511 | 1,229 | 638 | 623 | 7 | 3 | 29,496 | 11,653 | 2,161 | 18,154 | 3,923 | 3,447 | 2,206 | 91 | 30 |
| 2022 | 32,055 | 5,252 | 2,838 | 22,221 | 2,972 | 1,703 | 1,173 | 37 | 15 | 8,968 | 3,601 | 865 | 3,791 | 1,204 | 685 | 668 | 7 | 3 | 29,361 | 12,562 | 2,329 | 19,587 | 3,843 | 3,698 | 2,365 | 91 | 30 |
| 2023 | 31,908 | 5,640 | 3,051 | 23,865 | 2,909 | 1,823 | 1,254 | 37 | 15 | 8,926 | 3,865 | 927 | 4,076 | 1,179 | 732 | 714 | 7 | 3 | 29,226 | 13,485 | 2,499 | 21,043 | 3,762 | 3,952 | 2,526 | 92 | 30 |
| 2024 | 31,760 | 6,034 | 3,267 | 25,534 | 2,847 | 1,944 | 1,335 | 37 | 15 | 8,885 | 4,133 | 990 | 4,366 | 1,154 | 780 | 760 | 7 | 3 | 29,090 | 14,423 | 2,672 | 22,521 | 3,682 | 4,209 | 2,688 | 92 | 31 |
| 2025 | 31,613 | 6,434 | 3,487 | 27,229 | 2,785 | 2,066 | 1,417 | 37 | 15 | 8,844 | 4,404 | 1,054 | 4,659 | 1,128 | 828 | 807 | 7 | 3 | 28,955 | 15,375 | 2,848 | 24,022 | 3,601 | 4,468 | 2,852 | 92 | 31 |
| 2026 | 31,465 | 6,840 | 3,710 | 28,951 | 2,723 | 2,189 | 1,500 | 37 | 15 | 8,803 | 4,681 | 1,119 | 4,958 | 1,103 | 877 | 854 | 7 | 3 | 28,820 | 16,342 | 3,026 | 25,546 | 3,521 | 4,729 | 3,018 | 92 | 31 |
| 2027 | 31,318 | 7,253 | 3,936 | 30,699 | 2,661 | 2,314 | 1,584 | 37 | 15 | 8,761 | 4,961 | 1,186 | 5,261 | 1,078 | 926 | 901 | 7 | 3 | 28,685 | 17,324 | 3,207 | 27,094 | 3,441 | 4,993 | 3,186 | 93 | 31 |

| | The Dalles (OR) | | | | | | | | | Lincoln City & Newport | | | | | | | | | Portland | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | | Residential | | | | Commercial | | | | |
| End of Year | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | Industrial | Interruptible |
| 2007 | 4,021 | 78 | 45 | 166 | 1,000 | 27 | 26 | 10 | 5 | 7,928 | 132 | 90 | 285 | 1,258 | 23 | 24 | 4 | 1 | 352,573 | 3,679 | 2,687 | 5,991 | 33,956 | 650 | 477 | 353 | 74 |
| 2008 | 4,003 | 165 | 85 | 320 | 984 | 55 | 53 | 10 | 5 | 7,893 | 257 | 166 | 586 | 1,238 | 44 | 51 | 4 | 1 | 351,056 | 7,345 | 5,209 | 11,596 | 33,415 | 1,256 | 944 | 352 | 73 |
| 2009 | 3,986 | 262 | 136 | 502 | 968 | 96 | 103 | 10 | 5 | 7,859 | 417 | 255 | 900 | 1,218 | 80 | 81 | 4 | 1 | 349,538 | 11,599 | 8,199 | 18,230 | 32,875 | 1,858 | 1,409 | 353 | 74 |
| 2010 | 3,969 | 363 | 189 | 697 | 952 | 138 | 153 | 11 | 5 | 7,825 | 581 | 348 | 1,238 | 1,198 | 116 | 112 | 4 | 1 | 348,021 | 16,026 | 11,430 | 25,394 | 32,334 | 2,466 | 1,877 | 356 | 74 |
| 2011 | 3,951 | 465 | 243 | 901 | 937 | 180 | 204 | 11 | 5 | 7,791 | 749 | 444 | 1,592 | 1,178 | 152 | 143 | 5 | 1 | 346,503 | 20,630 | 14,824 | 32,901 | 31,793 | 3,079 | 2,350 | 359 | 75 |
| 2012 | 3,934 | 569 | 297 | 1,113 | 921 | 222 | 255 | 11 | 5 | 7,757 | 921 | 543 | 1,959 | 1,158 | 189 | 174 | 5 | 1 | 344,985 | 25,402 | 18,419 | 40,768 | 31,252 | 3,699 | 2,828 | 360 | 75 |
| 2013 | 3,917 | 674 | 352 | 1,343 | 905 | 265 | 306 | 11 | 5 | 7,723 | 1,098 | 642 | 2,346 | 1,138 | 226 | 205 | 5 | 1 | 343,468 | 30,391 | 22,090 | 48,742 | 30,711 | 4,324 | 3,310 | 360 | 75 |
| 2014 | 3,899 | 781 | 407 | 1,577 | 889 | 309 | 358 | 11 | 5 | 7,689 | 1,277 | 743 | 2,740 | 1,118 | 264 | 237 | 5 | 1 | 341,950 | 35,458 | 25,819 | 56,841 | 30,170 | 4,956 | 3,797 | 361 | 75 |
| 2015 | 3,882 | 890 | 464 | 1,814 | 873 | 352 | 411 | 11 | 5 | 7,655 | 1,460 | 846 | 3,139 | 1,098 | 302 | 269 | 5 | 1 | 340,433 | 40,605 | 29,606 | 65,068 | 29,630 | 5,593 | 4,289 | 362 | 75 |
| 2016 | 3,865 | 1,000 | 521 | 2,055 | 857 | 397 | 464 | 11 | 5 | 7,620 | 1,645 | 950 | 3,544 | 1,078 | 340 | 301 | 5 | 1 | 338,915 | 45,833 | 33,452 | 73,423 | 29,089 | 6,237 | 4,785 | 363 | 76 |
| 2017 | 3,847 | 1,112 | 579 | 2,300 | 841 | 441 | 517 | 11 | 5 | 7,586 | 1,833 | 1,056 | 3,956 | 1,058 | 379 | 334 | 5 | 1 | 337,397 | 51,142 | 37,359 | 81,910 | 28,548 | 6,887 | 5,286 | 364 | 76 |
| 2018 | 3,830 | 1,225 | 638 | 2,548 | 825 | 486 | 571 | 11 | 5 | 7,552 | 2,024 | 1,164 | 4,374 | 1,038 | 418 | 367 | 5 | 1 | 335,880 | 56,535 | 41,327 | 90,529 | 28,007 | 7,543 | 5,792 | 364 | 76 |
| 2019 | 3,813 | 1,341 | 698 | 2,801 | 809 | 532 | 626 | 11 | 5 | 7,518 | 2,218 | 1,273 | 4,799 | 1,018 | 457 | 401 | 5 | 1 | 334,362 | 62,011 | 45,356 | 99,282 | 27,466 | 8,205 | 6,303 | 365 | 76 |
| 2020 | 3,796 | 1,458 | 759 | 3,057 | 793 | 578 | 681 | 11 | 5 | 7,484 | 2,415 | 1,384 | 5,231 | 998 | 497 | 434 | 5 | 1 | 332,845 | 67,573 | 49,449 | 108,172 | 26,925 | 8,875 | 6,819 | 366 | 76 |
| 2021 | 3,778 | 1,577 | 821 | 3,317 | 777 | 624 | 737 | 11 | 5 | 7,450 | 2,615 | 1,497 | 5,669 | 977 | 537 | 468 | 5 | 1 | 331,327 | 73,222 | 53,605 | 117,201 | 26,384 | 9,550 | 7,341 | 367 | 76 |
| 2022 | 3,761 | 1,698 | 884 | 3,582 | 761 | 671 | 793 | 11 | 5 | 7,416 | 2,818 | 1,611 | 6,114 | 957 | 578 | 503 | 5 | 1 | 329,809 | 78,958 | 57,826 | 126,370 | 25,844 | 10,233 | 7,867 | 368 | 77 |
| 2023 | 3,744 | 1,821 | 948 | 3,850 | 745 | 718 | 850 | 11 | 5 | 7,382 | 3,024 | 1,728 | 6,566 | 937 | 619 | 537 | 5 | 1 | 328,292 | 84,784 | 62,113 | 135,681 | 25,303 | 10,922 | 8,398 | 368 | 77 |
| 2024 | 3,726 | 1,946 | 1,013 | 4,123 | 729 | 766 | 907 | 11 | 5 | 7,347 | 3,234 | 1,846 | 7,025 | 917 | 660 | 572 | 5 | 1 | 326,774 | 90,700 | 66,466 | 145,137 | 24,762 | 11,618 | 8,935 | 369 | 77 |
| 2025 | 3,709 | 2,072 | 1,079 | 4,400 | 714 | 814 | 965 | 11 | 5 | 7,313 | 3,446 | 1,965 | 7,491 | 897 | 702 | 608 | 5 | 1 | 325,257 | 96,707 | 70,886 | 154,739 | 24,221 | 12,321 | 9,477 | 370 | 77 |
| 2026 | 3,692 | 2,201 | 1,146 | 4,681 | 698 | 863 | 1,023 | 11 | 5 | 7,279 | 3,662 | 2,087 | 7,964 | 877 | 744 | 643 | 5 | 1 | 323,739 | 102,808 | 75,375 | 164,490 | 23,680 | 13,031 | 10,025 | 371 | 77 |
| 2027 | 3,674 | 2,331 | 1,213 | 4,967 | 682 | 912 | 1,082 | 11 | 5 | 7,245 | 3,882 | 2,211 | 8,444 | 857 | 787 | 680 | 5 | 1 | 322,221 | 109,002 | 79,933 | 174,392 | 23,139 | 13,748 | 10,578 | 372 | 77 |

| End of Year | Salem | | | | | | | | | Vancouver & The Dalles (WA) | | | | | | | | | System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 74,832 | 594 | 187 | 2,350 | 8,061 | 138 | 199 | 95 | 37 | 58,531 | 357 | 413 | 2,222 | 4,966 | 131 | 160 | 30 | 12 | 573,126 | 5,827 | 3,724 | 13,159 | 59,777 | 1,267 | 1,082 | 623 | 175 |
| 2008 | 74,510 | 1,201 | 369 | 4,546 | 7,933 | 302 | 415 | 95 | 37 | 58,397 | 725 | 805 | 4,304 | 4,931 | 272 | 323 | 29 | 12 | 570,777 | 11,702 | 7,150 | 25,492 | 58,869 | 2,529 | 2,254 | 621 | 174 |
| 2009 | 74,188 | 1,899 | 581 | 7,146 | 7,805 | 465 | 630 | 96 | 37 | 58,263 | 1,161 | 1,283 | 6,839 | 4,896 | 417 | 492 | 30 | 12 | 568,428 | 18,512 | 11,298 | 40,129 | 57,961 | 3,885 | 3,434 | 624 | 175 |
| 2010 | 73,866 | 2,622 | 805 | 9,947 | 7,676 | 629 | 847 | 96 | 37 | 58,129 | 1,611 | 1,800 | 9,585 | 4,861 | 565 | 664 | 30 | 12 | 566,079 | 25,591 | 15,770 | 55,916 | 57,053 | 5,254 | 4,625 | 629 | 177 |
| 2011 | 73,544 | 3,372 | 1,042 | 12,877 | 7,548 | 794 | 1,066 | 97 | 37 | 57,995 | 2,080 | 2,342 | 12,472 | 4,826 | 716 | 839 | 30 | 13 | 563,730 | 32,931 | 20,455 | 72,458 | 56,145 | 6,637 | 5,829 | 633 | 178 |
| 2012 | 73,221 | 4,147 | 1,285 | 15,941 | 7,419 | 962 | 1,287 | 97 | 38 | 57,861 | 2,569 | 2,912 | 15,500 | 4,791 | 868 | 1,017 | 30 | 13 | 561,381 | 40,544 | 25,393 | 89,767 | 55,237 | 8,034 | 7,046 | 635 | 178 |
| 2013 | 72,899 | 4,953 | 1,530 | 19,090 | 7,291 | 1,131 | 1,510 | 97 | 38 | 57,727 | 3,077 | 3,490 | 18,626 | 4,756 | 1,023 | 1,197 | 30 | 13 | 559,032 | 48,477 | 30,423 | 107,532 | 54,329 | 9,446 | 8,275 | 636 | 179 |
| 2014 | 72,577 | 5,772 | 1,779 | 22,288 | 7,163 | 1,301 | 1,736 | 98 | 38 | 57,593 | 3,593 | 4,078 | 21,806 | 4,721 | 1,181 | 1,380 | 30 | 13 | 556,683 | 56,535 | 35,533 | 125,580 | 53,421 | 10,872 | 9,517 | 637 | 179 |
| 2015 | 72,255 | 6,604 | 2,033 | 25,537 | 7,034 | 1,473 | 1,963 | 98 | 38 | 57,459 | 4,117 | 4,676 | 25,040 | 4,686 | 1,341 | 1,566 | 30 | 13 | 554,334 | 64,721 | 40,724 | 143,916 | 52,513 | 12,313 | 10,772 | 639 | 179 |
| 2016 | 71,933 | 7,448 | 2,290 | 28,837 | 6,906 | 1,647 | 2,193 | 98 | 38 | 57,325 | 4,651 | 5,284 | 28,329 | 4,651 | 1,503 | 1,755 | 30 | 13 | 551,985 | 73,036 | 45,997 | 162,545 | 51,605 | 13,768 | 12,041 | 640 | 180 |
| 2017 | 71,611 | 8,306 | 2,551 | 32,189 | 6,777 | 1,822 | 2,425 | 98 | 38 | 57,191 | 5,194 | 5,903 | 31,675 | 4,616 | 1,669 | 1,947 | 30 | 13 | 549,636 | 81,481 | 51,354 | 181,469 | 50,697 | 15,239 | 13,323 | 642 | 180 |
| 2018 | 71,289 | 9,178 | 2,816 | 35,593 | 6,649 | 2,000 | 2,659 | 99 | 38 | 57,057 | 5,746 | 6,533 | 35,078 | 4,581 | 1,836 | 2,142 | 30 | 13 | 547,287 | 90,060 | 56,795 | 200,694 | 49,789 | 16,725 | 14,618 | 643 | 181 |
| 2019 | 70,967 | 10,063 | 3,085 | 39,050 | 6,521 | 2,179 | 2,896 | 99 | 38 | 56,923 | 6,307 | 7,173 | 38,538 | 4,546 | 2,006 | 2,339 | 31 | 13 | 544,938 | 98,773 | 62,322 | 220,224 | 48,881 | 18,227 | 15,927 | 644 | 181 |
| 2020 | 70,645 | 10,962 | 3,359 | 42,561 | 6,392 | 2,359 | 3,135 | 99 | 38 | 56,789 | 6,878 | 7,823 | 42,057 | 4,511 | 2,179 | 2,540 | 31 | 13 | 542,589 | 107,623 | 67,936 | 240,063 | 47,973 | 19,744 | 17,251 | 646 | 181 |
| 2021 | 70,323 | 11,875 | 3,637 | 46,127 | 6,264 | 2,542 | 3,376 | 99 | 38 | 56,655 | 7,459 | 8,485 | 45,635 | 4,476 | 2,355 | 2,744 | 31 | 13 | 540,240 | 116,612 | 73,638 | 260,216 | 47,065 | 21,277 | 18,588 | 647 | 182 |
| 2022 | 70,000 | 12,802 | 3,919 | 49,748 | 6,136 | 2,726 | 3,620 | 99 | 38 | 56,521 | 8,049 | 9,158 | 49,274 | 4,441 | 2,533 | 2,952 | 31 | 13 | 537,891 | 125,740 | 79,430 | 280,687 | 46,157 | 22,826 | 19,940 | 649 | 182 |
| 2023 | 69,678 | 13,743 | 4,206 | 53,425 | 6,007 | 2,912 | 3,866 | 100 | 38 | 56,387 | 8,650 | 9,842 | 52,973 | 4,406 | 2,714 | 3,162 | 31 | 13 | 535,542 | 135,012 | 85,313 | 301,480 | 45,249 | 24,392 | 21,307 | 650 | 183 |
| 2024 | 69,356 | 14,699 | 4,497 | 57,160 | 5,879 | 3,100 | 4,114 | 100 | 38 | 56,253 | 9,260 | 10,538 | 56,735 | 4,371 | 2,898 | 3,376 | 31 | 13 | 533,193 | 144,428 | 91,288 | 322,600 | 44,341 | 25,974 | 22,688 | 652 | 183 |
| 2025 | 69,034 | 15,670 | 4,792 | 60,952 | 5,750 | 3,290 | 4,365 | 100 | 39 | 56,119 | 9,881 | 11,246 | 60,560 | 4,336 | 3,085 | 3,593 | 31 | 13 | 530,844 | 153,991 | 97,356 | 344,053 | 43,433 | 27,574 | 24,084 | 653 | 183 |
| 2026 | 68,712 | 16,656 | 5,092 | 64,803 | 5,622 | 3,482 | 4,618 | 100 | 39 | 55,985 | 10,512 | 11,965 | 64,449 | 4,301 | 3,274 | 3,813 | 31 | 13 | 528,495 | 163,702 | 103,519 | 365,842 | 42,525 | 29,190 | 25,495 | 654 | 184 |
| 2027 | 68,390 | 17,657 | 5,397 | 68,713 | 5,494 | 3,675 | 4,875 | 101 | 39 | 55,851 | 11,153 | 12,696 | 68,402 | 4,266 | 3,467 | 4,037 | 31 | 13 | 526,146 | 173,564 | 109,778 | 387,972 | 41,617 | 30,823 | 26,922 | 656 | 184 |

# Appendix 2-16: Customer Forecast – Low No Growth Scenario

| End of Year | Albany | | | | | | | | | Astoria | | | | | | | | | Eugene & Coos Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 34,268 | 176 | 103 | 765 | 3,904 | 61 | 40 | 36 | 15 | 9,587 | 122 | 34 | 128 | 1,582 | 19 | 23 | 7 | 3 | 31,387 | 422 | 84 | 671 | 5,049 | 136 | 79 | 88 | 29 |
| 2008 | 34,120 | 205 | 111 | 881 | 3,842 | 85 | 69 | 35 | 15 | 9,545 | 143 | 39 | 147 | 1,557 | 36 | 40 | 7 | 3 | 31,252 | 492 | 96 | 772 | 4,968 | 219 | 145 | 88 | 29 |
| 2009 | 33,973 | 233 | 126 | 997 | 3,780 | 126 | 97 | 36 | 15 | 9,504 | 162 | 44 | 166 | 1,531 | 52 | 55 | 7 | 3 | 31,117 | 561 | 109 | 874 | 4,888 | 306 | 200 | 88 | 29 |
| 2010 | 33,825 | 261 | 142 | 1,113 | 3,718 | 167 | 124 | 36 | 15 | 9,463 | 182 | 48 | 186 | 1,506 | 69 | 71 | 7 | 3 | 30,982 | 628 | 121 | 976 | 4,808 | 393 | 255 | 89 | 29 |
| 2011 | 33,678 | 288 | 157 | 1,231 | 3,656 | 208 | 152 | 36 | 15 | 9,421 | 201 | 53 | 205 | 1,481 | 85 | 87 | 7 | 3 | 30,847 | 694 | 134 | 1,078 | 4,727 | 481 | 311 | 89 | 30 |
| 2012 | 33,530 | 315 | 173 | 1,348 | 3,593 | 249 | 179 | 36 | 15 | 9,380 | 220 | 58 | 224 | 1,456 | 101 | 103 | 7 | 3 | 30,712 | 759 | 146 | 1,180 | 4,647 | 568 | 366 | 90 | 30 |
| 2013 | 33,383 | 343 | 188 | 1,466 | 3,531 | 290 | 207 | 36 | 15 | 9,339 | 239 | 62 | 244 | 1,431 | 117 | 118 | 7 | 3 | 30,577 | 825 | 158 | 1,284 | 4,566 | 655 | 421 | 90 | 30 |
| 2014 | 33,235 | 371 | 203 | 1,583 | 3,469 | 332 | 235 | 36 | 15 | 9,298 | 258 | 66 | 265 | 1,406 | 134 | 134 | 7 | 3 | 30,441 | 891 | 171 | 1,388 | 4,486 | 742 | 476 | 90 | 30 |
| 2015 | 33,088 | 399 | 219 | 1,701 | 3,407 | 373 | 262 | 36 | 15 | 9,256 | 276 | 71 | 285 | 1,380 | 150 | 150 | 7 | 3 | 30,306 | 957 | 183 | 1,492 | 4,405 | 830 | 532 | 90 | 30 |
| 2016 | 32,940 | 427 | 234 | 1,819 | 3,345 | 414 | 290 | 37 | 15 | 9,215 | 295 | 75 | 306 | 1,355 | 166 | 165 | 7 | 3 | 30,171 | 1,023 | 195 | 1,596 | 4,325 | 917 | 587 | 90 | 30 |
| 2017 | 32,793 | 454 | 249 | 1,936 | 3,282 | 455 | 318 | 37 | 15 | 9,174 | 314 | 80 | 326 | 1,330 | 182 | 181 | 7 | 3 | 30,036 | 1,089 | 207 | 1,700 | 4,245 | 1,004 | 642 | 90 | 30 |
| 2018 | 32,645 | 482 | 264 | 2,054 | 3,220 | 496 | 345 | 37 | 15 | 9,133 | 333 | 84 | 346 | 1,305 | 199 | 197 | 7 | 3 | 29,901 | 1,155 | 219 | 1,804 | 4,164 | 1,091 | 698 | 91 | 30 |
| 2019 | 32,498 | 510 | 279 | 2,171 | 3,158 | 538 | 373 | 37 | 15 | 9,091 | 352 | 89 | 367 | 1,280 | 215 | 213 | 7 | 3 | 29,766 | 1,222 | 231 | 1,909 | 4,084 | 1,179 | 753 | 91 | 30 |
| 2020 | 32,350 | 538 | 295 | 2,289 | 3,096 | 579 | 401 | 37 | 15 | 9,050 | 371 | 93 | 387 | 1,254 | 231 | 228 | 7 | 3 | 29,631 | 1,288 | 244 | 2,013 | 4,003 | 1,266 | 808 | 91 | 30 |
| 2021 | 32,203 | 565 | 310 | 2,407 | 3,034 | 620 | 428 | 37 | 15 | 9,009 | 390 | 98 | 407 | 1,229 | 248 | 244 | 7 | 3 | 29,496 | 1,354 | 256 | 2,117 | 3,923 | 1,353 | 863 | 91 | 30 |
| 2022 | 32,055 | 593 | 325 | 2,524 | 2,972 | 661 | 456 | 37 | 15 | 8,968 | 408 | 102 | 428 | 1,204 | 264 | 260 | 7 | 3 | 29,361 | 1,420 | 268 | 2,221 | 3,843 | 1,440 | 919 | 91 | 30 |
| 2023 | 31,908 | 621 | 340 | 2,642 | 2,909 | 702 | 483 | 37 | 15 | 8,926 | 427 | 106 | 448 | 1,179 | 280 | 275 | 7 | 3 | 29,226 | 1,486 | 280 | 2,325 | 3,762 | 1,528 | 974 | 92 | 30 |
| 2024 | 31,760 | 649 | 356 | 2,759 | 2,847 | 743 | 511 | 37 | 15 | 8,885 | 446 | 111 | 469 | 1,154 | 296 | 291 | 7 | 3 | 29,090 | 1,552 | 292 | 2,429 | 3,682 | 1,615 | 1,029 | 92 | 31 |
| 2025 | 31,613 | 676 | 371 | 2,877 | 2,785 | 785 | 539 | 37 | 15 | 8,844 | 465 | 115 | 489 | 1,128 | 313 | 307 | 7 | 3 | 28,955 | 1,618 | 305 | 2,533 | 3,601 | 1,702 | 1,084 | 92 | 31 |
| 2026 | 31,465 | 704 | 386 | 2,995 | 2,723 | 826 | 566 | 37 | 15 | 8,803 | 484 | 120 | 509 | 1,103 | 329 | 323 | 7 | 3 | 28,820 | 1,684 | 317 | 2,637 | 3,521 | 1,789 | 1,140 | 92 | 31 |
| 2027 | 31,318 | 732 | 401 | 3,112 | 2,661 | 867 | 594 | 37 | 15 | 8,761 | 503 | 124 | 530 | 1,078 | 345 | 338 | 7 | 3 | 28,685 | 1,750 | 329 | 2,742 | 3,441 | 1,877 | 1,195 | 93 | 31 |

| End of Year | The Dalles (OR) | | | | | | | | | Lincoln City & Newport | | | | | | | | | Portland | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 4,021 | 57 | 33 | 121 | 1,000 | 19 | 19 | 10 | 5 | 7,928 | 96 | 65 | 208 | 1,258 | 17 | 18 | 4 | 1 | 352,573 | 2,683 | 1,960 | 4,370 | 33,956 | 471 | 345 | 353 | 74 |
| 2008 | 4,003 | 67 | 37 | 139 | 984 | 31 | 30 | 10 | 5 | 7,893 | 111 | 74 | 243 | 1,238 | 25 | 28 | 4 | 1 | 351,056 | 3,115 | 2,257 | 5,030 | 33,415 | 719 | 537 | 352 | 73 |
| 2009 | 3,986 | 77 | 43 | 158 | 968 | 47 | 49 | 10 | 5 | 7,859 | 127 | 83 | 275 | 1,218 | 39 | 40 | 4 | 1 | 349,538 | 3,541 | 2,556 | 5,694 | 32,875 | 956 | 719 | 353 | 74 |
| 2010 | 3,969 | 86 | 48 | 176 | 952 | 63 | 69 | 11 | 5 | 7,825 | 142 | 92 | 306 | 1,198 | 53 | 52 | 4 | 1 | 348,021 | 3,956 | 2,859 | 6,365 | 32,334 | 1,192 | 902 | 356 | 74 |
| 2011 | 3,951 | 95 | 52 | 194 | 937 | 80 | 88 | 11 | 5 | 7,791 | 157 | 101 | 338 | 1,178 | 67 | 64 | 5 | 1 | 346,503 | 4,369 | 3,164 | 7,039 | 31,793 | 1,429 | 1,085 | 359 | 75 |
| 2012 | 3,934 | 104 | 57 | 212 | 921 | 96 | 108 | 11 | 5 | 7,757 | 172 | 109 | 370 | 1,158 | 82 | 76 | 5 | 1 | 344,985 | 4,780 | 3,473 | 7,716 | 31,252 | 1,666 | 1,267 | 360 | 75 |
| 2013 | 3,917 | 113 | 62 | 232 | 905 | 112 | 127 | 11 | 5 | 7,723 | 187 | 117 | 402 | 1,138 | 96 | 88 | 5 | 1 | 343,468 | 5,196 | 3,779 | 8,382 | 30,711 | 1,903 | 1,450 | 360 | 75 |
| 2014 | 3,899 | 122 | 66 | 251 | 889 | 128 | 147 | 11 | 5 | 7,689 | 202 | 126 | 434 | 1,118 | 110 | 100 | 5 | 1 | 341,950 | 5,613 | 4,086 | 9,048 | 30,170 | 2,140 | 1,632 | 361 | 75 |
| 2015 | 3,882 | 131 | 71 | 270 | 873 | 145 | 166 | 11 | 5 | 7,655 | 217 | 134 | 467 | 1,098 | 124 | 112 | 5 | 1 | 340,433 | 6,030 | 4,392 | 9,714 | 29,630 | 2,376 | 1,815 | 362 | 75 |
| 2016 | 3,865 | 139 | 75 | 289 | 857 | 161 | 186 | 11 | 5 | 7,620 | 231 | 142 | 499 | 1,078 | 138 | 124 | 5 | 1 | 338,915 | 6,446 | 4,699 | 10,380 | 29,089 | 2,613 | 1,998 | 363 | 76 |
| 2017 | 3,847 | 148 | 80 | 308 | 841 | 177 | 205 | 11 | 5 | 7,586 | 246 | 151 | 531 | 1,058 | 152 | 136 | 5 | 1 | 337,397 | 6,863 | 5,006 | 11,046 | 28,548 | 2,850 | 2,180 | 364 | 76 |
| 2018 | 3,830 | 157 | 84 | 328 | 825 | 193 | 225 | 11 | 5 | 7,552 | 261 | 159 | 564 | 1,038 | 166 | 148 | 5 | 1 | 335,880 | 7,280 | 5,312 | 11,712 | 28,007 | 3,087 | 2,363 | 364 | 76 |
| 2019 | 3,813 | 166 | 89 | 347 | 809 | 210 | 245 | 11 | 5 | 7,518 | 276 | 167 | 596 | 1,018 | 180 | 160 | 5 | 1 | 334,362 | 7,697 | 5,619 | 12,378 | 27,466 | 3,324 | 2,546 | 365 | 76 |
| 2020 | 3,796 | 175 | 94 | 366 | 793 | 226 | 264 | 11 | 5 | 7,484 | 290 | 176 | 628 | 998 | 194 | 171 | 5 | 1 | 332,845 | 8,113 | 5,926 | 13,044 | 26,925 | 3,561 | 2,728 | 366 | 76 |
| 2021 | 3,778 | 183 | 98 | 385 | 777 | 242 | 284 | 11 | 5 | 7,450 | 305 | 184 | 661 | 977 | 208 | 183 | 5 | 1 | 331,327 | 8,530 | 6,232 | 13,711 | 26,384 | 3,797 | 2,911 | 367 | 76 |
| 2022 | 3,761 | 192 | 103 | 405 | 761 | 258 | 303 | 11 | 5 | 7,416 | 320 | 192 | 693 | 957 | 222 | 195 | 5 | 1 | 329,809 | 8,947 | 6,539 | 14,377 | 25,844 | 4,034 | 3,093 | 368 | 77 |
| 2023 | 3,744 | 201 | 107 | 424 | 745 | 275 | 323 | 11 | 5 | 7,382 | 335 | 201 | 725 | 937 | 237 | 207 | 5 | 1 | 328,292 | 9,364 | 6,846 | 15,043 | 25,303 | 4,271 | 3,276 | 368 | 77 |
| 2024 | 3,726 | 210 | 112 | 443 | 729 | 291 | 342 | 11 | 5 | 7,347 | 349 | 209 | 758 | 917 | 251 | 219 | 5 | 1 | 326,774 | 9,780 | 7,152 | 15,709 | 24,762 | 4,508 | 3,459 | 369 | 77 |
| 2025 | 3,709 | 219 | 116 | 462 | 714 | 307 | 362 | 11 | 5 | 7,313 | 364 | 217 | 790 | 897 | 265 | 231 | 5 | 1 | 325,257 | 10,197 | 7,459 | 16,375 | 24,221 | 4,745 | 3,641 | 370 | 77 |
| 2026 | 3,692 | 227 | 121 | 481 | 698 | 323 | 381 | 11 | 5 | 7,279 | 379 | 226 | 822 | 877 | 279 | 243 | 5 | 1 | 323,739 | 10,614 | 7,766 | 17,041 | 23,680 | 4,981 | 3,824 | 371 | 77 |
| 2027 | 3,674 | 236 | 126 | 501 | 682 | 340 | 401 | 11 | 5 | 7,245 | 394 | 234 | 855 | 857 | 293 | 255 | 5 | 1 | 322,221 | 11,031 | 8,072 | 17,707 | 23,139 | 5,218 | 4,006 | 372 | 77 |

| End of Year | Salem | | | | | | | | | Vancouver & The Dalles (WA) | | | | | | | | | System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 74,832 | 433 | 137 | 1,714 | 8,061 | 100 | 144 | 95 | 37 | 58,531 | 284 | 328 | 1,767 | 4,966 | 107 | 131 | 30 | 12 | 573,126 | 4,274 | 2,743 | 9,743 | 59,777 | 930 | 798 | 623 | 175 |
| 2008 | 74,510 | 505 | 158 | 1,973 | 7,933 | 167 | 232 | 95 | 37 | 58,397 | 301 | 347 | 1,865 | 4,931 | 124 | 150 | 29 | 12 | 570,777 | 4,940 | 3,119 | 11,050 | 58,869 | 1,405 | 1,231 | 621 | 174 |
| 2009 | 74,188 | 575 | 179 | 2,233 | 7,805 | 231 | 317 | 96 | 37 | 58,263 | 318 | 365 | 1,963 | 4,896 | 140 | 168 | 30 | 12 | 568,428 | 5,595 | 3,505 | 12,359 | 57,961 | 1,897 | 1,647 | 624 | 175 |
| 2010 | 73,866 | 642 | 200 | 2,496 | 7,676 | 295 | 402 | 96 | 37 | 58,129 | 335 | 384 | 2,062 | 4,861 | 156 | 187 | 30 | 12 | 566,079 | 6,232 | 3,894 | 13,681 | 57,053 | 2,389 | 2,063 | 629 | 177 |
| 2011 | 73,544 | 710 | 222 | 2,759 | 7,548 | 359 | 486 | 97 | 37 | 57,995 | 351 | 403 | 2,162 | 4,826 | 172 | 206 | 30 | 13 | 563,730 | 6,865 | 4,285 | 15,006 | 56,145 | 2,881 | 2,479 | 633 | 178 |
| 2012 | 73,221 | 776 | 242 | 3,022 | 7,419 | 423 | 571 | 97 | 38 | 57,861 | 367 | 421 | 2,261 | 4,791 | 188 | 225 | 30 | 13 | 561,381 | 7,494 | 4,679 | 16,333 | 55,237 | 3,373 | 2,895 | 635 | 178 |
| 2013 | 72,899 | 844 | 263 | 3,285 | 7,291 | 487 | 655 | 97 | 38 | 57,727 | 383 | 440 | 2,360 | 4,756 | 205 | 244 | 30 | 13 | 559,032 | 8,130 | 5,069 | 17,655 | 54,329 | 3,865 | 3,311 | 636 | 179 |
| 2014 | 72,577 | 911 | 283 | 3,548 | 7,163 | 551 | 740 | 98 | 38 | 57,593 | 399 | 458 | 2,460 | 4,721 | 221 | 263 | 30 | 13 | 556,683 | 8,766 | 5,460 | 18,977 | 53,421 | 4,357 | 3,727 | 637 | 179 |
| 2015 | 72,255 | 978 | 304 | 3,811 | 7,034 | 615 | 824 | 98 | 38 | 57,459 | 415 | 476 | 2,559 | 4,686 | 237 | 281 | 30 | 13 | 554,334 | 9,403 | 5,850 | 20,299 | 52,513 | 4,849 | 4,143 | 639 | 179 |
| 2016 | 71,933 | 1,046 | 324 | 4,074 | 6,906 | 679 | 909 | 98 | 38 | 57,325 | 431 | 495 | 2,659 | 4,651 | 253 | 300 | 30 | 13 | 551,985 | 10,039 | 6,240 | 21,622 | 51,605 | 5,341 | 4,559 | 640 | 180 |
| 2017 | 71,611 | 1,113 | 345 | 4,337 | 6,777 | 743 | 993 | 98 | 38 | 57,191 | 447 | 513 | 2,758 | 4,616 | 269 | 319 | 30 | 13 | 549,636 | 10,676 | 6,630 | 22,944 | 50,697 | 5,833 | 4,975 | 642 | 180 |
| 2018 | 71,289 | 1,180 | 365 | 4,600 | 6,649 | 807 | 1,078 | 99 | 38 | 57,057 | 464 | 532 | 2,858 | 4,581 | 285 | 338 | 30 | 13 | 547,287 | 11,312 | 7,021 | 24,266 | 49,789 | 6,325 | 5,391 | 643 | 181 |
| 2019 | 70,967 | 1,248 | 386 | 4,863 | 6,521 | 871 | 1,162 | 99 | 38 | 56,923 | 480 | 550 | 2,957 | 4,546 | 302 | 357 | 31 | 13 | 544,938 | 11,949 | 7,411 | 25,588 | 48,881 | 6,817 | 5,807 | 644 | 181 |
| 2020 | 70,645 | 1,315 | 406 | 5,127 | 6,392 | 935 | 1,247 | 99 | 38 | 56,789 | 496 | 568 | 3,057 | 4,511 | 318 | 375 | 31 | 13 | 542,589 | 12,585 | 7,801 | 26,911 | 47,973 | 7,309 | 6,223 | 646 | 181 |
| 2021 | 70,323 | 1,382 | 427 | 5,390 | 6,264 | 999 | 1,331 | 99 | 38 | 56,655 | 512 | 587 | 3,156 | 4,476 | 334 | 394 | 31 | 13 | 540,240 | 13,222 | 8,191 | 28,233 | 47,065 | 7,801 | 6,639 | 647 | 182 |
| 2022 | 70,000 | 1,450 | 447 | 5,653 | 6,136 | 1,062 | 1,416 | 99 | 38 | 56,521 | 528 | 605 | 3,255 | 4,441 | 350 | 413 | 31 | 13 | 537,891 | 13,858 | 8,582 | 29,555 | 46,157 | 8,293 | 7,055 | 649 | 182 |
| 2023 | 69,678 | 1,517 | 468 | 5,916 | 6,007 | 1,126 | 1,501 | 100 | 38 | 56,387 | 544 | 624 | 3,355 | 4,406 | 366 | 432 | 31 | 13 | 535,542 | 14,494 | 8,972 | 30,878 | 45,249 | 8,785 | 7,471 | 650 | 183 |
| 2024 | 69,356 | 1,584 | 488 | 6,179 | 5,879 | 1,190 | 1,585 | 100 | 38 | 56,253 | 560 | 642 | 3,454 | 4,371 | 383 | 451 | 31 | 13 | 533,193 | 15,131 | 9,362 | 32,200 | 44,341 | 9,277 | 7,887 | 652 | 183 |
| 2025 | 69,034 | 1,652 | 509 | 6,442 | 5,750 | 1,254 | 1,670 | 100 | 39 | 56,119 | 577 | 660 | 3,554 | 4,336 | 399 | 470 | 31 | 13 | 530,844 | 15,767 | 9,753 | 33,522 | 43,433 | 9,769 | 8,303 | 653 | 183 |
| 2026 | 68,712 | 1,719 | 529 | 6,705 | 5,622 | 1,318 | 1,754 | 100 | 39 | 55,985 | 593 | 679 | 3,653 | 4,301 | 415 | 488 | 31 | 13 | 528,495 | 16,404 | 10,143 | 34,844 | 42,525 | 10,261 | 8,719 | 654 | 184 |
| 2027 | 68,390 | 1,786 | 550 | 6,968 | 5,494 | 1,382 | 1,839 | 101 | 39 | 55,851 | 609 | 697 | 3,753 | 4,266 | 431 | 507 | 31 | 13 | 526,146 | 17,040 | 10,533 | 36,167 | 41,617 | 10,753 | 9,135 | 656 | 184 |

# Appendix 2-17: Customer Forecast – Negative Growth Scenario

| End of Year | Albany | | | | | | | | | Astoria | | | | | | | | | Eugene & Coos Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 34,268 | 176 | 103 | 765 | 3,904 | 61 | 40 | 36 | 15 | 9,587 | 122 | 34 | 128 | 1,582 | 19 | 23 | 7 | 3 | 31,387 | 422 | 84 | 671 | 5,049 | 136 | 79 | 88 | 29 |
| 2008 | 33,916 | 176 | 103 | 765 | 3,842 | 70 | 50 | 35 | 14 | 9,488 | 122 | 34 | 128 | 1,557 | 25 | 29 | 7 | 3 | 31,065 | 422 | 84 | 671 | 4,968 | 165 | 102 | 87 | 29 |
| 2009 | 33,567 | 176 | 103 | 765 | 3,780 | 84 | 60 | 35 | 14 | 9,390 | 122 | 34 | 128 | 1,531 | 31 | 35 | 7 | 3 | 30,745 | 422 | 84 | 671 | 4,888 | 197 | 122 | 86 | 29 |
| 2010 | 33,222 | 176 | 103 | 765 | 3,718 | 100 | 70 | 34 | 14 | 9,294 | 122 | 34 | 128 | 1,506 | 37 | 41 | 6 | 3 | 30,429 | 422 | 84 | 671 | 4,808 | 229 | 143 | 85 | 28 |
| 2011 | 32,880 | 176 | 103 | 765 | 3,656 | 115 | 81 | 34 | 14 | 9,198 | 122 | 34 | 128 | 1,481 | 43 | 46 | 6 | 3 | 30,116 | 422 | 84 | 671 | 4,727 | 261 | 163 | 84 | 28 |
| 2012 | 32,541 | 176 | 103 | 765 | 3,593 | 131 | 91 | 34 | 14 | 9,104 | 122 | 34 | 128 | 1,456 | 49 | 52 | 6 | 3 | 29,806 | 422 | 84 | 671 | 4,647 | 295 | 184 | 84 | 28 |
| 2013 | 32,206 | 176 | 103 | 765 | 3,531 | 147 | 102 | 33 | 14 | 9,010 | 122 | 34 | 128 | 1,431 | 55 | 58 | 6 | 3 | 29,499 | 422 | 84 | 671 | 4,566 | 328 | 206 | 83 | 27 |
| 2014 | 31,875 | 176 | 103 | 765 | 3,469 | 163 | 113 | 33 | 14 | 8,917 | 122 | 34 | 128 | 1,406 | 62 | 65 | 6 | 3 | 29,195 | 422 | 84 | 671 | 4,486 | 363 | 227 | 82 | 27 |
| 2015 | 31,546 | 176 | 103 | 765 | 3,407 | 179 | 124 | 33 | 13 | 8,825 | 122 | 34 | 128 | 1,380 | 68 | 71 | 6 | 3 | 28,895 | 422 | 84 | 671 | 4,405 | 397 | 249 | 81 | 27 |
| 2016 | 31,221 | 176 | 103 | 765 | 3,345 | 196 | 135 | 32 | 13 | 8,734 | 122 | 34 | 128 | 1,355 | 75 | 77 | 6 | 3 | 28,597 | 422 | 84 | 671 | 4,325 | 433 | 272 | 80 | 27 |
| 2017 | 30,900 | 176 | 103 | 765 | 3,282 | 213 | 146 | 32 | 13 | 8,644 | 122 | 34 | 128 | 1,330 | 81 | 84 | 6 | 3 | 28,302 | 422 | 84 | 671 | 4,245 | 469 | 295 | 79 | 26 |
| 2018 | 30,581 | 176 | 103 | 765 | 3,220 | 230 | 158 | 32 | 13 | 8,555 | 122 | 34 | 128 | 1,305 | 88 | 90 | 6 | 3 | 28,010 | 422 | 84 | 671 | 4,164 | 505 | 318 | 79 | 26 |
| 2019 | 30,266 | 176 | 103 | 765 | 3,158 | 247 | 170 | 31 | 13 | 8,467 | 122 | 34 | 128 | 1,280 | 95 | 97 | 6 | 3 | 27,721 | 422 | 84 | 671 | 4,084 | 542 | 341 | 78 | 26 |
| 2020 | 29,953 | 176 | 103 | 765 | 3,096 | 265 | 181 | 31 | 13 | 8,380 | 122 | 34 | 128 | 1,254 | 102 | 104 | 6 | 3 | 27,435 | 422 | 84 | 671 | 4,003 | 579 | 365 | 77 | 26 |
| 2021 | 29,644 | 176 | 103 | 765 | 3,034 | 283 | 193 | 31 | 13 | 8,293 | 122 | 34 | 128 | 1,229 | 109 | 110 | 6 | 2 | 27,152 | 422 | 84 | 671 | 3,923 | 617 | 389 | 76 | 25 |
| 2022 | 29,338 | 176 | 103 | 765 | 2,972 | 301 | 206 | 31 | 13 | 8,207 | 122 | 34 | 128 | 1,204 | 116 | 117 | 6 | 2 | 26,872 | 422 | 84 | 671 | 3,843 | 655 | 413 | 76 | 25 |
| 2023 | 29,035 | 176 | 103 | 765 | 2,909 | 319 | 218 | 30 | 12 | 8,123 | 122 | 34 | 128 | 1,179 | 123 | 124 | 6 | 2 | 26,595 | 422 | 84 | 671 | 3,762 | 694 | 438 | 75 | 25 |
| 2024 | 28,735 | 176 | 103 | 765 | 2,847 | 338 | 230 | 30 | 12 | 8,039 | 122 | 34 | 128 | 1,154 | 131 | 131 | 6 | 2 | 26,320 | 422 | 84 | 671 | 3,682 | 734 | 462 | 74 | 25 |
| 2025 | 28,438 | 176 | 103 | 765 | 2,785 | 357 | 243 | 30 | 12 | 7,956 | 122 | 34 | 128 | 1,128 | 138 | 139 | 6 | 2 | 26,048 | 422 | 84 | 671 | 3,601 | 773 | 488 | 73 | 24 |
| 2026 | 28,145 | 176 | 103 | 765 | 2,723 | 376 | 256 | 29 | 12 | 7,874 | 122 | 34 | 128 | 1,103 | 146 | 146 | 6 | 2 | 25,779 | 422 | 84 | 671 | 3,521 | 814 | 513 | 73 | 24 |
| 2027 | 27,853 | 176 | 103 | 765 | 2,661 | 395 | 269 | 29 | 12 | 7,792 | 122 | 34 | 128 | 1,078 | 153 | 153 | 5 | 2 | 25,512 | 422 | 84 | 671 | 3,441 | 855 | 539 | 72 | 24 |

| End of Year | The Dalles (OR) | | | | | | | | | Lincoln City & Newport | | | | | | | | | Portland | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 4,021 | 57 | 33 | 121 | 1,000 | 19 | 19 | 10 | 5 | 7,928 | 96 | 65 | 208 | 1,258 | 17 | 18 | 4 | 1 | 352,573 | 2,683 | 1,960 | 4,370 | 33,956 | 471 | 345 | 353 | 74 |
| 2008 | 3,979 | 57 | 33 | 121 | 984 | 24 | 23 | 10 | 5 | 7,846 | 96 | 65 | 208 | 1,238 | 20 | 21 | 4 | 1 | 348,949 | 2,683 | 1,960 | 4,370 | 33,415 | 559 | 413 | 350 | 73 |
| 2009 | 3,938 | 57 | 33 | 121 | 968 | 29 | 30 | 10 | 5 | 7,765 | 96 | 65 | 208 | 1,218 | 25 | 26 | 4 | 1 | 345,361 | 2,683 | 1,960 | 4,370 | 32,875 | 644 | 479 | 346 | 72 |
| 2010 | 3,898 | 57 | 33 | 121 | 952 | 35 | 37 | 10 | 5 | 7,685 | 96 | 65 | 208 | 1,198 | 30 | 30 | 4 | 1 | 341,809 | 2,683 | 1,960 | 4,370 | 32,334 | 731 | 546 | 343 | 71 |
| 2011 | 3,858 | 57 | 33 | 121 | 937 | 41 | 44 | 10 | 5 | 7,606 | 96 | 65 | 208 | 1,178 | 35 | 35 | 4 | 1 | 338,292 | 2,683 | 1,960 | 4,370 | 31,793 | 820 | 615 | 339 | 71 |
| 2012 | 3,818 | 57 | 33 | 121 | 921 | 48 | 52 | 10 | 5 | 7,528 | 96 | 65 | 208 | 1,158 | 41 | 39 | 4 | 1 | 334,811 | 2,683 | 1,960 | 4,370 | 31,252 | 910 | 684 | 336 | 70 |
| 2013 | 3,779 | 57 | 33 | 121 | 905 | 54 | 59 | 10 | 4 | 7,451 | 96 | 65 | 208 | 1,138 | 46 | 44 | 4 | 1 | 331,364 | 2,683 | 1,960 | 4,370 | 30,711 | 1,002 | 755 | 332 | 69 |
| 2014 | 3,740 | 57 | 33 | 121 | 889 | 60 | 67 | 10 | 4 | 7,374 | 96 | 65 | 208 | 1,118 | 52 | 48 | 4 | 1 | 327,952 | 2,683 | 1,960 | 4,370 | 30,170 | 1,095 | 827 | 329 | 69 |
| 2015 | 3,701 | 57 | 33 | 121 | 873 | 67 | 75 | 10 | 4 | 7,298 | 96 | 65 | 208 | 1,098 | 57 | 53 | 4 | 1 | 324,574 | 2,683 | 1,960 | 4,370 | 29,630 | 1,189 | 900 | 326 | 68 |
| 2016 | 3,663 | 57 | 33 | 121 | 857 | 73 | 82 | 10 | 4 | 7,223 | 96 | 65 | 208 | 1,078 | 63 | 58 | 4 | 1 | 321,230 | 2,683 | 1,960 | 4,370 | 29,089 | 1,285 | 973 | 323 | 67 |
| 2017 | 3,625 | 57 | 33 | 121 | 841 | 80 | 90 | 9 | 4 | 7,148 | 96 | 65 | 208 | 1,058 | 69 | 63 | 4 | 1 | 317,919 | 2,683 | 1,960 | 4,370 | 28,548 | 1,382 | 1,048 | 319 | 67 |
| 2018 | 3,588 | 57 | 33 | 121 | 825 | 87 | 99 | 9 | 4 | 7,075 | 96 | 65 | 208 | 1,038 | 75 | 68 | 4 | 1 | 314,641 | 2,683 | 1,960 | 4,370 | 28,007 | 1,481 | 1,125 | 316 | 66 |
| 2019 | 3,551 | 57 | 33 | 121 | 809 | 94 | 107 | 9 | 4 | 7,002 | 96 | 65 | 208 | 1,018 | 81 | 73 | 4 | 1 | 311,396 | 2,683 | 1,960 | 4,370 | 27,466 | 1,581 | 1,202 | 313 | 65 |
| 2020 | 3,514 | 57 | 33 | 121 | 793 | 101 | 115 | 9 | 4 | 6,929 | 96 | 65 | 208 | 998 | 87 | 78 | 4 | 1 | 308,184 | 2,683 | 1,960 | 4,370 | 26,925 | 1,683 | 1,280 | 310 | 65 |
| 2021 | 3,478 | 57 | 33 | 121 | 777 | 108 | 124 | 9 | 4 | 6,858 | 96 | 65 | 208 | 977 | 93 | 83 | 4 | 1 | 305,003 | 2,683 | 1,960 | 4,370 | 26,384 | 1,785 | 1,359 | 307 | 64 |
| 2022 | 3,442 | 57 | 33 | 121 | 761 | 115 | 132 | 9 | 4 | 6,787 | 96 | 65 | 208 | 957 | 99 | 88 | 4 | 1 | 301,855 | 2,683 | 1,960 | 4,370 | 25,844 | 1,890 | 1,440 | 304 | 63 |
| 2023 | 3,407 | 57 | 33 | 121 | 745 | 122 | 141 | 9 | 4 | 6,717 | 96 | 65 | 208 | 937 | 105 | 94 | 4 | 1 | 298,738 | 2,683 | 1,960 | 4,370 | 25,303 | 1,995 | 1,521 | 301 | 63 |
| 2024 | 3,371 | 57 | 33 | 121 | 729 | 129 | 150 | 9 | 4 | 6,648 | 96 | 65 | 208 | 917 | 112 | 99 | 4 | 1 | 295,652 | 2,683 | 1,960 | 4,370 | 24,762 | 2,102 | 1,603 | 298 | 62 |
| 2025 | 3,337 | 57 | 33 | 121 | 714 | 137 | 159 | 9 | 4 | 6,579 | 96 | 65 | 208 | 897 | 118 | 105 | 4 | 1 | 292,597 | 2,683 | 1,960 | 4,370 | 24,221 | 2,210 | 1,687 | 295 | 61 |
| 2026 | 3,302 | 57 | 33 | 121 | 698 | 144 | 168 | 9 | 4 | 6,511 | 96 | 65 | 208 | 877 | 124 | 110 | 4 | 1 | 289,572 | 2,683 | 1,960 | 4,370 | 23,680 | 2,319 | 1,771 | 292 | 61 |
| 2027 | 3,268 | 57 | 33 | 121 | 682 | 152 | 177 | 9 | 4 | 6,444 | 96 | 65 | 208 | 857 | 131 | 116 | 4 | 1 | 286,578 | 2,683 | 1,960 | 4,370 | 23,139 | 2,430 | 1,856 | 289 | 60 |

| End of Year | Salem | | | | | | | | | Vancouver & The Dalles (WA) | | | | | | | | | System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 74,832 | 433 | 137 | 1,714 | 8,061 | 100 | 144 | 95 | 37 | 58,531 | 284 | 328 | 1,767 | 4,966 | 107 | 131 | 30 | 12 | 573,126 | 4,274 | 2,743 | 9,743 | 59,777 | 930 | 798 | 623 | 175 |
| 2008 | 74,063 | 433 | 137 | 1,714 | 7,933 | 124 | 175 | 95 | 36 | 57,922 | 284 | 328 | 1,767 | 4,914 | 107 | 131 | 29 | 12 | 567,227 | 4,274 | 2,743 | 9,743 | 58,852 | 1,093 | 945 | 617 | 173 |
| 2009 | 73,301 | 433 | 137 | 1,714 | 7,805 | 147 | 206 | 94 | 36 | 57,319 | 284 | 328 | 1,767 | 4,862 | 107 | 131 | 29 | 12 | 561,387 | 4,274 | 2,743 | 9,743 | 57,927 | 1,265 | 1,089 | 611 | 172 |
| 2010 | 72,547 | 433 | 137 | 1,714 | 7,676 | 171 | 237 | 93 | 36 | 56,722 | 284 | 328 | 1,767 | 4,811 | 107 | 131 | 29 | 12 | 555,606 | 4,274 | 2,743 | 9,743 | 57,003 | 1,440 | 1,235 | 604 | 170 |
| 2011 | 71,801 | 433 | 137 | 1,714 | 7,548 | 195 | 269 | 92 | 35 | 56,131 | 284 | 328 | 1,767 | 4,761 | 107 | 131 | 28 | 12 | 549,882 | 4,274 | 2,743 | 9,743 | 56,080 | 1,618 | 1,383 | 598 | 168 |
| 2012 | 71,062 | 433 | 137 | 1,714 | 7,419 | 219 | 301 | 91 | 35 | 55,546 | 284 | 328 | 1,767 | 4,711 | 107 | 131 | 28 | 12 | 544,216 | 4,274 | 2,743 | 9,743 | 55,157 | 1,799 | 1,535 | 592 | 166 |
| 2013 | 70,330 | 433 | 137 | 1,714 | 7,291 | 244 | 333 | 90 | 35 | 54,967 | 284 | 328 | 1,767 | 4,661 | 107 | 131 | 28 | 12 | 538,606 | 4,274 | 2,743 | 9,743 | 54,234 | 1,983 | 1,688 | 587 | 165 |
| 2014 | 69,606 | 433 | 137 | 1,714 | 7,163 | 269 | 367 | 89 | 34 | 54,393 | 284 | 328 | 1,767 | 4,612 | 107 | 131 | 27 | 12 | 533,052 | 4,274 | 2,743 | 9,743 | 53,312 | 2,170 | 1,844 | 581 | 163 |
| 2015 | 68,889 | 433 | 137 | 1,714 | 7,034 | 294 | 400 | 88 | 34 | 53,825 | 284 | 328 | 1,767 | 4,564 | 107 | 131 | 27 | 11 | 527,554 | 4,274 | 2,743 | 9,743 | 52,391 | 2,360 | 2,003 | 575 | 161 |
| 2016 | 68,179 | 433 | 137 | 1,714 | 6,906 | 320 | 435 | 87 | 34 | 53,263 | 284 | 328 | 1,767 | 4,516 | 107 | 131 | 27 | 11 | 522,111 | 4,274 | 2,743 | 9,743 | 51,470 | 2,552 | 2,164 | 569 | 160 |
| 2017 | 67,477 | 433 | 137 | 1,714 | 6,777 | 346 | 469 | 86 | 33 | 52,707 | 284 | 328 | 1,767 | 4,468 | 107 | 131 | 27 | 11 | 516,722 | 4,274 | 2,743 | 9,743 | 50,549 | 2,748 | 2,327 | 563 | 158 |
| 2018 | 66,781 | 433 | 137 | 1,714 | 6,649 | 373 | 505 | 85 | 33 | 52,156 | 284 | 328 | 1,767 | 4,421 | 107 | 131 | 26 | 11 | 511,388 | 4,274 | 2,743 | 9,743 | 49,629 | 2,946 | 2,492 | 558 | 157 |
| 2019 | 66,092 | 433 | 137 | 1,714 | 6,521 | 400 | 540 | 85 | 33 | 51,611 | 284 | 328 | 1,767 | 4,375 | 107 | 131 | 26 | 11 | 506,106 | 4,274 | 2,743 | 9,743 | 48,710 | 3,147 | 2,660 | 552 | 155 |
| 2020 | 65,410 | 433 | 137 | 1,714 | 6,392 | 428 | 577 | 84 | 32 | 51,071 | 284 | 328 | 1,767 | 4,329 | 107 | 131 | 26 | 11 | 500,877 | 4,274 | 2,743 | 9,743 | 47,791 | 3,351 | 2,830 | 547 | 154 |
| 2021 | 64,735 | 433 | 137 | 1,714 | 6,264 | 455 | 613 | 83 | 32 | 50,536 | 284 | 328 | 1,767 | 4,283 | 107 | 131 | 26 | 11 | 495,701 | 4,274 | 2,743 | 9,743 | 46,872 | 3,558 | 3,003 | 541 | 152 |
| 2022 | 64,067 | 433 | 137 | 1,714 | 6,136 | 483 | 650 | 82 | 32 | 50,007 | 284 | 328 | 1,767 | 4,238 | 107 | 131 | 25 | 11 | 490,576 | 4,274 | 2,743 | 9,743 | 45,954 | 3,767 | 3,177 | 536 | 151 |
| 2023 | 63,406 | 433 | 137 | 1,714 | 6,007 | 512 | 688 | 81 | 31 | 49,483 | 284 | 328 | 1,767 | 4,193 | 107 | 131 | 25 | 11 | 485,503 | 4,274 | 2,743 | 9,743 | 45,036 | 3,979 | 3,354 | 530 | 149 |
| 2024 | 62,751 | 433 | 137 | 1,714 | 5,879 | 541 | 726 | 80 | 31 | 48,965 | 284 | 328 | 1,767 | 4,149 | 107 | 131 | 25 | 10 | 480,480 | 4,274 | 2,743 | 9,743 | 44,119 | 4,193 | 3,533 | 525 | 148 |
| 2025 | 62,102 | 433 | 137 | 1,714 | 5,750 | 570 | 765 | 80 | 31 | 48,451 | 284 | 328 | 1,767 | 4,105 | 107 | 131 | 25 | 10 | 475,508 | 4,274 | 2,743 | 9,743 | 43,202 | 4,410 | 3,715 | 520 | 146 |
| 2026 | 61,460 | 433 | 137 | 1,714 | 5,622 | 599 | 804 | 79 | 30 | 47,943 | 284 | 328 | 1,767 | 4,061 | 107 | 131 | 24 | 10 | 470,585 | 4,274 | 2,743 | 9,743 | 42,285 | 4,630 | 3,898 | 515 | 145 |
| 2027 | 60,825 | 433 | 137 | 1,714 | 5,494 | 629 | 843 | 78 | 30 | 47,440 | 284 | 328 | 1,767 | 4,018 | 107 | 131 | 24 | 10 | 465,712 | 4,274 | 2,743 | 9,743 | 41,369 | 4,852 | 4,084 | 510 | 143 |

# Appendix 2-18: Customer Forecast – Negative Short Term Growth Scenario

| End of Year | Albany | | | | | | | | | Astoria | | | | | | | | | Eugene & Coos Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 34,268 | 176 | 103 | 765 | 3,904 | 61 | 40 | 36 | 15 | 9,587 | 122 | 34 | 128 | 1,582 | 19 | 23 | 7 | 3 | 31,387 | 422 | 84 | 671 | 5,049 | 136 | 79 | 88 | 29 |
| 2008 | 33,916 | 176 | 103 | 765 | 3,842 | 70 | 50 | 35 | 14 | 9,488 | 122 | 34 | 128 | 1,557 | 25 | 29 | 7 | 3 | 31,065 | 422 | 84 | 671 | 4,968 | 165 | 102 | 87 | 29 |
| 2009 | 33,567 | 176 | 103 | 765 | 3,780 | 84 | 60 | 35 | 14 | 9,390 | 122 | 34 | 128 | 1,531 | 31 | 35 | 7 | 3 | 30,745 | 422 | 84 | 671 | 4,888 | 197 | 122 | 86 | 29 |
| 2010 | 33,222 | 176 | 103 | 765 | 3,718 | 100 | 70 | 34 | 14 | 9,294 | 122 | 34 | 128 | 1,506 | 37 | 41 | 6 | 3 | 30,429 | 422 | 84 | 671 | 4,808 | 229 | 143 | 85 | 28 |
| 2011 | 32,880 | 176 | 103 | 765 | 3,656 | 115 | 81 | 34 | 14 | 9,198 | 122 | 34 | 128 | 1,481 | 43 | 46 | 6 | 3 | 30,116 | 422 | 84 | 671 | 4,727 | 261 | 163 | 84 | 28 |
| 2012 | 32,541 | 176 | 103 | 765 | 3,593 | 131 | 91 | 34 | 14 | 9,104 | 122 | 34 | 128 | 1,456 | 49 | 52 | 6 | 3 | 29,806 | 422 | 84 | 671 | 4,647 | 295 | 184 | 84 | 28 |
| 2013 | 32,394 | 197 | 114 | 854 | 3,531 | 160 | 111 | 34 | 14 | 9,062 | 136 | 37 | 143 | 1,431 | 61 | 64 | 6 | 3 | 29,671 | 471 | 93 | 749 | 4,566 | 358 | 224 | 83 | 28 |
| 2014 | 32,246 | 274 | 157 | 1,180 | 3,469 | 204 | 140 | 33 | 14 | 9,021 | 189 | 49 | 200 | 1,406 | 78 | 80 | 6 | 3 | 29,536 | 655 | 127 | 1,038 | 4,486 | 450 | 283 | 83 | 27 |
| 2015 | 32,099 | 408 | 230 | 1,747 | 3,407 | 261 | 179 | 33 | 14 | 8,980 | 280 | 71 | 298 | 1,380 | 100 | 102 | 6 | 3 | 29,401 | 973 | 185 | 1,541 | 4,405 | 571 | 360 | 83 | 27 |
| 2016 | 31,951 | 601 | 336 | 2,566 | 3,345 | 333 | 227 | 33 | 14 | 8,939 | 411 | 102 | 440 | 1,355 | 129 | 129 | 6 | 3 | 29,265 | 1,433 | 270 | 2,265 | 4,325 | 722 | 455 | 83 | 27 |
| 2017 | 31,804 | 794 | 442 | 3,384 | 3,282 | 404 | 275 | 34 | 14 | 8,897 | 542 | 133 | 582 | 1,330 | 157 | 157 | 6 | 3 | 29,130 | 1,893 | 355 | 2,990 | 4,245 | 873 | 551 | 83 | 28 |
| 2018 | 31,656 | 988 | 548 | 4,203 | 3,220 | 475 | 322 | 34 | 14 | 8,856 | 674 | 164 | 724 | 1,305 | 185 | 184 | 6 | 3 | 28,995 | 2,353 | 440 | 3,715 | 4,164 | 1,024 | 647 | 83 | 28 |
| 2019 | 31,509 | 1,181 | 654 | 5,022 | 3,158 | 546 | 370 | 34 | 14 | 8,815 | 805 | 195 | 866 | 1,280 | 213 | 211 | 6 | 3 | 28,860 | 2,813 | 525 | 4,440 | 4,084 | 1,175 | 742 | 83 | 28 |
| 2020 | 31,361 | 1,374 | 760 | 5,840 | 3,096 | 618 | 418 | 34 | 14 | 8,773 | 936 | 226 | 1,008 | 1,254 | 241 | 238 | 6 | 3 | 28,725 | 3,272 | 609 | 5,164 | 4,003 | 1,326 | 838 | 83 | 28 |
| 2021 | 31,214 | 1,567 | 866 | 6,659 | 3,034 | 689 | 466 | 34 | 14 | 8,732 | 1,067 | 257 | 1,149 | 1,229 | 269 | 265 | 6 | 3 | 28,590 | 3,732 | 694 | 5,889 | 3,923 | 1,477 | 933 | 84 | 28 |
| 2022 | 31,066 | 1,761 | 972 | 7,477 | 2,972 | 760 | 514 | 34 | 14 | 8,691 | 1,199 | 288 | 1,291 | 1,204 | 297 | 293 | 6 | 3 | 28,455 | 4,192 | 779 | 6,614 | 3,843 | 1,628 | 1,029 | 84 | 28 |
| 2023 | 30,919 | 1,954 | 1,078 | 8,296 | 2,909 | 831 | 561 | 34 | 14 | 8,650 | 1,330 | 319 | 1,433 | 1,179 | 326 | 320 | 6 | 3 | 28,320 | 4,652 | 864 | 7,339 | 3,762 | 1,779 | 1,125 | 84 | 28 |
| 2024 | 30,771 | 2,147 | 1,184 | 9,114 | 2,847 | 903 | 609 | 34 | 14 | 8,608 | 1,461 | 350 | 1,575 | 1,154 | 354 | 347 | 6 | 3 | 28,185 | 5,112 | 949 | 8,064 | 3,682 | 1,930 | 1,220 | 84 | 28 |
| 2025 | 30,624 | 2,340 | 1,290 | 9,933 | 2,785 | 974 | 657 | 34 | 14 | 8,567 | 1,592 | 381 | 1,717 | 1,128 | 382 | 374 | 6 | 3 | 28,050 | 5,572 | 1,033 | 8,788 | 3,601 | 2,081 | 1,316 | 84 | 28 |
| 2026 | 30,476 | 2,533 | 1,396 | 10,751 | 2,723 | 1,045 | 705 | 34 | 14 | 8,526 | 1,724 | 412 | 1,859 | 1,103 | 410 | 401 | 6 | 3 | 27,914 | 6,031 | 1,118 | 9,513 | 3,521 | 2,232 | 1,412 | 85 | 28 |
| 2027 | 30,329 | 2,727 | 1,502 | 11,570 | 2,661 | 1,116 | 753 | 34 | 14 | 8,485 | 1,855 | 443 | 2,001 | 1,078 | 438 | 429 | 6 | 3 | 27,779 | 6,491 | 1,203 | 10,238 | 3,441 | 2,383 | 1,507 | 85 | 28 |

| End of Year | The Dalles (OR) | | | | | | | | | Lincoln City & Newport | | | | | | | | | Portland | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 4,021 | 57 | 33 | 121 | 1,000 | 19 | 19 | 10 | 5 | 7,928 | 96 | 65 | 208 | 1,258 | 17 | 18 | 4 | 1 | 352,573 | 2,683 | 1,960 | 4,370 | 33,956 | 471 | 345 | 353 | 74 |
| 2008 | 3,979 | 57 | 33 | 121 | 984 | 24 | 23 | 10 | 5 | 7,846 | 96 | 65 | 208 | 1,238 | 20 | 21 | 4 | 1 | 348,949 | 2,683 | 1,960 | 4,370 | 33,415 | 559 | 413 | 350 | 73 |
| 2009 | 3,938 | 57 | 33 | 121 | 968 | 29 | 30 | 10 | 5 | 7,765 | 96 | 65 | 208 | 1,218 | 25 | 26 | 4 | 1 | 345,361 | 2,683 | 1,960 | 4,370 | 32,875 | 644 | 479 | 346 | 72 |
| 2010 | 3,898 | 57 | 33 | 121 | 952 | 35 | 37 | 10 | 5 | 7,685 | 96 | 65 | 208 | 1,198 | 30 | 30 | 4 | 1 | 341,809 | 2,683 | 1,960 | 4,370 | 32,334 | 731 | 546 | 343 | 71 |
| 2011 | 3,858 | 57 | 33 | 121 | 937 | 41 | 44 | 10 | 5 | 7,606 | 96 | 65 | 208 | 1,178 | 35 | 35 | 4 | 1 | 338,292 | 2,683 | 1,960 | 4,370 | 31,793 | 820 | 615 | 339 | 71 |
| 2012 | 3,818 | 57 | 33 | 121 | 921 | 48 | 52 | 10 | 5 | 7,528 | 96 | 65 | 208 | 1,158 | 41 | 39 | 4 | 1 | 334,811 | 2,683 | 1,960 | 4,370 | 31,252 | 910 | 684 | 336 | 70 |
| 2013 | 3,801 | 63 | 36 | 136 | 905 | 59 | 66 | 10 | 4 | 7,494 | 107 | 72 | 232 | 1,138 | 51 | 48 | 4 | 1 | 333,293 | 2,997 | 2,190 | 4,871 | 30,711 | 1,081 | 816 | 333 | 69 |
| 2014 | 3,783 | 88 | 49 | 189 | 889 | 77 | 86 | 10 | 4 | 7,460 | 148 | 95 | 322 | 1,118 | 66 | 60 | 4 | 1 | 331,776 | 4,153 | 3,041 | 6,719 | 30,170 | 1,332 | 1,009 | 332 | 69 |
| 2015 | 3,766 | 130 | 71 | 282 | 873 | 99 | 113 | 10 | 4 | 7,426 | 220 | 135 | 478 | 1,098 | 85 | 77 | 4 | 1 | 330,258 | 6,164 | 4,521 | 9,933 | 29,630 | 1,661 | 1,263 | 332 | 69 |
| 2016 | 3,749 | 191 | 103 | 415 | 857 | 127 | 147 | 10 | 4 | 7,392 | 322 | 193 | 703 | 1,078 | 110 | 98 | 4 | 1 | 328,741 | 9,065 | 6,655 | 14,570 | 29,089 | 2,071 | 1,579 | 333 | 69 |
| 2017 | 3,731 | 252 | 134 | 549 | 841 | 155 | 181 | 10 | 4 | 7,358 | 425 | 251 | 928 | 1,058 | 134 | 118 | 4 | 1 | 327,223 | 11,966 | 8,790 | 19,206 | 28,548 | 2,481 | 1,895 | 333 | 69 |
| 2018 | 3,714 | 314 | 166 | 683 | 825 | 184 | 215 | 10 | 4 | 7,323 | 528 | 309 | 1,153 | 1,038 | 158 | 139 | 4 | 1 | 325,705 | 14,866 | 10,924 | 23,843 | 28,007 | 2,890 | 2,211 | 334 | 70 |
| 2019 | 3,697 | 375 | 198 | 817 | 809 | 212 | 248 | 10 | 5 | 7,289 | 630 | 366 | 1,378 | 1,018 | 183 | 159 | 4 | 1 | 324,188 | 17,767 | 13,058 | 28,479 | 27,466 | 3,300 | 2,527 | 335 | 70 |
| 2020 | 3,680 | 436 | 230 | 950 | 793 | 240 | 282 | 10 | 5 | 7,255 | 733 | 424 | 1,603 | 998 | 207 | 180 | 4 | 1 | 322,670 | 20,668 | 15,193 | 33,116 | 26,925 | 3,710 | 2,843 | 336 | 70 |
| 2021 | 3,662 | 497 | 262 | 1,084 | 777 | 268 | 316 | 10 | 5 | 7,221 | 836 | 482 | 1,828 | 977 | 232 | 201 | 4 | 1 | 321,153 | 23,569 | 17,327 | 37,752 | 26,384 | 4,120 | 3,159 | 336 | 70 |
| 2022 | 3,645 | 558 | 293 | 1,218 | 761 | 296 | 350 | 10 | 5 | 7,187 | 939 | 540 | 2,053 | 957 | 256 | 221 | 4 | 1 | 319,635 | 26,470 | 19,462 | 42,389 | 25,844 | 4,530 | 3,475 | 337 | 70 |
| 2023 | 3,628 | 619 | 325 | 1,351 | 745 | 324 | 383 | 10 | 5 | 7,153 | 1,041 | 598 | 2,278 | 937 | 280 | 242 | 4 | 1 | 318,117 | 29,371 | 21,596 | 47,026 | 25,303 | 4,939 | 3,792 | 338 | 70 |
| 2024 | 3,610 | 680 | 357 | 1,485 | 729 | 352 | 417 | 10 | 5 | 7,119 | 1,144 | 656 | 2,503 | 917 | 305 | 263 | 4 | 1 | 316,600 | 32,271 | 23,731 | 51,662 | 24,762 | 5,349 | 4,108 | 338 | 71 |
| 2025 | 3,593 | 742 | 389 | 1,619 | 714 | 381 | 451 | 10 | 5 | 7,085 | 1,247 | 714 | 2,728 | 897 | 329 | 283 | 4 | 1 | 315,082 | 35,172 | 25,865 | 56,299 | 24,221 | 5,759 | 4,424 | 339 | 71 |
| 2026 | 3,576 | 803 | 421 | 1,752 | 698 | 409 | 485 | 10 | 5 | 7,050 | 1,350 | 772 | 2,953 | 877 | 354 | 304 | 4 | 1 | 313,565 | 38,073 | 27,999 | 60,935 | 23,680 | 6,169 | 4,740 | 340 | 71 |
| 2027 | 3,558 | 864 | 452 | 1,886 | 682 | 437 | 519 | 10 | 5 | 7,016 | 1,452 | 830 | 3,178 | 857 | 378 | 325 | 4 | 1 | 312,047 | 40,974 | 30,134 | 65,572 | 23,139 | 6,579 | 5,056 | 341 | 71 |

| End of Year | Salem | | | | | | | | | Vancouver & The Dalles (WA) | | | | | | | | | System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 74,832 | 433 | 137 | 1,714 | 8,061 | 100 | 144 | 95 | 37 | 58,531 | 284 | 328 | 1,767 | 4,966 | 107 | 131 | 30 | 12 | 573,126 | 4,274 | 2,743 | 9,743 | 59,777 | 930 | 798 | 623 | 175 |
| 2008 | 74,063 | 433 | 137 | 1,714 | 7,933 | 124 | 175 | 95 | 36 | 57,922 | 284 | 328 | 1,767 | 4,914 | 107 | 131 | 29 | 12 | 567,227 | 4,274 | 2,743 | 9,743 | 58,852 | 1,093 | 945 | 617 | 173 |
| 2009 | 73,301 | 433 | 137 | 1,714 | 7,805 | 147 | 206 | 94 | 36 | 57,319 | 284 | 328 | 1,767 | 4,862 | 107 | 131 | 29 | 12 | 561,387 | 4,274 | 2,743 | 9,743 | 57,927 | 1,265 | 1,089 | 611 | 172 |
| 2010 | 72,547 | 433 | 137 | 1,714 | 7,676 | 171 | 237 | 93 | 36 | 56,722 | 284 | 328 | 1,767 | 4,811 | 107 | 131 | 29 | 12 | 555,606 | 4,274 | 2,743 | 9,743 | 57,003 | 1,440 | 1,235 | 604 | 170 |
| 2011 | 71,801 | 433 | 137 | 1,714 | 7,548 | 195 | 269 | 92 | 35 | 56,131 | 284 | 328 | 1,767 | 4,761 | 107 | 131 | 28 | 12 | 549,882 | 4,274 | 2,743 | 9,743 | 56,080 | 1,618 | 1,383 | 598 | 168 |
| 2012 | 71,062 | 433 | 137 | 1,714 | 7,419 | 219 | 301 | 91 | 35 | 55,546 | 284 | 328 | 1,767 | 4,711 | 107 | 131 | 28 | 12 | 544,216 | 4,274 | 2,743 | 9,743 | 55,157 | 1,799 | 1,535 | 592 | 166 |
| 2013 | 70,740 | 484 | 152 | 1,912 | 7,291 | 265 | 362 | 90 | 35 | 55,412 | 312 | 360 | 1,939 | 4,676 | 124 | 151 | 28 | 12 | 541,867 | 4,768 | 3,055 | 10,836 | 54,249 | 2,160 | 1,841 | 588 | 165 |
| 2014 | 70,418 | 671 | 209 | 2,642 | 7,163 | 333 | 451 | 90 | 35 | 55,278 | 422 | 485 | 2,615 | 4,641 | 165 | 198 | 28 | 12 | 539,518 | 6,599 | 4,212 | 14,905 | 53,341 | 2,703 | 2,308 | 586 | 165 |
| 2015 | 70,096 | 996 | 308 | 3,911 | 7,034 | 422 | 569 | 90 | 35 | 55,144 | 616 | 706 | 3,810 | 4,606 | 230 | 273 | 28 | 12 | 537,169 | 9,786 | 6,227 | 22,000 | 52,433 | 3,430 | 2,937 | 586 | 164 |
| 2016 | 69,774 | 1,464 | 451 | 5,742 | 6,906 | 532 | 715 | 90 | 35 | 55,010 | 899 | 1,029 | 5,555 | 4,571 | 320 | 378 | 28 | 12 | 534,820 | 14,387 | 9,138 | 32,257 | 51,525 | 4,344 | 3,729 | 587 | 165 |
| 2017 | 69,451 | 1,933 | 593 | 7,574 | 6,777 | 643 | 861 | 90 | 35 | 54,876 | 1,182 | 1,352 | 7,301 | 4,536 | 411 | 483 | 28 | 12 | 532,471 | 18,988 | 12,050 | 42,514 | 50,617 | 5,258 | 4,521 | 588 | 165 |
| 2018 | 69,129 | 2,402 | 736 | 9,405 | 6,649 | 754 | 1,008 | 90 | 35 | 54,742 | 1,465 | 1,675 | 9,046 | 4,501 | 501 | 589 | 28 | 12 | 530,122 | 23,589 | 14,961 | 52,771 | 49,709 | 6,172 | 5,314 | 589 | 166 |
| 2019 | 68,807 | 2,871 | 879 | 11,236 | 6,521 | 864 | 1,154 | 91 | 35 | 54,608 | 1,748 | 1,997 | 10,792 | 4,466 | 592 | 694 | 28 | 12 | 527,773 | 28,190 | 17,872 | 63,028 | 48,801 | 7,085 | 6,106 | 591 | 166 |
| 2020 | 68,485 | 3,340 | 1,021 | 13,067 | 6,392 | 975 | 1,300 | 91 | 35 | 54,474 | 2,032 | 2,320 | 12,537 | 4,431 | 682 | 799 | 28 | 12 | 525,424 | 32,791 | 20,784 | 73,285 | 47,893 | 7,999 | 6,899 | 592 | 166 |
| 2021 | 68,163 | 3,808 | 1,164 | 14,898 | 6,264 | 1,086 | 1,447 | 91 | 35 | 54,340 | 2,315 | 2,643 | 14,283 | 4,396 | 772 | 904 | 28 | 12 | 523,075 | 37,392 | 23,695 | 83,543 | 46,985 | 8,913 | 7,691 | 593 | 167 |
| 2022 | 67,841 | 4,277 | 1,307 | 16,729 | 6,136 | 1,196 | 1,593 | 91 | 35 | 54,206 | 2,598 | 2,966 | 16,028 | 4,361 | 863 | 1,009 | 28 | 12 | 520,726 | 41,993 | 26,607 | 93,800 | 46,077 | 9,826 | 8,484 | 595 | 167 |
| 2023 | 67,519 | 4,746 | 1,449 | 18,561 | 6,007 | 1,307 | 1,739 | 91 | 35 | 54,072 | 2,881 | 3,289 | 17,774 | 4,326 | 953 | 1,114 | 28 | 12 | 518,377 | 46,594 | 29,518 | 104,057 | 45,169 | 10,740 | 9,276 | 596 | 167 |
| 2024 | 67,197 | 5,215 | 1,592 | 20,392 | 5,879 | 1,418 | 1,885 | 92 | 35 | 53,938 | 3,165 | 3,612 | 19,519 | 4,291 | 1,043 | 1,219 | 28 | 12 | 516,028 | 51,195 | 32,429 | 114,314 | 44,261 | 11,654 | 10,068 | 597 | 168 |
| 2025 | 66,875 | 5,684 | 1,735 | 22,223 | 5,750 | 1,528 | 2,032 | 92 | 35 | 53,804 | 3,448 | 3,934 | 21,264 | 4,256 | 1,134 | 1,324 | 28 | 12 | 513,679 | 55,796 | 35,341 | 124,571 | 43,353 | 12,568 | 10,861 | 599 | 168 |
| 2026 | 66,553 | 6,152 | 1,877 | 24,054 | 5,622 | 1,639 | 2,178 | 92 | 35 | 53,670 | 3,731 | 4,257 | 23,010 | 4,221 | 1,224 | 1,429 | 28 | 12 | 511,330 | 60,397 | 38,252 | 134,828 | 42,445 | 13,481 | 11,653 | 600 | 169 |
| 2027 | 66,230 | 6,621 | 2,020 | 25,885 | 5,494 | 1,750 | 2,324 | 92 | 35 | 53,536 | 4,014 | 4,580 | 24,755 | 4,186 | 1,315 | 1,534 | 28 | 12 | 508,981 | 64,998 | 41,163 | 145,085 | 41,537 | 14,395 | 12,446 | 601 | 169 |

# Appendix 2-19: Customer Forecast – Negative Long Term Growth Scenario

| End of Year | Albany | | | | | | | | | Astoria | | | | | | | | | Eugene & Coos Bay | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 34,268 | 176 | 103 | 765 | 3,904 | 61 | 40 | 36 | 15 | 9,587 | 122 | 34 | 128 | 1,582 | 19 | 23 | 7 | 3 | 31,387 | 422 | 84 | 671 | 5,049 | 136 | 79 | 88 | 29 |
| 2008 | 34,120 | 349 | 149 | 1,452 | 3,842 | 102 | 91 | 35 | 15 | 9,545 | 244 | 63 | 241 | 1,557 | 50 | 52 | 7 | 3 | 31,252 | 843 | 159 | 1,272 | 4,968 | 283 | 195 | 88 | 29 |
| 2009 | 33,973 | 555 | 262 | 2,299 | 3,780 | 178 | 142 | 36 | 15 | 9,504 | 387 | 99 | 383 | 1,531 | 80 | 81 | 7 | 3 | 31,117 | 1,345 | 249 | 2,014 | 4,888 | 444 | 297 | 88 | 29 |
| 2010 | 33,825 | 772 | 384 | 3,211 | 3,718 | 254 | 193 | 36 | 15 | 9,463 | 537 | 136 | 533 | 1,506 | 110 | 110 | 7 | 3 | 30,982 | 1,865 | 348 | 2,810 | 4,808 | 605 | 399 | 89 | 29 |
| 2011 | 33,678 | 991 | 509 | 4,161 | 3,656 | 330 | 244 | 36 | 15 | 9,421 | 691 | 174 | 690 | 1,481 | 140 | 139 | 7 | 3 | 30,847 | 2,398 | 449 | 3,636 | 4,727 | 766 | 501 | 89 | 30 |
| 2012 | 33,530 | 1,219 | 639 | 5,146 | 3,593 | 406 | 295 | 36 | 15 | 9,380 | 852 | 212 | 849 | 1,456 | 170 | 168 | 7 | 3 | 30,712 | 2,947 | 553 | 4,492 | 4,647 | 927 | 603 | 90 | 30 |
| 2013 | 33,383 | 1,386 | 731 | 5,854 | 3,531 | 467 | 336 | 36 | 15 | 9,339 | 966 | 239 | 971 | 1,431 | 194 | 191 | 7 | 3 | 30,577 | 3,345 | 626 | 5,120 | 4,566 | 1,055 | 685 | 90 | 30 |
| 2014 | 33,235 | 1,483 | 784 | 6,265 | 3,469 | 512 | 366 | 36 | 15 | 9,298 | 1,032 | 254 | 1,043 | 1,406 | 211 | 208 | 7 | 3 | 30,441 | 3,576 | 668 | 5,483 | 4,486 | 1,150 | 745 | 89 | 30 |
| 2015 | 33,088 | 1,507 | 797 | 6,366 | 3,407 | 540 | 385 | 36 | 15 | 9,256 | 1,048 | 258 | 1,060 | 1,380 | 223 | 219 | 7 | 3 | 30,306 | 3,633 | 679 | 5,573 | 4,405 | 1,211 | 783 | 89 | 29 |
| 2016 | 32,677 | 1,507 | 797 | 6,366 | 3,345 | 553 | 394 | 36 | 15 | 9,141 | 1,048 | 258 | 1,060 | 1,355 | 228 | 224 | 7 | 3 | 29,930 | 3,633 | 679 | 5,573 | 4,325 | 1,238 | 800 | 88 | 29 |
| 2017 | 32,270 | 1,507 | 797 | 6,366 | 3,282 | 566 | 402 | 35 | 14 | 9,028 | 1,048 | 258 | 1,060 | 1,330 | 233 | 229 | 7 | 3 | 29,557 | 3,633 | 679 | 5,573 | 4,245 | 1,266 | 818 | 87 | 29 |
| 2018 | 31,867 | 1,507 | 797 | 6,366 | 3,220 | 580 | 411 | 35 | 14 | 8,915 | 1,048 | 258 | 1,060 | 1,305 | 238 | 234 | 7 | 3 | 29,188 | 3,633 | 679 | 5,573 | 4,164 | 1,294 | 836 | 86 | 29 |
| 2019 | 31,468 | 1,507 | 797 | 6,366 | 3,158 | 593 | 421 | 34 | 14 | 8,803 | 1,048 | 258 | 1,060 | 1,280 | 243 | 240 | 6 | 3 | 28,823 | 3,633 | 679 | 5,573 | 4,084 | 1,323 | 854 | 85 | 28 |
| 2020 | 31,073 | 1,507 | 797 | 6,366 | 3,096 | 607 | 430 | 34 | 14 | 8,693 | 1,048 | 258 | 1,060 | 1,254 | 249 | 245 | 6 | 3 | 28,461 | 3,633 | 679 | 5,573 | 4,003 | 1,353 | 873 | 84 | 28 |
| 2021 | 30,682 | 1,507 | 797 | 6,366 | 3,034 | 621 | 439 | 34 | 14 | 8,583 | 1,048 | 258 | 1,060 | 1,229 | 255 | 250 | 6 | 3 | 28,103 | 3,633 | 679 | 5,573 | 3,923 | 1,383 | 892 | 84 | 28 |
| 2022 | 30,295 | 1,507 | 797 | 6,366 | 2,972 | 636 | 449 | 33 | 14 | 8,475 | 1,048 | 258 | 1,060 | 1,204 | 260 | 256 | 6 | 3 | 27,748 | 3,633 | 679 | 5,573 | 3,843 | 1,413 | 911 | 83 | 27 |
| 2023 | 29,912 | 1,507 | 797 | 6,366 | 2,909 | 651 | 459 | 33 | 14 | 8,368 | 1,048 | 258 | 1,060 | 1,179 | 266 | 262 | 6 | 3 | 27,397 | 3,633 | 679 | 5,573 | 3,762 | 1,444 | 931 | 82 | 27 |
| 2024 | 29,532 | 1,507 | 797 | 6,366 | 2,847 | 666 | 469 | 33 | 13 | 8,262 | 1,048 | 258 | 1,060 | 1,154 | 272 | 267 | 6 | 3 | 27,050 | 3,633 | 679 | 5,573 | 3,682 | 1,476 | 951 | 81 | 27 |
| 2025 | 29,157 | 1,507 | 797 | 6,366 | 2,785 | 681 | 479 | 32 | 13 | 8,157 | 1,048 | 258 | 1,060 | 1,128 | 278 | 273 | 6 | 3 | 26,706 | 3,633 | 679 | 5,573 | 3,601 | 1,509 | 972 | 80 | 27 |
| 2026 | 28,785 | 1,507 | 797 | 6,366 | 2,723 | 696 | 490 | 32 | 13 | 8,053 | 1,048 | 258 | 1,060 | 1,103 | 284 | 279 | 6 | 3 | 26,365 | 3,633 | 679 | 5,573 | 3,521 | 1,541 | 993 | 79 | 26 |
| 2027 | 28,417 | 1,507 | 797 | 6,366 | 2,661 | 712 | 500 | 32 | 13 | 7,950 | 1,048 | 258 | 1,060 | 1,078 | 290 | 285 | 6 | 3 | 26,028 | 3,633 | 679 | 5,573 | 3,441 | 1,575 | 1,014 | 79 | 26 |

| End of Year | The Dalles (OR) | | | | | | | | | Lincoln City & Newport | | | | | | | | | Portland | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 4,021 | 57 | 33 | 121 | 1,000 | 19 | 19 | 10 | 5 | 7,928 | 96 | 65 | 208 | 1,258 | 17 | 18 | 4 | 1 | 352,573 | 2,683 | 1,960 | 4,370 | 33,956 | 471 | 345 | 353 | 74 |
| 2008 | 4,003 | 118 | 61 | 229 | 984 | 40 | 39 | 10 | 5 | 7,893 | 184 | 119 | 419 | 1,238 | 32 | 37 | 4 | 1 | 351,056 | 5,256 | 3,729 | 8,302 | 33,415 | 909 | 684 | 352 | 73 |
| 2009 | 3,986 | 189 | 98 | 362 | 968 | 70 | 75 | 10 | 5 | 7,859 | 301 | 184 | 649 | 1,218 | 58 | 59 | 4 | 1 | 349,538 | 8,363 | 5,913 | 13,147 | 32,875 | 1,346 | 1,021 | 353 | 74 |
| 2010 | 3,969 | 263 | 137 | 505 | 952 | 100 | 111 | 11 | 5 | 7,825 | 421 | 252 | 896 | 1,198 | 84 | 81 | 4 | 1 | 348,021 | 11,599 | 8,275 | 18,384 | 32,334 | 1,783 | 1,358 | 356 | 74 |
| 2011 | 3,951 | 337 | 176 | 653 | 937 | 130 | 147 | 11 | 5 | 7,791 | 543 | 322 | 1,153 | 1,178 | 110 | 103 | 5 | 1 | 346,503 | 14,943 | 10,740 | 23,836 | 31,793 | 2,220 | 1,695 | 359 | 75 |
| 2012 | 3,934 | 412 | 215 | 806 | 921 | 160 | 183 | 11 | 5 | 7,757 | 667 | 393 | 1,418 | 1,158 | 136 | 125 | 5 | 1 | 344,985 | 18,386 | 13,334 | 29,512 | 31,252 | 2,657 | 2,032 | 360 | 75 |
| 2013 | 3,917 | 465 | 243 | 922 | 905 | 183 | 211 | 11 | 5 | 7,723 | 756 | 443 | 1,612 | 1,138 | 156 | 142 | 5 | 1 | 343,468 | 20,896 | 15,181 | 33,524 | 30,711 | 3,006 | 2,300 | 360 | 75 |
| 2014 | 3,899 | 495 | 259 | 989 | 889 | 201 | 233 | 11 | 5 | 7,689 | 807 | 472 | 1,725 | 1,118 | 172 | 155 | 5 | 1 | 341,950 | 22,350 | 16,251 | 35,849 | 30,170 | 3,263 | 2,498 | 359 | 75 |
| 2015 | 3,882 | 503 | 263 | 1,005 | 873 | 212 | 246 | 11 | 5 | 7,655 | 820 | 479 | 1,753 | 1,098 | 182 | 163 | 4 | 1 | 340,433 | 22,709 | 16,515 | 36,423 | 29,630 | 3,428 | 2,626 | 356 | 74 |
| 2016 | 3,834 | 503 | 263 | 1,005 | 857 | 218 | 252 | 10 | 5 | 7,559 | 820 | 479 | 1,753 | 1,078 | 186 | 167 | 4 | 1 | 336,203 | 22,709 | 16,515 | 36,423 | 29,089 | 3,501 | 2,682 | 353 | 74 |
| 2017 | 3,786 | 503 | 263 | 1,005 | 841 | 223 | 258 | 10 | 5 | 7,465 | 820 | 479 | 1,753 | 1,058 | 190 | 171 | 4 | 1 | 332,015 | 22,709 | 16,515 | 36,423 | 28,548 | 3,577 | 2,740 | 349 | 73 |
| 2018 | 3,739 | 503 | 263 | 1,005 | 825 | 228 | 265 | 10 | 5 | 7,372 | 820 | 479 | 1,753 | 1,038 | 195 | 175 | 4 | 1 | 327,869 | 22,709 | 16,515 | 36,423 | 28,007 | 3,653 | 2,800 | 346 | 72 |
| 2019 | 3,692 | 503 | 263 | 1,005 | 809 | 233 | 271 | 10 | 5 | 7,280 | 820 | 479 | 1,753 | 1,018 | 200 | 179 | 4 | 1 | 323,765 | 22,709 | 16,515 | 36,423 | 27,466 | 3,732 | 2,860 | 342 | 71 |
| 2020 | 3,646 | 503 | 263 | 1,005 | 793 | 239 | 278 | 10 | 5 | 7,188 | 820 | 479 | 1,753 | 998 | 204 | 183 | 4 | 1 | 319,702 | 22,709 | 16,515 | 36,423 | 26,925 | 3,812 | 2,922 | 339 | 71 |
| 2021 | 3,600 | 503 | 263 | 1,005 | 777 | 244 | 284 | 10 | 5 | 7,098 | 820 | 479 | 1,753 | 977 | 209 | 187 | 4 | 1 | 315,679 | 22,709 | 16,515 | 36,423 | 26,384 | 3,894 | 2,985 | 336 | 70 |
| 2022 | 3,554 | 503 | 263 | 1,005 | 761 | 250 | 291 | 10 | 4 | 7,008 | 820 | 479 | 1,753 | 957 | 214 | 191 | 4 | 1 | 311,697 | 22,709 | 16,515 | 36,423 | 25,844 | 3,977 | 3,049 | 332 | 69 |
| 2023 | 3,509 | 503 | 263 | 1,005 | 745 | 256 | 298 | 10 | 4 | 6,920 | 820 | 479 | 1,753 | 937 | 219 | 195 | 4 | 1 | 307,754 | 22,709 | 16,515 | 36,423 | 25,303 | 4,062 | 3,115 | 329 | 69 |
| 2024 | 3,465 | 503 | 263 | 1,005 | 729 | 262 | 305 | 10 | 4 | 6,832 | 820 | 479 | 1,753 | 917 | 224 | 200 | 4 | 1 | 303,851 | 22,709 | 16,515 | 36,423 | 24,762 | 4,148 | 3,181 | 326 | 68 |
| 2025 | 3,421 | 503 | 263 | 1,005 | 714 | 268 | 313 | 10 | 4 | 6,745 | 820 | 479 | 1,753 | 897 | 230 | 204 | 4 | 1 | 299,987 | 22,709 | 16,515 | 36,423 | 24,221 | 4,236 | 3,249 | 322 | 67 |
| 2026 | 3,377 | 503 | 263 | 1,005 | 698 | 274 | 320 | 9 | 4 | 6,659 | 820 | 479 | 1,753 | 877 | 235 | 209 | 4 | 1 | 296,161 | 22,709 | 16,515 | 36,423 | 23,680 | 4,325 | 3,318 | 319 | 66 |
| 2027 | 3,334 | 503 | 263 | 1,005 | 682 | 280 | 327 | 9 | 4 | 6,574 | 820 | 479 | 1,753 | 857 | 240 | 213 | 4 | 1 | 292,374 | 22,709 | 16,515 | 36,423 | 23,139 | 4,416 | 3,388 | 316 | 66 |

| End of Year | Salem | | | | | | | | | Vancouver & The Dalles (WA) | | | | | | | | | System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible | Residential | | | | Commercial | | | Industrial | Interruptible |
| | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | | Existing | Conversion | New Construction Multi-Family | New Construction Single-Family | Existing | Conversion | New Construction | | |
| 2007 | 74,832 | 433 | 137 | 1,714 | 8,061 | 100 | 144 | 95 | 37 | 58,531 | 284 | 328 | 1,767 | 4,966 | 107 | 131 | 30 | 12 | 573,126 | 4,274 | 2,743 | 9,743 | 59,777 | 930 | 798 | 623 | 175 |
| 2008 | 74,510 | 859 | 264 | 3,255 | 7,933 | 219 | 300 | 95 | 37 | 58,397 | 566 | 629 | 3,364 | 4,931 | 222 | 264 | 29 | 12 | 570,777 | 8,420 | 5,173 | 18,534 | 58,869 | 1,856 | 1,662 | 621 | 174 |
| 2009 | 74,188 | 1,369 | 419 | 5,154 | 7,805 | 337 | 456 | 96 | 37 | 58,263 | 910 | 1,007 | 5,368 | 4,896 | 339 | 400 | 30 | 12 | 568,428 | 13,420 | 8,231 | 29,376 | 57,961 | 2,851 | 2,531 | 624 | 175 |
| 2010 | 73,866 | 1,897 | 583 | 7,202 | 7,676 | 455 | 612 | 96 | 37 | 58,129 | 1,265 | 1,414 | 7,530 | 4,861 | 456 | 536 | 30 | 12 | 566,079 | 18,620 | 11,529 | 41,071 | 57,053 | 3,846 | 3,400 | 629 | 177 |
| 2011 | 73,544 | 2,442 | 755 | 9,330 | 7,548 | 573 | 768 | 97 | 37 | 57,995 | 1,630 | 1,836 | 9,780 | 4,826 | 573 | 672 | 30 | 13 | 563,730 | 23,976 | 14,961 | 53,239 | 56,145 | 4,841 | 4,269 | 633 | 178 |
| 2012 | 73,221 | 3,001 | 930 | 11,540 | 7,419 | 691 | 924 | 97 | 38 | 57,861 | 2,008 | 2,276 | 12,117 | 4,791 | 690 | 808 | 30 | 13 | 561,381 | 29,493 | 18,552 | 65,880 | 55,237 | 5,836 | 5,138 | 635 | 178 |
| 2013 | 72,899 | 3,407 | 1,053 | 13,124 | 7,291 | 785 | 1,049 | 97 | 38 | 57,727 | 2,287 | 2,593 | 13,832 | 4,756 | 777 | 909 | 30 | 13 | 559,032 | 33,507 | 21,109 | 74,960 | 54,329 | 6,623 | 5,823 | 635 | 178 |
| 2014 | 72,577 | 3,642 | 1,125 | 14,042 | 7,163 | 854 | 1,141 | 97 | 37 | 57,593 | 2,452 | 2,782 | 14,851 | 4,721 | 832 | 973 | 30 | 13 | 556,683 | 35,837 | 22,595 | 80,245 | 53,421 | 7,194 | 6,318 | 633 | 178 |
| 2015 | 72,255 | 3,700 | 1,143 | 14,269 | 7,034 | 899 | 1,199 | 96 | 37 | 57,459 | 2,497 | 2,833 | 15,129 | 4,686 | 852 | 997 | 30 | 12 | 554,334 | 36,417 | 22,967 | 81,577 | 52,513 | 7,546 | 6,619 | 629 | 177 |
| 2016 | 71,357 | 3,700 | 1,143 | 14,269 | 6,906 | 919 | 1,226 | 95 | 37 | 56,680 | 2,497 | 2,833 | 15,129 | 4,621 | 852 | 997 | 29 | 12 | 547,381 | 36,417 | 22,967 | 81,577 | 51,575 | 7,694 | 6,742 | 623 | 175 |
| 2017 | 70,469 | 3,700 | 1,143 | 14,269 | 6,777 | 939 | 1,253 | 94 | 36 | 55,908 | 2,497 | 2,833 | 15,129 | 4,556 | 852 | 997 | 29 | 12 | 540,498 | 36,417 | 22,967 | 81,577 | 50,637 | 7,846 | 6,869 | 617 | 173 |
| 2018 | 69,589 | 3,700 | 1,143 | 14,269 | 6,649 | 960 | 1,280 | 94 | 36 | 55,145 | 2,497 | 2,833 | 15,129 | 4,492 | 852 | 997 | 29 | 12 | 533,683 | 36,417 | 22,967 | 81,577 | 49,700 | 8,000 | 6,998 | 610 | 171 |
| 2019 | 68,718 | 3,700 | 1,143 | 14,269 | 6,521 | 981 | 1,308 | 93 | 36 | 54,389 | 2,497 | 2,833 | 15,129 | 4,429 | 852 | 997 | 29 | 12 | 526,937 | 36,417 | 22,967 | 81,577 | 48,764 | 8,158 | 7,129 | 604 | 170 |
| 2020 | 67,855 | 3,700 | 1,143 | 14,269 | 6,392 | 1,003 | 1,337 | 92 | 35 | 53,640 | 2,497 | 2,833 | 15,129 | 4,366 | 852 | 997 | 28 | 12 | 520,258 | 36,417 | 22,967 | 81,577 | 47,828 | 8,319 | 7,264 | 598 | 168 |
| 2021 | 67,001 | 3,700 | 1,143 | 14,269 | 6,264 | 1,025 | 1,366 | 91 | 35 | 52,899 | 2,497 | 2,833 | 15,129 | 4,304 | 852 | 997 | 28 | 12 | 513,645 | 36,417 | 22,967 | 81,577 | 46,893 | 8,483 | 7,401 | 592 | 166 |
| 2022 | 66,156 | 3,700 | 1,143 | 14,269 | 6,136 | 1,047 | 1,396 | 90 | 35 | 52,166 | 2,497 | 2,833 | 15,129 | 4,242 | 852 | 997 | 28 | 12 | 507,099 | 36,417 | 22,967 | 81,577 | 45,958 | 8,650 | 7,540 | 586 | 165 |
| 2023 | 65,319 | 3,700 | 1,143 | 14,269 | 6,007 | 1,070 | 1,426 | 89 | 34 | 51,439 | 2,497 | 2,833 | 15,129 | 4,181 | 852 | 997 | 27 | 12 | 500,619 | 36,417 | 22,967 | 81,577 | 45,024 | 8,820 | 7,682 | 580 | 163 |
| 2024 | 64,491 | 3,700 | 1,143 | 14,269 | 5,879 | 1,093 | 1,457 | 88 | 34 | 50,720 | 2,497 | 2,833 | 15,129 | 4,121 | 852 | 997 | 27 | 11 | 494,203 | 36,417 | 22,967 | 81,577 | 44,091 | 8,994 | 7,827 | 575 | 161 |
| 2025 | 63,671 | 3,700 | 1,143 | 14,269 | 5,750 | 1,117 | 1,488 | 87 | 34 | 50,009 | 2,497 | 2,833 | 15,129 | 4,061 | 852 | 997 | 27 | 11 | 487,851 | 36,417 | 22,967 | 81,577 | 43,158 | 9,170 | 7,974 | 569 | 160 |
| 2026 | 62,859 | 3,700 | 1,143 | 14,269 | 5,622 | 1,141 | 1,520 | 86 | 33 | 49,304 | 2,497 | 2,833 | 15,129 | 4,002 | 852 | 997 | 27 | 11 | 481,563 | 36,417 | 22,967 | 81,577 | 42,226 | 9,349 | 8,124 | 563 | 158 |
| 2027 | 62,055 | 3,700 | 1,143 | 14,269 | 5,494 | 1,166 | 1,552 | 85 | 33 | 48,606 | 2,497 | 2,833 | 15,129 | 3,944 | 852 | 997 | 26 | 11 | 475,338 | 36,417 | 22,967 | 81,577 | 41,295 | 9,532 | 8,276 | 558 | 157 |

# Appendix 2-20: Weather Assumptions – Planning Criteria

## Heating Degree Days, Base 65

**85% Probability Coldest Winter with 1989 Three Day Peak (Allocated to days based on 2000/01 Winter)**

| Month | Day | Description | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | System Weighted Average Residential | Commercial | Industrial |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 85% Winter | 17.33 | 21.83 | 14.19 | 28.73 | 23.95 | 18.61 | 24.85 | 23.72 | 28.73 | 23.02 | 23.88 | 23.79 | 23.95 |
| 1 | 2 | 85% Winter | 24.76 | 14.91 | 9.99 | 28.73 | 25.91 | 10.79 | 20.88 | 23.22 | 28.73 | 27.52 | 22.16 | 22.14 | 22.49 |
| 1 | 3 | 85% Winter | 27.24 | 19.70 | 16.29 | 28.73 | 23.46 | 14.03 | 25.85 | 25.20 | 28.73 | 25.52 | 25.41 | 25.22 | 25.33 |
| 1 | 4 | 85% Winter | 26.25 | 13.31 | 11.04 | 30.74 | 14.17 | 10.25 | 19.39 | 17.79 | 30.74 | 28.02 | 20.02 | 19.70 | 19.32 |
| 1 | 5 | 85% Winter | 14.36 | 20.77 | 14.72 | 27.22 | 15.64 | 18.35 | 18.89 | 17.29 | 27.22 | 19.01 | 18.31 | 18.26 | 18.07 |
| 1 | 6 | 85% Winter | 16.34 | 22.37 | 16.29 | 24.19 | 26.39 | 20.51 | 22.37 | 23.22 | 24.19 | 22.02 | 22.25 | 22.34 | 22.66 |
| 1 | 7 | 85% Winter | 26.25 | 15.44 | 13.14 | 24.19 | 25.91 | 16.73 | 18.89 | 24.21 | 24.19 | 24.02 | 20.85 | 21.01 | 21.41 |
| 1 | 8 | 85% Winter | 25.26 | 22.90 | 19.45 | 29.74 | 24.44 | 14.03 | 24.85 | 22.73 | 29.74 | 20.52 | 23.98 | 23.98 | 24.23 |
| 1 | 9 | 85% Winter | 24.76 | 22.90 | 23.12 | 30.24 | 27.37 | 21.05 | 25.85 | 27.67 | 30.24 | 30.02 | 26.41 | 26.34 | 26.47 |
| 1 | 10 | 85% Winter | 26.74 | 19.70 | 21.02 | 31.25 | 25.42 | 18.35 | 22.37 | 24.71 | 31.25 | 28.02 | 23.62 | 23.66 | 23.79 |
| 1 | 11 | 85% Winter | 28.72 | 21.83 | 18.92 | 30.24 | 22.48 | 17.81 | 20.88 | 20.75 | 30.24 | 22.02 | 21.56 | 21.70 | 21.75 |
| 1 | 12 | 85% Winter | 19.81 | 21.83 | 21.55 | 29.23 | 20.04 | 19.43 | 21.37 | 19.77 | 29.23 | 20.52 | 20.94 | 20.96 | 20.91 |
| 1 | 13 | 85% Winter | 19.31 | 25.56 | 19.45 | 24.19 | 21.02 | 21.05 | 23.86 | 23.22 | 24.19 | 23.52 | 23.26 | 23.14 | 23.03 |
| 1 | 14 | 85% Winter | 22.29 | 23.96 | 23.12 | 29.23 | 22.97 | 22.13 | 24.36 | 21.25 | 29.23 | 26.02 | 23.89 | 23.80 | 23.68 |
| 1 | 15 | 85% Winter | 23.28 | 27.69 | 22.60 | 28.73 | 26.88 | 22.66 | 27.34 | 30.14 | 28.73 | 25.52 | 27.16 | 27.15 | 27.31 |
| 1 | 16 | 85% Winter | 31.20 | 28.22 | 22.07 | 29.74 | 32.26 | 24.82 | 29.82 | 32.12 | 29.74 | 30.02 | 30.21 | 30.22 | 30.49 |
| 1 | 17 | 85% Winter | 33.18 | 30.35 | 24.18 | 31.75 | 32.26 | 24.28 | 30.82 | 33.60 | 31.75 | 33.02 | 31.48 | 31.45 | 31.61 |
| 1 | 18 | 85% Winter | 32.69 | 20.24 | 19.45 | 32.26 | 24.44 | 18.89 | 25.35 | 25.20 | 32.26 | 28.52 | 25.89 | 25.80 | 25.79 |
| 1 | 19 | 85% Winter | 25.26 | 20.77 | 16.82 | 31.75 | 19.55 | 16.73 | 23.36 | 20.26 | 31.75 | 23.52 | 22.79 | 22.67 | 22.52 |
| 1 | 20 | 85% Winter | 22.78 | 19.70 | 20.50 | 32.26 | 26.39 | 16.73 | 25.35 | 27.67 | 32.26 | 24.02 | 25.24 | 25.24 | 25.60 |
| 1 | 21 | 85% Winter | 27.24 | 18.64 | 15.77 | 31.75 | 19.55 | 19.43 | 24.85 | 19.77 | 31.75 | 23.02 | 23.71 | 23.53 | 23.35 |
| 1 | 22 | 85% Winter | 19.81 | 18.11 | 14.72 | 30.24 | 23.46 | 11.87 | 21.37 | 19.27 | 30.24 | 22.52 | 21.10 | 21.10 | 21.35 |
| 1 | 23 | 85% Winter | 18.82 | 20.77 | 17.87 | 29.23 | 26.88 | 15.11 | 21.37 | 22.24 | 29.23 | 22.02 | 21.64 | 21.80 | 22.23 |
| 1 | 24 | 85% Winter | 21.79 | 25.03 | 19.97 | 30.24 | 24.44 | 19.43 | 24.36 | 23.22 | 30.24 | 28.02 | 24.38 | 24.31 | 24.27 |
| 1 | 25 | 85% Winter | 26.25 | 23.43 | 18.39 | 29.74 | 24.93 | 23.20 | 23.86 | 28.66 | 29.74 | 25.02 | 24.80 | 24.88 | 25.01 |
| 1 | 26 | 85% Winter | 25.75 | 24.50 | 19.45 | 28.22 | 24.44 | 18.35 | 22.37 | 24.21 | 28.22 | 26.52 | 23.34 | 23.38 | 23.43 |
| 1 | 27 | 85% Winter | 23.77 | 25.03 | 19.45 | 28.22 | 29.33 | 21.05 | 26.84 | 27.18 | 28.22 | 27.02 | 26.71 | 26.70 | 26.98 |
| 1 | 28 | 85% Winter | 28.23 | 27.16 | 21.55 | 29.23 | 26.88 | 23.20 | 28.33 | 28.66 | 29.23 | 21.52 | 27.48 | 27.52 | 27.73 |
| 1 | 29 | 85% Winter | 27.73 | 21.83 | 22.07 | 31.25 | 22.97 | 21.05 | 20.88 | 22.24 | 31.25 | 22.52 | 21.83 | 22.01 | 22.06 |
| 1 | 30 | 85% Winter | 29.22 | 18.64 | 22.60 | 28.22 | 22.97 | 22.66 | 21.87 | 21.25 | 28.22 | 25.52 | 22.64 | 22.67 | 22.61 |
| 1 | 31 | 85% Winter | 28.23 | 23.43 | 19.97 | 27.22 | 28.35 | 18.89 | 22.87 | 28.17 | 27.22 | 24.52 | 24.30 | 24.49 | 24.88 |
| 2 | 1 | 85% Winter | 26.74 | 20.24 | 15.77 | 23.18 | 22.97 | 18.35 | 21.87 | 23.22 | 23.18 | 22.52 | 22.36 | 22.37 | 22.50 |
| 2 | 2 | 2/2/89 | 39.50 | 44.50 | 34.50 | 46.00 | 44.00 | 41.00 | 50.50 | 47.50 | 46.00 | 41.50 | 47.90 | 47.63 | 47.76 |
| 2 | 3 | 2/3/89 | 52.00 | 50.00 | 38.00 | 60.00 | 52.50 | 48.50 | 53.00 | 54.00 | 60.00 | 53.50 | 53.03 | 53.00 | 53.10 |
| 2 | 4 | 2/4/89 | 54.50 | 44.00 | 42.50 | 62.00 | 50.00 | 45.50 | 44.50 | 51.50 | 62.00 | 54.50 | 47.47 | 47.70 | 47.81 |
| 2 | 5 | 85% Winter | 20.30 | 21.83 | 21.02 | 19.15 | 22.48 | 21.59 | 23.86 | 24.21 | 19.15 | 24.02 | 23.48 | 23.33 | 23.33 |
| 2 | 6 | 85% Winter | 24.76 | 27.16 | 24.70 | 25.70 | 27.37 | 24.28 | 25.85 | 26.19 | 25.70 | 31.52 | 26.43 | 26.35 | 26.29 |
| 2 | 7 | 85% Winter | 29.71 | 30.35 | 27.33 | 32.26 | 30.79 | 28.60 | 30.32 | 32.12 | 32.26 | 28.02 | 30.26 | 30.32 | 30.48 |
| 2 | 8 | 85% Winter | 31.20 | 27.69 | 29.43 | 29.74 | 30.79 | 26.98 | 28.33 | 30.64 | 29.74 | 28.52 | 28.90 | 28.98 | 29.18 |
| 2 | 9 | 85% Winter | 29.22 | 25.56 | 21.55 | 31.25 | 24.93 | 21.05 | 25.85 | 23.22 | 31.25 | 29.02 | 25.91 | 25.83 | 25.70 |
| 2 | 10 | 85% Winter | 24.76 | 29.82 | 25.23 | 32.76 | 24.44 | 24.28 | 31.81 | 30.64 | 32.76 | 31.52 | 30.62 | 30.29 | 30.04 |
| 2 | 11 | 85% Winter | 26.74 | 25.03 | 26.80 | 32.76 | 27.37 | 25.90 | 24.36 | 24.21 | 32.76 | 28.02 | 25.09 | 25.20 | 25.23 |
| 2 | 12 | 85% Winter | 28.23 | 27.69 | 24.70 | 31.75 | 28.84 | 26.98 | 24.85 | 26.68 | 31.75 | 27.52 | 25.88 | 26.06 | 26.17 |
| 2 | 13 | 85% Winter | 27.73 | 27.69 | 25.23 | 28.73 | 27.37 | 25.36 | 23.36 | 26.19 | 28.73 | 25.02 | 24.49 | 24.71 | 24.84 |
| 2 | 14 | 85% Winter | 24.27 | 26.63 | 21.55 | 28.73 | 25.42 | 21.59 | 23.36 | 23.22 | 28.73 | 23.02 | 23.52 | 23.65 | 23.76 |
| 2 | 15 | 85% Winter | 21.30 | 22.37 | 22.07 | 26.21 | 21.51 | 22.13 | 22.37 | 20.26 | 26.21 | 25.52 | 22.29 | 22.21 | 22.05 |
| 2 | 16 | 85% Winter | 20.80 | 19.70 | 16.29 | 27.22 | 18.08 | 17.27 | 23.36 | 19.27 | 27.22 | 25.02 | 22.41 | 22.13 | 21.87 |
| 2 | 17 | 85% Winter | 18.82 | 21.83 | 17.87 | 32.26 | 25.91 | 21.05 | 21.87 | 22.73 | 32.26 | 23.02 | 22.18 | 22.35 | 22.60 |
| 2 | 18 | 85% Winter | 25.26 | 21.30 | 18.39 | 32.26 | 20.04 | 17.81 | 22.87 | 19.77 | 32.26 | 24.02 | 22.52 | 22.45 | 22.29 |
| 2 | 19 | 85% Winter | 20.80 | 18.64 | 17.87 | 26.71 | 23.46 | 16.19 | 23.36 | 19.77 | 26.71 | 23.02 | 22.53 | 22.43 | 22.57 |
| 2 | 20 | 85% Winter | 22.29 | 18.11 | 17.34 | 27.22 | 25.42 | 15.11 | 18.89 | 22.24 | 27.22 | 18.01 | 19.79 | 20.07 | 20.58 |
| 2 | 21 | 85% Winter | 21.79 | 20.77 | 19.45 | 21.67 | 17.11 | 18.35 | 19.88 | 15.81 | 21.67 | 21.02 | 19.41 | 19.30 | 19.04 |
| 2 | 22 | 85% Winter | 19.81 | 21.30 | 21.55 | 26.71 | 23.95 | 22.66 | 19.88 | 22.24 | 26.71 | 19.51 | 20.46 | 20.69 | 20.93 |
| 2 | 23 | 85% Winter | 22.78 | 23.96 | 19.45 | 28.22 | 20.53 | 22.13 | 20.88 | 22.73 | 28.22 | 22.52 | 21.48 | 21.55 | 21.46 |
| 2 | 24 | 85% Winter | 23.28 | 23.96 | 21.02 | 26.71 | 21.51 | 20.51 | 20.38 | 22.73 | 26.71 | 24.02 | 21.37 | 21.45 | 21.39 |
| 2 | 25 | 85% Winter | 23.77 | 25.56 | 20.50 | 24.19 | 22.48 | 25.36 | 22.87 | 23.72 | 24.19 | 24.52 | 23.22 | 23.23 | 23.11 |
| 2 | 26 | 85% Winter | 22.78 | 24.50 | 21.55 | 24.70 | 25.42 | 23.74 | 20.88 | 22.24 | 24.70 | 23.02 | 21.73 | 21.92 | 22.05 |
| 2 | 27 | 85% Winter | 20.80 | 19.70 | 16.82 | 27.72 | 23.46 | 18.89 | 19.88 | 21.25 | 27.72 | 23.02 | 20.65 | 20.76 | 20.92 |
| 2 | 28 | 85% Winter | 21.79 | 25.56 | 21.55 | 27.72 | 25.91 | 21.59 | 22.87 | 26.19 | 27.72 | 22.02 | 23.35 | 23.52 | 23.77 |
| 2 | 29 | AVG | 22.04 | 24.23 | 20.76 | 26.21 | 24.93 | 21.59 | 22.37 | 25.70 | 26.21 | 23.02 | 23.00 | 23.12 | 23.30 |
| 3 | 1 | 85% Winter | 22.29 | 22.90 | 19.97 | 24.70 | 23.95 | 21.59 | 21.87 | 25.20 | 24.70 | 24.02 | 22.66 | 22.72 | 22.83 |
| 3 | 2 | 85% Winter | 24.76 | 23.96 | 22.60 | 26.71 | 24.93 | 19.97 | 22.37 | 23.72 | 26.71 | 26.02 | 23.19 | 23.25 | 23.32 |
| 3 | 3 | 85% Winter | 24.76 | 26.09 | 23.12 | 27.22 | 26.39 | 22.66 | 22.87 | 25.20 | 27.22 | 25.02 | 23.74 | 23.89 | 24.03 |
| 3 | 4 | 85% Winter | 24.27 | 22.37 | 15.24 | 23.18 | 23.95 | 20.51 | 23.36 | 24.21 | 23.18 | 21.02 | 23.23 | 23.25 | 23.42 |
| 3 | 5 | 85% Winter | 22.78 | 14.38 | 17.34 | 26.21 | 17.60 | 15.65 | 15.41 | 14.82 | 26.21 | 17.01 | 16.12 | 16.29 | 16.33 |
| 3 | 6 | 85% Winter | 13.87 | 10.65 | 9.99 | 22.68 | 15.15 | 6.48 | 12.43 | 10.87 | 22.68 | 13.01 | 12.49 | 12.60 | 12.81 |
| 3 | 7 | 85% Winter | 11.89 | 17.57 | 16.29 | 17.64 | 10.26 | 17.27 | 10.44 | 11.37 | 17.64 | 12.01 | 11.05 | 11.22 | 10.98 |
| 3 | 8 | 85% Winter | 8.91 | 19.70 | 17.87 | 13.10 | 17.60 | 19.43 | 18.39 | 17.29 | 13.10 | 20.52 | 17.80 | 17.63 | 17.53 |
| 3 | 9 | 85% Winter | 20.30 | 19.70 | 17.87 | 20.66 | 20.04 | 16.19 | 19.39 | 23.22 | 20.66 | 21.52 | 20.13 | 20.12 | 20.20 |
| 3 | 10 | 85% Winter | 21.79 | 19.70 | 18.39 | 20.16 | 20.04 | 18.89 | 20.88 | 23.72 | 20.16 | 23.52 | 21.43 | 21.33 | 21.30 |
| 3 | 11 | 85% Winter | 19.31 | 19.17 | 17.87 | 21.17 | 20.04 | 18.89 | 19.88 | 19.77 | 21.17 | 19.51 | 19.76 | 19.75 | 19.81 |
| 3 | 12 | 85% Winter | 20.80 | 17.57 | 14.72 | 17.64 | 17.60 | 22.13 | 14.42 | 16.31 | 17.64 | 17.01 | 15.64 | 15.83 | 15.79 |
| 3 | 13 | 85% Winter | 14.86 | 19.17 | 18.92 | 17.64 | 16.62 | 20.51 | 14.42 | 15.32 | 17.64 | 17.01 | 15.10 | 15.24 | 15.16 |
| 3 | 14 | 85% Winter | 17.83 | 23.43 | 15.77 | 15.62 | 18.08 | 17.27 | 15.91 | 18.28 | 15.62 | 18.51 | 16.82 | 16.92 | 16.89 |
| 3 | 15 | 85% Winter | 17.83 | 21.83 | 22.07 | 18.14 | 22.48 | 19.43 | 20.38 | 21.74 | 18.14 | 23.52 | 20.79 | 20.76 | 20.82 |
| 3 | 16 | 85% Winter | 23.28 | 26.09 | 21.02 | 24.19 | 24.93 | 23.20 | 23.36 | 24.71 | 24.19 | 21.02 | 23.39 | 23.51 | 23.66 |
| 3 | 17 | 85% Winter | 24.27 | 19.70 | 17.87 | 23.69 | 17.11 | 20.51 | 18.39 | 18.28 | 23.69 | 16.51 | 18.54 | 18.64 | 18.55 |
| 3 | 18 | 85% Winter | 15.35 | 17.04 | 11.04 | 18.14 | 8.31 | 16.19 | 10.94 | 8.89 | 18.14 | 17.01 | 11.61 | 11.59 | 11.06 |
| 3 | 19 | 85% Winter | 15.35 | 21.30 | 17.87 | 15.12 | 19.06 | 20.51 | 17.89 | 18.78 | 15.12 | 22.02 | 18.36 | 18.32 | 18.22 |
| 3 | 20 | 85% Winter | 19.81 | 23.43 | 19.45 | 23.69 | 20.04 | 23.74 | 18.39 | 18.78 | 23.69 | 18.51 | 18.80 | 18.98 | 18.94 |
| 3 | 21 | 85% Winter | 17.83 | 24.50 | 20.50 | 20.16 | 19.55 | 23.74 | 15.41 | 17.79 | 20.16 | 20.01 | 16.83 | 17.07 | 16.97 |
| 3 | 22 | 85% Winter | 19.81 | 23.43 | 19.97 | 17.64 | 18.08 | 22.66 | 14.91 | 17.79 | 17.64 | 16.51 | 16.16 | 16.42 | 16.36 |
| 3 | 23 | 85% Winter | 16.84 | 21.30 | 14.72 | 13.61 | 11.73 | 16.73 | 13.42 | 15.32 | 13.61 | 11.01 | 13.69 | 13.81 | 13.65 |
| 3 | 24 | 85% Winter | 12.38 | 11.18 | 9.46 | 11.09 | 13.69 | 9.71 | 10.44 | 14.33 | 11.09 | 9.51 | 11.14 | 11.28 | 11.56 |
| 3 | 25 | 85% Winter | 10.90 | 17.57 | 16.82 | 10.58 | 16.62 | 11.87 | 12.92 | 15.32 | 10.58 | 15.01 | 13.54 | 13.62 | 13.78 |
| 3 | 26 | 85% Winter | 19.31 | 20.24 | 17.87 | 14.11 | 19.06 | 18.89 | 15.41 | 17.29 | 14.11 | 23.52 | 16.98 | 17.01 | 16.89 |
| 3 | 27 | 85% Winter | 19.81 | 20.24 | 20.50 | 21.67 | 20.53 | 20.51 | 18.89 | 20.26 | 21.67 | 18.01 | 19.17 | 19.29 | 19.39 |
| 3 | 28 | 85% Winter | 18.82 | 21.30 | 17.34 | 19.15 | 13.20 | 17.81 | 16.40 | 16.31 | 19.15 | 22.52 | 17.06 | 16.94 | 16.49 |
| 3 | 29 | 85% Winter | 17.83 | 21.83 | 15.77 | 18.14 | 14.17 | 21.59 | 18.39 | 16.31 | 18.14 | 15.51 | 17.63 | 17.59 | 17.31 |
| 3 | 30 | 85% Winter | 12.38 | 17.57 | 14.72 | 14.62 | 13.69 | 14.57 | 12.92 | 14.33 | 14.62 | 14.51 | 13.37 | 13.43 | 13.37 |
| 3 | 31 | 85% Winter | 9.90 | 19.17 | 15.77 | 15.62 | 16.62 | 17.27 | 12.92 | 15.81 | 15.62 | 15.51 | 13.74 | 13.91 | 13.97 |

| 85% Probability Coldest Winter with 1989 Three Day Peak (Allocated to days based on 2000/01 Winter) | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Description | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 4 | 1 | Normal | 15.20 | 17.60 | 14.63 | 16.05 | 15.33 | 15.79 | 13.78 | 15.20 | 16.05 | 15.90 | 14.46 | 14.55 | 14.51 |
| 4 | 2 | Normal | 14.69 | 17.75 | 15.23 | 15.70 | 15.70 | 17.66 | 13.98 | 15.55 | 15.70 | 14.93 | 14.54 | 14.67 | 14.66 |
| 4 | 3 | Normal | 15.34 | 17.48 | 15.05 | 15.35 | 15.75 | 16.29 | 14.53 | 15.93 | 15.35 | 15.28 | 14.98 | 15.06 | 15.06 |
| 4 | 4 | Normal | 16.81 | 18.18 | 15.13 | 16.68 | 16.28 | 17.64 | 15.15 | 16.45 | 16.68 | 16.70 | 15.73 | 15.82 | 15.77 |
| 4 | 5 | Normal | 16.29 | 17.98 | 14.68 | 16.75 | 16.00 | 17.05 | 14.98 | 16.40 | 16.75 | 16.60 | 15.55 | 15.63 | 15.59 |
| 4 | 6 | Normal | 16.33 | 16.93 | 13.45 | 16.90 | 15.10 | 16.16 | 13.50 | 15.80 | 16.90 | 16.38 | 14.47 | 14.57 | 14.52 |
| 4 | 7 | Normal | 14.99 | 17.33 | 14.03 | 15.93 | 15.03 | 16.25 | 14.20 | 15.81 | 15.93 | 15.88 | 14.77 | 14.83 | 14.78 |
| 4 | 8 | Normal | 15.33 | 17.28 | 14.38 | 16.60 | 15.25 | 16.16 | 14.22 | 15.80 | 16.60 | 15.70 | 14.80 | 14.88 | 14.85 |
| 4 | 9 | Normal | 15.93 | 16.13 | 13.25 | 16.53 | 14.83 | 15.18 | 14.30 | 15.20 | 16.53 | 15.53 | 14.73 | 14.78 | 14.74 |
| 4 | 10 | Normal | 14.91 | 15.85 | 13.65 | 16.03 | 14.50 | 14.65 | 12.73 | 13.88 | 16.03 | 14.88 | 13.43 | 13.53 | 13.51 |
| 4 | 11 | Normal | 14.39 | 15.38 | 13.53 | 16.13 | 13.31 | 14.40 | 12.15 | 13.48 | 16.13 | 14.08 | 12.84 | 12.94 | 12.89 |
| 4 | 12 | Normal | 13.86 | 15.80 | 13.33 | 14.18 | 13.50 | 15.12 | 12.10 | 13.88 | 14.18 | 14.03 | 12.83 | 12.93 | 12.88 |
| 4 | 13 | Normal | 14.26 | 16.10 | 14.18 | 13.43 | 13.90 | 15.27 | 12.43 | 14.00 | 13.43 | 13.88 | 13.08 | 13.18 | 13.14 |
| 4 | 14 | Normal | 14.89 | 15.65 | 13.60 | 14.83 | 14.05 | 15.36 | 12.28 | 14.03 | 14.83 | 14.05 | 13.06 | 13.18 | 13.15 |
| 4 | 15 | Normal | 13.64 | 14.63 | 12.15 | 14.30 | 12.85 | 14.03 | 11.28 | 12.70 | 14.30 | 13.60 | 12.04 | 12.15 | 12.10 |
| 4 | 16 | Normal | 12.76 | 14.75 | 12.50 | 13.18 | 13.30 | 14.39 | 11.38 | 13.13 | 13.18 | 12.48 | 12.02 | 12.14 | 12.15 |
| 4 | 17 | Normal | 13.10 | 16.13 | 13.50 | 13.18 | 14.13 | 14.73 | 12.70 | 14.35 | 13.18 | 12.53 | 13.09 | 13.20 | 13.23 |
| 4 | 18 | Normal | 14.52 | 16.80 | 13.33 | 13.48 | 13.78 | 15.85 | 12.25 | 14.03 | 13.48 | 15.23 | 13.14 | 13.23 | 13.13 |
| 4 | 19 | Normal | 15.52 | 15.68 | 13.10 | 14.43 | 13.75 | 15.61 | 12.08 | 14.00 | 14.43 | 15.55 | 13.10 | 13.20 | 13.11 |
| 4 | 20 | Normal | 13.84 | 15.70 | 13.23 | 13.23 | 13.30 | 15.30 | 11.08 | 12.80 | 13.23 | 13.38 | 11.97 | 12.12 | 12.07 |
| 4 | 21 | Normal | 12.97 | 15.95 | 13.53 | 11.95 | 13.85 | 15.35 | 11.83 | 14.15 | 11.95 | 12.78 | 12.52 | 12.65 | 12.66 |
| 4 | 22 | Normal | 13.73 | 15.55 | 12.70 | 13.25 | 13.83 | 15.36 | 11.93 | 13.38 | 13.25 | 14.13 | 12.67 | 12.77 | 12.73 |
| 4 | 23 | Normal | 13.36 | 15.32 | 12.68 | 13.20 | 14.05 | 14.55 | 11.98 | 13.75 | 13.20 | 14.20 | 12.73 | 12.83 | 12.82 |
| 4 | 24 | Normal | 14.46 | 15.23 | 13.03 | 14.28 | 13.65 | 14.88 | 11.33 | 12.93 | 14.28 | 14.35 | 12.29 | 12.42 | 12.37 |
| 4 | 25 | Normal | 13.07 | 14.20 | 12.40 | 13.43 | 12.83 | 13.69 | 10.38 | 12.53 | 13.43 | 13.18 | 11.37 | 11.51 | 11.49 |
| 4 | 26 | Normal | 12.65 | 13.59 | 11.95 | 11.98 | 11.75 | 12.68 | 10.45 | 12.00 | 11.98 | 12.10 | 11.12 | 11.21 | 11.17 |
| 4 | 27 | Normal | 12.27 | 13.60 | 12.88 | 11.70 | 12.08 | 13.86 | 9.55 | 11.90 | 11.70 | 11.83 | 10.53 | 10.69 | 10.67 |
| 4 | 28 | Normal | 11.63 | 13.18 | 11.63 | 10.85 | 11.90 | 12.55 | 9.45 | 11.25 | 10.85 | 10.93 | 10.22 | 10.35 | 10.37 |
| 4 | 29 | Normal | 11.30 | 12.83 | 11.65 | 11.25 | 11.25 | 13.01 | 8.98 | 10.70 | 11.25 | 10.85 | 9.79 | 9.94 | 9.92 |
| 4 | 30 | Normal | 10.45 | 13.80 | 12.23 | 10.28 | 12.08 | 13.18 | 8.60 | 11.65 | 10.28 | 9.88 | 9.59 | 9.80 | 9.86 |
| 5 | 1 | Normal | 11.60 | 14.51 | 12.95 | 10.40 | 12.13 | 14.18 | 9.93 | 11.48 | 10.40 | 10.38 | 10.54 | 10.69 | 10.69 |
| 5 | 2 | Normal | 11.20 | 13.75 | 12.20 | 11.25 | 11.25 | 13.18 | 9.06 | 11.15 | 11.25 | 11.70 | 10.00 | 10.14 | 10.09 |
| 5 | 3 | Normal | 11.45 | 12.61 | 11.63 | 11.90 | 10.75 | 12.58 | 8.93 | 10.58 | 11.90 | 11.43 | 9.78 | 9.91 | 9.85 |
| 5 | 4 | Normal | 10.05 | 12.10 | 10.93 | 10.20 | 10.00 | 12.38 | 7.70 | 9.10 | 10.20 | 10.14 | 8.56 | 8.70 | 8.64 |
| 5 | 5 | Normal | 9.33 | 12.28 | 11.13 | 9.45 | 9.75 | 12.06 | 7.58 | 9.80 | 9.45 | 8.60 | 8.35 | 8.52 | 8.51 |
| 5 | 6 | Normal | 9.78 | 12.40 | 11.48 | 8.93 | 10.83 | 12.60 | 8.48 | 10.45 | 8.93 | 9.86 | 9.21 | 9.34 | 9.34 |
| 5 | 7 | Normal | 10.58 | 12.93 | 11.75 | 10.48 | 10.58 | 12.71 | 9.13 | 10.40 | 10.48 | 11.14 | 9.79 | 9.88 | 9.82 |
| 5 | 8 | Normal | 11.85 | 14.03 | 12.40 | 10.75 | 11.73 | 13.51 | 9.68 | 12.18 | 10.75 | 11.13 | 10.53 | 10.67 | 10.65 |
| 5 | 9 | Normal | 11.68 | 14.65 | 12.98 | 10.38 | 12.23 | 13.75 | 10.10 | 11.49 | 10.38 | 11.70 | 10.78 | 10.91 | 10.88 |
| 5 | 10 | Normal | 11.75 | 12.95 | 12.43 | 10.50 | 10.83 | 13.50 | 8.45 | 9.98 | 10.50 | 10.65 | 9.37 | 9.52 | 9.46 |
| 5 | 11 | Normal | 9.95 | 11.83 | 10.95 | 8.20 | 9.85 | 12.11 | 7.88 | 8.80 | 8.20 | 10.04 | 8.58 | 8.68 | 8.62 |
| 5 | 12 | Normal | 9.38 | 12.78 | 11.50 | 8.70 | 10.38 | 12.62 | 7.70 | 9.20 | 8.70 | 9.65 | 8.50 | 8.66 | 8.62 |
| 5 | 13 | Normal | 9.40 | 11.83 | 10.68 | 9.28 | 9.33 | 12.13 | 7.15 | 8.26 | 9.28 | 9.96 | 8.00 | 8.13 | 8.04 |
| 5 | 14 | Normal | 8.60 | 11.30 | 9.90 | 8.05 | 8.34 | 11.86 | 5.73 | 7.58 | 8.05 | 8.24 | 6.74 | 6.92 | 6.84 |
| 5 | 15 | Normal | 7.55 | 11.65 | 10.15 | 6.53 | 8.50 | 11.26 | 6.38 | 7.95 | 6.53 | 7.58 | 7.05 | 7.19 | 7.15 |
| 5 | 16 | Normal | 9.08 | 12.18 | 11.33 | 7.98 | 9.95 | 12.04 | 7.00 | 8.79 | 7.98 | 8.55 | 7.84 | 8.02 | 8.01 |
| 5 | 17 | Normal | 8.93 | 12.15 | 11.38 | 8.20 | 10.48 | 12.45 | 8.18 | 9.57 | 8.20 | 8.25 | 8.66 | 8.81 | 8.84 |
| 5 | 18 | Normal | 10.48 | 11.33 | 11.00 | 8.68 | 9.83 | 11.18 | 7.23 | 9.23 | 8.68 | 10.10 | 8.25 | 8.39 | 8.35 |
| 5 | 19 | Normal | 9.85 | 11.55 | 10.65 | 8.85 | 10.08 | 11.78 | 6.90 | 9.00 | 8.85 | 8.87 | 7.89 | 8.07 | 8.08 |
| 5 | 20 | Normal | 9.63 | 11.40 | 10.60 | 8.63 | 9.50 | 11.23 | 6.73 | 8.88 | 8.63 | 9.16 | 7.74 | 7.90 | 7.87 |
| 5 | 21 | Normal | 8.70 | 10.70 | 10.20 | 7.40 | 8.75 | 10.40 | 5.83 | 7.80 | 7.40 | 7.80 | 6.77 | 6.95 | 6.94 |
| 5 | 22 | Normal | 7.90 | 10.60 | 9.70 | 6.75 | 8.30 | 10.60 | 5.23 | 7.20 | 6.75 | 6.64 | 6.14 | 6.33 | 6.33 |
| 5 | 23 | Normal | 7.83 | 10.25 | 9.40 | 7.40 | 7.73 | 11.31 | 5.58 | 7.33 | 7.40 | 7.65 | 6.44 | 6.59 | 6.52 |
| 5 | 24 | Normal | 6.93 | 9.75 | 9.48 | 6.63 | 7.68 | 10.75 | 4.23 | 6.53 | 6.63 | 7.12 | 5.37 | 5.58 | 5.54 |
| 5 | 25 | Normal | 6.93 | 10.01 | 9.30 | 5.05 | 7.45 | 10.84 | 5.45 | 7.18 | 5.05 | 7.03 | 6.18 | 6.31 | 6.25 |
| 5 | 26 | Normal | 7.23 | 10.29 | 8.90 | 6.50 | 7.13 | 9.99 | 4.78 | 6.10 | 6.50 | 6.51 | 5.58 | 5.75 | 5.69 |
| 5 | 27 | Normal | 6.60 | 9.35 | 8.83 | 5.68 | 7.13 | 9.51 | 5.03 | 6.38 | 5.68 | 6.31 | 5.68 | 5.82 | 5.79 |
| 5 | 28 | Normal | 6.63 | 9.88 | 9.28 | 6.28 | 8.05 | 9.74 | 5.90 | 7.35 | 6.28 | 6.08 | 6.39 | 6.54 | 6.56 |
| 5 | 29 | Normal | 7.85 | 9.93 | 9.15 | 7.83 | 7.83 | 10.03 | 6.20 | 7.58 | 7.83 | 7.65 | 6.85 | 6.96 | 6.92 |
| 5 | 30 | Normal | 8.33 | 9.33 | 9.15 | 7.90 | 7.18 | 10.23 | 4.73 | 6.55 | 7.90 | 7.63 | 5.79 | 5.96 | 5.88 |
| 5 | 31 | Normal | 6.60 | 9.43 | 8.44 | 5.38 | 6.95 | 10.03 | 4.53 | 6.15 | 5.38 | 6.16 | 5.33 | 5.49 | 5.44 |
| 6 | 1 | Normal | 6.35 | 9.00 | 8.63 | 5.68 | 6.45 | 9.86 | 4.45 | 6.05 | 5.68 | 6.65 | 5.27 | 5.40 | 5.32 |
| 6 | 2 | Normal | 6.68 | 8.93 | 8.13 | 5.50 | 6.23 | 9.05 | 3.68 | 5.10 | 5.50 | 6.65 | 4.66 | 4.81 | 4.73 |
| 6 | 3 | Normal | 5.98 | 8.55 | 8.93 | 4.90 | 5.60 | 9.62 | 3.15 | 4.43 | 4.90 | 5.40 | 4.05 | 4.22 | 4.13 |
| 6 | 4 | Normal | 4.55 | 8.63 | 7.75 | 3.23 | 5.33 | 9.09 | 3.93 | 5.25 | 3.23 | 5.15 | 4.48 | 4.59 | 4.51 |
| 6 | 5 | Normal | 5.58 | 8.70 | 8.75 | 5.30 | 6.65 | 9.88 | 4.90 | 6.63 | 5.30 | 5.68 | 5.48 | 5.61 | 5.58 |
| 6 | 6 | Normal | 6.38 | 9.45 | 9.48 | 6.08 | 6.55 | 9.38 | 4.75 | 5.98 | 6.08 | 6.70 | 5.46 | 5.59 | 5.51 |
| 6 | 7 | Normal | 7.00 | 9.38 | 8.80 | 5.68 | 6.58 | 9.10 | 4.35 | 5.80 | 5.68 | 6.15 | 5.17 | 5.32 | 5.26 |
| 6 | 8 | Normal | 5.90 | 8.53 | 8.65 | 5.53 | 5.95 | 9.15 | 3.68 | 5.28 | 5.53 | 6.15 | 4.57 | 4.72 | 4.64 |
| 6 | 9 | Normal | 5.93 | 9.23 | 8.45 | 4.98 | 6.88 | 9.37 | 4.00 | 5.45 | 4.98 | 5.30 | 4.76 | 4.95 | 4.93 |
| 6 | 10 | Normal | 6.65 | 9.38 | 8.28 | 5.35 | 6.78 | 9.30 | 4.18 | 5.85 | 5.35 | 6.10 | 5.05 | 5.21 | 5.17 |
| 6 | 11 | Normal | 5.70 | 9.38 | 8.33 | 5.43 | 6.63 | 9.37 | 4.28 | 5.50 | 5.43 | 5.43 | 4.93 | 5.10 | 5.06 |
| 6 | 12 | Normal | 6.40 | 8.05 | 8.40 | 4.68 | 6.23 | 9.23 | 3.65 | 5.45 | 4.68 | 5.75 | 4.56 | 4.72 | 4.68 |
| 6 | 13 | Normal | 6.05 | 7.78 | 7.68 | 4.15 | 5.58 | 8.26 | 3.00 | 4.63 | 4.15 | 4.95 | 3.90 | 4.06 | 4.01 |
| 6 | 14 | Normal | 5.20 | 7.82 | 7.80 | 4.10 | 4.85 | 8.97 | 2.90 | 3.78 | 4.10 | 4.35 | 3.59 | 3.74 | 3.65 |
| 6 | 15 | Normal | 4.90 | 7.95 | 7.43 | 4.18 | 5.85 | 8.87 | 3.23 | 4.58 | 4.18 | 5.15 | 4.01 | 4.16 | 4.12 |
| 6 | 16 | Normal | 5.58 | 7.40 | 7.08 | 4.83 | 5.18 | 8.53 | 3.53 | 4.53 | 4.83 | 5.15 | 4.18 | 4.31 | 4.23 |
| 6 | 17 | Normal | 5.80 | 8.02 | 7.60 | 4.78 | 5.53 | 8.42 | 3.18 | 4.60 | 4.78 | 5.80 | 4.08 | 4.23 | 4.15 |
| 6 | 18 | Normal | 5.13 | 7.88 | 7.83 | 3.83 | 5.40 | 8.83 | 2.50 | 4.35 | 3.83 | 5.10 | 3.51 | 3.69 | 3.62 |
| 6 | 19 | Normal | 4.90 | 7.75 | 8.20 | 4.60 | 4.50 | 8.98 | 2.78 | 3.23 | 4.60 | 5.53 | 3.52 | 3.65 | 3.50 |
| 6 | 20 | Normal | 4.05 | 7.85 | 7.43 | 3.83 | 3.80 | 8.62 | 2.25 | 3.28 | 3.83 | 3.85 | 2.94 | 3.09 | 2.96 |
| 6 | 21 | Normal | 2.98 | 7.23 | 7.10 | 2.55 | 4.23 | 8.14 | 2.90 | 3.28 | 2.55 | 3.23 | 3.21 | 3.32 | 3.25 |
| 6 | 22 | Normal | 3.95 | 7.22 | 7.25 | 3.30 | 5.00 | 7.40 | 2.38 | 3.85 | 3.30 | 3.63 | 3.09 | 3.26 | 3.24 |
| 6 | 23 | Normal | 3.83 | 6.83 | 6.95 | 3.45 | 3.88 | 7.99 | 1.65 | 3.03 | 3.45 | 4.23 | 2.54 | 2.69 | 2.58 |
| 6 | 24 | Normal | 3.60 | 6.48 | 7.40 | 3.15 | 3.35 | 7.89 | 1.93 | 2.95 | 3.15 | 4.10 | 2.63 | 2.75 | 2.62 |
| 6 | 25 | Normal | 2.95 | 5.90 | 6.68 | 2.73 | 3.06 | 7.56 | 1.60 | 2.35 | 2.73 | 3.43 | 2.21 | 2.33 | 2.22 |
| 6 | 26 | Normal | 2.70 | 5.75 | 6.33 | 1.63 | 2.80 | 6.96 | 1.48 | 2.25 | 1.63 | 2.00 | 1.93 | 2.06 | 1.98 |
| 6 | 27 | Normal | 2.70 | 5.68 | 5.80 | 2.88 | 2.78 | 7.16 | 1.40 | 2.18 | 2.88 | 2.95 | 1.98 | 2.10 | 2.00 |
| 6 | 28 | Normal | 2.40 | 6.18 | 5.68 | 1.88 | 2.70 | 6.60 | 1.98 | 2.45 | 1.88 | 2.13 | 2.26 | 2.36 | 2.27 |
| 6 | 29 | Normal | 2.93 | 6.08 | 6.15 | 2.25 | 2.33 | 7.29 | 1.05 | 1.73 | 2.25 | 2.90 | 1.69 | 1.82 | 1.67 |
| 6 | 30 | Normal | 2.43 | 6.52 | 5.85 | 1.68 | 1.73 | 7.15 | 0.80 | 1.75 | 1.68 | 2.60 | 1.45 | 1.57 | 1.40 |

| 85% Probability Coldest Winter with 1989 Three Day Peak (Allocated to days based on 2000/01 Winter) | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Description | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 7 | 1 | Normal | 2.50 | 6.20 | 5.58 | 1.28 | 2.00 | 6.75 | 1.43 | 2.05 | 1.28 | 2.00 | 1.82 | 1.92 | 1.79 |
| 7 | 2 | Normal | 2.45 | 6.59 | 5.63 | 2.53 | 2.03 | 7.53 | 1.65 | 1.73 | 2.53 | 3.90 | 2.13 | 2.21 | 2.00 |
| 7 | 3 | Normal | 2.43 | 6.40 | 5.95 | 3.03 | 3.00 | 6.80 | 1.48 | 2.53 | 3.03 | 2.75 | 2.06 | 2.19 | 2.11 |
| 7 | 4 | Normal | 2.38 | 6.83 | 5.70 | 1.60 | 2.15 | 6.89 | 1.75 | 2.30 | 1.60 | 2.60 | 2.13 | 2.22 | 2.07 |
| 7 | 5 | Normal | 2.30 | 5.45 | 5.40 | 2.98 | 2.15 | 6.80 | 1.23 | 1.85 | 2.98 | 3.30 | 1.80 | 1.90 | 1.75 |
| 7 | 6 | Normal | 2.63 | 5.90 | 5.93 | 1.73 | 1.83 | 6.54 | 0.63 | 1.98 | 1.73 | 2.93 | 1.40 | 1.52 | 1.37 |
| 7 | 7 | Normal | 1.88 | 5.90 | 6.33 | 1.60 | 0.93 | 7.34 | 0.35 | 0.98 | 1.60 | 3.33 | 1.06 | 1.16 | 0.92 |
| 7 | 8 | Normal | 0.98 | 5.50 | 5.23 | 0.83 | 0.83 | 6.41 | 0.63 | 1.00 | 0.83 | 0.88 | 0.90 | 1.00 | 0.85 |
| 7 | 9 | Normal | 1.33 | 5.01 | 5.70 | 1.13 | 1.48 | 6.68 | 0.95 | 1.65 | 1.13 | 1.50 | 1.30 | 1.40 | 1.28 |
| 7 | 10 | Normal | 1.65 | 4.90 | 4.93 | 1.75 | 0.70 | 6.41 | 0.43 | 0.83 | 1.75 | 2.15 | 0.92 | 1.00 | 0.82 |
| 7 | 11 | Normal | 1.15 | 4.63 | 5.45 | 1.43 | 0.85 | 7.13 | 0.40 | 0.65 | 1.43 | 1.78 | 0.82 | 0.92 | 0.74 |
| 7 | 12 | Normal | 0.93 | 4.23 | 4.50 | 0.80 | 0.43 | 6.57 | 0.25 | 0.53 | 0.80 | 1.15 | 0.59 | 0.68 | 0.51 |
| 7 | 13 | Normal | 0.68 | 3.45 | 4.25 | 0.83 | 0.40 | 5.87 | 0.10 | 0.68 | 0.83 | 0.83 | 0.45 | 0.53 | 0.40 |
| 7 | 14 | Normal | 0.85 | 4.05 | 5.00 | 0.93 | 0.90 | 5.93 | 0.28 | 0.53 | 0.93 | 1.28 | 0.63 | 0.72 | 0.59 |
| 7 | 15 | Normal | 0.98 | 4.89 | 4.88 | 1.20 | 0.68 | 5.92 | 0.48 | 0.68 | 1.20 | 0.98 | 0.76 | 0.85 | 0.70 |
| 7 | 16 | Normal | 0.63 | 4.60 | 5.00 | 0.80 | 1.30 | 6.97 | 0.70 | 1.30 | 0.80 | 1.70 | 1.07 | 1.16 | 1.02 |
| 7 | 17 | Normal | 1.25 | 4.05 | 5.05 | 1.65 | 1.48 | 6.22 | 1.03 | 0.95 | 1.65 | 2.25 | 1.31 | 1.38 | 1.24 |
| 7 | 18 | Normal | 1.40 | 4.25 | 4.25 | 2.35 | 0.98 | 5.71 | 0.45 | 0.85 | 2.35 | 2.20 | 0.92 | 1.01 | 0.86 |
| 7 | 19 | Normal | 1.05 | 3.25 | 4.70 | 1.03 | 0.58 | 5.48 | 0.18 | 0.18 | 1.03 | 1.18 | 0.49 | 0.57 | 0.43 |
| 7 | 20 | Normal | 0.43 | 3.65 | 4.98 | 0.80 | 0.48 | 5.70 | 0.30 | 0.48 | 0.80 | 0.80 | 0.53 | 0.61 | 0.48 |
| 7 | 21 | Normal | 0.58 | 2.93 | 4.85 | 0.43 | 0.53 | 5.88 | 0.05 | 0.30 | 0.43 | 0.75 | 0.35 | 0.43 | 0.31 |
| 7 | 22 | Normal | 0.45 | 3.53 | 4.30 | 1.08 | 0.48 | 5.59 | 0.18 | 0.60 | 1.08 | 0.45 | 0.44 | 0.53 | 0.41 |
| 7 | 23 | Normal | 0.60 | 2.93 | 4.63 | 0.85 | 0.23 | 6.13 | - | 0.03 | 0.85 | 0.70 | 0.27 | 0.35 | 0.21 |
| 7 | 24 | Normal | 0.38 | 3.30 | 4.88 | 0.38 | 0.48 | 6.53 | 0.30 | 0.18 | 0.38 | 0.45 | 0.46 | 0.54 | 0.40 |
| 7 | 25 | Normal | 0.63 | 3.43 | 4.60 | 0.65 | 0.15 | 6.00 | 0.10 | 0.08 | 0.65 | 1.05 | 0.38 | 0.45 | 0.28 |
| 7 | 26 | Normal | 0.48 | 3.65 | 5.23 | 0.58 | 0.30 | 6.21 | 0.08 | 0.28 | 0.58 | 0.73 | 0.36 | 0.45 | 0.30 |
| 7 | 27 | Normal | 0.58 | 3.85 | 5.90 | 0.28 | 0.15 | 6.67 | - | 0.08 | 0.28 | 0.65 | 0.29 | 0.38 | 0.21 |
| 7 | 28 | Normal | 0.13 | 4.14 | 5.23 | 0.33 | 0.35 | 6.74 | 0.25 | 0.28 | 0.33 | 0.50 | 0.44 | 0.53 | 0.37 |
| 7 | 29 | Normal | 0.63 | 3.85 | 5.25 | 0.15 | 1.15 | 6.53 | 0.50 | 0.88 | 0.15 | 0.88 | 0.77 | 0.86 | 0.76 |
| 7 | 30 | Normal | 1.30 | 4.68 | 5.40 | 0.73 | 0.95 | 7.14 | 0.05 | 0.50 | 0.73 | 1.20 | 0.54 | 0.66 | 0.50 |
| 7 | 31 | Normal | 0.55 | 5.25 | 5.60 | 0.78 | 0.75 | 6.84 | 0.25 | 0.58 | 0.78 | 1.48 | 0.65 | 0.75 | 0.57 |
| 8 | 1 | Normal | 0.88 | 4.95 | 5.03 | 1.03 | 0.93 | 6.22 | 0.40 | 0.85 | 1.03 | 1.38 | 0.78 | 0.88 | 0.74 |
| 8 | 2 | Normal | 0.48 | 3.93 | 6.00 | 0.75 | 0.50 | 6.67 | 0.20 | 0.25 | 0.75 | 1.47 | 0.53 | 0.61 | 0.44 |
| 8 | 3 | Normal | 0.58 | 3.18 | 5.08 | 0.65 | 0.63 | 6.21 | 0.05 | 0.65 | 0.65 | 0.63 | 0.40 | 0.50 | 0.38 |
| 8 | 4 | Normal | 0.23 | 3.30 | 5.33 | 0.53 | 0.60 | 6.00 | 0.10 | 0.58 | 0.53 | 0.58 | 0.39 | 0.48 | 0.37 |
| 8 | 5 | Normal | 1.05 | 4.43 | 4.50 | 0.83 | 0.48 | 5.89 | 0.20 | 0.38 | 0.83 | 0.58 | 0.49 | 0.59 | 0.44 |
| 8 | 6 | Normal | 0.70 | 4.43 | 4.03 | 0.73 | 0.78 | 6.48 | 0.40 | 0.78 | 0.73 | 1.61 | 0.77 | 0.85 | 0.69 |
| 8 | 7 | Normal | 0.65 | 3.98 | 5.38 | 0.93 | 1.00 | 6.40 | 0.20 | 1.00 | 0.93 | 1.62 | 0.68 | 0.78 | 0.64 |
| 8 | 8 | Normal | 1.23 | 3.98 | 4.55 | 1.13 | 0.48 | 5.95 | - | 0.28 | 1.13 | 0.78 | 0.38 | 0.49 | 0.34 |
| 8 | 9 | Normal | 0.45 | 3.13 | 4.73 | 0.85 | - | 6.33 | 0.03 | - | 0.85 | 0.43 | 0.24 | 0.32 | 0.17 |
| 8 | 10 | Normal | 0.23 | 4.33 | 4.78 | 0.25 | 0.53 | 6.33 | 0.18 | 0.35 | 0.25 | 0.99 | 0.46 | 0.55 | 0.40 |
| 8 | 11 | Normal | 0.95 | 3.60 | 4.53 | 1.09 | 0.70 | 5.72 | 0.20 | 0.83 | 1.09 | 1.43 | 0.62 | 0.71 | 0.58 |
| 8 | 12 | Normal | 1.18 | 3.88 | 5.40 | 0.88 | 0.68 | 5.88 | 0.10 | 0.53 | 0.88 | 1.31 | 0.53 | 0.62 | 0.48 |
| 8 | 13 | Normal | 0.48 | 3.45 | 4.85 | 0.45 | 0.78 | 6.33 | 0.38 | 0.75 | 0.45 | 1.13 | 0.67 | 0.75 | 0.62 |
| 8 | 14 | Normal | 0.80 | 4.23 | 4.65 | 0.65 | 0.48 | 5.47 | 0.18 | 0.30 | 0.65 | 1.20 | 0.50 | 0.58 | 0.43 |
| 8 | 15 | Normal | 0.90 | 4.30 | 4.30 | 0.98 | 1.18 | 6.24 | 0.38 | 0.83 | 0.98 | 1.75 | 0.80 | 0.90 | 0.76 |
| 8 | 16 | Normal | 1.03 | 3.73 | 4.65 | 0.65 | 1.13 | 6.01 | 0.50 | 1.08 | 0.65 | 2.25 | 0.95 | 1.02 | 0.88 |
| 8 | 17 | Normal | 1.75 | 4.60 | 4.78 | 1.70 | 1.58 | 6.41 | 0.48 | 1.28 | 1.70 | 2.31 | 1.07 | 1.18 | 1.04 |
| 8 | 18 | Normal | 1.63 | 3.99 | 5.15 | 1.55 | 1.63 | 6.03 | 0.48 | 1.25 | 1.55 | 1.88 | 1.00 | 1.11 | 1.00 |
| 8 | 19 | Normal | 1.53 | 4.30 | 5.25 | 1.83 | 0.73 | 6.66 | 0.20 | 0.68 | 1.83 | 1.38 | 0.67 | 0.78 | 0.62 |
| 8 | 20 | Normal | 0.58 | 4.60 | 4.50 | 0.73 | 1.20 | 6.04 | 0.30 | 0.83 | 0.73 | 1.23 | 0.69 | 0.79 | 0.68 |
| 8 | 21 | Normal | 1.15 | 4.90 | 4.90 | 1.53 | 0.98 | 6.05 | 0.40 | 1.15 | 1.53 | 1.71 | 0.88 | 0.98 | 0.83 |
| 8 | 22 | Normal | 1.00 | 4.40 | 4.90 | 0.93 | 0.65 | 6.18 | 0.38 | 0.73 | 0.93 | 1.03 | 0.70 | 0.79 | 0.64 |
| 8 | 23 | Normal | 1.25 | 5.30 | 4.72 | 1.15 | 1.25 | 6.53 | 0.70 | 1.03 | 1.15 | 2.58 | 1.16 | 1.24 | 1.07 |
| 8 | 24 | Normal | 2.58 | 4.50 | 5.13 | 2.98 | 1.58 | 6.82 | 0.98 | 1.90 | 2.98 | 3.53 | 1.64 | 1.73 | 1.56 |
| 8 | 25 | Normal | 1.78 | 4.20 | 5.65 | 2.90 | 1.30 | 6.68 | 0.40 | 1.25 | 2.90 | 2.22 | 1.01 | 1.12 | 0.98 |
| 8 | 26 | Normal | 0.83 | 4.40 | 5.30 | 1.33 | 0.75 | 6.58 | 0.05 | 0.68 | 1.33 | 1.52 | 0.55 | 0.65 | 0.50 |
| 8 | 27 | Normal | 0.83 | 3.73 | 4.83 | 1.30 | 1.23 | 6.27 | 0.45 | 0.83 | 1.30 | 1.32 | 0.80 | 0.90 | 0.79 |
| 8 | 28 | Normal | 0.75 | 4.03 | 4.65 | 1.38 | 0.30 | 5.91 | 0.23 | 0.45 | 1.38 | 1.66 | 0.59 | 0.67 | 0.49 |
| 8 | 29 | Normal | 0.40 | 3.85 | 4.98 | 1.20 | 1.20 | 6.05 | 0.48 | 0.98 | 1.20 | 1.84 | 0.86 | 0.94 | 0.82 |
| 8 | 30 | Normal | 1.83 | 3.90 | 4.35 | 1.35 | 1.23 | 5.81 | 0.63 | 1.23 | 1.35 | 1.89 | 1.07 | 1.16 | 1.03 |
| 8 | 31 | Normal | 1.48 | 4.43 | 5.70 | 2.03 | 1.20 | 6.29 | 0.53 | 1.43 | 2.03 | 1.45 | 1.00 | 1.11 | 0.99 |
| 9 | 1 | Normal | 1.43 | 5.08 | 5.10 | 2.18 | 1.50 | 6.20 | 0.70 | 1.50 | 2.18 | 2.13 | 1.20 | 1.31 | 1.18 |
| 9 | 2 | Normal | 1.48 | 5.38 | 5.85 | 2.30 | 1.68 | 7.02 | 0.83 | 1.83 | 2.30 | 2.40 | 1.38 | 1.49 | 1.35 |
| 9 | 3 | Normal | 2.00 | 5.60 | 5.28 | 2.55 | 1.75 | 7.04 | 0.78 | 1.85 | 2.55 | 2.43 | 1.40 | 1.52 | 1.38 |
| 9 | 4 | Normal | 2.30 | 5.43 | 5.65 | 2.30 | 1.75 | 7.04 | 1.05 | 1.70 | 2.30 | 2.24 | 1.54 | 1.65 | 1.51 |
| 9 | 5 | Normal | 2.38 | 5.65 | 5.65 | 2.00 | 2.68 | 7.24 | 1.53 | 2.25 | 2.00 | 2.89 | 2.03 | 2.13 | 2.02 |
| 9 | 6 | Normal | 3.13 | 5.98 | 5.43 | 3.03 | 2.90 | 8.06 | 1.40 | 2.50 | 3.03 | 3.47 | 2.13 | 2.26 | 2.13 |
| 9 | 7 | Normal | 2.23 | 6.18 | 5.95 | 2.93 | 2.70 | 7.40 | 0.90 | 1.63 | 2.93 | 3.15 | 1.60 | 1.75 | 1.61 |
| 9 | 8 | Normal | 2.13 | 5.45 | 5.98 | 3.05 | 2.35 | 7.70 | 1.25 | 2.13 | 3.05 | 3.30 | 1.86 | 1.98 | 1.83 |
| 9 | 9 | Normal | 2.33 | 5.45 | 6.55 | 3.15 | 2.33 | 7.64 | 1.23 | 2.40 | 3.15 | 3.66 | 1.93 | 2.04 | 1.89 |
| 9 | 10 | Normal | 2.83 | 6.51 | 6.63 | 3.70 | 2.43 | 8.40 | 1.33 | 2.40 | 3.70 | 4.00 | 2.10 | 2.22 | 2.04 |
| 9 | 11 | Normal | 2.05 | 5.35 | 5.38 | 3.23 | 1.78 | 6.83 | 1.15 | 1.88 | 3.23 | 2.81 | 1.67 | 1.78 | 1.63 |
| 9 | 12 | Normal | 2.53 | 5.30 | 5.95 | 2.95 | 2.41 | 6.95 | 1.25 | 2.30 | 2.95 | 3.02 | 1.87 | 1.99 | 1.87 |
| 9 | 13 | Normal | 2.53 | 5.55 | 6.83 | 4.00 | 2.63 | 7.03 | 1.58 | 2.23 | 4.00 | 3.95 | 2.18 | 2.29 | 2.14 |
| 9 | 14 | Normal | 2.58 | 7.48 | 7.35 | 4.03 | 2.75 | 8.22 | 2.25 | 3.13 | 4.03 | 3.43 | 2.72 | 2.84 | 2.68 |
| 9 | 15 | Normal | 2.93 | 7.10 | 6.08 | 3.95 | 3.78 | 7.54 | 3.35 | 4.35 | 3.95 | 3.68 | 3.64 | 3.73 | 3.64 |
| 9 | 16 | Normal | 4.43 | 6.88 | 6.30 | 5.05 | 3.95 | 7.77 | 3.50 | 4.63 | 5.05 | 6.12 | 4.12 | 4.18 | 4.03 |
| 9 | 17 | Normal | 4.53 | 6.88 | 6.50 | 5.95 | 4.73 | 7.73 | 2.70 | 4.28 | 5.95 | 5.73 | 3.60 | 3.73 | 3.65 |
| 9 | 18 | Normal | 5.73 | 7.25 | 6.33 | 6.30 | 4.95 | 8.15 | 3.20 | 4.95 | 6.30 | 6.22 | 4.15 | 4.27 | 4.17 |
| 9 | 19 | Normal | 4.65 | 7.38 | 7.03 | 5.50 | 4.68 | 8.75 | 3.15 | 4.28 | 5.50 | 5.40 | 3.87 | 3.99 | 3.88 |
| 9 | 20 | Normal | 4.93 | 7.25 | 7.85 | 5.83 | 5.00 | 9.29 | 2.85 | 4.73 | 5.83 | 6.02 | 3.85 | 4.00 | 3.89 |
| 9 | 21 | Normal | 4.93 | 6.45 | 7.13 | 6.55 | 4.40 | 8.01 | 2.45 | 3.73 | 6.55 | 5.78 | 3.39 | 3.53 | 3.41 |
| 9 | 22 | Normal | 3.63 | 6.43 | 8.03 | 6.30 | 3.95 | 7.88 | 2.63 | 4.00 | 6.30 | 5.59 | 3.41 | 3.52 | 3.40 |
| 9 | 23 | Normal | 3.30 | 8.10 | 6.98 | 5.63 | 3.38 | 8.49 | 2.28 | 2.95 | 5.63 | 4.53 | 2.93 | 3.07 | 2.90 |
| 9 | 24 | Normal | 3.83 | 7.05 | 7.33 | 4.60 | 4.26 | 7.83 | 3.10 | 4.23 | 4.60 | 4.37 | 3.63 | 3.74 | 3.66 |
| 9 | 25 | Normal | 3.38 | 6.88 | 6.50 | 3.90 | 4.20 | 9.26 | 2.93 | 4.10 | 3.90 | 4.51 | 3.50 | 3.61 | 3.51 |
| 9 | 26 | Normal | 4.50 | 7.18 | 6.78 | 5.15 | 4.44 | 8.66 | 2.83 | 3.95 | 5.15 | 5.30 | 3.59 | 3.71 | 3.60 |
| 9 | 27 | Normal | 4.40 | 7.38 | 7.93 | 6.00 | 4.28 | 8.72 | 2.80 | 3.90 | 6.00 | 5.51 | 3.59 | 3.72 | 3.58 |
| 9 | 28 | Normal | 4.43 | 7.80 | 7.30 | 5.98 | 3.56 | 8.05 | 1.88 | 3.20 | 5.98 | 5.50 | 2.89 | 3.04 | 2.86 |
| 9 | 29 | Normal | 2.73 | 6.73 | 7.73 | 4.75 | 3.83 | 8.67 | 1.93 | 3.38 | 4.75 | 3.57 | 2.64 | 2.80 | 2.72 |
| 9 | 30 | Normal | 3.30 | 7.25 | 6.93 | 4.73 | 4.22 | 7.70 | 2.55 | 3.70 | 4.73 | 4.41 | 3.20 | 3.33 | 3.24 |

| 85% Probability Coldest Winter with 1989 Three Day Peak (Allocated to days based on 2000/01 Winter) | | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Description | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 10 | 1 | Normal | 4.55 | 9.13 | 9.28 | 5.60 | 6.80 | 10.59 | 4.40 | 5.73 | 5.60 | 5.85 | 5.04 | 5.20 | 5.15 |
| 10 | 2 | Normal | 6.85 | 10.38 | 9.45 | 7.23 | 7.70 | 11.38 | 5.83 | 7.60 | 7.23 | 7.08 | 6.51 | 6.66 | 6.61 |
| 10 | 3 | Normal | 7.23 | 9.93 | 9.48 | 9.68 | 7.88 | 10.00 | 5.55 | 7.28 | 9.68 | 7.90 | 6.42 | 6.58 | 6.53 |
| 10 | 4 | Normal | 7.78 | 9.48 | 8.40 | 9.23 | 8.28 | 9.59 | 5.18 | 7.43 | 9.23 | 8.75 | 6.32 | 6.49 | 6.46 |
| 10 | 5 | Normal | 7.65 | 9.85 | 7.88 | 9.53 | 7.65 | 9.43 | 5.78 | 7.30 | 9.53 | 9.33 | 6.70 | 6.81 | 6.72 |
| 10 | 6 | Normal | 7.33 | 8.80 | 8.53 | 9.80 | 7.45 | 8.78 | 5.93 | 7.55 | 9.80 | 8.30 | 6.67 | 6.77 | 6.73 |
| 10 | 7 | Normal | 8.03 | 10.35 | 9.40 | 9.73 | 8.25 | 10.33 | 6.48 | 8.28 | 9.73 | 8.98 | 7.30 | 7.42 | 7.36 |
| 10 | 8 | Normal | 8.58 | 9.98 | 8.60 | 10.13 | 8.85 | 9.29 | 7.28 | 9.08 | 10.13 | 9.73 | 8.02 | 8.10 | 8.08 |
| 10 | 9 | Normal | 9.30 | 9.38 | 9.38 | 10.03 | 8.48 | 9.65 | 7.08 | 8.65 | 10.03 | 9.98 | 7.88 | 7.96 | 7.90 |
| 10 | 10 | Normal | 8.55 | 11.10 | 9.43 | 11.13 | 10.53 | 11.24 | 8.20 | 10.00 | 11.13 | 10.10 | 8.89 | 9.01 | 9.04 |
| 10 | 11 | Normal | 11.00 | 11.35 | 10.13 | 12.43 | 10.92 | 10.63 | 8.98 | 10.75 | 12.43 | 11.68 | 9.80 | 9.89 | 9.89 |
| 10 | 12 | Normal | 10.80 | 11.03 | 9.38 | 12.73 | 9.57 | 11.63 | 8.10 | 9.28 | 12.73 | 10.60 | 8.89 | 9.00 | 8.93 |
| 10 | 13 | Normal | 9.68 | 11.18 | 9.38 | 11.75 | 10.65 | 10.90 | 8.35 | 9.85 | 11.75 | 10.38 | 9.07 | 9.19 | 9.21 |
| 10 | 14 | Normal | 10.65 | 11.30 | 9.50 | 11.28 | 11.55 | 11.45 | 9.55 | 11.20 | 11.28 | 12.00 | 10.26 | 10.33 | 10.34 |
| 10 | 15 | Normal | 11.30 | 11.28 | 10.83 | 13.73 | 12.15 | 11.28 | 9.35 | 11.28 | 13.73 | 12.85 | 10.32 | 10.43 | 10.46 |
| 10 | 16 | Normal | 11.38 | 12.70 | 11.05 | 13.95 | 11.43 | 11.48 | 9.20 | 11.15 | 13.95 | 11.70 | 10.09 | 10.23 | 10.23 |
| 10 | 17 | Normal | 11.60 | 12.83 | 10.00 | 14.93 | 11.83 | 11.72 | 10.55 | 11.83 | 14.93 | 12.25 | 11.11 | 11.20 | 11.20 |
| 10 | 18 | Normal | 11.75 | 12.98 | 10.27 | 14.88 | 12.50 | 12.91 | 10.98 | 12.48 | 14.88 | 13.18 | 11.62 | 11.70 | 11.69 |
| 10 | 19 | Normal | 12.18 | 10.18 | 9.68 | 15.25 | 10.35 | 10.60 | 8.63 | 9.68 | 15.25 | 12.85 | 9.61 | 9.70 | 9.63 |
| 10 | 20 | Normal | 9.95 | 11.00 | 10.00 | 13.58 | 11.99 | 10.73 | 9.18 | 10.90 | 13.58 | 11.58 | 9.93 | 10.05 | 10.13 |
| 10 | 21 | Normal | 11.40 | 11.90 | 11.55 | 14.38 | 13.18 | 11.15 | 10.64 | 12.70 | 14.38 | 12.45 | 11.33 | 11.44 | 11.54 |
| 10 | 22 | Normal | 13.38 | 13.45 | 11.53 | 15.63 | 13.05 | 12.70 | 10.88 | 13.08 | 15.63 | 13.58 | 11.81 | 11.93 | 11.95 |
| 10 | 23 | Normal | 13.78 | 13.23 | 11.95 | 16.10 | 13.90 | 12.45 | 11.78 | 14.35 | 16.10 | 13.88 | 12.63 | 12.74 | 12.80 |
| 10 | 24 | Normal | 14.23 | 14.45 | 11.50 | 16.90 | 13.84 | 13.39 | 12.33 | 13.75 | 16.90 | 14.48 | 13.01 | 13.11 | 13.11 |
| 10 | 25 | Normal | 13.90 | 13.90 | 10.95 | 16.78 | 14.67 | 11.85 | 12.08 | 13.88 | 16.78 | 14.65 | 12.89 | 12.99 | 13.07 |
| 10 | 26 | Normal | 14.33 | 14.43 | 11.28 | 17.18 | 15.38 | 13.16 | 13.20 | 14.58 | 17.18 | 14.75 | 13.77 | 13.87 | 13.95 |
| 10 | 27 | Normal | 14.98 | 15.85 | 12.45 | 17.98 | 16.38 | 13.59 | 14.08 | 15.90 | 17.98 | 16.40 | 14.78 | 14.87 | 14.95 |
| 10 | 28 | Normal | 15.73 | 16.78 | 12.73 | 18.33 | 15.80 | 14.97 | 14.78 | 15.63 | 18.33 | 16.78 | 15.27 | 15.32 | 15.30 |
| 10 | 29 | Normal | 16.03 | 16.90 | 12.93 | 18.80 | 16.93 | 14.42 | 15.28 | 17.00 | 18.80 | 17.13 | 15.86 | 15.93 | 15.99 |
| 10 | 30 | Normal | 17.08 | 16.15 | 13.33 | 21.05 | 17.20 | 14.45 | 15.23 | 16.85 | 21.05 | 17.85 | 15.97 | 16.06 | 16.12 |
| 10 | 31 | Normal | 17.10 | 16.45 | 12.45 | 21.00 | 17.88 | 15.10 | 16.40 | 17.50 | 21.00 | 17.63 | 16.81 | 16.87 | 16.96 |
| 11 | 1 | 85% Winter | 15.35 | 17.57 | 16.29 | 17.64 | 19.06 | 16.73 | 17.40 | 17.79 | 17.64 | 18.01 | 17.45 | 17.46 | 17.57 |
| 11 | 2 | 85% Winter | 17.33 | 10.12 | 8.93 | 15.62 | 11.24 | 12.95 | 12.43 | 12.85 | 15.62 | 19.01 | 13.34 | 13.21 | 12.97 |
| 11 | 3 | 85% Winter | 11.39 | 9.59 | 8.93 | 14.62 | 9.78 | 11.33 | 10.44 | 12.85 | 14.62 | 13.01 | 11.05 | 11.03 | 10.96 |
| 11 | 4 | 85% Winter | 12.88 | 11.18 | 14.19 | 17.14 | 16.13 | 14.03 | 12.43 | 16.31 | 17.14 | 11.51 | 13.10 | 13.29 | 13.59 |
| 11 | 5 | 85% Winter | 17.33 | 13.31 | 15.24 | 17.14 | 15.64 | 15.65 | 14.91 | 16.80 | 17.14 | 14.51 | 15.28 | 15.34 | 15.43 |
| 11 | 6 | 85% Winter | 20.30 | 13.31 | 16.29 | 18.65 | 19.06 | 17.81 | 16.40 | 19.27 | 18.65 | 16.51 | 17.13 | 17.24 | 17.44 |
| 11 | 7 | 85% Winter | 18.82 | 14.91 | 17.87 | 22.18 | 24.93 | 21.59 | 20.38 | 23.22 | 22.18 | 19.01 | 20.68 | 20.81 | 21.23 |
| 11 | 8 | 85% Winter | 20.30 | 13.31 | 15.24 | 24.19 | 19.06 | 18.89 | 17.40 | 17.29 | 24.19 | 20.52 | 17.95 | 17.98 | 18.01 |
| 11 | 9 | 85% Winter | 18.82 | 19.17 | 21.55 | 22.68 | 26.39 | 19.97 | 21.37 | 22.24 | 22.68 | 18.51 | 21.25 | 21.41 | 21.86 |
| 11 | 10 | 85% Winter | 22.78 | 22.37 | 23.12 | 25.20 | 25.42 | 24.28 | 22.87 | 25.70 | 25.20 | 28.02 | 23.88 | 23.88 | 23.93 |
| 11 | 11 | 85% Winter | 26.25 | 27.69 | 27.33 | 33.77 | 30.79 | 29.68 | 28.83 | 29.65 | 33.77 | 30.02 | 29.00 | 29.05 | 29.17 |
| 11 | 12 | 85% Winter | 30.70 | 26.09 | 25.75 | 34.27 | 29.82 | 26.98 | 28.83 | 29.65 | 34.27 | 29.52 | 29.11 | 29.14 | 29.25 |
| 11 | 13 | 85% Winter | 27.24 | 21.30 | 23.12 | 31.25 | 25.91 | 23.20 | 23.36 | 24.71 | 31.25 | 26.52 | 24.23 | 24.31 | 24.41 |
| 11 | 14 | 85% Winter | 24.76 | 25.56 | 19.97 | 30.74 | 27.86 | 24.82 | 24.85 | 27.67 | 30.74 | 30.52 | 25.96 | 26.00 | 26.07 |
| 11 | 15 | 85% Winter | 26.74 | 22.90 | 20.50 | 31.25 | 25.42 | 22.13 | 24.85 | 24.71 | 31.25 | 27.52 | 25.19 | 25.18 | 25.20 |
| 11 | 16 | 85% Winter | 27.73 | 26.09 | 20.50 | 31.75 | 31.28 | 22.66 | 28.83 | 29.65 | 31.75 | 28.52 | 28.82 | 28.84 | 29.14 |
| 11 | 17 | 85% Winter | 28.23 | 25.56 | 23.12 | 33.77 | 31.77 | 22.66 | 26.84 | 29.15 | 33.77 | 31.02 | 27.86 | 27.95 | 28.23 |
| 11 | 18 | 85% Winter | 30.70 | 26.63 | 20.50 | 30.24 | 33.73 | 24.28 | 29.82 | 32.61 | 30.24 | 30.52 | 30.35 | 30.38 | 30.76 |
| 11 | 19 | 85% Winter | 32.19 | 26.09 | 21.55 | 34.27 | 35.68 | 24.82 | 27.84 | 34.10 | 34.27 | 31.52 | 29.65 | 29.87 | 30.38 |
| 11 | 20 | 85% Winter | 33.68 | 14.38 | 14.19 | 34.27 | 30.30 | 16.19 | 24.36 | 24.71 | 34.27 | 29.02 | 25.53 | 25.59 | 26.02 |
| 11 | 21 | 85% Winter | 26.25 | 22.37 | 16.82 | 30.24 | 28.84 | 16.73 | 22.87 | 26.68 | 30.24 | 25.02 | 24.05 | 24.23 | 24.66 |
| 11 | 22 | 85% Winter | 29.22 | 27.16 | 20.50 | 33.26 | 30.30 | 18.35 | 27.84 | 30.64 | 33.26 | 28.52 | 28.35 | 28.40 | 28.71 |
| 11 | 23 | 85% Winter | 29.22 | 18.11 | 17.34 | 35.28 | 23.95 | 18.35 | 26.84 | 25.70 | 35.28 | 31.02 | 26.87 | 26.63 | 26.57 |
| 11 | 24 | 85% Winter | 20.80 | 19.70 | 18.39 | 33.26 | 24.44 | 17.81 | 22.87 | 21.74 | 33.26 | 27.02 | 23.04 | 23.01 | 23.10 |
| 11 | 25 | 85% Winter | 20.30 | 21.30 | 19.45 | 31.25 | 19.06 | 21.05 | 23.36 | 20.75 | 31.25 | 24.52 | 22.69 | 22.54 | 22.30 |
| 11 | 26 | 85% Winter | 24.27 | 17.57 | 15.77 | 30.74 | 18.08 | 16.73 | 18.39 | 17.79 | 30.74 | 21.02 | 18.96 | 19.02 | 18.93 |
| 11 | 27 | 85% Winter | 20.80 | 22.90 | 18.39 | 24.19 | 21.02 | 18.35 | 22.87 | 23.72 | 24.19 | 21.52 | 22.53 | 22.46 | 22.49 |
| 11 | 28 | 85% Winter | 22.29 | 21.83 | 15.24 | 26.71 | 30.30 | 22.13 | 23.86 | 26.68 | 26.71 | 24.52 | 24.48 | 24.63 | 25.10 |
| 11 | 29 | 85% Winter | 26.25 | 16.51 | 13.66 | 30.74 | 20.53 | 16.73 | 19.88 | 19.27 | 30.74 | 25.02 | 20.70 | 20.69 | 20.64 |
| 11 | 30 | 85% Winter | 19.81 | 13.31 | 15.77 | 30.74 | 19.06 | 15.11 | 19.88 | 19.77 | 30.74 | 23.02 | 20.03 | 19.95 | 19.98 |
| 12 | 1 | 85% Winter | 21.79 | 15.44 | 14.19 | 26.71 | 23.95 | 13.49 | 19.88 | 24.71 | 26.71 | 21.02 | 20.83 | 20.93 | 21.37 |
| 12 | 2 | 85% Winter | 23.77 | 19.17 | 13.14 | 28.22 | 15.15 | 16.73 | 22.37 | 18.28 | 28.22 | 22.52 | 21.43 | 21.17 | 20.81 |
| 12 | 3 | 85% Winter | 18.32 | 19.70 | 12.61 | 26.71 | 21.02 | 16.19 | 22.87 | 25.20 | 26.71 | 23.52 | 22.71 | 22.57 | 22.67 |
| 12 | 4 | 85% Winter | 26.25 | 18.11 | 14.72 | 27.72 | 24.93 | 14.57 | 22.87 | 24.71 | 27.72 | 24.52 | 23.40 | 23.39 | 23.66 |
| 12 | 5 | 85% Winter | 26.74 | 18.64 | 15.24 | 27.72 | 26.39 | 15.11 | 25.35 | 25.20 | 27.72 | 25.02 | 25.17 | 25.08 | 25.39 |
| 12 | 6 | 85% Winter | 26.25 | 20.77 | 15.24 | 30.24 | 28.35 | 16.19 | 26.35 | 28.66 | 30.24 | 27.02 | 26.58 | 26.53 | 26.90 |
| 12 | 7 | 85% Winter | 30.70 | 23.43 | 11.56 | 30.74 | 31.28 | 20.51 | 27.34 | 31.63 | 30.74 | 27.02 | 28.10 | 28.19 | 28.64 |
| 12 | 8 | 85% Winter | 32.69 | 29.82 | 21.02 | 31.25 | 26.88 | 25.36 | 27.84 | 31.63 | 31.25 | 30.52 | 28.81 | 28.80 | 28.73 |
| 12 | 9 | 85% Winter | 30.70 | 23.43 | 24.18 | 31.75 | 22.97 | 20.51 | 24.36 | 23.22 | 31.75 | 31.02 | 25.14 | 25.03 | 24.78 |
| 12 | 10 | 85% Winter | 24.27 | 25.03 | 23.65 | 25.20 | 25.91 | 23.20 | 23.86 | 24.21 | 25.20 | 25.02 | 24.14 | 24.19 | 24.28 |
| 12 | 11 | 85% Winter | 25.26 | 28.22 | 23.65 | 29.74 | 30.30 | 24.82 | 28.83 | 30.14 | 29.74 | 25.02 | 28.38 | 28.45 | 28.75 |
| 12 | 12 | 85% Winter | 31.20 | 30.35 | 22.07 | 37.80 | 30.30 | 26.98 | 31.81 | 30.64 | 37.80 | 29.02 | 31.17 | 31.16 | 31.24 |
| 12 | 13 | 85% Winter | 31.20 | 27.16 | 16.82 | 38.81 | 23.95 | 23.74 | 33.30 | 28.66 | 38.81 | 31.52 | 31.64 | 31.27 | 30.95 |
| 12 | 14 | 85% Winter | 25.75 | 21.83 | 16.82 | 39.82 | 17.60 | 18.35 | 24.85 | 22.73 | 39.82 | 33.02 | 25.01 | 24.69 | 24.15 |
| 12 | 15 | 85% Winter | 18.32 | 22.37 | 16.82 | 30.24 | 18.57 | 20.51 | 22.37 | 20.26 | 30.24 | 24.52 | 21.87 | 21.73 | 21.48 |
| 12 | 16 | 85% Winter | 19.81 | 16.51 | 13.66 | 29.23 | 17.11 | 15.11 | 17.89 | 16.31 | 29.23 | 24.02 | 18.39 | 18.31 | 18.13 |
| 12 | 17 | 85% Winter | 18.82 | 25.03 | 19.97 | 27.72 | 24.44 | 19.97 | 24.85 | 26.68 | 27.72 | 17.51 | 23.90 | 23.99 | 24.31 |
| 12 | 18 | 85% Winter | 25.26 | 22.90 | 16.29 | 30.24 | 30.79 | 21.05 | 25.35 | 28.66 | 30.24 | 26.02 | 26.04 | 26.18 | 26.64 |
| 12 | 19 | 85% Winter | 27.73 | 23.43 | 15.77 | 30.74 | 22.97 | 19.43 | 23.86 | 24.71 | 30.74 | 24.52 | 24.17 | 24.18 | 24.18 |
| 12 | 20 | 85% Winter | 24.27 | 20.77 | 16.82 | 26.21 | 22.48 | 18.89 | 24.85 | 22.24 | 26.21 | 25.02 | 24.19 | 24.01 | 23.98 |
| 12 | 21 | 85% Winter | 25.75 | 19.70 | 16.82 | 33.26 | 20.53 | 17.27 | 25.85 | 23.22 | 33.26 | 29.02 | 25.34 | 25.04 | 24.82 |
| 12 | 22 | 85% Winter | 23.28 | 16.51 | 16.29 | 34.78 | 17.11 | 15.11 | 25.85 | 16.80 | 34.78 | 29.02 | 24.10 | 23.63 | 23.18 |
| 12 | 23 | 85% Winter | 21.30 | 18.11 | 19.97 | 32.76 | 22.48 | 16.73 | 26.35 | 19.27 | 32.76 | 24.02 | 24.44 | 24.21 | 24.21 |
| 12 | 24 | 85% Winter | 22.29 | 22.90 | 20.50 | 31.25 | 24.44 | 20.51 | 20.88 | 22.24 | 31.25 | 26.02 | 21.94 | 22.06 | 22.13 |
| 12 | 25 | 85% Winter | 25.75 | 17.57 | 17.34 | 29.74 | 25.91 | 15.65 | 23.36 | 25.70 | 29.74 | 23.52 | 23.79 | 23.83 | 24.19 |
| 12 | 26 | 85% Winter | 25.26 | 21.83 | 19.45 | 32.76 | 27.86 | 17.27 | 23.86 | 23.22 | 32.76 | 24.02 | 24.02 | 24.15 | 24.48 |
| 12 | 27 | 85% Winter | 26.74 | 22.37 | 15.77 | 33.77 | 24.44 | 13.49 | 21.87 | 20.75 | 33.77 | 25.52 | 22.49 | 22.57 | 22.69 |
| 12 | 28 | 85% Winter | 19.31 | 17.04 | 15.24 | 29.74 | 25.42 | 16.73 | 21.87 | 24.71 | 29.74 | 23.52 | 22.33 | 22.39 | 22.76 |
| 12 | 29 | 85% Winter | 25.75 | 21.30 | 19.97 | 30.24 | 22.97 | 16.73 | 23.86 | 29.15 | 30.24 | 26.52 | 24.76 | 24.70 | 24.80 |
| 12 | 30 | 85% Winter | 26.74 | 16.51 | 11.56 | 30.74 | 19.55 | 11.33 | 21.87 | 20.75 | 30.74 | 26.02 | 22.12 | 21.94 | 21.88 |
| 12 | 31 | 85% Winter | 20.30 | 18.11 | 13.66 | 29.74 | 17.60 | 14.03 | 23.36 | 15.81 | 29.74 | 23.52 | 21.71 | 21.41 | 21.17 |
| Total | | | 4,931 | 5,223 | 4,656 | 5,601 | 4,930 | 5,078 | 4,498 | 4,845 | 5,601 | 5,092 | 4,678 | 4,704 | 4,698 |

# Appendix 2-21: Weather Assumptions – Normal Year

## Heating Degree Days, Base 65

**Normal Year (20 Year Daily Average 1987-2006)**

| | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 1 | 1 | 23.40 | 20.50 | 17.80 | 28.85 | 23.50 | 18.99 | 22.83 | 23.13 | 28.85 | 24.48 | 23.06 | 23.05 | 23.15 |
| 1 | 2 | 23.88 | 21.10 | 18.58 | 28.25 | 24.43 | 19.18 | 22.98 | 23.40 | 28.25 | 24.95 | 23.32 | 23.33 | 23.45 |
| 1 | 3 | 24.00 | 21.60 | 18.70 | 28.10 | 23.23 | 19.58 | 23.13 | 22.78 | 28.10 | 25.05 | 23.30 | 23.27 | 23.29 |
| 1 | 4 | 24.00 | 21.78 | 19.65 | 29.25 | 24.90 | 19.28 | 23.73 | 24.25 | 29.25 | 24.85 | 23.94 | 23.95 | 24.10 |
| 1 | 5 | 25.62 | 23.65 | 19.23 | 30.75 | 25.70 | 20.88 | 25.78 | 26.15 | 30.75 | 25.90 | 25.76 | 25.74 | 25.85 |
| 1 | 6 | 26.12 | 22.60 | 18.68 | 31.75 | 25.25 | 20.50 | 26.25 | 24.95 | 31.75 | 27.43 | 26.04 | 25.95 | 25.98 |
| 1 | 7 | 24.84 | 20.83 | 17.00 | 30.33 | 23.83 | 18.55 | 24.38 | 24.10 | 30.33 | 26.55 | 24.46 | 24.38 | 24.43 |
| 1 | 8 | 24.23 | 21.05 | 17.20 | 29.75 | 23.65 | 18.60 | 24.03 | 24.13 | 29.75 | 25.80 | 24.13 | 24.07 | 24.13 |
| 1 | 9 | 23.61 | 20.75 | 16.80 | 29.58 | 23.10 | 18.85 | 23.63 | 23.55 | 29.58 | 25.23 | 23.68 | 23.62 | 23.67 |
| 1 | 10 | 23.74 | 21.05 | 17.05 | 28.68 | 22.93 | 18.19 | 23.43 | 23.00 | 28.68 | 24.70 | 23.42 | 23.36 | 23.41 |
| 1 | 11 | 24.06 | 21.45 | 17.62 | 28.85 | 23.85 | 18.63 | 24.43 | 24.38 | 28.85 | 25.33 | 24.36 | 24.29 | 24.37 |
| 1 | 12 | 24.24 | 21.50 | 18.28 | 29.03 | 23.10 | 19.78 | 24.00 | 23.67 | 29.03 | 25.70 | 24.03 | 23.96 | 23.96 |
| 1 | 13 | 23.48 | 20.85 | 18.08 | 28.98 | 22.65 | 19.23 | 23.45 | 22.73 | 28.98 | 24.00 | 23.31 | 23.27 | 23.30 |
| 1 | 14 | 22.55 | 20.99 | 18.08 | 28.85 | 22.53 | 18.38 | 22.48 | 22.68 | 28.85 | 24.15 | 22.65 | 22.64 | 22.68 |
| 1 | 15 | 23.72 | 22.30 | 19.20 | 28.28 | 24.63 | 20.18 | 23.98 | 24.35 | 28.28 | 24.53 | 24.05 | 24.06 | 24.17 |
| 1 | 16 | 24.63 | 22.40 | 18.48 | 29.13 | 24.63 | 20.70 | 23.88 | 24.80 | 29.13 | 25.63 | 24.23 | 24.24 | 24.32 |
| 1 | 17 | 25.22 | 21.93 | 17.35 | 29.65 | 25.37 | 18.75 | 24.80 | 24.55 | 29.65 | 26.95 | 24.94 | 24.89 | 24.99 |
| 1 | 18 | 24.34 | 20.15 | 17.50 | 29.05 | 23.21 | 17.80 | 23.00 | 23.30 | 29.05 | 24.95 | 23.26 | 23.22 | 23.30 |
| 1 | 19 | 23.56 | 20.65 | 16.98 | 27.98 | 23.65 | 17.53 | 23.73 | 23.25 | 27.98 | 24.55 | 23.63 | 23.56 | 23.67 |
| 1 | 20 | 23.48 | 20.55 | 17.50 | 28.40 | 23.70 | 17.58 | 22.78 | 23.18 | 28.40 | 24.10 | 22.99 | 22.99 | 23.12 |
| 1 | 21 | 24.19 | 21.25 | 18.43 | 28.03 | 23.75 | 18.88 | 23.60 | 23.83 | 28.03 | 24.15 | 23.66 | 23.64 | 23.74 |
| 1 | 22 | 23.92 | 21.43 | 18.63 | 28.03 | 23.56 | 19.20 | 23.78 | 23.40 | 28.03 | 25.05 | 23.78 | 23.73 | 23.78 |
| 1 | 23 | 22.98 | 20.68 | 18.28 | 28.40 | 23.82 | 18.88 | 23.23 | 23.05 | 28.40 | 24.68 | 23.31 | 23.28 | 23.38 |
| 1 | 24 | 23.38 | 21.10 | 17.38 | 27.20 | 23.87 | 18.57 | 22.95 | 23.23 | 27.20 | 24.38 | 23.15 | 23.13 | 23.25 |
| 1 | 25 | 24.04 | 21.31 | 17.85 | 26.83 | 23.17 | 18.60 | 23.25 | 23.30 | 26.83 | 24.28 | 23.33 | 23.29 | 23.36 |
| 1 | 26 | 23.62 | 21.88 | 17.75 | 27.50 | 23.17 | 18.90 | 22.95 | 23.25 | 27.50 | 24.58 | 23.17 | 23.15 | 23.20 |
| 1 | 27 | 23.62 | 20.93 | 18.33 | 28.03 | 22.62 | 19.60 | 23.30 | 23.40 | 28.03 | 24.55 | 23.37 | 23.32 | 23.34 |
| 1 | 28 | 23.32 | 19.70 | 17.10 | 27.30 | 20.90 | 17.88 | 21.43 | 21.30 | 27.30 | 23.40 | 21.66 | 21.63 | 21.62 |
| 1 | 29 | 21.41 | 19.79 | 16.93 | 26.43 | 20.46 | 17.23 | 21.30 | 20.43 | 26.43 | 21.73 | 21.15 | 21.12 | 21.13 |
| 1 | 30 | 22.08 | 20.23 | 17.15 | 25.90 | 21.95 | 19.33 | 21.50 | 21.20 | 25.90 | 22.70 | 21.63 | 21.63 | 21.67 |
| 1 | 31 | 21.91 | 20.33 | 16.75 | 26.63 | 22.08 | 18.23 | 21.95 | 21.68 | 26.63 | 22.53 | 21.94 | 21.93 | 22.00 |
| 2 | 1 | 22.70 | 20.63 | 17.20 | 27.73 | 22.83 | 19.05 | 23.15 | 22.95 | 27.73 | 22.95 | 23.00 | 22.97 | 23.06 |
| 2 | 2 | 23.63 | 21.43 | 16.50 | 28.83 | 22.33 | 19.80 | 23.35 | 23.40 | 28.83 | 24.90 | 23.44 | 23.38 | 23.37 |
| 2 | 3 | 23.35 | 21.43 | 17.23 | 29.20 | 24.15 | 19.38 | 23.25 | 23.88 | 29.20 | 25.18 | 23.54 | 23.54 | 23.64 |
| 2 | 4 | 24.08 | 20.28 | 17.25 | 28.53 | 24.36 | 17.50 | 22.93 | 24.00 | 28.53 | 24.98 | 23.34 | 23.34 | 23.50 |
| 2 | 5 | 24.80 | 21.50 | 18.20 | 28.35 | 25.08 | 18.55 | 23.48 | 24.88 | 28.35 | 24.80 | 23.89 | 23.92 | 24.10 |
| 2 | 6 | 24.63 | 20.03 | 17.08 | 29.45 | 23.66 | 16.99 | 22.43 | 22.80 | 29.45 | 24.35 | 22.81 | 22.82 | 22.96 |
| 2 | 7 | 23.20 | 21.05 | 17.45 | 27.75 | 24.24 | 17.95 | 22.43 | 24.20 | 27.75 | 23.20 | 22.84 | 22.89 | 23.09 |
| 2 | 8 | 23.80 | 20.82 | 17.88 | 27.93 | 23.60 | 19.05 | 21.50 | 23.45 | 27.93 | 24.15 | 22.28 | 22.35 | 22.47 |
| 2 | 9 | 23.88 | 21.48 | 17.40 | 26.98 | 23.00 | 18.65 | 21.58 | 22.68 | 26.98 | 23.98 | 22.18 | 22.22 | 22.29 |
| 2 | 10 | 22.88 | 19.58 | 17.05 | 26.05 | 22.38 | 18.68 | 21.20 | 22.68 | 26.05 | 23.10 | 21.72 | 21.75 | 21.84 |
| 2 | 11 | 22.68 | 19.93 | 18.00 | 25.53 | 22.13 | 17.65 | 20.73 | 21.33 | 25.53 | 23.00 | 21.21 | 21.23 | 21.31 |
| 2 | 12 | 22.30 | 19.70 | 17.33 | 26.18 | 22.30 | 18.35 | 21.45 | 21.55 | 26.18 | 22.30 | 21.61 | 21.63 | 21.73 |
| 2 | 13 | 22.55 | 22.08 | 18.20 | 26.03 | 23.08 | 19.08 | 22.28 | 23.03 | 26.03 | 23.53 | 22.54 | 22.55 | 22.63 |
| 2 | 14 | 24.05 | 22.43 | 19.08 | 25.83 | 22.78 | 19.85 | 22.35 | 22.63 | 25.83 | 23.68 | 22.64 | 22.65 | 22.67 |
| 2 | 15 | 22.63 | 20.28 | 18.90 | 26.18 | 21.60 | 19.07 | 20.88 | 21.63 | 26.18 | 23.28 | 21.37 | 21.39 | 21.41 |
| 2 | 16 | 21.58 | 20.85 | 17.20 | 26.10 | 22.13 | 18.38 | 21.35 | 21.93 | 26.10 | 22.73 | 21.61 | 21.63 | 21.70 |
| 2 | 17 | 21.65 | 21.09 | 17.23 | 26.33 | 21.73 | 18.84 | 21.70 | 22.08 | 26.33 | 22.88 | 21.85 | 21.85 | 21.88 |
| 2 | 18 | 21.80 | 21.08 | 17.13 | 27.23 | 20.04 | 19.10 | 20.90 | 20.40 | 27.23 | 23.13 | 21.10 | 21.08 | 20.99 |
| 2 | 19 | 20.75 | 20.68 | 16.88 | 25.65 | 20.35 | 18.16 | 20.85 | 20.78 | 25.65 | 22.48 | 20.97 | 20.95 | 20.92 |
| 2 | 20 | 21.25 | 20.10 | 17.05 | 24.63 | 21.23 | 18.11 | 21.00 | 21.15 | 24.63 | 21.80 | 21.10 | 21.10 | 21.15 |
| 2 | 21 | 20.43 | 20.08 | 16.28 | 23.40 | 19.04 | 18.27 | 19.65 | 19.05 | 23.40 | 21.40 | 19.78 | 19.76 | 19.68 |
| 2 | 22 | 19.38 | 20.02 | 16.38 | 22.28 | 20.53 | 17.75 | 19.08 | 20.28 | 22.28 | 21.38 | 19.58 | 19.62 | 19.66 |
| 2 | 23 | 20.60 | 21.02 | 17.78 | 23.60 | 20.44 | 17.91 | 20.30 | 20.80 | 23.60 | 21.40 | 20.51 | 20.52 | 20.53 |
| 2 | 24 | 20.95 | 21.75 | 17.35 | 24.38 | 21.55 | 18.60 | 21.48 | 22.00 | 24.38 | 22.58 | 21.61 | 21.60 | 21.63 |
| 2 | 25 | 20.95 | 20.33 | 16.88 | 24.90 | 20.88 | 17.61 | 21.45 | 21.73 | 24.90 | 23.43 | 21.58 | 21.51 | 21.51 |
| 2 | 26 | 20.73 | 19.90 | 17.60 | 24.93 | 20.90 | 17.45 | 20.60 | 21.05 | 24.93 | 22.55 | 20.86 | 20.84 | 20.87 |
| 2 | 27 | 20.65 | 19.05 | 16.80 | 25.35 | 20.00 | 16.74 | 20.15 | 20.15 | 25.35 | 22.10 | 20.35 | 20.32 | 20.33 |
| 2 | 28 | 19.63 | 19.73 | 17.45 | 24.53 | 19.93 | 17.95 | 19.58 | 19.93 | 24.53 | 20.90 | 19.80 | 19.82 | 19.84 |
| 2 | 29 | 18.30 | 16.30 | 16.40 | 22.10 | 19.70 | 13.66 | 17.20 | 19.00 | 22.10 | 18.20 | 17.71 | 17.80 | 18.01 |
| 3 | 1 | 19.75 | 19.15 | 16.48 | 24.15 | 18.85 | 17.02 | 19.61 | 19.18 | 24.15 | 21.65 | 19.72 | 19.68 | 19.62 |
| 3 | 2 | 19.00 | 20.35 | 16.20 | 24.35 | 20.58 | 18.15 | 20.50 | 20.85 | 24.35 | 20.48 | 20.45 | 20.47 | 20.53 |
| 3 | 3 | 21.19 | 19.75 | 16.23 | 24.00 | 19.20 | 18.80 | 19.78 | 19.33 | 24.00 | 21.75 | 19.99 | 19.97 | 19.89 |
| 3 | 4 | 18.75 | 20.13 | 16.88 | 21.98 | 19.90 | 18.44 | 19.65 | 20.45 | 21.98 | 20.05 | 19.76 | 19.78 | 19.82 |
| 3 | 5 | 21.04 | 19.35 | 17.50 | 22.96 | 19.60 | 18.00 | 19.58 | 19.68 | 22.96 | 20.30 | 19.75 | 19.77 | 19.77 |
| 3 | 6 | 19.63 | 19.75 | 17.25 | 22.53 | 19.33 | 18.02 | 18.55 | 19.15 | 22.53 | 20.23 | 18.95 | 19.00 | 18.99 |
| 3 | 7 | 18.78 | 20.39 | 17.93 | 21.73 | 18.98 | 18.73 | 18.50 | 19.53 | 21.73 | 20.08 | 18.90 | 18.94 | 18.91 |
| 3 | 8 | 19.10 | 18.60 | 16.50 | 21.50 | 17.78 | 17.48 | 18.15 | 18.33 | 21.50 | 20.73 | 18.50 | 18.47 | 18.38 |
| 3 | 9 | 18.44 | 18.39 | 15.53 | 20.58 | 17.03 | 17.18 | 17.00 | 17.50 | 20.58 | 19.75 | 17.49 | 17.49 | 17.40 |
| 3 | 10 | 18.19 | 18.63 | 16.10 | 20.43 | 18.20 | 17.58 | 17.40 | 18.38 | 20.43 | 18.28 | 17.76 | 17.81 | 17.83 |
| 3 | 11 | 18.59 | 18.25 | 15.53 | 20.78 | 17.95 | 17.40 | 17.18 | 17.45 | 20.78 | 18.55 | 17.53 | 17.58 | 17.57 |
| 3 | 12 | 17.57 | 17.95 | 15.73 | 19.45 | 17.68 | 17.30 | 16.63 | 17.18 | 19.45 | 17.48 | 16.95 | 17.02 | 17.03 |
| 3 | 13 | 17.74 | 17.65 | 15.63 | 19.88 | 17.98 | 16.72 | 16.20 | 17.48 | 19.88 | 17.73 | 16.77 | 16.86 | 16.91 |
| 3 | 14 | 17.63 | 17.99 | 15.88 | 18.25 | 17.00 | 16.73 | 16.08 | 16.85 | 18.25 | 17.58 | 16.53 | 16.59 | 16.57 |
| 3 | 15 | 17.92 | 19.29 | 15.80 | 18.50 | 17.40 | 17.33 | 17.15 | 18.25 | 18.50 | 18.28 | 17.51 | 17.54 | 17.51 |
| 3 | 16 | 17.45 | 18.88 | 16.60 | 19.43 | 18.13 | 17.75 | 18.10 | 18.68 | 19.43 | 18.73 | 18.22 | 18.22 | 18.22 |
| 3 | 17 | 18.18 | 17.98 | 15.73 | 19.45 | 16.98 | 16.48 | 16.80 | 17.63 | 19.45 | 18.18 | 17.18 | 17.20 | 17.17 |
| 3 | 18 | 17.30 | 17.75 | 15.45 | 19.98 | 16.73 | 16.23 | 16.70 | 17.28 | 19.98 | 18.23 | 17.01 | 17.02 | 16.98 |
| 3 | 19 | 17.34 | 17.98 | 15.33 | 19.05 | 16.90 | 16.86 | 15.55 | 17.10 | 19.05 | 17.78 | 16.25 | 16.33 | 16.31 |
| 3 | 20 | 17.02 | 17.80 | 15.38 | 18.85 | 17.45 | 16.59 | 15.10 | 16.68 | 18.85 | 17.45 | 15.88 | 16.00 | 16.03 |
| 3 | 21 | 16.98 | 17.13 | 16.33 | 17.73 | 17.13 | 16.67 | 15.52 | 17.25 | 17.73 | 16.33 | 16.07 | 16.16 | 16.21 |
| 3 | 22 | 16.93 | 18.43 | 16.65 | 18.75 | 17.60 | 16.53 | 15.98 | 16.73 | 18.75 | 17.53 | 16.45 | 16.53 | 16.55 |
| 3 | 23 | 17.87 | 18.98 | 15.88 | 18.28 | 17.30 | 17.33 | 16.10 | 17.30 | 18.28 | 16.95 | 16.60 | 16.69 | 16.69 |
| 3 | 24 | 17.19 | 18.90 | 15.70 | 18.75 | 17.30 | 16.59 | 16.40 | 17.63 | 18.75 | 18.05 | 16.89 | 16.94 | 16.93 |
| 3 | 25 | 17.68 | 19.23 | 16.73 | 19.55 | 17.73 | 17.23 | 16.20 | 17.80 | 19.55 | 19.43 | 17.00 | 17.07 | 17.03 |
| 3 | 26 | 18.02 | 19.43 | 17.40 | 19.20 | 18.68 | 18.14 | 17.28 | 18.83 | 19.20 | 18.83 | 17.82 | 17.89 | 17.90 |
| 3 | 27 | 18.38 | 19.18 | 17.50 | 19.45 | 18.83 | 17.59 | 17.18 | 18.82 | 19.45 | 19.10 | 17.80 | 17.88 | 17.90 |
| 3 | 28 | 18.33 | 18.90 | 16.33 | 19.55 | 17.43 | 17.21 | 16.33 | 17.53 | 19.55 | 19.23 | 17.04 | 17.09 | 17.04 |
| 3 | 29 | 17.00 | 16.68 | 15.25 | 18.33 | 16.53 | 15.49 | 14.83 | 16.90 | 18.33 | 17.53 | 15.66 | 15.74 | 15.75 |
| 3 | 30 | 16.62 | 16.94 | 15.35 | 17.25 | 16.30 | 15.62 | 14.35 | 16.25 | 17.25 | 16.70 | 15.16 | 15.26 | 15.27 |
| 3 | 31 | 14.98 | 16.54 | 14.93 | 16.18 | 15.58 | 15.58 | 14.00 | 15.53 | 16.18 | 16.08 | 14.64 | 14.71 | 14.71 |

**Normal Year (20 Year Daily Average 1987-2006)**

| Month | Day | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | System Weighted Average Residential | Commercial | Industrial |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | 15.20 | 17.60 | 14.63 | 16.05 | 15.33 | 15.79 | 13.78 | 15.20 | 16.05 | 15.90 | 14.46 | 14.55 | 14.51 |
| 4 | 2 | 14.69 | 17.75 | 15.23 | 15.70 | 15.70 | 17.66 | 13.98 | 15.55 | 15.70 | 14.93 | 14.54 | 14.67 | 14.66 |
| 4 | 3 | 15.34 | 17.48 | 15.05 | 15.35 | 15.75 | 16.29 | 14.53 | 15.93 | 15.35 | 15.28 | 14.98 | 15.06 | 15.06 |
| 4 | 4 | 16.81 | 18.18 | 15.13 | 16.68 | 16.28 | 17.64 | 15.15 | 16.45 | 16.68 | 16.70 | 15.73 | 15.82 | 15.77 |
| 4 | 5 | 16.29 | 17.98 | 14.68 | 16.75 | 16.00 | 17.05 | 14.98 | 16.40 | 16.75 | 16.60 | 15.55 | 15.63 | 15.59 |
| 4 | 6 | 16.33 | 16.93 | 13.45 | 16.90 | 15.10 | 16.16 | 13.50 | 15.80 | 16.90 | 16.38 | 14.47 | 14.57 | 14.52 |
| 4 | 7 | 14.99 | 17.33 | 14.03 | 15.93 | 15.03 | 16.25 | 14.20 | 15.81 | 15.93 | 15.88 | 14.77 | 14.83 | 14.78 |
| 4 | 8 | 15.33 | 17.28 | 14.38 | 16.60 | 15.25 | 16.16 | 14.22 | 15.80 | 16.60 | 15.70 | 14.80 | 14.88 | 14.85 |
| 4 | 9 | 15.93 | 16.13 | 13.25 | 16.53 | 14.83 | 15.18 | 14.30 | 15.20 | 16.53 | 15.53 | 14.73 | 14.78 | 14.74 |
| 4 | 10 | 14.91 | 15.85 | 13.65 | 16.03 | 14.50 | 14.65 | 12.73 | 13.88 | 16.03 | 14.88 | 13.43 | 13.53 | 13.51 |
| 4 | 11 | 14.39 | 15.38 | 13.53 | 16.13 | 13.31 | 14.40 | 12.15 | 13.48 | 16.13 | 14.08 | 12.84 | 12.94 | 12.89 |
| 4 | 12 | 13.86 | 15.80 | 13.33 | 14.18 | 13.50 | 15.12 | 12.10 | 13.88 | 14.18 | 14.03 | 12.83 | 12.93 | 12.88 |
| 4 | 13 | 14.26 | 16.10 | 14.18 | 13.43 | 13.90 | 15.27 | 12.43 | 14.00 | 13.43 | 13.88 | 13.08 | 13.18 | 13.14 |
| 4 | 14 | 14.89 | 15.65 | 13.60 | 14.83 | 14.05 | 15.36 | 12.28 | 14.03 | 14.83 | 14.05 | 13.06 | 13.18 | 13.15 |
| 4 | 15 | 13.64 | 14.63 | 12.15 | 14.30 | 12.85 | 14.03 | 11.28 | 12.70 | 14.30 | 13.60 | 12.04 | 12.15 | 12.10 |
| 4 | 16 | 12.76 | 14.75 | 12.50 | 13.18 | 13.30 | 14.39 | 11.38 | 13.13 | 13.18 | 12.48 | 12.02 | 12.14 | 12.15 |
| 4 | 17 | 13.10 | 16.13 | 13.50 | 13.18 | 14.13 | 14.73 | 12.70 | 14.35 | 13.18 | 12.53 | 13.09 | 13.20 | 13.23 |
| 4 | 18 | 14.52 | 16.80 | 13.33 | 13.48 | 13.78 | 15.85 | 12.25 | 14.03 | 13.48 | 15.23 | 13.14 | 13.23 | 13.13 |
| 4 | 19 | 15.52 | 15.68 | 13.10 | 14.43 | 13.75 | 15.61 | 12.08 | 14.00 | 14.43 | 15.55 | 13.10 | 13.20 | 13.11 |
| 4 | 20 | 13.84 | 15.70 | 13.23 | 13.23 | 13.30 | 15.30 | 11.08 | 12.80 | 13.23 | 13.38 | 11.97 | 12.12 | 12.07 |
| 4 | 21 | 12.97 | 15.95 | 13.53 | 11.95 | 13.85 | 15.35 | 11.83 | 14.15 | 11.95 | 12.78 | 12.52 | 12.65 | 12.66 |
| 4 | 22 | 13.73 | 15.55 | 12.70 | 13.25 | 13.83 | 15.36 | 11.93 | 13.38 | 13.25 | 14.13 | 12.67 | 12.77 | 12.73 |
| 4 | 23 | 13.36 | 15.32 | 12.68 | 13.20 | 14.05 | 14.55 | 11.98 | 13.75 | 13.20 | 14.20 | 12.73 | 12.83 | 12.82 |
| 4 | 24 | 14.46 | 15.23 | 13.03 | 14.28 | 13.65 | 14.88 | 11.33 | 12.93 | 14.28 | 14.35 | 12.29 | 12.42 | 12.37 |
| 4 | 25 | 13.07 | 14.20 | 12.40 | 13.43 | 12.83 | 13.69 | 10.38 | 12.53 | 13.43 | 13.18 | 11.37 | 11.51 | 11.49 |
| 4 | 26 | 12.65 | 13.59 | 11.95 | 11.98 | 11.75 | 12.68 | 10.45 | 12.00 | 11.98 | 12.10 | 11.12 | 11.21 | 11.17 |
| 4 | 27 | 12.27 | 13.60 | 12.88 | 11.70 | 12.08 | 13.86 | 9.55 | 11.90 | 11.70 | 11.83 | 10.53 | 10.69 | 10.67 |
| 4 | 28 | 11.63 | 13.18 | 11.63 | 10.85 | 11.90 | 12.55 | 9.45 | 11.25 | 10.85 | 10.93 | 10.22 | 10.35 | 10.37 |
| 4 | 29 | 11.30 | 12.83 | 11.65 | 11.25 | 11.25 | 13.01 | 8.98 | 10.70 | 11.25 | 10.85 | 9.79 | 9.94 | 9.92 |
| 4 | 30 | 10.45 | 13.80 | 12.23 | 10.28 | 12.08 | 13.18 | 8.60 | 11.65 | 10.28 | 9.88 | 9.59 | 9.80 | 9.86 |
| 5 | 1 | 11.60 | 14.51 | 12.95 | 10.40 | 12.13 | 14.18 | 9.93 | 11.48 | 10.40 | 10.38 | 10.54 | 10.69 | 10.69 |
| 5 | 2 | 11.20 | 13.75 | 12.20 | 11.25 | 11.25 | 13.18 | 9.06 | 11.15 | 11.25 | 11.70 | 10.00 | 10.14 | 10.09 |
| 5 | 3 | 11.45 | 12.61 | 11.63 | 11.90 | 10.75 | 12.58 | 8.93 | 10.58 | 11.90 | 11.43 | 9.78 | 9.91 | 9.85 |
| 5 | 4 | 10.05 | 12.10 | 10.93 | 10.20 | 10.00 | 12.38 | 7.70 | 9.10 | 10.20 | 10.14 | 8.56 | 8.70 | 8.64 |
| 5 | 5 | 9.33 | 12.28 | 11.13 | 9.45 | 9.75 | 12.06 | 7.58 | 9.80 | 9.45 | 8.60 | 8.35 | 8.52 | 8.51 |
| 5 | 6 | 9.78 | 12.40 | 11.48 | 8.93 | 10.83 | 12.60 | 8.48 | 10.45 | 8.93 | 9.86 | 9.21 | 9.34 | 9.34 |
| 5 | 7 | 10.58 | 12.93 | 11.75 | 10.48 | 10.58 | 12.71 | 9.13 | 10.40 | 10.48 | 11.14 | 9.79 | 9.88 | 9.82 |
| 5 | 8 | 11.85 | 14.03 | 12.40 | 10.75 | 11.73 | 13.51 | 9.68 | 12.18 | 10.75 | 11.13 | 10.53 | 10.67 | 10.65 |
| 5 | 9 | 11.68 | 14.65 | 12.98 | 10.38 | 12.23 | 13.75 | 10.10 | 11.49 | 10.38 | 11.70 | 10.78 | 10.91 | 10.88 |
| 5 | 10 | 11.75 | 12.95 | 12.43 | 10.50 | 10.83 | 13.50 | 8.45 | 9.98 | 10.50 | 10.65 | 9.37 | 9.52 | 9.46 |
| 5 | 11 | 9.95 | 11.83 | 10.95 | 8.20 | 9.85 | 12.11 | 7.88 | 8.80 | 8.20 | 10.04 | 8.58 | 8.68 | 8.62 |
| 5 | 12 | 9.38 | 12.78 | 11.50 | 8.70 | 10.38 | 12.62 | 7.70 | 9.20 | 8.70 | 9.65 | 8.50 | 8.66 | 8.62 |
| 5 | 13 | 9.40 | 11.83 | 10.68 | 9.28 | 9.33 | 12.13 | 7.15 | 8.26 | 9.28 | 9.96 | 8.00 | 8.13 | 8.04 |
| 5 | 14 | 8.60 | 11.30 | 9.90 | 8.05 | 8.34 | 11.86 | 5.73 | 7.58 | 8.05 | 8.24 | 6.74 | 6.92 | 6.84 |
| 5 | 15 | 7.55 | 11.65 | 10.15 | 6.53 | 8.50 | 11.26 | 6.38 | 7.95 | 6.53 | 7.58 | 7.05 | 7.19 | 7.15 |
| 5 | 16 | 9.08 | 12.18 | 11.33 | 7.98 | 9.95 | 12.04 | 7.00 | 8.79 | 7.98 | 8.55 | 7.84 | 8.02 | 8.01 |
| 5 | 17 | 8.93 | 12.15 | 11.38 | 8.20 | 10.48 | 12.45 | 8.18 | 9.57 | 8.20 | 8.25 | 8.66 | 8.81 | 8.84 |
| 5 | 18 | 10.48 | 11.33 | 11.00 | 8.68 | 9.83 | 11.18 | 7.23 | 9.23 | 8.68 | 10.10 | 8.25 | 8.39 | 8.35 |
| 5 | 19 | 9.85 | 11.55 | 10.65 | 8.85 | 10.08 | 11.78 | 6.90 | 9.00 | 8.85 | 8.87 | 7.89 | 8.07 | 8.08 |
| 5 | 20 | 9.63 | 11.40 | 10.60 | 8.63 | 9.50 | 11.23 | 6.73 | 8.88 | 8.63 | 9.16 | 7.74 | 7.90 | 7.87 |
| 5 | 21 | 8.70 | 10.70 | 10.20 | 7.40 | 8.75 | 10.40 | 5.83 | 7.80 | 7.40 | 7.80 | 6.77 | 6.95 | 6.94 |
| 5 | 22 | 7.90 | 10.60 | 9.70 | 6.75 | 8.30 | 10.60 | 5.23 | 7.20 | 6.75 | 6.64 | 6.14 | 6.33 | 6.33 |
| 5 | 23 | 7.83 | 10.25 | 9.40 | 7.40 | 7.73 | 11.31 | 5.58 | 7.33 | 7.40 | 7.65 | 6.44 | 6.59 | 6.52 |
| 5 | 24 | 6.93 | 9.75 | 9.48 | 6.63 | 7.68 | 10.75 | 4.23 | 6.53 | 6.63 | 7.12 | 5.37 | 5.58 | 5.54 |
| 5 | 25 | 6.93 | 10.01 | 9.30 | 5.05 | 7.45 | 10.84 | 5.45 | 7.18 | 5.05 | 7.03 | 6.18 | 6.31 | 6.25 |
| 5 | 26 | 7.23 | 10.29 | 8.90 | 6.50 | 7.13 | 9.99 | 4.78 | 6.10 | 6.50 | 6.51 | 5.58 | 5.75 | 5.69 |
| 5 | 27 | 6.60 | 9.35 | 8.83 | 5.68 | 7.13 | 9.51 | 5.03 | 6.38 | 5.68 | 6.31 | 5.68 | 5.82 | 5.79 |
| 5 | 28 | 6.63 | 9.88 | 9.28 | 6.28 | 8.05 | 9.74 | 5.90 | 7.35 | 6.28 | 6.08 | 6.39 | 6.54 | 6.56 |
| 5 | 29 | 7.85 | 9.93 | 9.15 | 7.83 | 7.83 | 10.03 | 6.20 | 7.58 | 7.83 | 7.65 | 6.85 | 6.96 | 6.92 |
| 5 | 30 | 8.33 | 9.33 | 9.15 | 7.90 | 7.18 | 10.23 | 4.73 | 6.55 | 7.90 | 7.63 | 5.79 | 5.96 | 5.88 |
| 5 | 31 | 6.60 | 9.43 | 8.44 | 5.38 | 6.95 | 10.03 | 4.53 | 6.15 | 5.38 | 6.16 | 5.33 | 5.49 | 5.44 |
| 6 | 1 | 6.35 | 9.00 | 8.63 | 5.68 | 6.45 | 9.86 | 4.45 | 6.05 | 5.68 | 6.65 | 5.27 | 5.40 | 5.32 |
| 6 | 2 | 6.68 | 8.93 | 8.13 | 5.50 | 6.23 | 9.05 | 3.68 | 5.10 | 5.50 | 6.65 | 4.66 | 4.81 | 4.73 |
| 6 | 3 | 5.98 | 8.55 | 8.93 | 4.90 | 5.60 | 9.62 | 3.15 | 4.43 | 4.90 | 5.40 | 4.05 | 4.22 | 4.13 |
| 6 | 4 | 4.55 | 8.63 | 7.75 | 3.23 | 5.33 | 9.09 | 3.93 | 5.25 | 3.23 | 5.15 | 4.48 | 4.59 | 4.51 |
| 6 | 5 | 5.58 | 8.70 | 8.75 | 5.30 | 6.65 | 9.88 | 4.90 | 6.63 | 5.30 | 5.68 | 5.48 | 5.61 | 5.58 |
| 6 | 6 | 6.38 | 9.45 | 9.48 | 6.08 | 6.55 | 9.38 | 4.75 | 5.98 | 6.08 | 6.70 | 5.46 | 5.59 | 5.51 |
| 6 | 7 | 7.00 | 9.38 | 8.80 | 5.68 | 6.58 | 9.10 | 4.35 | 5.80 | 5.68 | 6.15 | 5.17 | 5.32 | 5.26 |
| 6 | 8 | 5.90 | 8.53 | 8.65 | 5.53 | 5.95 | 9.15 | 3.68 | 5.28 | 5.53 | 6.15 | 4.57 | 4.72 | 4.64 |
| 6 | 9 | 5.93 | 9.23 | 8.45 | 4.98 | 6.88 | 9.37 | 4.00 | 5.45 | 4.98 | 5.30 | 4.76 | 4.95 | 4.93 |
| 6 | 10 | 6.65 | 9.38 | 8.28 | 5.35 | 6.78 | 9.30 | 4.18 | 5.85 | 5.35 | 6.10 | 5.05 | 5.21 | 5.17 |
| 6 | 11 | 5.70 | 9.38 | 8.33 | 5.43 | 6.63 | 9.37 | 4.28 | 5.50 | 5.43 | 5.43 | 4.93 | 5.10 | 5.06 |
| 6 | 12 | 6.40 | 8.05 | 8.40 | 4.68 | 6.23 | 9.23 | 3.65 | 5.45 | 4.68 | 5.75 | 4.56 | 4.72 | 4.68 |
| 6 | 13 | 6.05 | 7.78 | 7.68 | 4.15 | 5.58 | 8.26 | 3.00 | 4.63 | 4.15 | 4.95 | 3.90 | 4.06 | 4.01 |
| 6 | 14 | 5.20 | 7.82 | 7.80 | 4.10 | 4.85 | 8.97 | 2.90 | 3.78 | 4.10 | 4.35 | 3.59 | 3.74 | 3.65 |
| 6 | 15 | 4.90 | 7.95 | 7.43 | 4.18 | 5.85 | 8.87 | 3.23 | 4.58 | 4.18 | 5.15 | 4.01 | 4.16 | 4.12 |
| 6 | 16 | 5.58 | 7.40 | 7.08 | 4.83 | 5.18 | 8.53 | 3.53 | 4.53 | 4.83 | 5.15 | 4.18 | 4.31 | 4.23 |
| 6 | 17 | 5.80 | 8.02 | 7.60 | 4.78 | 5.53 | 8.42 | 3.18 | 4.60 | 4.78 | 5.80 | 4.08 | 4.23 | 4.15 |
| 6 | 18 | 5.13 | 7.88 | 7.83 | 3.83 | 5.40 | 8.83 | 2.50 | 4.35 | 3.83 | 5.10 | 3.51 | 3.69 | 3.62 |
| 6 | 19 | 4.90 | 7.75 | 8.20 | 4.60 | 4.50 | 8.98 | 2.78 | 3.23 | 4.60 | 5.53 | 3.52 | 3.65 | 3.50 |
| 6 | 20 | 4.05 | 7.85 | 7.43 | 3.83 | 3.80 | 8.62 | 2.25 | 3.28 | 3.83 | 3.85 | 2.94 | 3.09 | 2.96 |
| 6 | 21 | 2.98 | 7.23 | 7.10 | 2.55 | 4.23 | 8.14 | 2.90 | 3.28 | 2.55 | 3.23 | 3.21 | 3.32 | 3.25 |
| 6 | 22 | 3.95 | 7.22 | 7.25 | 3.30 | 5.00 | 7.40 | 2.38 | 3.85 | 3.30 | 3.63 | 3.09 | 3.26 | 3.24 |
| 6 | 23 | 3.83 | 6.83 | 6.95 | 3.45 | 3.88 | 7.99 | 1.65 | 3.03 | 3.45 | 4.23 | 2.54 | 2.69 | 2.58 |
| 6 | 24 | 3.60 | 6.48 | 7.40 | 3.15 | 3.35 | 7.89 | 1.93 | 2.95 | 3.15 | 4.10 | 2.63 | 2.75 | 2.62 |
| 6 | 25 | 2.95 | 5.90 | 6.68 | 2.73 | 3.06 | 7.56 | 1.60 | 2.35 | 2.73 | 3.43 | 2.21 | 2.33 | 2.22 |
| 6 | 26 | 2.70 | 5.75 | 6.33 | 1.63 | 2.80 | 6.96 | 1.48 | 2.25 | 1.63 | 2.00 | 1.93 | 2.06 | 1.98 |
| 6 | 27 | 2.70 | 5.68 | 5.80 | 2.88 | 2.78 | 7.16 | 1.40 | 2.18 | 2.88 | 2.95 | 1.98 | 2.10 | 2.00 |
| 6 | 28 | 2.40 | 6.18 | 5.68 | 1.88 | 2.70 | 6.60 | 1.98 | 2.45 | 1.88 | 2.13 | 2.26 | 2.36 | 2.27 |
| 6 | 29 | 2.93 | 6.08 | 6.15 | 2.25 | 2.33 | 7.29 | 1.05 | 1.73 | 2.25 | 2.90 | 1.69 | 1.82 | 1.67 |
| 6 | 30 | 2.43 | 6.52 | 5.85 | 1.68 | 1.73 | 7.15 | 0.80 | 1.75 | 1.68 | 2.60 | 1.45 | 1.57 | 1.40 |

| Normal Year (20 Year Daily Average 1987-2006) | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 7 | 1 | 2.50 | 6.20 | 5.58 | 1.28 | 2.00 | 6.75 | 1.43 | 2.05 | 1.28 | 2.00 | 1.82 | 1.92 | 1.79 |
| 7 | 2 | 2.45 | 6.59 | 5.63 | 2.53 | 2.03 | 7.53 | 1.65 | 1.73 | 2.53 | 3.90 | 2.13 | 2.21 | 2.00 |
| 7 | 3 | 2.43 | 6.40 | 5.95 | 3.03 | 3.00 | 6.80 | 1.48 | 2.53 | 3.03 | 2.75 | 2.06 | 2.19 | 2.11 |
| 7 | 4 | 2.38 | 6.83 | 5.70 | 1.60 | 2.15 | 6.89 | 1.75 | 2.30 | 1.60 | 2.60 | 2.13 | 2.22 | 2.07 |
| 7 | 5 | 2.30 | 5.45 | 5.40 | 2.98 | 2.15 | 6.80 | 1.23 | 1.85 | 2.98 | 3.30 | 1.80 | 1.90 | 1.75 |
| 7 | 6 | 2.63 | 5.90 | 5.93 | 1.73 | 1.83 | 6.54 | 0.63 | 1.98 | 1.73 | 2.93 | 1.40 | 1.52 | 1.37 |
| 7 | 7 | 1.88 | 5.90 | 6.33 | 1.60 | 0.93 | 7.34 | 0.35 | 0.98 | 1.60 | 3.33 | 1.06 | 1.16 | 0.92 |
| 7 | 8 | 0.98 | 5.50 | 5.23 | 0.83 | 0.83 | 6.41 | 0.63 | 1.00 | 0.83 | 0.88 | 0.90 | 1.00 | 0.85 |
| 7 | 9 | 1.33 | 5.01 | 5.70 | 1.13 | 1.48 | 6.68 | 0.95 | 1.65 | 1.13 | 1.50 | 1.30 | 1.40 | 1.28 |
| 7 | 10 | 1.65 | 4.90 | 4.93 | 1.75 | 0.70 | 6.41 | 0.43 | 0.83 | 1.75 | 2.15 | 0.92 | 1.00 | 0.82 |
| 7 | 11 | 1.15 | 4.63 | 5.45 | 1.43 | 0.85 | 7.13 | 0.40 | 0.65 | 1.43 | 1.78 | 0.82 | 0.92 | 0.74 |
| 7 | 12 | 0.93 | 4.23 | 4.50 | 0.80 | 0.43 | 6.57 | 0.25 | 0.53 | 0.80 | 1.15 | 0.59 | 0.68 | 0.51 |
| 7 | 13 | 0.68 | 3.45 | 4.25 | 0.83 | 0.40 | 5.87 | 0.10 | 0.68 | 0.83 | 0.83 | 0.45 | 0.53 | 0.40 |
| 7 | 14 | 0.85 | 4.05 | 5.00 | 0.93 | 0.90 | 5.93 | 0.28 | 0.53 | 0.93 | 1.28 | 0.63 | 0.72 | 0.59 |
| 7 | 15 | 0.98 | 4.89 | 4.88 | 1.20 | 0.68 | 5.92 | 0.48 | 0.68 | 1.20 | 0.98 | 0.76 | 0.85 | 0.70 |
| 7 | 16 | 0.63 | 4.60 | 5.00 | 0.80 | 1.30 | 6.97 | 0.70 | 1.30 | 0.80 | 1.70 | 1.07 | 1.16 | 1.02 |
| 7 | 17 | 1.25 | 4.05 | 5.05 | 1.65 | 1.48 | 6.22 | 1.03 | 0.95 | 1.65 | 2.25 | 1.31 | 1.38 | 1.24 |
| 7 | 18 | 1.40 | 4.25 | 4.25 | 2.35 | 0.98 | 5.71 | 0.45 | 0.85 | 2.35 | 2.20 | 0.92 | 1.01 | 0.86 |
| 7 | 19 | 1.05 | 3.25 | 4.70 | 1.03 | 0.58 | 5.48 | 0.18 | 0.18 | 1.03 | 1.18 | 0.49 | 0.57 | 0.43 |
| 7 | 20 | 0.43 | 3.65 | 4.98 | 0.80 | 0.48 | 5.70 | 0.30 | 0.48 | 0.80 | 0.80 | 0.53 | 0.61 | 0.48 |
| 7 | 21 | 0.58 | 2.93 | 4.85 | 0.43 | 0.53 | 5.88 | 0.05 | 0.30 | 0.43 | 0.75 | 0.35 | 0.43 | 0.31 |
| 7 | 22 | 0.45 | 3.53 | 4.30 | 1.08 | 0.48 | 5.59 | 0.18 | 0.60 | 1.08 | 0.45 | 0.44 | 0.53 | 0.41 |
| 7 | 23 | 0.60 | 2.93 | 4.63 | 0.85 | 0.23 | 6.13 | - | 0.03 | 0.85 | 0.70 | 0.27 | 0.35 | 0.21 |
| 7 | 24 | 0.38 | 3.30 | 4.88 | 0.38 | 0.48 | 6.53 | 0.30 | 0.18 | 0.38 | 0.45 | 0.46 | 0.54 | 0.40 |
| 7 | 25 | 0.63 | 3.43 | 4.60 | 0.65 | 0.15 | 6.00 | 0.10 | 0.08 | 0.65 | 1.05 | 0.38 | 0.45 | 0.28 |
| 7 | 26 | 0.48 | 3.65 | 5.23 | 0.58 | 0.30 | 6.21 | 0.08 | 0.28 | 0.58 | 0.73 | 0.36 | 0.45 | 0.30 |
| 7 | 27 | 0.58 | 3.85 | 5.90 | 0.28 | 0.15 | 6.67 | - | 0.08 | 0.28 | 0.65 | 0.29 | 0.38 | 0.21 |
| 7 | 28 | 0.13 | 4.14 | 5.23 | 0.33 | 0.35 | 6.74 | 0.25 | 0.28 | 0.33 | 0.50 | 0.44 | 0.53 | 0.37 |
| 7 | 29 | 0.63 | 3.85 | 5.25 | 0.15 | 1.15 | 6.53 | 0.50 | 0.88 | 0.15 | 0.88 | 0.77 | 0.86 | 0.76 |
| 7 | 30 | 1.30 | 4.68 | 5.40 | 0.73 | 0.95 | 7.14 | 0.05 | 0.50 | 0.73 | 1.20 | 0.54 | 0.66 | 0.50 |
| 7 | 31 | 0.55 | 5.25 | 5.60 | 0.78 | 0.75 | 6.84 | 0.25 | 0.58 | 0.78 | 1.48 | 0.65 | 0.75 | 0.57 |
| 8 | 1 | 0.88 | 4.95 | 5.03 | 1.03 | 0.93 | 6.22 | 0.40 | 0.85 | 1.03 | 1.38 | 0.78 | 0.88 | 0.74 |
| 8 | 2 | 0.48 | 3.93 | 6.00 | 0.75 | 0.50 | 6.67 | 0.20 | 0.25 | 0.75 | 1.47 | 0.53 | 0.61 | 0.44 |
| 8 | 3 | 0.58 | 3.18 | 5.08 | 0.65 | 0.63 | 6.21 | 0.05 | 0.65 | 0.65 | 0.63 | 0.40 | 0.50 | 0.38 |
| 8 | 4 | 0.23 | 3.30 | 5.33 | 0.53 | 0.60 | 6.00 | 0.10 | 0.58 | 0.53 | 0.58 | 0.39 | 0.48 | 0.37 |
| 8 | 5 | 1.05 | 4.43 | 4.50 | 0.83 | 0.48 | 5.89 | 0.20 | 0.38 | 0.83 | 0.58 | 0.49 | 0.59 | 0.44 |
| 8 | 6 | 0.70 | 4.43 | 4.03 | 0.73 | 0.78 | 6.48 | 0.40 | 0.78 | 0.73 | 1.61 | 0.77 | 0.85 | 0.69 |
| 8 | 7 | 0.65 | 3.98 | 5.38 | 0.93 | 1.00 | 6.40 | 0.20 | 1.00 | 0.93 | 1.62 | 0.68 | 0.78 | 0.64 |
| 8 | 8 | 1.23 | 3.98 | 4.55 | 1.13 | 0.48 | 5.95 | - | 0.28 | 1.13 | 0.78 | 0.38 | 0.49 | 0.34 |
| 8 | 9 | 0.45 | 3.13 | 4.73 | 0.85 | - | 6.33 | 0.03 | - | 0.85 | 0.43 | 0.24 | 0.32 | 0.17 |
| 8 | 10 | 0.23 | 4.33 | 4.78 | 0.25 | 0.53 | 6.33 | 0.18 | 0.35 | 0.25 | 0.99 | 0.46 | 0.55 | 0.40 |
| 8 | 11 | 0.95 | 3.60 | 4.53 | 1.09 | 0.70 | 5.72 | 0.20 | 0.83 | 1.09 | 1.43 | 0.62 | 0.71 | 0.58 |
| 8 | 12 | 1.18 | 3.88 | 5.40 | 0.88 | 0.68 | 5.88 | 0.10 | 0.53 | 0.88 | 1.31 | 0.53 | 0.62 | 0.48 |
| 8 | 13 | 0.48 | 3.45 | 4.85 | 0.45 | 0.78 | 6.33 | 0.38 | 0.75 | 0.45 | 1.13 | 0.67 | 0.75 | 0.62 |
| 8 | 14 | 0.80 | 4.23 | 4.65 | 0.65 | 0.48 | 5.47 | 0.18 | 0.30 | 0.65 | 1.20 | 0.50 | 0.58 | 0.43 |
| 8 | 15 | 0.90 | 4.30 | 4.30 | 0.98 | 1.18 | 6.24 | 0.38 | 0.83 | 0.98 | 1.75 | 0.80 | 0.90 | 0.76 |
| 8 | 16 | 1.03 | 3.73 | 4.65 | 0.65 | 1.13 | 6.01 | 0.50 | 1.08 | 0.65 | 2.25 | 0.95 | 1.02 | 0.88 |
| 8 | 17 | 1.75 | 4.60 | 4.78 | 1.70 | 1.58 | 6.41 | 0.48 | 1.28 | 1.70 | 2.31 | 1.07 | 1.18 | 1.04 |
| 8 | 18 | 1.63 | 3.99 | 5.15 | 1.55 | 1.63 | 6.03 | 0.48 | 1.25 | 1.55 | 1.88 | 1.00 | 1.11 | 1.00 |
| 8 | 19 | 1.53 | 4.30 | 5.25 | 1.83 | 0.73 | 6.66 | 0.20 | 0.68 | 1.83 | 1.38 | 0.67 | 0.78 | 0.62 |
| 8 | 20 | 0.58 | 4.60 | 4.50 | 0.73 | 1.20 | 6.04 | 0.30 | 0.83 | 0.73 | 1.23 | 0.69 | 0.79 | 0.68 |
| 8 | 21 | 1.15 | 4.90 | 4.90 | 1.53 | 0.98 | 6.05 | 0.40 | 1.15 | 1.53 | 1.71 | 0.88 | 0.98 | 0.83 |
| 8 | 22 | 1.00 | 4.40 | 4.90 | 0.93 | 0.65 | 6.18 | 0.38 | 0.73 | 0.93 | 1.03 | 0.70 | 0.79 | 0.64 |
| 8 | 23 | 1.25 | 5.30 | 4.72 | 1.15 | 1.25 | 6.53 | 0.70 | 1.03 | 1.15 | 2.58 | 1.16 | 1.24 | 1.07 |
| 8 | 24 | 2.58 | 4.50 | 5.13 | 2.98 | 1.58 | 6.82 | 0.98 | 1.90 | 2.98 | 3.53 | 1.64 | 1.73 | 1.56 |
| 8 | 25 | 1.78 | 4.20 | 5.65 | 2.90 | 1.30 | 6.68 | 0.40 | 1.25 | 2.90 | 2.22 | 1.01 | 1.12 | 0.98 |
| 8 | 26 | 0.83 | 4.40 | 5.30 | 1.33 | 0.75 | 6.58 | 0.05 | 0.68 | 1.33 | 1.52 | 0.55 | 0.65 | 0.50 |
| 8 | 27 | 0.83 | 3.73 | 4.83 | 1.30 | 1.23 | 6.27 | 0.45 | 0.83 | 1.30 | 1.32 | 0.80 | 0.90 | 0.79 |
| 8 | 28 | 0.75 | 4.03 | 4.65 | 1.38 | 0.30 | 5.91 | 0.23 | 0.45 | 1.38 | 1.66 | 0.59 | 0.67 | 0.49 |
| 8 | 29 | 0.40 | 3.85 | 4.98 | 1.20 | 1.20 | 6.05 | 0.48 | 0.98 | 1.20 | 1.84 | 0.86 | 0.94 | 0.82 |
| 8 | 30 | 1.83 | 3.90 | 4.35 | 1.35 | 1.23 | 5.81 | 0.63 | 1.23 | 1.35 | 1.89 | 1.07 | 1.16 | 1.03 |
| 8 | 31 | 1.48 | 4.43 | 5.70 | 2.03 | 1.20 | 6.29 | 0.53 | 1.43 | 2.03 | 1.45 | 1.00 | 1.11 | 0.99 |
| 9 | 1 | 1.43 | 5.08 | 5.10 | 2.18 | 1.50 | 6.20 | 0.70 | 1.50 | 2.18 | 2.13 | 1.20 | 1.31 | 1.18 |
| 9 | 2 | 1.48 | 5.38 | 5.85 | 2.30 | 1.68 | 7.02 | 0.83 | 1.83 | 2.30 | 2.40 | 1.38 | 1.49 | 1.35 |
| 9 | 3 | 2.00 | 5.60 | 5.28 | 2.55 | 1.75 | 7.04 | 0.78 | 1.85 | 2.55 | 2.43 | 1.40 | 1.52 | 1.38 |
| 9 | 4 | 2.30 | 5.43 | 5.65 | 2.30 | 1.75 | 7.04 | 1.05 | 1.70 | 2.30 | 2.24 | 1.54 | 1.65 | 1.51 |
| 9 | 5 | 2.38 | 5.65 | 5.65 | 2.00 | 2.68 | 7.24 | 1.53 | 2.25 | 2.00 | 2.89 | 2.03 | 2.13 | 2.02 |
| 9 | 6 | 3.13 | 5.98 | 5.43 | 3.03 | 2.90 | 8.06 | 1.40 | 2.50 | 3.03 | 3.47 | 2.13 | 2.26 | 2.13 |
| 9 | 7 | 2.23 | 6.18 | 5.95 | 2.93 | 2.70 | 7.40 | 0.90 | 1.63 | 2.93 | 3.15 | 1.60 | 1.75 | 1.61 |
| 9 | 8 | 2.13 | 5.45 | 5.98 | 3.05 | 2.35 | 7.70 | 1.25 | 2.13 | 3.05 | 3.30 | 1.86 | 1.98 | 1.83 |
| 9 | 9 | 2.33 | 5.45 | 6.55 | 3.15 | 2.33 | 7.64 | 1.23 | 2.40 | 3.15 | 3.66 | 1.93 | 2.04 | 1.89 |
| 9 | 10 | 2.83 | 6.51 | 6.63 | 3.70 | 2.43 | 8.40 | 1.33 | 2.40 | 3.70 | 4.00 | 2.10 | 2.22 | 2.04 |
| 9 | 11 | 2.05 | 5.35 | 5.38 | 3.23 | 1.78 | 6.83 | 1.15 | 1.88 | 3.23 | 2.81 | 1.67 | 1.78 | 1.63 |
| 9 | 12 | 2.53 | 5.30 | 5.95 | 2.95 | 2.41 | 6.95 | 1.25 | 2.30 | 2.95 | 3.02 | 1.87 | 1.99 | 1.87 |
| 9 | 13 | 2.53 | 5.55 | 6.83 | 4.00 | 2.63 | 7.03 | 1.58 | 2.23 | 4.00 | 3.95 | 2.18 | 2.29 | 2.14 |
| 9 | 14 | 2.58 | 7.48 | 7.35 | 4.03 | 2.75 | 8.22 | 2.25 | 3.13 | 4.03 | 3.43 | 2.72 | 2.84 | 2.68 |
| 9 | 15 | 2.93 | 7.10 | 6.08 | 3.95 | 3.78 | 7.54 | 3.35 | 4.35 | 3.95 | 3.68 | 3.64 | 3.73 | 3.64 |
| 9 | 16 | 4.43 | 6.88 | 6.30 | 5.05 | 3.95 | 7.77 | 3.50 | 4.63 | 5.05 | 6.12 | 4.12 | 4.18 | 4.03 |
| 9 | 17 | 4.53 | 6.88 | 6.50 | 5.95 | 4.73 | 7.73 | 2.70 | 4.28 | 5.95 | 5.73 | 3.60 | 3.73 | 3.65 |
| 9 | 18 | 5.73 | 7.25 | 6.33 | 6.30 | 4.95 | 8.15 | 3.20 | 4.95 | 6.30 | 6.22 | 4.15 | 4.27 | 4.17 |
| 9 | 19 | 4.65 | 7.38 | 7.03 | 5.50 | 4.68 | 8.75 | 3.15 | 4.28 | 5.50 | 5.40 | 3.87 | 3.99 | 3.88 |
| 9 | 20 | 4.93 | 7.25 | 7.85 | 5.83 | 5.00 | 9.29 | 2.85 | 4.73 | 5.83 | 6.02 | 3.85 | 4.00 | 3.89 |
| 9 | 21 | 4.93 | 6.45 | 7.13 | 6.55 | 4.40 | 8.01 | 2.45 | 3.73 | 6.55 | 5.78 | 3.39 | 3.53 | 3.41 |
| 9 | 22 | 3.63 | 6.43 | 8.03 | 6.30 | 3.95 | 7.88 | 2.63 | 4.00 | 6.30 | 5.59 | 3.41 | 3.52 | 3.40 |
| 9 | 23 | 3.30 | 8.10 | 6.98 | 5.63 | 3.38 | 8.49 | 2.28 | 2.95 | 5.63 | 4.53 | 2.93 | 3.07 | 2.90 |
| 9 | 24 | 3.83 | 7.05 | 7.33 | 4.60 | 4.26 | 7.83 | 3.10 | 4.23 | 4.60 | 4.37 | 3.63 | 3.74 | 3.66 |
| 9 | 25 | 3.38 | 6.88 | 6.50 | 3.90 | 4.20 | 9.26 | 2.93 | 4.10 | 3.90 | 4.51 | 3.50 | 3.61 | 3.51 |
| 9 | 26 | 4.50 | 7.18 | 6.78 | 5.15 | 4.44 | 8.66 | 2.83 | 3.95 | 5.15 | 5.30 | 3.59 | 3.71 | 3.60 |
| 9 | 27 | 4.40 | 7.38 | 7.93 | 6.00 | 4.28 | 8.72 | 2.80 | 3.90 | 6.00 | 5.51 | 3.59 | 3.72 | 3.58 |
| 9 | 28 | 4.43 | 7.80 | 7.30 | 5.98 | 3.56 | 8.05 | 1.88 | 3.20 | 5.98 | 5.50 | 2.89 | 3.04 | 2.86 |
| 9 | 29 | 2.73 | 6.73 | 7.73 | 4.75 | 3.83 | 8.67 | 1.93 | 3.38 | 4.75 | 3.57 | 2.64 | 2.80 | 2.72 |
| 9 | 30 | 3.30 | 7.25 | 6.93 | 4.73 | 4.22 | 7.70 | 2.55 | 3.70 | 4.73 | 4.41 | 3.20 | 3.33 | 3.24 |

**Normal Year (20 Year Daily Average 1987-2006)**

| Month | Day | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | System Weighted Average Residential | Commercial | Industrial |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1 | 4.55 | 9.13 | 9.28 | 5.60 | 6.80 | 10.59 | 4.40 | 5.73 | 5.60 | 5.85 | 5.04 | 5.20 | 5.15 |
| 10 | 2 | 6.85 | 10.38 | 9.45 | 7.23 | 7.70 | 11.38 | 5.83 | 7.60 | 7.23 | 7.08 | 6.51 | 6.66 | 6.61 |
| 10 | 3 | 7.23 | 9.93 | 9.48 | 9.68 | 7.88 | 10.00 | 5.55 | 7.28 | 9.68 | 7.90 | 6.42 | 6.58 | 6.53 |
| 10 | 4 | 7.78 | 9.48 | 8.40 | 9.23 | 8.28 | 9.59 | 5.18 | 7.43 | 9.23 | 8.75 | 6.32 | 6.49 | 6.46 |
| 10 | 5 | 7.65 | 9.85 | 7.88 | 9.53 | 7.65 | 9.43 | 5.78 | 7.30 | 9.53 | 9.33 | 6.70 | 6.81 | 6.72 |
| 10 | 6 | 7.33 | 8.80 | 8.53 | 9.80 | 7.45 | 8.78 | 5.93 | 7.55 | 9.80 | 8.30 | 6.67 | 6.77 | 6.73 |
| 10 | 7 | 8.03 | 10.35 | 9.40 | 9.73 | 8.25 | 10.33 | 6.48 | 8.28 | 9.73 | 8.98 | 7.30 | 7.42 | 7.36 |
| 10 | 8 | 8.58 | 9.98 | 8.60 | 10.13 | 8.85 | 9.29 | 7.28 | 9.08 | 10.13 | 9.73 | 8.02 | 8.10 | 8.08 |
| 10 | 9 | 9.30 | 9.38 | 9.38 | 10.03 | 8.48 | 9.65 | 7.08 | 8.65 | 10.03 | 9.98 | 7.88 | 7.96 | 7.90 |
| 10 | 10 | 8.55 | 11.10 | 9.43 | 11.13 | 10.53 | 11.24 | 8.20 | 10.00 | 11.13 | 10.10 | 8.89 | 9.01 | 9.04 |
| 10 | 11 | 11.00 | 11.35 | 10.13 | 12.43 | 10.92 | 10.63 | 8.98 | 10.75 | 12.43 | 11.68 | 9.80 | 9.89 | 9.89 |
| 10 | 12 | 10.80 | 11.03 | 9.38 | 12.73 | 9.57 | 11.63 | 8.10 | 9.28 | 12.73 | 10.60 | 8.89 | 9.00 | 8.93 |
| 10 | 13 | 9.68 | 11.18 | 9.38 | 11.75 | 10.65 | 10.90 | 8.35 | 9.85 | 11.75 | 10.38 | 9.07 | 9.19 | 9.21 |
| 10 | 14 | 10.65 | 11.30 | 9.50 | 11.28 | 11.55 | 11.45 | 9.55 | 11.20 | 11.28 | 12.00 | 10.26 | 10.33 | 10.34 |
| 10 | 15 | 11.30 | 11.28 | 10.83 | 13.73 | 12.15 | 11.28 | 9.35 | 11.28 | 13.73 | 12.85 | 10.32 | 10.43 | 10.46 |
| 10 | 16 | 11.38 | 12.70 | 11.05 | 13.95 | 11.43 | 11.48 | 9.20 | 11.15 | 13.95 | 11.70 | 10.09 | 10.23 | 10.23 |
| 10 | 17 | 11.60 | 12.83 | 10.00 | 14.93 | 11.83 | 11.72 | 10.55 | 11.83 | 14.93 | 12.25 | 11.11 | 11.20 | 11.20 |
| 10 | 18 | 11.75 | 12.98 | 10.27 | 14.88 | 12.50 | 12.91 | 10.98 | 12.48 | 14.88 | 13.18 | 11.62 | 11.70 | 11.69 |
| 10 | 19 | 12.18 | 10.18 | 9.68 | 15.25 | 10.35 | 10.60 | 8.63 | 9.68 | 15.25 | 12.85 | 9.61 | 9.70 | 9.63 |
| 10 | 20 | 9.95 | 11.00 | 10.00 | 13.58 | 11.99 | 10.73 | 9.18 | 10.90 | 13.58 | 11.58 | 9.93 | 10.05 | 10.13 |
| 10 | 21 | 11.40 | 11.90 | 11.55 | 14.38 | 13.18 | 11.15 | 10.64 | 12.70 | 14.38 | 12.45 | 11.33 | 11.44 | 11.54 |
| 10 | 22 | 13.38 | 13.45 | 11.53 | 15.63 | 13.05 | 12.70 | 10.88 | 13.08 | 15.63 | 13.58 | 11.81 | 11.93 | 11.95 |
| 10 | 23 | 13.78 | 13.23 | 11.95 | 16.10 | 13.90 | 12.45 | 11.78 | 14.35 | 16.10 | 13.88 | 12.63 | 12.74 | 12.80 |
| 10 | 24 | 14.23 | 14.45 | 11.50 | 16.90 | 13.84 | 13.39 | 12.33 | 13.75 | 16.90 | 14.48 | 13.01 | 13.11 | 13.11 |
| 10 | 25 | 13.90 | 13.90 | 10.95 | 16.78 | 14.67 | 11.85 | 12.08 | 13.88 | 16.78 | 14.65 | 12.89 | 12.99 | 13.07 |
| 10 | 26 | 14.33 | 14.43 | 11.28 | 17.18 | 15.38 | 13.16 | 13.20 | 14.58 | 17.18 | 14.75 | 13.77 | 13.87 | 13.95 |
| 10 | 27 | 14.98 | 15.85 | 12.45 | 17.98 | 16.38 | 13.59 | 14.08 | 15.90 | 17.98 | 16.40 | 14.78 | 14.87 | 14.95 |
| 10 | 28 | 15.73 | 16.78 | 12.73 | 18.33 | 15.80 | 14.97 | 14.78 | 15.63 | 18.33 | 16.78 | 15.27 | 15.32 | 15.30 |
| 10 | 29 | 16.03 | 16.90 | 12.93 | 18.80 | 16.93 | 14.42 | 15.28 | 17.00 | 18.80 | 17.13 | 15.86 | 15.93 | 15.99 |
| 10 | 30 | 17.08 | 16.15 | 13.33 | 21.05 | 17.20 | 14.45 | 15.23 | 16.85 | 21.05 | 17.85 | 15.97 | 16.06 | 16.12 |
| 10 | 31 | 17.10 | 16.45 | 12.45 | 21.00 | 17.88 | 15.10 | 16.40 | 17.50 | 21.00 | 17.63 | 16.81 | 16.87 | 16.96 |
| 11 | 1 | 17.05 | 17.38 | 13.80 | 21.88 | 19.28 | 14.70 | 16.95 | 18.13 | 21.88 | 18.83 | 17.44 | 17.51 | 17.64 |
| 11 | 2 | 18.45 | 18.05 | 13.25 | 22.53 | 18.68 | 15.48 | 17.23 | 18.50 | 22.53 | 19.55 | 17.81 | 17.86 | 17.92 |
| 11 | 3 | 18.70 | 16.53 | 13.55 | 22.18 | 17.23 | 15.33 | 16.43 | 17.18 | 22.18 | 19.43 | 17.04 | 17.07 | 17.05 |
| 11 | 4 | 16.58 | 16.03 | 13.08 | 20.53 | 16.83 | 15.18 | 15.54 | 16.45 | 20.53 | 17.90 | 16.07 | 16.13 | 16.15 |
| 11 | 5 | 17.35 | 16.03 | 13.20 | 21.03 | 16.18 | 14.98 | 16.00 | 16.63 | 21.03 | 18.05 | 16.41 | 16.42 | 16.40 |
| 11 | 6 | 16.73 | 15.35 | 13.33 | 20.25 | 17.07 | 14.65 | 16.18 | 16.73 | 20.25 | 17.45 | 16.46 | 16.48 | 16.54 |
| 11 | 7 | 16.88 | 15.23 | 12.65 | 20.40 | 17.96 | 13.73 | 16.58 | 17.53 | 20.40 | 17.85 | 16.89 | 16.91 | 17.03 |
| 11 | 8 | 17.50 | 16.05 | 13.95 | 20.93 | 18.47 | 14.23 | 16.83 | 18.28 | 20.93 | 17.75 | 17.22 | 17.27 | 17.42 |
| 11 | 9 | 18.45 | 15.98 | 13.35 | 20.15 | 17.98 | 13.73 | 15.28 | 17.78 | 20.15 | 17.58 | 16.20 | 16.31 | 16.44 |
| 11 | 10 | 17.98 | 16.20 | 13.63 | 20.53 | 18.13 | 14.15 | 15.98 | 17.53 | 20.53 | 17.93 | 16.63 | 16.70 | 16.81 |
| 11 | 11 | 18.28 | 16.10 | 14.00 | 20.95 | 17.42 | 14.69 | 15.30 | 17.03 | 20.95 | 17.70 | 16.11 | 16.21 | 16.28 |
| 11 | 12 | 17.28 | 15.90 | 12.85 | 20.40 | 15.58 | 13.70 | 15.65 | 16.10 | 20.40 | 16.98 | 15.95 | 15.97 | 15.96 |
| 11 | 13 | 16.73 | 15.58 | 14.23 | 19.83 | 17.00 | 14.12 | 15.13 | 16.63 | 19.83 | 17.15 | 15.76 | 15.83 | 15.91 |
| 11 | 14 | 17.48 | 16.93 | 14.25 | 20.68 | 18.10 | 14.65 | 16.45 | 17.60 | 20.68 | 18.38 | 16.96 | 17.02 | 17.09 |
| 11 | 15 | 17.65 | 16.44 | 13.97 | 20.53 | 18.33 | 14.67 | 16.93 | 18.13 | 20.53 | 17.80 | 17.28 | 17.32 | 17.44 |
| 11 | 16 | 18.83 | 17.88 | 15.15 | 21.63 | 19.48 | 16.38 | 18.10 | 19.35 | 21.63 | 19.33 | 18.50 | 18.55 | 18.64 |
| 11 | 17 | 19.30 | 18.40 | 15.13 | 23.10 | 19.51 | 15.79 | 17.90 | 18.65 | 23.10 | 19.95 | 18.40 | 18.46 | 18.52 |
| 11 | 18 | 20.38 | 18.68 | 14.85 | 22.68 | 22.23 | 16.50 | 19.35 | 21.40 | 22.68 | 21.03 | 19.97 | 20.04 | 20.25 |
| 11 | 19 | 21.55 | 17.08 | 14.88 | 23.15 | 21.18 | 16.73 | 19.18 | 20.40 | 23.15 | 20.60 | 19.69 | 19.73 | 19.89 |
| 11 | 20 | 21.25 | 17.65 | 16.05 | 24.10 | 21.04 | 15.73 | 18.23 | 19.35 | 24.10 | 21.08 | 19.00 | 19.08 | 19.21 |
| 11 | 21 | 20.13 | 19.25 | 16.25 | 22.95 | 21.29 | 16.33 | 19.95 | 21.23 | 22.95 | 20.48 | 20.21 | 20.24 | 20.39 |
| 11 | 22 | 21.40 | 19.88 | 17.30 | 24.45 | 21.95 | 17.70 | 20.83 | 21.85 | 24.45 | 21.78 | 21.12 | 21.14 | 21.26 |
| 11 | 23 | 22.28 | 18.98 | 16.55 | 24.70 | 20.92 | 17.23 | 19.75 | 21.20 | 24.70 | 22.23 | 20.39 | 20.42 | 20.49 |
| 11 | 24 | 20.98 | 18.95 | 15.50 | 24.65 | 20.14 | 17.72 | 19.43 | 19.83 | 24.65 | 21.35 | 19.82 | 19.84 | 19.86 |
| 11 | 25 | 20.45 | 19.73 | 16.08 | 25.03 | 20.37 | 17.95 | 19.95 | 19.60 | 25.03 | 21.48 | 20.12 | 20.14 | 20.15 |
| 11 | 26 | 21.80 | 20.55 | 17.08 | 25.70 | 23.17 | 18.46 | 21.70 | 22.55 | 25.70 | 23.23 | 22.02 | 22.03 | 22.16 |
| 11 | 27 | 23.20 | 20.45 | 17.28 | 27.20 | 22.31 | 18.08 | 22.03 | 22.30 | 27.20 | 24.03 | 22.31 | 22.29 | 22.33 |
| 11 | 28 | 22.78 | 19.90 | 17.50 | 26.90 | 23.55 | 18.33 | 21.83 | 23.03 | 26.90 | 23.48 | 22.26 | 22.29 | 22.44 |
| 11 | 29 | 23.03 | 20.15 | 17.55 | 26.38 | 22.46 | 17.95 | 21.88 | 22.73 | 26.38 | 22.63 | 22.11 | 22.12 | 22.23 |
| 11 | 30 | 22.88 | 19.30 | 16.48 | 26.10 | 20.81 | 17.50 | 20.98 | 21.08 | 26.10 | 23.83 | 21.35 | 21.30 | 21.28 |
| 12 | 1 | 21.38 | 18.83 | 16.70 | 25.50 | 21.40 | 17.31 | 20.80 | 21.35 | 25.50 | 22.43 | 21.06 | 21.05 | 21.13 |
| 12 | 2 | 22.00 | 20.03 | 17.13 | 25.85 | 22.64 | 17.54 | 21.45 | 22.57 | 25.85 | 22.83 | 21.79 | 21.80 | 21.93 |
| 12 | 3 | 23.68 | 20.60 | 17.75 | 27.25 | 23.78 | 18.75 | 22.40 | 23.05 | 27.25 | 24.83 | 22.84 | 22.84 | 22.94 |
| 12 | 4 | 23.73 | 20.70 | 17.30 | 27.15 | 23.63 | 18.23 | 23.05 | 23.75 | 27.15 | 23.88 | 23.22 | 23.20 | 23.34 |
| 12 | 5 | 24.38 | 20.95 | 17.05 | 28.00 | 23.54 | 18.55 | 22.88 | 23.50 | 28.00 | 24.90 | 23.23 | 23.22 | 23.30 |
| 12 | 6 | 23.98 | 20.93 | 17.03 | 28.00 | 23.83 | 18.28 | 22.84 | 23.53 | 28.00 | 25.08 | 23.22 | 23.21 | 23.31 |
| 12 | 7 | 24.28 | 21.45 | 17.08 | 28.30 | 23.15 | 18.02 | 23.38 | 23.25 | 28.30 | 24.90 | 23.49 | 23.44 | 23.49 |
| 12 | 8 | 23.80 | 20.55 | 16.93 | 28.60 | 22.90 | 18.76 | 22.28 | 23.50 | 28.60 | 24.50 | 22.76 | 22.76 | 22.83 |
| 12 | 9 | 24.08 | 19.05 | 16.00 | 27.63 | 21.84 | 17.55 | 22.28 | 21.80 | 27.63 | 23.63 | 22.36 | 22.31 | 22.35 |
| 12 | 10 | 22.05 | 19.50 | 16.78 | 27.10 | 21.40 | 17.28 | 21.23 | 21.13 | 27.10 | 21.90 | 21.31 | 21.31 | 21.39 |
| 12 | 11 | 21.98 | 20.35 | 17.48 | 26.93 | 22.30 | 18.12 | 21.45 | 22.15 | 26.93 | 22.13 | 21.67 | 21.70 | 21.81 |
| 12 | 12 | 22.53 | 20.43 | 17.38 | 27.00 | 22.15 | 18.19 | 21.27 | 21.83 | 27.00 | 22.65 | 21.60 | 21.63 | 21.70 |
| 12 | 13 | 22.63 | 21.30 | 17.93 | 26.00 | 23.76 | 18.32 | 22.95 | 23.98 | 26.00 | 22.80 | 23.02 | 23.03 | 23.20 |
| 12 | 14 | 24.50 | 21.25 | 18.68 | 27.50 | 23.59 | 19.06 | 23.00 | 23.66 | 27.50 | 24.13 | 23.27 | 23.28 | 23.37 |
| 12 | 15 | 24.50 | 22.35 | 19.70 | 27.85 | 25.13 | 19.74 | 24.25 | 25.30 | 27.85 | 25.03 | 24.46 | 24.46 | 24.60 |
| 12 | 16 | 24.93 | 21.83 | 18.83 | 28.70 | 24.58 | 19.50 | 23.30 | 24.13 | 28.70 | 26.25 | 23.84 | 23.84 | 23.92 |
| 12 | 17 | 25.13 | 22.30 | 19.40 | 28.00 | 25.58 | 19.94 | 23.78 | 25.85 | 28.00 | 24.53 | 24.25 | 24.31 | 24.50 |
| 12 | 18 | 26.70 | 24.00 | 19.70 | 29.38 | 27.50 | 21.24 | 26.00 | 27.43 | 29.38 | 26.88 | 26.32 | 26.33 | 26.52 |
| 12 | 19 | 28.00 | 23.31 | 20.50 | 30.53 | 26.65 | 21.37 | 25.88 | 27.30 | 30.53 | 28.08 | 26.38 | 26.36 | 26.47 |
| 12 | 20 | 27.50 | 23.28 | 20.13 | 31.08 | 25.98 | 20.78 | 26.30 | 26.53 | 31.08 | 27.20 | 26.38 | 26.34 | 26.42 |
| 12 | 21 | 27.05 | 24.00 | 20.55 | 31.53 | 26.50 | 21.49 | 26.30 | 26.23 | 31.53 | 28.15 | 26.47 | 26.43 | 26.50 |
| 12 | 22 | 26.60 | 23.65 | 20.53 | 31.43 | 26.83 | 20.48 | 25.93 | 26.53 | 31.43 | 28.20 | 26.25 | 26.23 | 26.34 |
| 12 | 23 | 27.03 | 22.88 | 20.23 | 31.50 | 27.48 | 19.95 | 26.10 | 26.95 | 31.50 | 28.05 | 26.44 | 26.42 | 26.60 |
| 12 | 24 | 26.73 | 22.80 | 19.40 | 31.10 | 26.15 | 19.82 | 25.55 | 26.35 | 31.10 | 27.08 | 25.83 | 25.81 | 25.94 |
| 12 | 25 | 26.58 | 22.75 | 18.98 | 31.63 | 26.35 | 19.57 | 25.03 | 25.85 | 31.63 | 26.90 | 25.43 | 25.44 | 25.59 |
| 12 | 26 | 26.15 | 22.55 | 17.78 | 31.10 | 25.27 | 18.92 | 25.60 | 25.10 | 31.10 | 26.83 | 25.57 | 25.51 | 25.59 |
| 12 | 27 | 25.15 | 21.38 | 17.58 | 30.45 | 24.15 | 18.41 | 23.70 | 23.10 | 30.45 | 25.83 | 23.89 | 23.87 | 23.93 |
| 12 | 28 | 24.43 | 22.63 | 18.33 | 29.25 | 25.25 | 19.66 | 25.40 | 25.80 | 29.25 | 25.98 | 25.34 | 25.29 | 25.41 |
| 12 | 29 | 25.88 | 22.55 | 19.15 | 30.73 | 26.25 | 20.78 | 26.10 | 26.68 | 30.73 | 27.60 | 26.22 | 26.16 | 26.28 |
| 12 | 30 | 26.40 | 21.40 | 18.35 | 31.75 | 24.47 | 19.58 | 25.78 | 24.80 | 31.75 | 26.93 | 25.62 | 25.52 | 25.56 |
| 12 | 31 | 25.15 | 21.21 | 18.19 | 31.23 | 23.34 | 18.83 | 24.38 | 22.80 | 31.23 | 26.38 | 24.29 | 24.21 | 24.20 |
| Total | | 4,653 | 4,935 | 4,365 | 5,268 | 4,635 | 4,776 | 4,218 | 4,559 | 5,268 | 4,824 | 4,401 | 4,428 | 4,420 |

# Appendix 2-22: Weather Assumptions – Historical Coldest Season

Heating Degree Days, Base 65

**Coldest Season in 20 Years (Colder of 1992-1993 Season or Normal with 1989 Three Day Peak)**

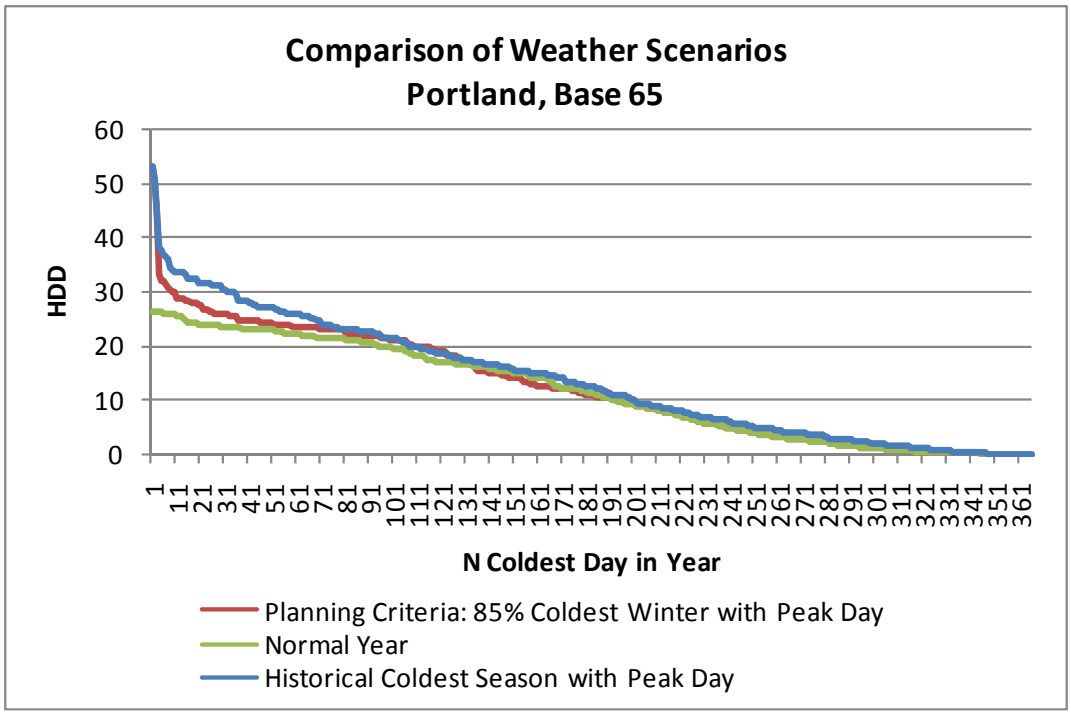
| Month | Day | Date | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | System Weighted Average Residential | Commercial | Industrial |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1/1/93 | 34.50 | 29.50 | 25.50 | 38.00 | 33.50 | 28.50 | 34.50 | 35.00 | 38.00 | 30.50 | 33.96 | 33.95 | 34.19 |
| 1 | 2 | 1/2/93 | 34.50 | 30.00 | 27.00 | 39.00 | 32.50 | 28.00 | 32.50 | 34.50 | 39.00 | 35.50 | 33.13 | 33.09 | 33.15 |
| 1 | 3 | 1/3/93 | 30.50 | 24.50 | 23.50 | 37.50 | 26.00 | 24.50 | 27.00 | 26.50 | 37.50 | 35.50 | 27.96 | 27.84 | 27.60 |
| 1 | 4 | 1/4/93 | 27.00 | 29.50 | 23.50 | 33.50 | 28.00 | 24.00 | 28.00 | 25.50 | 33.50 | 28.50 | 27.69 | 27.69 | 27.68 |
| 1 | 5 | 1/5/93 | 29.00 | 30.00 | 24.00 | 33.50 | 32.50 | 28.50 | 31.00 | 32.50 | 33.50 | 29.50 | 30.97 | 31.03 | 31.25 |
| 1 | 6 | 1/6/93 | 33.50 | 30.00 | 25.50 | 41.00 | 34.50 | 28.50 | 33.50 | 35.00 | 41.00 | 36.00 | 33.93 | 33.91 | 34.06 |
| 1 | 7 | 1/7/93 | 34.50 | 29.50 | 23.50 | 46.50 | 36.00 | 29.50 | 37.00 | 36.00 | 46.50 | 35.00 | 36.31 | 36.25 | 36.49 |
| 1 | 8 | 1/8/93 | 35.50 | 36.00 | 26.50 | 47.50 | 32.50 | 29.50 | 36.00 | 36.00 | 47.50 | 33.50 | 35.54 | 35.55 | 35.53 |
| 1 | 9 | 1/9/93 | 36.00 | 38.50 | 28.50 | 51.00 | 43.00 | 32.00 | 32.50 | 35.50 | 51.00 | 39.00 | 34.58 | 35.03 | 35.41 |
| 1 | 10 | 1/10/93 | 42.50 | 40.00 | 30.50 | 45.00 | 46.00 | 32.50 | 38.00 | 41.00 | 45.00 | 38.50 | 39.16 | 39.46 | 39.99 |
| 1 | 11 | 1/11/93 | 44.00 | 39.50 | 27.50 | 46.50 | 41.50 | 31.50 | 37.50 | 43.50 | 46.50 | 40.50 | 39.21 | 39.39 | 39.68 |
| 1 | 12 | 1/12/93 | 39.00 | 31.50 | 23.00 | 44.50 | 40.00 | 26.50 | 32.50 | 34.00 | 44.50 | 38.50 | 34.09 | 34.29 | 34.65 |
| 1 | 13 | 1/13/93 | 35.50 | 31.00 | 27.00 | 46.00 | 40.50 | 29.00 | 33.50 | 35.50 | 46.00 | 29.50 | 33.86 | 34.23 | 34.88 |
| 1 | 14 | 1/14/93 | 34.50 | 29.50 | 22.00 | 45.50 | 32.50 | 27.50 | 30.50 | 32.00 | 45.50 | 32.00 | 31.27 | 31.44 | 31.59 |
| 1 | 15 | 1/15/93 | 36.00 | 25.00 | 20.50 | 46.00 | 37.50 | 21.50 | 28.50 | 28.00 | 46.00 | 33.50 | 29.87 | 30.15 | 30.64 |
| 1 | 16 | 1/16/93 | 30.00 | 29.50 | 19.00 | 44.50 | 32.00 | 24.00 | 33.00 | 33.50 | 44.50 | 29.50 | 32.39 | 32.42 | 32.69 |
| 1 | 17 | 1/17/93 | 37.50 | 27.00 | 22.50 | 42.50 | 36.50 | 23.50 | 33.50 | 33.50 | 42.50 | 38.50 | 34.23 | 34.18 | 34.44 |
| 1 | 18 | 1/18/93 | 35.00 | 25.00 | 24.50 | 39.50 | 35.00 | 24.00 | 27.00 | 32.00 | 39.50 | 32.50 | 29.15 | 29.42 | 29.85 |
| 1 | 19 | 1/19/93 | 34.00 | 20.65 | 16.98 | 35.00 | 24.50 | 19.00 | 30.00 | 25.00 | 35.00 | 31.50 | 29.16 | 28.83 | 28.68 |
| 1 | 20 | 1/20/93 | 23.48 | 20.55 | 17.50 | 35.50 | 23.70 | 17.58 | 22.78 | 23.18 | 35.50 | 24.10 | 22.99 | 22.99 | 23.12 |
| 1 | 21 | 1/21/93 | 24.19 | 22.50 | 19.50 | 28.03 | 24.50 | 21.00 | 24.50 | 23.83 | 28.03 | 24.15 | 23.77 | 23.76 | 23.92 |
| 1 | 22 | 1/22/93 | 25.50 | 26.50 | 23.50 | 28.50 | 27.00 | 23.00 | 26.00 | 25.50 | 28.50 | 27.00 | 26.05 | 26.06 | 26.12 |
| 1 | 23 | 1/23/93 | 28.00 | 28.00 | 23.50 | 31.50 | 29.50 | 25.00 | 32.50 | 29.50 | 31.50 | 27.00 | 30.93 | 30.79 | 30.93 |
| 1 | 24 | 1/24/93 | 28.00 | 21.10 | 17.38 | 32.50 | 23.87 | 18.57 | 22.95 | 23.23 | 32.50 | 27.50 | 23.15 | 23.13 | 23.25 |
| 1 | 25 | 1/25/93 | 24.04 | 21.31 | 17.85 | 26.83 | 23.17 | 18.60 | 23.25 | 23.30 | 26.83 | 24.28 | 23.33 | 23.29 | 23.36 |
| 1 | 26 | 1/26/93 | 23.62 | 21.88 | 17.75 | 27.50 | 23.17 | 18.90 | 22.95 | 23.25 | 27.50 | 24.58 | 23.17 | 23.15 | 23.20 |
| 1 | 27 | 1/27/93 | 23.62 | 20.93 | 18.33 | 29.00 | 22.62 | 19.60 | 24.00 | 25.00 | 29.00 | 24.55 | 23.41 | 23.32 | 23.40 |
| 1 | 28 | 1/28/93 | 23.50 | 19.70 | 17.10 | 29.50 | 20.90 | 17.88 | 21.43 | 21.30 | 29.50 | 25.00 | 21.66 | 21.63 | 21.62 |
| 1 | 29 | 1/29/93 | 21.41 | 19.79 | 16.93 | 28.50 | 21.50 | 17.23 | 21.30 | 21.50 | 28.50 | 21.73 | 21.15 | 21.12 | 21.13 |
| 1 | 30 | 1/30/93 | 24.50 | 20.23 | 17.15 | 28.50 | 27.00 | 19.33 | 24.00 | 23.50 | 28.50 | 23.50 | 23.85 | 23.84 | 24.27 |
| 1 | 31 | 1/31/93 | 25.50 | 20.33 | 16.75 | 27.50 | 27.00 | 18.23 | 22.50 | 26.50 | 27.50 | 23.00 | 23.33 | 23.42 | 23.93 |
| 2 | 1 | 2/1/93 | 25.50 | 20.63 | 18.00 | 27.73 | 28.50 | 19.05 | 26.00 | 27.00 | 27.73 | 24.50 | 25.84 | 25.81 | 26.26 |
| 2 | 2 | 2/2/89 | 39.50 | 44.50 | 34.50 | 46.00 | 44.00 | 41.00 | 50.50 | 47.50 | 46.00 | 41.50 | 47.90 | 47.63 | 47.76 |
| 2 | 3 | 2/3/89 | 52.00 | 50.00 | 38.00 | 60.00 | 52.50 | 48.50 | 53.00 | 54.00 | 60.00 | 53.50 | 53.03 | 53.00 | 53.10 |
| 2 | 4 | 2/4/89 | 54.50 | 44.00 | 42.50 | 62.00 | 50.00 | 45.50 | 44.50 | 51.50 | 62.00 | 54.50 | 47.47 | 47.70 | 47.81 |
| 2 | 5 | 2/5/93 | 24.80 | 21.50 | 18.20 | 28.35 | 25.08 | 18.55 | 23.48 | 24.88 | 28.35 | 24.80 | 23.89 | 23.92 | 24.10 |
| 2 | 6 | 2/6/93 | 24.63 | 20.03 | 17.08 | 29.45 | 23.66 | 16.99 | 22.43 | 22.80 | 29.45 | 24.35 | 22.81 | 22.82 | 22.96 |
| 2 | 7 | 2/7/93 | 23.20 | 21.05 | 17.45 | 27.75 | 24.24 | 17.95 | 22.43 | 24.20 | 27.75 | 23.20 | 22.84 | 22.89 | 23.09 |
| 2 | 8 | 2/8/93 | 23.80 | 20.82 | 17.88 | 27.93 | 23.60 | 19.05 | 21.50 | 23.45 | 27.93 | 24.15 | 22.28 | 22.35 | 22.47 |
| 2 | 9 | 2/9/93 | 23.88 | 21.48 | 17.50 | 26.98 | 23.00 | 18.65 | 21.58 | 22.68 | 26.98 | 23.98 | 22.18 | 22.22 | 22.29 |
| 2 | 10 | 2/10/93 | 22.88 | 19.58 | 19.00 | 26.05 | 24.50 | 18.68 | 21.20 | 22.68 | 26.05 | 23.10 | 21.72 | 21.75 | 21.84 |
| 2 | 11 | 2/11/93 | 23.50 | 20.00 | 19.00 | 25.53 | 22.13 | 17.65 | 20.73 | 21.33 | 25.53 | 23.00 | 21.21 | 21.23 | 21.31 |
| 2 | 12 | 2/12/93 | 22.30 | 24.00 | 18.50 | 26.18 | 22.30 | 18.50 | 21.45 | 21.55 | 26.18 | 22.30 | 21.61 | 21.63 | 21.73 |
| 2 | 13 | 2/13/93 | 22.55 | 22.08 | 19.00 | 26.03 | 26.00 | 19.08 | 22.28 | 23.03 | 26.03 | 23.53 | 22.54 | 22.55 | 22.63 |
| 2 | 14 | 2/14/93 | 25.00 | 28.00 | 22.50 | 25.83 | 28.50 | 24.00 | 26.50 | 29.50 | 25.83 | 23.68 | 26.56 | 26.64 | 26.92 |
| 2 | 15 | 2/15/93 | 26.50 | 28.50 | 23.50 | 26.18 | 28.00 | 25.00 | 28.00 | 28.50 | 26.18 | 23.28 | 27.30 | 27.35 | 27.57 |
| 2 | 16 | 2/16/93 | 30.50 | 34.00 | 28.00 | 37.50 | 36.00 | 28.50 | 33.50 | 33.50 | 37.50 | 34.00 | 33.48 | 33.53 | 33.74 |
| 2 | 17 | 2/17/93 | 34.00 | 29.50 | 22.50 | 39.50 | 31.50 | 28.50 | 31.50 | 31.50 | 39.50 | 35.00 | 31.99 | 31.96 | 31.94 |
| 2 | 18 | 2/18/93 | 30.50 | 28.50 | 20.50 | 39.00 | 31.50 | 26.00 | 29.50 | 29.00 | 39.00 | 34.00 | 30.07 | 30.09 | 30.14 |
| 2 | 19 | 2/19/93 | 31.00 | 29.00 | 27.00 | 38.50 | 34.50 | 28.00 | 34.00 | 33.00 | 38.50 | 29.50 | 33.13 | 33.16 | 33.48 |
| 2 | 20 | 2/20/93 | 35.00 | 30.50 | 26.00 | 39.50 | 30.50 | 26.50 | 30.00 | 30.00 | 39.50 | 32.00 | 30.57 | 30.65 | 30.65 |
| 2 | 21 | 2/21/93 | 30.00 | 26.50 | 23.50 | 31.50 | 30.00 | 25.00 | 28.50 | 29.00 | 31.50 | 27.50 | 28.58 | 28.63 | 28.83 |
| 2 | 22 | 2/22/93 | 30.00 | 27.00 | 20.50 | 32.00 | 27.00 | 22.00 | 25.50 | 29.50 | 32.00 | 26.50 | 26.50 | 26.62 | 26.76 |
| 2 | 23 | 2/23/93 | 31.50 | 28.50 | 23.50 | 30.50 | 31.00 | 27.00 | 31.00 | 31.00 | 30.50 | 30.50 | 30.87 | 30.81 | 30.93 |
| 2 | 24 | 2/24/93 | 34.50 | 28.00 | 24.00 | 36.50 | 29.50 | 24.50 | 26.50 | 30.50 | 36.50 | 28.50 | 27.95 | 28.16 | 28.32 |
| 2 | 25 | 2/25/93 | 32.50 | 28.50 | 23.50 | 35.50 | 28.50 | 23.00 | 27.00 | 31.50 | 35.50 | 32.00 | 28.54 | 28.61 | 28.65 |
| 2 | 26 | 2/26/93 | 29.50 | 29.00 | 25.00 | 38.00 | 29.50 | 25.00 | 31.00 | 29.00 | 38.00 | 32.00 | 30.61 | 30.53 | 30.52 |
| 2 | 27 | 2/27/93 | 28.50 | 25.00 | 21.00 | 45.50 | 28.50 | 21.00 | 30.50 | 30.50 | 45.50 | 33.00 | 30.43 | 30.33 | 30.40 |
| 2 | 28 | 2/28/93 | 28.50 | 23.00 | 19.50 | 44.50 | 23.50 | 17.95 | 28.50 | 26.00 | 44.50 | 31.50 | 28.09 | 27.89 | 27.75 |
| 2 | 29 | Average | 25.00 | 21.75 | 19.25 | 43.75 | 23.25 | 17.48 | 30.00 | 25.00 | 43.75 | 29.00 | 28.38 | 28.10 | 28.02 |
| 3 | 1 | 3/1/93 | 21.50 | 20.50 | 19.00 | 43.00 | 23.00 | 17.02 | 31.50 | 24.00 | 43.00 | 26.50 | 28.67 | 28.32 | 28.30 |
| 3 | 2 | 3/2/93 | 23.00 | 22.00 | 16.20 | 39.00 | 22.50 | 18.15 | 24.00 | 24.50 | 39.00 | 28.50 | 24.37 | 24.30 | 24.26 |
| 3 | 3 | 3/3/93 | 21.19 | 19.75 | 16.23 | 35.50 | 19.20 | 18.80 | 24.00 | 19.33 | 35.50 | 22.50 | 21.62 | 21.19 | 20.78 |
| 3 | 4 | 3/4/93 | 18.75 | 20.13 | 16.88 | 29.50 | 19.90 | 18.44 | 19.65 | 20.45 | 29.50 | 20.05 | 19.76 | 19.78 | 19.82 |
| 3 | 5 | 3/5/93 | 21.04 | 19.35 | 17.50 | 29.00 | 19.60 | 18.00 | 19.58 | 19.68 | 29.00 | 20.30 | 19.75 | 19.77 | 19.77 |
| 3 | 6 | 3/6/93 | 19.63 | 19.75 | 17.25 | 22.53 | 19.33 | 18.02 | 18.55 | 19.15 | 22.53 | 20.23 | 18.95 | 19.00 | 18.99 |
| 3 | 7 | 3/7/93 | 18.78 | 20.39 | 17.93 | 21.73 | 18.98 | 18.73 | 18.50 | 19.53 | 21.73 | 20.08 | 18.90 | 18.94 | 18.91 |
| 3 | 8 | 3/8/93 | 19.10 | 18.60 | 16.50 | 24.00 | 17.78 | 17.48 | 18.15 | 18.33 | 24.00 | 20.73 | 18.50 | 18.47 | 18.38 |
| 3 | 9 | 3/9/93 | 18.44 | 18.39 | 15.53 | 20.58 | 20.50 | 17.18 | 19.50 | 17.50 | 20.58 | 19.75 | 18.38 | 18.21 | 18.39 |
| 3 | 10 | 3/10/93 | 18.19 | 18.63 | 16.10 | 22.50 | 18.20 | 17.58 | 17.40 | 18.38 | 22.50 | 18.28 | 17.76 | 17.81 | 17.83 |
| 3 | 11 | 3/11/93 | 18.59 | 18.25 | 15.53 | 26.00 | 17.95 | 17.40 | 20.00 | 17.45 | 26.00 | 20.50 | 18.89 | 18.66 | 18.64 |
| 3 | 12 | 3/12/93 | 17.57 | 17.95 | 15.73 | 23.00 | 19.00 | 17.30 | 18.00 | 19.00 | 23.00 | 17.48 | 17.49 | 17.52 | 17.83 |
| 3 | 13 | 3/13/93 | 21.00 | 17.65 | 15.63 | 24.50 | 22.00 | 16.72 | 18.50 | 22.00 | 24.50 | 18.50 | 19.24 | 19.37 | 19.72 |
| 3 | 14 | 3/14/93 | 18.50 | 17.99 | 15.88 | 23.00 | 17.00 | 16.73 | 16.08 | 16.85 | 23.00 | 17.58 | 16.53 | 16.59 | 16.57 |
| 3 | 15 | 3/15/93 | 17.92 | 22.50 | 15.80 | 19.00 | 17.40 | 17.33 | 17.15 | 18.25 | 19.00 | 18.28 | 17.51 | 17.54 | 17.51 |
| 3 | 16 | 3/16/93 | 19.00 | 21.50 | 16.60 | 21.00 | 18.13 | 17.75 | 20.50 | 19.50 | 21.00 | 18.73 | 19.91 | 19.85 | 19.79 |
| 3 | 17 | 3/17/93 | 19.00 | 17.98 | 15.73 | 26.00 | 16.98 | 16.48 | 20.50 | 17.63 | 26.00 | 20.50 | 19.05 | 18.68 | 18.35 |
| 3 | 18 | 3/18/93 | 17.30 | 19.00 | 15.45 | 24.00 | 16.73 | 16.23 | 16.70 | 17.28 | 24.00 | 19.50 | 17.01 | 17.02 | 16.98 |
| 3 | 19 | 3/19/93 | 17.34 | 17.98 | 15.33 | 19.05 | 16.90 | 16.86 | 15.55 | 17.10 | 19.05 | 18.00 | 16.25 | 16.33 | 16.31 |
| 3 | 20 | 3/20/93 | 17.02 | 17.80 | 15.50 | 18.85 | 17.45 | 16.59 | 15.10 | 16.68 | 18.85 | 17.45 | 15.88 | 16.00 | 16.03 |
| 3 | 21 | 3/21/93 | 18.00 | 17.13 | 16.50 | 18.50 | 17.13 | 16.67 | 15.52 | 17.25 | 18.50 | 16.33 | 16.07 | 16.16 | 16.21 |
| 3 | 22 | 3/22/93 | 16.93 | 18.43 | 16.65 | 18.75 | 17.60 | 16.53 | 15.98 | 16.73 | 18.75 | 17.53 | 16.45 | 16.53 | 16.55 |
| 3 | 23 | 3/23/93 | 17.87 | 19.50 | 15.88 | 18.28 | 17.30 | 17.33 | 16.10 | 17.30 | 18.28 | 16.95 | 16.60 | 16.69 | 16.69 |
| 3 | 24 | 3/24/93 | 17.19 | 21.50 | 17.50 | 19.50 | 18.00 | 20.00 | 17.00 | 17.63 | 19.50 | 18.05 | 16.89 | 16.94 | 16.93 |
| 3 | 25 | 3/25/93 | 19.50 | 24.00 | 20.00 | 23.50 | 19.50 | 21.50 | 18.50 | 19.00 | 23.50 | 22.00 | 19.21 | 19.31 | 19.15 |
| 3 | 26 | 3/26/93 | 20.00 | 22.50 | 17.40 | 20.50 | 18.68 | 21.00 | 17.50 | 18.83 | 20.50 | 20.00 | 18.09 | 18.17 | 17.99 |
| 3 | 27 | 3/27/93 | 18.38 | 23.00 | 17.50 | 19.45 | 18.83 | 18.00 | 17.18 | 18.82 | 19.45 | 19.10 | 17.80 | 17.88 | 17.90 |
| 3 | 28 | 3/28/93 | 18.50 | 21.50 | 16.33 | 19.55 | 17.43 | 20.00 | 16.33 | 17.53 | 19.55 | 19.23 | 17.04 | 17.09 | 17.04 |
| 3 | 29 | 3/29/93 | 17.00 | 18.50 | 16.00 | 18.33 | 16.53 | 15.50 | 19.00 | 17.50 | 18.33 | 18.00 | 18.04 | 17.82 | 17.66 |
| 3 | 30 | 3/30/93 | 16.62 | 16.94 | 15.35 | 21.50 | 16.30 | 15.62 | 17.50 | 16.25 | 21.50 | 22.00 | 17.04 | 16.73 | 16.32 |
| 3 | 31 | 3/31/93 | 14.98 | 16.54 | 14.93 | 20.00 | 15.58 | 15.58 | 14.00 | 15.53 | 20.00 | 18.50 | 14.64 | 14.71 | 14.71 |

| Coldest Season in 20 Years (Colder of 1992-1993 Season or Normal with 1989 Three Day Peak) | | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Date | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 4 | 1 | 4/1/93 | 15.50 | 17.60 | 15.00 | 17.50 | 18.00 | 16.00 | 15.00 | 17.00 | 17.50 | 15.90 | 15.52 | 15.63 | 15.82 |
| 4 | 2 | 4/2/93 | 15.00 | 17.75 | 15.23 | 15.70 | 15.70 | 17.66 | 15.00 | 15.55 | 15.70 | 14.93 | 14.54 | 14.67 | 14.66 |
| 4 | 3 | 4/3/93 | 15.34 | 20.00 | 15.05 | 16.50 | 15.75 | 16.29 | 15.50 | 15.93 | 16.50 | 15.28 | 14.98 | 15.06 | 15.06 |
| 4 | 4 | 4/4/93 | 18.00 | 21.50 | 17.50 | 19.00 | 16.28 | 19.50 | 15.15 | 16.45 | 19.00 | 17.50 | 15.73 | 15.82 | 15.77 |
| 4 | 5 | 4/5/93 | 16.50 | 18.00 | 16.50 | 16.75 | 16.00 | 17.05 | 14.98 | 16.40 | 16.75 | 16.60 | 15.55 | 15.63 | 15.59 |
| 4 | 6 | 4/6/93 | 16.33 | 17.00 | 14.00 | 17.50 | 15.10 | 16.16 | 13.50 | 15.80 | 17.50 | 16.38 | 14.47 | 14.57 | 14.52 |
| 4 | 7 | 4/7/93 | 15.00 | 17.33 | 14.03 | 20.50 | 15.03 | 16.25 | 14.20 | 15.81 | 20.50 | 15.88 | 14.77 | 14.83 | 14.78 |
| 4 | 8 | 4/8/93 | 15.33 | 17.28 | 14.38 | 16.60 | 15.25 | 16.16 | 14.22 | 15.80 | 16.60 | 15.70 | 14.80 | 14.88 | 14.85 |
| 4 | 9 | 4/9/93 | 15.93 | 16.13 | 13.50 | 16.53 | 14.83 | 15.18 | 16.50 | 15.20 | 16.53 | 15.53 | 15.38 | 15.32 | 15.35 |
| 4 | 10 | 4/10/93 | 17.00 | 18.00 | 16.00 | 20.00 | 19.00 | 17.00 | 15.50 | 16.50 | 20.00 | 17.50 | 16.22 | 16.37 | 16.47 |
| 4 | 11 | 4/11/93 | 20.00 | 18.50 | 18.50 | 18.50 | 20.50 | 17.00 | 18.00 | 19.00 | 18.50 | 17.50 | 18.33 | 18.44 | 18.60 |
| 4 | 12 | 4/12/93 | 23.00 | 20.95 | 18.00 | 22.00 | 18.50 | 21.00 | 16.50 | 20.00 | 22.00 | 20.50 | 18.04 | 18.21 | 18.11 |
| 4 | 13 | 4/13/93 | 19.00 | 18.50 | 15.00 | 19.50 | 15.00 | 15.50 | 14.50 | 16.50 | 19.50 | 18.00 | 15.54 | 15.62 | 15.49 |
| 4 | 14 | 4/14/93 | 18.00 | 16.00 | 13.60 | 22.50 | 14.05 | 15.36 | 13.00 | 15.00 | 22.50 | 20.00 | 14.42 | 14.46 | 14.21 |
| 4 | 15 | 4/15/93 | 13.64 | 16.00 | 13.00 | 16.00 | 13.00 | 14.03 | 13.00 | 12.70 | 16.00 | 14.50 | 13.20 | 13.23 | 13.13 |
| 4 | 16 | 4/16/93 | 16.50 | 15.50 | 12.50 | 18.00 | 14.50 | 14.39 | 12.00 | 13.13 | 18.00 | 16.00 | 12.99 | 13.10 | 13.07 |
| 4 | 17 | 4/17/93 | 13.10 | 16.13 | 13.50 | 15.00 | 15.00 | 14.73 | 12.70 | 14.35 | 15.00 | 12.53 | 13.09 | 13.20 | 13.23 |
| 4 | 18 | 4/18/93 | 15.50 | 18.50 | 14.50 | 16.50 | 15.50 | 15.85 | 12.25 | 15.00 | 16.50 | 15.23 | 13.14 | 13.23 | 13.13 |
| 4 | 19 | 4/19/93 | 18.50 | 16.50 | 13.10 | 19.50 | 15.00 | 15.61 | 13.00 | 14.00 | 19.50 | 18.00 | 14.18 | 14.26 | 14.19 |
| 4 | 20 | 4/20/93 | 13.84 | 15.70 | 13.23 | 14.00 | 13.30 | 15.30 | 11.08 | 12.80 | 14.00 | 13.38 | 11.97 | 12.12 | 12.07 |
| 4 | 21 | 4/21/93 | 12.97 | 15.95 | 13.53 | 11.95 | 13.85 | 15.35 | 11.83 | 14.15 | 11.95 | 12.78 | 12.52 | 12.65 | 12.66 |
| 4 | 22 | 4/22/93 | 13.73 | 16.00 | 14.00 | 13.25 | 15.50 | 15.36 | 13.50 | 13.50 | 13.25 | 14.13 | 13.35 | 13.45 | 13.57 |
| 4 | 23 | 4/23/93 | 15.00 | 15.50 | 12.68 | 15.50 | 14.05 | 14.55 | 14.50 | 13.75 | 15.50 | 15.00 | 14.28 | 14.24 | 14.13 |
| 4 | 24 | 4/24/93 | 15.00 | 15.23 | 13.03 | 16.00 | 13.65 | 14.88 | 11.33 | 12.93 | 16.00 | 15.00 | 12.29 | 12.42 | 12.37 |
| 4 | 25 | 4/25/93 | 13.07 | 14.20 | 12.50 | 13.43 | 14.50 | 13.69 | 14.50 | 13.50 | 13.43 | 13.18 | 13.46 | 13.49 | 13.70 |
| 4 | 26 | 4/26/93 | 14.50 | 15.00 | 13.50 | 15.50 | 14.50 | 12.68 | 12.50 | 12.00 | 15.50 | 15.00 | 12.85 | 12.91 | 12.89 |
| 4 | 27 | 4/27/93 | 16.50 | 15.00 | 15.00 | 16.00 | 15.50 | 16.00 | 10.50 | 12.00 | 16.00 | 16.00 | 12.09 | 12.31 | 12.28 |
| 4 | 28 | 4/28/93 | 13.00 | 15.50 | 12.50 | 14.00 | 11.90 | 14.50 | 11.00 | 11.50 | 14.00 | 12.00 | 11.47 | 11.58 | 11.46 |
| 4 | 29 | 4/29/93 | 11.50 | 12.83 | 11.65 | 12.50 | 11.25 | 13.01 | 8.98 | 10.70 | 12.50 | 12.00 | 9.79 | 9.94 | 9.92 |
| 4 | 30 | 4/30/93 | 10.45 | 15.50 | 13.00 | 10.28 | 12.08 | 13.18 | 8.60 | 11.65 | 10.28 | 9.88 | 9.59 | 9.80 | 9.86 |
| 5 | 1 | 5/1/93 | 12.50 | 17.14 | 13.00 | 14.00 | 13.50 | 16.00 | 13.50 | 14.00 | 14.00 | 11.00 | 13.36 | 13.46 | 13.46 |
| 5 | 2 | 5/2/93 | 12.00 | 14.00 | 12.20 | 11.50 | 11.25 | 13.18 | 9.50 | 11.15 | 11.50 | 17.00 | 10.25 | 10.14 | 10.09 |
| 5 | 3 | 5/3/93 | 11.45 | 13.67 | 13.50 | 11.90 | 13.50 | 12.58 | 11.00 | 11.50 | 11.90 | 11.43 | 10.94 | 11.04 | 11.20 |
| 5 | 4 | 5/4/93 | 16.00 | 13.00 | 12.50 | 13.00 | 12.50 | 13.00 | 11.00 | 11.00 | 13.00 | 11.50 | 11.51 | 11.63 | 11.62 |
| 5 | 5 | 5/5/93 | 14.50 | 14.00 | 13.50 | 15.00 | 10.50 | 13.50 | 10.00 | 10.50 | 15.00 | 15.50 | 11.08 | 11.13 | 10.88 |
| 5 | 6 | 5/6/93 | 10.50 | 14.00 | 12.50 | 8.93 | 12.00 | 12.60 | 11.00 | 12.00 | 8.93 | 9.86 | 10.88 | 10.97 | 11.07 |
| 5 | 7 | 5/7/93 | 15.50 | 14.50 | 13.00 | 13.00 | 15.00 | 13.00 | 14.50 | 15.00 | 13.00 | 16.00 | 14.76 | 14.73 | 14.74 |
| 5 | 8 | 5/8/93 | 14.50 | 15.00 | 13.00 | 15.00 | 11.73 | 13.51 | 12.00 | 13.00 | 15.00 | 12.00 | 12.31 | 12.36 | 12.26 |
| 5 | 9 | 5/9/93 | 14.00 | 14.65 | 12.98 | 16.50 | 12.23 | 13.75 | 10.10 | 11.49 | 16.50 | 15.00 | 10.78 | 10.91 | 10.88 |
| 5 | 10 | 5/10/93 | 11.75 | 12.95 | 12.43 | 10.50 | 10.83 | 13.50 | 8.45 | 9.98 | 10.50 | 10.65 | 9.37 | 9.52 | 9.46 |
| 5 | 11 | 5/11/93 | 9.95 | 11.83 | 10.95 | 8.20 | 9.85 | 12.11 | 7.88 | 8.80 | 8.20 | 10.04 | 8.58 | 8.68 | 8.62 |
| 5 | 12 | 5/12/93 | 9.38 | 12.78 | 11.50 | 8.70 | 10.50 | 12.62 | 7.70 | 9.20 | 8.70 | 9.65 | 8.50 | 8.66 | 8.62 |
| 5 | 13 | 5/13/93 | 9.40 | 11.83 | 10.68 | 9.28 | 9.33 | 12.13 | 7.15 | 8.26 | 9.28 | 9.96 | 8.00 | 8.13 | 8.04 |
| 5 | 14 | 5/14/93 | 8.60 | 11.30 | 9.90 | 8.05 | 8.34 | 11.86 | 5.73 | 7.58 | 8.05 | 8.24 | 6.74 | 6.92 | 6.84 |
| 5 | 15 | 5/15/93 | 7.55 | 11.65 | 10.15 | 6.53 | 8.50 | 11.26 | 6.38 | 7.95 | 6.53 | 7.58 | 7.05 | 7.19 | 7.15 |
| 5 | 16 | 5/16/93 | 9.08 | 12.18 | 11.33 | 7.98 | 9.95 | 12.04 | 7.00 | 8.79 | 7.98 | 8.55 | 7.84 | 8.02 | 8.01 |
| 5 | 17 | 5/17/93 | 8.93 | 12.15 | 11.38 | 8.20 | 10.48 | 12.45 | 8.18 | 9.57 | 8.20 | 8.25 | 8.66 | 8.81 | 8.84 |
| 5 | 18 | 5/18/93 | 10.48 | 11.33 | 11.00 | 8.68 | 9.83 | 11.18 | 7.23 | 9.23 | 8.68 | 10.10 | 8.25 | 8.39 | 8.35 |
| 5 | 19 | 5/19/93 | 9.85 | 11.55 | 10.65 | 8.85 | 10.08 | 11.78 | 6.90 | 9.00 | 8.85 | 8.87 | 7.89 | 8.07 | 8.08 |
| 5 | 20 | 5/20/93 | 9.63 | 11.40 | 10.60 | 8.63 | 9.50 | 11.23 | 6.73 | 8.88 | 8.63 | 9.16 | 7.74 | 7.90 | 7.87 |
| 5 | 21 | 5/21/93 | 8.70 | 10.70 | 10.20 | 7.40 | 8.75 | 10.40 | 5.83 | 7.80 | 7.40 | 7.80 | 6.77 | 6.95 | 6.94 |
| 5 | 22 | 5/22/93 | 7.90 | 10.60 | 9.70 | 8.00 | 8.30 | 10.60 | 5.23 | 7.20 | 8.00 | 7.00 | 6.14 | 6.33 | 6.33 |
| 5 | 23 | 5/23/93 | 7.83 | 10.25 | 9.40 | 10.50 | 7.73 | 11.31 | 5.58 | 7.33 | 10.50 | 9.00 | 6.44 | 6.59 | 6.52 |
| 5 | 24 | 5/24/93 | 6.93 | 9.75 | 9.48 | 6.63 | 7.68 | 10.75 | 4.23 | 6.53 | 6.63 | 7.12 | 5.37 | 5.58 | 5.54 |
| 5 | 25 | 5/25/93 | 6.93 | 10.01 | 9.30 | 5.05 | 9.50 | 10.84 | 5.45 | 7.18 | 5.05 | 7.03 | 6.18 | 6.31 | 6.25 |
| 5 | 26 | 5/26/93 | 7.23 | 10.29 | 8.90 | 6.50 | 7.13 | 9.99 | 4.78 | 6.10 | 6.50 | 7.50 | 5.58 | 5.75 | 5.69 |
| 5 | 27 | 5/27/93 | 6.60 | 9.35 | 8.83 | 5.68 | 7.13 | 9.51 | 5.03 | 6.38 | 5.68 | 6.31 | 5.68 | 5.82 | 5.79 |
| 5 | 28 | 5/28/93 | 6.63 | 9.88 | 9.28 | 6.50 | 8.05 | 9.74 | 5.90 | 7.35 | 6.50 | 6.08 | 6.39 | 6.54 | 6.56 |
| 5 | 29 | 5/29/93 | 7.85 | 9.93 | 9.15 | 10.50 | 7.83 | 10.03 | 6.20 | 7.58 | 10.50 | 7.65 | 6.85 | 6.96 | 6.92 |
| 5 | 30 | 5/30/93 | 8.33 | 9.33 | 9.15 | 7.90 | 7.18 | 10.23 | 4.73 | 6.55 | 7.90 | 7.63 | 5.79 | 5.96 | 5.88 |
| 5 | 31 | 5/31/93 | 6.60 | 9.43 | 8.44 | 5.38 | 6.95 | 10.03 | 4.53 | 6.15 | 5.38 | 6.16 | 5.33 | 5.49 | 5.44 |
| 6 | 1 | 6/1/93 | 6.35 | 9.00 | 8.63 | 7.50 | 7.00 | 9.86 | 6.50 | 9.00 | 7.50 | 6.65 | 6.58 | 6.71 | 6.82 |
| 6 | 2 | 6/2/93 | 9.00 | 8.93 | 8.13 | 8.50 | 7.50 | 9.05 | 4.00 | 8.50 | 8.50 | 9.50 | 5.79 | 5.95 | 5.94 |
| 6 | 3 | 6/3/93 | 9.50 | 11.00 | 8.93 | 4.90 | 7.00 | 9.62 | 4.00 | 7.00 | 4.90 | 5.40 | 4.96 | 5.22 | 5.27 |
| 6 | 4 | 6/4/93 | 4.55 | 8.63 | 7.75 | 5.00 | 5.33 | 9.09 | 3.93 | 5.25 | 5.00 | 5.15 | 4.48 | 4.59 | 4.51 |
| 6 | 5 | 6/5/93 | 5.58 | 8.70 | 10.00 | 5.30 | 6.65 | 9.88 | 4.90 | 6.63 | 5.30 | 5.68 | 5.48 | 5.61 | 5.58 |
| 6 | 6 | 6/6/93 | 6.38 | 9.45 | 9.50 | 6.08 | 8.00 | 9.38 | 4.75 | 6.00 | 6.08 | 6.70 | 5.46 | 5.59 | 5.51 |
| 6 | 7 | 6/7/93 | 8.00 | 9.38 | 8.80 | 5.68 | 7.50 | 9.10 | 4.50 | 6.00 | 5.68 | 7.50 | 5.49 | 5.62 | 5.61 |
| 6 | 8 | 6/8/93 | 8.00 | 8.53 | 9.50 | 6.50 | 5.95 | 9.15 | 4.00 | 5.28 | 6.50 | 8.50 | 4.98 | 5.06 | 4.89 |
| 6 | 9 | 6/9/93 | 5.93 | 9.23 | 8.45 | 6.00 | 9.00 | 9.37 | 4.00 | 5.50 | 6.00 | 5.30 | 4.76 | 4.95 | 5.01 |
| 6 | 10 | 6/10/93 | 9.00 | 11.00 | 8.28 | 5.35 | 8.50 | 9.30 | 6.50 | 8.50 | 5.35 | 8.00 | 7.25 | 7.35 | 7.35 |
| 6 | 11 | 6/11/93 | 8.50 | 11.06 | 9.50 | 9.50 | 10.00 | 10.50 | 9.50 | 9.50 | 9.50 | 9.00 | 9.46 | 9.50 | 9.51 |
| 6 | 12 | 6/12/93 | 12.50 | 8.05 | 8.40 | 9.50 | 6.23 | 9.23 | 4.00 | 7.50 | 9.50 | 11.00 | 5.96 | 6.07 | 5.88 |
| 6 | 13 | 6/13/93 | 9.50 | 8.00 | 7.68 | 7.50 | 5.58 | 8.26 | 4.00 | 6.50 | 7.50 | 9.00 | 5.26 | 5.29 | 5.16 |
| 6 | 14 | 6/14/93 | 5.20 | 7.82 | 7.80 | 4.10 | 4.85 | 8.97 | 2.90 | 3.78 | 4.10 | 4.35 | 3.59 | 3.74 | 3.65 |
| 6 | 15 | 6/15/93 | 4.90 | 7.95 | 7.43 | 4.18 | 6.00 | 8.87 | 4.00 | 4.58 | 4.18 | 5.15 | 4.01 | 4.16 | 4.12 |
| 6 | 16 | 6/16/93 | 6.50 | 7.40 | 7.08 | 5.00 | 5.18 | 8.53 | 3.53 | 4.53 | 5.00 | 8.00 | 4.18 | 4.31 | 4.23 |
| 6 | 17 | 6/17/93 | 5.80 | 8.02 | 7.60 | 4.78 | 5.53 | 8.42 | 3.18 | 4.60 | 4.78 | 5.80 | 4.08 | 4.23 | 4.15 |
| 6 | 18 | 6/18/93 | 5.13 | 7.88 | 7.83 | 3.83 | 5.40 | 8.83 | 2.50 | 4.35 | 3.83 | 5.10 | 3.51 | 3.69 | 3.62 |
| 6 | 19 | 6/19/93 | 4.90 | 7.75 | 8.20 | 4.60 | 4.50 | 8.98 | 2.78 | 3.23 | 4.60 | 5.53 | 3.52 | 3.65 | 3.50 |
| 6 | 20 | 6/20/93 | 4.05 | 11.00 | 9.00 | 5.00 | 3.80 | 10.50 | 2.25 | 3.28 | 5.00 | 3.85 | 2.94 | 3.09 | 2.96 |
| 6 | 21 | 6/21/93 | 2.98 | 10.57 | 8.00 | 2.55 | 8.00 | 8.50 | 7.50 | 6.50 | 2.55 | 3.23 | 6.30 | 6.38 | 6.55 |
| 6 | 22 | 6/22/93 | 8.00 | 10.00 | 8.00 | 10.00 | 9.00 | 8.00 | 8.00 | 8.50 | 10.00 | 8.50 | 8.22 | 8.28 | 8.31 |
| 6 | 23 | 6/23/93 | 12.50 | 10.00 | 8.50 | 12.50 | 9.00 | 10.00 | 5.00 | 7.00 | 12.50 | 11.50 | 6.81 | 7.01 | 6.90 |
| 6 | 24 | 6/24/93 | 7.50 | 6.50 | 7.40 | 7.50 | 3.35 | 7.89 | 1.93 | 3.50 | 7.50 | 9.50 | 2.63 | 2.75 | 2.62 |
| 6 | 25 | 6/25/93 | 2.95 | 5.90 | 7.50 | 2.73 | 3.06 | 7.56 | 1.60 | 2.35 | 2.73 | 3.43 | 2.21 | 2.33 | 2.22 |
| 6 | 26 | 6/26/93 | 2.70 | 5.75 | 6.33 | 1.63 | 2.80 | 6.96 | 1.48 | 2.25 | 1.63 | 2.00 | 1.93 | 2.06 | 1.98 |
| 6 | 27 | 6/27/93 | 2.70 | 7.07 | 5.80 | 2.88 | 3.50 | 7.50 | 3.00 | 2.18 | 2.88 | 2.95 | 2.67 | 2.74 | 2.68 |
| 6 | 28 | 6/28/93 | 5.50 | 7.06 | 6.50 | 5.00 | 6.00 | 6.60 | 4.50 | 5.00 | 5.00 | 6.00 | 4.91 | 4.96 | 4.97 |
| 6 | 29 | 6/29/93 | 5.50 | 7.00 | 6.15 | 5.50 | 3.00 | 7.29 | 2.50 | 2.50 | 5.50 | 7.50 | 3.35 | 3.38 | 3.15 |
| 6 | 30 | 6/30/93 | 2.50 | 6.52 | 5.85 | 3.00 | 1.73 | 7.15 | 0.80 | 1.75 | 3.00 | 4.00 | 1.45 | 1.57 | 1.40 |

| Coldest Season in 20 Years (Colder of 1992-1993 Season or Normal with 1989 Three Day Peak) | | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Date | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 7 | 1 | 7/1/93 | 2.50 | 6.50 | 5.58 | 1.28 | 2.00 | 6.75 | 1.43 | 2.05 | 1.28 | 2.00 | 1.82 | 1.92 | 1.79 |
| 7 | 2 | 7/2/93 | 2.45 | 6.59 | 5.63 | 2.53 | 3.00 | 7.53 | 1.65 | 1.73 | 2.53 | 3.90 | 2.13 | 2.21 | 2.00 |
| 7 | 3 | 7/3/93 | 2.43 | 6.50 | 5.95 | 3.03 | 3.50 | 6.80 | 1.48 | 2.53 | 3.03 | 2.75 | 2.06 | 2.19 | 2.11 |
| 7 | 4 | 7/4/93 | 3.50 | 7.50 | 5.70 | 1.60 | 2.15 | 6.89 | 1.75 | 2.30 | 1.60 | 2.60 | 2.13 | 2.22 | 2.07 |
| 7 | 5 | 7/5/93 | 2.30 | 6.00 | 5.40 | 2.98 | 3.50 | 6.80 | 1.23 | 4.00 | 2.98 | 3.30 | 1.80 | 1.90 | 1.75 |
| 7 | 6 | 7/6/93 | 2.63 | 7.00 | 7.00 | 3.00 | 4.00 | 6.54 | 2.00 | 1.98 | 3.00 | 4.00 | 2.36 | 2.47 | 2.37 |
| 7 | 7 | 7/7/93 | 5.00 | 6.00 | 7.50 | 6.00 | 5.50 | 8.00 | 1.50 | 6.00 | 6.00 | 10.00 | 3.57 | 3.71 | 3.60 |
| 7 | 8 | 7/8/93 | 3.00 | 6.50 | 5.50 | 2.50 | 0.83 | 6.41 | 0.63 | 1.00 | 2.50 | 1.50 | 0.90 | 1.00 | 0.85 |
| 7 | 9 | 7/9/93 | 2.00 | 8.79 | 7.50 | 1.13 | 5.50 | 6.68 | 4.00 | 6.00 | 1.13 | 1.50 | 4.03 | 4.14 | 4.25 |
| 7 | 10 | 7/10/93 | 5.00 | 8.00 | 6.50 | 5.00 | 1.50 | 6.41 | 3.50 | 3.50 | 5.00 | 6.50 | 3.90 | 3.87 | 3.57 |
| 7 | 11 | 7/11/93 | 1.15 | 7.50 | 5.45 | 1.43 | 4.50 | 8.00 | 3.00 | 1.00 | 1.43 | 1.78 | 2.62 | 2.72 | 2.68 |
| 7 | 12 | 7/12/93 | 7.00 | 7.50 | 9.00 | 5.00 | 5.00 | 6.57 | 3.50 | 5.00 | 5.00 | 4.50 | 4.21 | 4.34 | 4.31 |
| 7 | 13 | 7/13/93 | 2.50 | 6.00 | 5.50 | 6.50 | 3.50 | 6.00 | 0.10 | 4.00 | 6.50 | 4.50 | 1.56 | 1.78 | 1.74 |
| 7 | 14 | 7/14/93 | 3.00 | 6.50 | 5.00 | 6.50 | 2.50 | 5.93 | 3.00 | 3.00 | 6.50 | 2.00 | 3.00 | 3.09 | 3.01 |
| 7 | 15 | 7/15/93 | 3.50 | 7.00 | 4.88 | 6.00 | 0.68 | 5.92 | 2.00 | 0.68 | 6.00 | 4.00 | 2.12 | 2.14 | 1.84 |
| 7 | 16 | 7/16/93 | 2.50 | 7.00 | 5.00 | 3.00 | 3.00 | 6.97 | 2.50 | 2.00 | 3.00 | 3.50 | 2.69 | 2.75 | 2.63 |
| 7 | 17 | 7/17/93 | 2.50 | 6.50 | 5.05 | 6.00 | 3.00 | 6.22 | 1.03 | 1.50 | 6.00 | 4.00 | 1.31 | 1.38 | 1.24 |
| 7 | 18 | 7/18/93 | 3.50 | 7.00 | 5.00 | 7.00 | 1.50 | 5.71 | 0.45 | 2.00 | 7.00 | 6.50 | 1.46 | 1.59 | 1.33 |
| 7 | 19 | 7/19/93 | 1.05 | 6.50 | 4.70 | 1.03 | 0.58 | 5.48 | 2.50 | 0.50 | 1.03 | 1.18 | 1.81 | 1.80 | 1.65 |
| 7 | 20 | 7/20/93 | 0.43 | 5.00 | 4.98 | 5.00 | 1.50 | 5.70 | 1.00 | 1.50 | 5.00 | 5.50 | 1.64 | 1.67 | 1.48 |
| 7 | 21 | 7/21/93 | 4.00 | 6.00 | 8.50 | 1.50 | 6.50 | 7.00 | 0.50 | 4.50 | 1.50 | 4.50 | 2.15 | 2.41 | 2.51 |
| 7 | 22 | 7/22/93 | 1.50 | 4.00 | 4.30 | 2.00 | 3.00 | 7.00 | 0.18 | 2.00 | 2.00 | 1.50 | 0.85 | 1.04 | 1.03 |
| 7 | 23 | 7/23/93 | 2.00 | 4.50 | 4.63 | 0.85 | 2.50 | 6.50 | - | 0.03 | 0.85 | 1.00 | 0.53 | 0.68 | 0.62 |
| 7 | 24 | 7/24/93 | 3.50 | 5.00 | 5.50 | 1.00 | 3.50 | 6.53 | 3.00 | 2.50 | 1.00 | 2.00 | 2.95 | 3.00 | 2.97 |
| 7 | 25 | 7/25/93 | 4.50 | 3.43 | 5.00 | 2.50 | 3.00 | 6.00 | 0.10 | 0.08 | 2.50 | 6.00 | 1.18 | 1.26 | 1.12 |
| 7 | 26 | 7/26/93 | 4.50 | 6.00 | 5.23 | 3.50 | 1.00 | 6.21 | 0.08 | 1.00 | 3.50 | 2.00 | 0.85 | 1.00 | 0.85 |
| 7 | 27 | 7/27/93 | 2.00 | 4.00 | 6.00 | 2.50 | 0.15 | 6.67 | - | 0.08 | 2.50 | 1.00 | 0.40 | 0.51 | 0.32 |
| 7 | 28 | 7/28/93 | 0.13 | 5.78 | 7.50 | 0.33 | 5.00 | 6.74 | 3.50 | 5.50 | 0.33 | 0.50 | 3.32 | 3.43 | 3.60 |
| 7 | 29 | 7/29/93 | 8.50 | 6.03 | 5.50 | 1.00 | 4.50 | 6.53 | 3.50 | 3.50 | 1.00 | 6.50 | 4.20 | 4.21 | 4.09 |
| 7 | 30 | 7/30/93 | 6.50 | 5.50 | 5.50 | 4.50 | 2.50 | 7.14 | 0.05 | 0.50 | 4.50 | 3.50 | 1.17 | 1.36 | 1.20 |
| 7 | 31 | 7/31/93 | 0.55 | 5.25 | 5.60 | 2.50 | 0.75 | 6.84 | 0.25 | 0.58 | 2.50 | 2.00 | 0.65 | 0.75 | 0.57 |
| 8 | 1 | 8/1/93 | 0.88 | 4.95 | 5.03 | 1.03 | 0.93 | 6.22 | 0.40 | 0.85 | 1.03 | 1.38 | 0.78 | 0.88 | 0.74 |
| 8 | 2 | 8/2/93 | 0.48 | 3.93 | 6.50 | 0.75 | 0.50 | 6.67 | 0.20 | 0.25 | 0.75 | 1.47 | 0.53 | 0.61 | 0.44 |
| 8 | 3 | 8/3/93 | 0.58 | 3.18 | 5.50 | 0.65 | 0.63 | 6.21 | 0.05 | 0.65 | 0.65 | 0.63 | 0.40 | 0.50 | 0.38 |
| 8 | 4 | 8/4/93 | 0.23 | 5.00 | 6.00 | 0.53 | 0.60 | 6.00 | 0.10 | 0.58 | 0.53 | 0.58 | 0.39 | 0.48 | 0.37 |
| 8 | 5 | 8/5/93 | 1.05 | 4.43 | 6.00 | 0.83 | 0.48 | 7.00 | 0.20 | 0.38 | 0.83 | 0.58 | 0.49 | 0.59 | 0.44 |
| 8 | 6 | 8/6/93 | 0.70 | 4.43 | 4.03 | 0.73 | 0.78 | 6.48 | 0.40 | 0.78 | 0.73 | 1.61 | 0.77 | 0.85 | 0.69 |
| 8 | 7 | 8/7/93 | 0.65 | 3.98 | 5.38 | 0.93 | 1.00 | 6.40 | 0.20 | 1.00 | 0.93 | 1.62 | 0.68 | 0.78 | 0.64 |
| 8 | 8 | 8/8/93 | 1.23 | 4.00 | 4.55 | 1.13 | 0.48 | 5.95 | - | 0.28 | 1.13 | 0.78 | 0.38 | 0.49 | 0.34 |
| 8 | 9 | 8/9/93 | 0.45 | 5.00 | 4.73 | 0.85 | - | 6.33 | 0.03 | - | 0.85 | 0.43 | 0.24 | 0.32 | 0.17 |
| 8 | 10 | 8/10/93 | 3.00 | 5.50 | 4.78 | 2.50 | 2.50 | 6.33 | 0.18 | 1.00 | 2.50 | 1.00 | 0.75 | 0.95 | 0.89 |
| 8 | 11 | 8/11/93 | 0.95 | 6.00 | 4.53 | 1.09 | 0.70 | 5.72 | 0.20 | 0.83 | 1.09 | 2.50 | 0.62 | 0.71 | 0.58 |
| 8 | 12 | 8/12/93 | 1.18 | 5.00 | 5.40 | 0.88 | 2.00 | 5.88 | 0.10 | 2.50 | 0.88 | 1.31 | 0.58 | 0.74 | 0.75 |
| 8 | 13 | 8/13/93 | 0.50 | 4.00 | 5.50 | 0.45 | 2.00 | 6.33 | 2.00 | 2.00 | 0.45 | 3.00 | 2.08 | 2.08 | 1.97 |
| 8 | 14 | 8/14/93 | 1.50 | 6.50 | 4.65 | 0.65 | 2.00 | 6.00 | 1.00 | 0.50 | 0.65 | 4.50 | 1.53 | 1.58 | 1.37 |
| 8 | 15 | 8/15/93 | 1.50 | 4.50 | 4.30 | 7.50 | 1.18 | 6.24 | 0.38 | 0.83 | 7.50 | 5.50 | 0.83 | 0.90 | 0.76 |
| 8 | 16 | 8/16/93 | 1.03 | 3.73 | 4.65 | 0.65 | 3.00 | 6.01 | 0.50 | 3.50 | 0.65 | 3.00 | 1.02 | 1.12 | 1.19 |
| 8 | 17 | 8/17/93 | 5.00 | 5.50 | 4.78 | 6.00 | 1.58 | 6.41 | 0.48 | 1.50 | 6.00 | 5.50 | 1.33 | 1.45 | 1.19 |
| 8 | 18 | 8/18/93 | 1.63 | 4.00 | 5.15 | 1.55 | 1.63 | 6.50 | 0.48 | 1.25 | 1.55 | 1.88 | 1.00 | 1.11 | 1.00 |
| 8 | 19 | 8/19/93 | 1.53 | 4.30 | 5.25 | 1.83 | 0.73 | 9.00 | 0.20 | 0.68 | 1.83 | 1.38 | 0.67 | 0.78 | 0.62 |
| 8 | 20 | 8/20/93 | 0.58 | 5.00 | 4.50 | 0.73 | 3.00 | 6.04 | 0.30 | 0.83 | 0.73 | 1.23 | 0.69 | 0.79 | 0.68 |
| 8 | 21 | 8/21/93 | 1.15 | 4.90 | 4.90 | 1.53 | 0.98 | 6.05 | 0.40 | 1.15 | 1.53 | 1.71 | 0.88 | 0.98 | 0.83 |
| 8 | 22 | 8/22/93 | 2.00 | 6.00 | 4.90 | 1.50 | 0.65 | 6.18 | 0.38 | 0.73 | 1.50 | 1.50 | 0.70 | 0.79 | 0.64 |
| 8 | 23 | 8/23/93 | 1.25 | 7.00 | 4.72 | 1.15 | 1.25 | 6.53 | 2.00 | 1.03 | 1.15 | 2.58 | 1.54 | 1.56 | 1.44 |
| 8 | 24 | 8/24/93 | 7.00 | 10.00 | 7.50 | 6.50 | 6.00 | 8.00 | 6.50 | 7.50 | 6.50 | 8.50 | 6.91 | 6.92 | 6.77 |
| 8 | 25 | 8/25/93 | 7.00 | 10.00 | 10.00 | 10.50 | 8.00 | 9.50 | 5.00 | 8.50 | 10.50 | 10.50 | 6.49 | 6.64 | 6.57 |
| 8 | 26 | 8/26/93 | 5.00 | 8.50 | 9.00 | 9.00 | 3.00 | 9.50 | 0.05 | 2.00 | 9.00 | 9.50 | 2.05 | 2.24 | 1.88 |
| 8 | 27 | 8/27/93 | 1.50 | 8.50 | 7.50 | 4.00 | 2.00 | 8.00 | 0.45 | 2.00 | 4.00 | 1.32 | 0.81 | 1.07 | 0.95 |
| 8 | 28 | 8/28/93 | 1.00 | 8.00 | 6.50 | 1.38 | 2.50 | 6.00 | 1.50 | 3.50 | 1.38 | 1.66 | 1.95 | 2.08 | 2.01 |
| 8 | 29 | 8/29/93 | 1.50 | 5.50 | 4.98 | 8.50 | 1.20 | 6.05 | 0.48 | 0.98 | 8.50 | 8.00 | 1.15 | 1.19 | 0.82 |
| 8 | 30 | 8/30/93 | 1.83 | 3.90 | 4.35 | 3.00 | 1.23 | 5.81 | 0.63 | 1.23 | 3.00 | 1.89 | 1.07 | 1.16 | 1.03 |
| 8 | 31 | 8/31/93 | 1.48 | 5.50 | 7.00 | 2.03 | 1.20 | 12.00 | 0.53 | 1.43 | 2.03 | 1.45 | 1.00 | 1.11 | 0.99 |
| 9 | 1 | 9/1/93 | 1.43 | 9.00 | 5.10 | 2.18 | 1.50 | 8.50 | 0.70 | 1.50 | 2.18 | 2.13 | 1.20 | 1.31 | 1.18 |
| 9 | 2 | 9/2/93 | 1.48 | 7.00 | 5.85 | 2.30 | 1.68 | 7.02 | 0.83 | 1.83 | 2.30 | 2.50 | 1.38 | 1.49 | 1.35 |
| 9 | 3 | 9/3/93 | 2.00 | 7.00 | 5.50 | 2.55 | 1.75 | 8.50 | 0.78 | 1.85 | 2.55 | 2.43 | 1.40 | 1.52 | 1.38 |
| 9 | 4 | 9/4/93 | 2.30 | 5.43 | 5.65 | 2.30 | 1.75 | 7.04 | 1.05 | 1.70 | 2.30 | 2.24 | 1.54 | 1.65 | 1.51 |
| 9 | 5 | 9/5/93 | 2.38 | 5.65 | 5.65 | 2.00 | 2.68 | 7.24 | 1.53 | 2.25 | 2.00 | 2.89 | 2.03 | 2.13 | 2.02 |
| 9 | 6 | 9/6/93 | 3.13 | 5.98 | 5.43 | 3.03 | 2.90 | 8.06 | 1.40 | 2.50 | 3.03 | 3.47 | 2.13 | 2.26 | 2.13 |
| 9 | 7 | 9/7/93 | 2.23 | 6.18 | 5.95 | 2.93 | 2.70 | 7.40 | 0.90 | 1.63 | 2.93 | 3.15 | 1.60 | 1.75 | 1.61 |
| 9 | 8 | 9/8/93 | 2.13 | 5.45 | 5.98 | 3.05 | 2.35 | 7.70 | 1.25 | 2.13 | 3.05 | 3.30 | 1.86 | 1.98 | 1.83 |
| 9 | 9 | 9/9/93 | 2.33 | 5.45 | 6.55 | 3.15 | 2.33 | 10.00 | 1.23 | 2.40 | 3.15 | 3.66 | 1.93 | 2.04 | 1.89 |
| 9 | 10 | 9/10/93 | 2.83 | 14.00 | 9.00 | 3.70 | 2.43 | 11.00 | 1.33 | 2.40 | 3.70 | 4.00 | 2.10 | 2.22 | 2.04 |
| 9 | 11 | 9/11/93 | 2.05 | 8.00 | 5.38 | 3.23 | 3.50 | 8.00 | 5.50 | 6.00 | 3.23 | 2.81 | 4.60 | 4.61 | 4.62 |
| 9 | 12 | 9/12/93 | 6.50 | 10.00 | 9.50 | 8.50 | 5.00 | 6.95 | 1.25 | 3.00 | 8.50 | 6.00 | 2.62 | 2.89 | 2.77 |
| 9 | 13 | 9/13/93 | 3.00 | 7.50 | 6.83 | 7.00 | 4.00 | 7.03 | 1.58 | 2.23 | 7.00 | 9.00 | 2.18 | 2.29 | 2.14 |
| 9 | 14 | 9/14/93 | 3.50 | 9.50 | 9.00 | 4.50 | 2.75 | 8.22 | 2.25 | 5.00 | 4.50 | 3.43 | 2.72 | 2.84 | 2.68 |
| 9 | 15 | 9/15/93 | 2.93 | 9.00 | 6.50 | 6.00 | 6.00 | 7.54 | 3.35 | 6.00 | 6.00 | 3.68 | 3.64 | 3.73 | 3.64 |
| 9 | 16 | 9/16/93 | 6.00 | 7.50 | 10.00 | 8.00 | 4.00 | 11.50 | 3.50 | 4.63 | 8.00 | 10.00 | 4.12 | 4.18 | 4.03 |
| 9 | 17 | 9/17/93 | 5.50 | 10.50 | 6.50 | 7.50 | 4.73 | 10.00 | 2.70 | 4.28 | 7.50 | 5.73 | 3.60 | 3.73 | 3.65 |
| 9 | 18 | 9/18/93 | 7.50 | 11.50 | 11.00 | 6.30 | 8.00 | 13.00 | 6.50 | 8.50 | 6.30 | 6.22 | 6.92 | 7.09 | 7.08 |
| 9 | 19 | 9/19/93 | 7.50 | 13.00 | 11.50 | 6.50 | 12.50 | 9.50 | 8.00 | 11.50 | 6.50 | 7.50 | 8.71 | 8.92 | 9.15 |
| 9 | 20 | 9/20/93 | 13.50 | 13.50 | 12.00 | 15.50 | 13.50 | 12.00 | 9.00 | 12.00 | 15.50 | 13.00 | 10.49 | 10.71 | 10.78 |
| 9 | 21 | 9/21/93 | 12.00 | 13.00 | 14.00 | 17.00 | 12.50 | 15.00 | 7.00 | 11.50 | 17.00 | 18.00 | 9.60 | 9.82 | 9.67 |
| 9 | 22 | 9/22/93 | 10.50 | 11.00 | 11.50 | 14.00 | 9.50 | 12.00 | 5.00 | 8.50 | 14.00 | 11.50 | 6.97 | 7.23 | 7.14 |
| 9 | 23 | 9/23/93 | 8.50 | 11.00 | 12.50 | 12.50 | 9.00 | 12.00 | 3.50 | 7.00 | 12.50 | 10.50 | 5.59 | 5.90 | 5.81 |
| 9 | 24 | 9/24/93 | 8.00 | 12.50 | 14.50 | 7.50 | 6.00 | 15.00 | 6.50 | 6.50 | 7.50 | 9.00 | 7.05 | 7.14 | 6.81 |
| 9 | 25 | 9/25/93 | 3.38 | 7.50 | 10.00 | 6.50 | 5.00 | 10.50 | 2.93 | 4.10 | 6.50 | 8.00 | 3.50 | 3.61 | 3.51 |
| 9 | 26 | 9/26/93 | 4.50 | 7.18 | 6.78 | 5.50 | 4.44 | 8.66 | 2.83 | 3.95 | 5.50 | 5.50 | 3.59 | 3.71 | 3.60 |
| 9 | 27 | 9/27/93 | 4.40 | 11.00 | 12.00 | 6.00 | 4.28 | 14.50 | 2.80 | 3.90 | 6.00 | 5.51 | 3.59 | 3.72 | 3.58 |
| 9 | 28 | 9/28/93 | 4.43 | 10.50 | 11.50 | 5.98 | 3.56 | 12.50 | 1.88 | 3.20 | 5.98 | 5.50 | 2.89 | 3.04 | 2.86 |
| 9 | 29 | 9/29/93 | 2.73 | 6.73 | 11.00 | 4.75 | 3.83 | 11.00 | 1.93 | 3.38 | 4.75 | 3.57 | 2.64 | 2.80 | 2.72 |
| 9 | 30 | 9/30/93 | 3.30 | 11.50 | 13.50 | 4.73 | 4.22 | 14.00 | 2.55 | 3.70 | 4.73 | 4.41 | 3.20 | 3.33 | 3.24 |

| Coldest Season in 20 Years (Colder of 1992-1993 Season or Normal with 1989 Three Day Peak) | | | | | | | | | | | | | System Weighted Average | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Day | Date | Albany | Astoria | Coos Bay | Dalles (OR) | Eugene | Lincoln City | Portland | Salem | Dalles (WA) | Vancouver | Residential | Commercial | Industrial |
| 10 | 1 | 10/1/93 | 4.55 | 12.00 | 14.00 | 5.60 | 6.80 | 16.50 | 4.40 | 5.73 | 5.60 | 5.85 | 5.04 | 5.20 | 5.15 |
| 10 | 2 | 10/2/93 | 6.85 | 10.38 | 15.50 | 7.23 | 7.70 | 18.00 | 5.83 | 7.60 | 7.23 | 7.08 | 6.51 | 6.66 | 6.61 |
| 10 | 3 | 10/3/93 | 7.23 | 12.50 | 14.00 | 9.68 | 7.88 | 12.50 | 5.55 | 7.28 | 9.68 | 7.90 | 6.42 | 6.58 | 6.53 |
| 10 | 4 | 10/4/93 | 7.78 | 9.50 | 12.00 | 9.23 | 8.28 | 13.50 | 5.18 | 7.43 | 9.23 | 8.75 | 6.32 | 6.49 | 6.46 |
| 10 | 5 | 10/5/93 | 7.65 | 9.85 | 11.50 | 9.53 | 7.65 | 13.50 | 7.00 | 8.00 | 9.53 | 9.33 | 6.70 | 6.81 | 6.72 |
| 10 | 6 | 10/6/93 | 7.50 | 11.00 | 9.00 | 9.80 | 9.50 | 12.00 | 9.00 | 9.50 | 9.80 | 8.30 | 8.81 | 8.83 | 8.85 |
| 10 | 7 | 10/7/93 | 11.50 | 11.00 | 9.50 | 9.73 | 10.00 | 10.50 | 8.50 | 10.00 | 9.73 | 12.50 | 9.43 | 9.45 | 9.37 |
| 10 | 8 | 10/8/93 | 14.00 | 9.98 | 8.60 | 13.50 | 11.00 | 9.29 | 7.28 | 9.08 | 13.50 | 12.50 | 8.47 | 8.60 | 8.64 |
| 10 | 9 | 10/9/93 | 9.30 | 9.38 | 11.00 | 10.03 | 8.48 | 9.65 | 7.08 | 8.65 | 10.03 | 9.98 | 7.88 | 7.96 | 7.90 |
| 10 | 10 | 10/10/93 | 8.55 | 12.00 | 9.43 | 13.00 | 10.53 | 11.24 | 8.20 | 10.00 | 13.00 | 11.00 | 8.89 | 9.01 | 9.04 |
| 10 | 11 | 10/11/93 | 11.00 | 11.35 | 10.13 | 13.50 | 10.92 | 10.63 | 8.98 | 10.75 | 13.50 | 13.50 | 9.80 | 9.89 | 9.89 |
| 10 | 12 | 10/12/93 | 10.80 | 11.03 | 9.38 | 12.73 | 9.57 | 11.63 | 8.10 | 9.28 | 12.73 | 10.60 | 8.89 | 9.00 | 8.93 |
| 10 | 13 | 10/13/93 | 9.68 | 11.18 | 9.38 | 11.75 | 10.65 | 10.90 | 8.35 | 9.85 | 11.75 | 10.38 | 9.07 | 9.19 | 9.21 |
| 10 | 14 | 10/14/93 | 10.65 | 11.30 | 9.50 | 11.28 | 11.55 | 11.45 | 9.55 | 11.20 | 11.28 | 12.00 | 10.26 | 10.33 | 10.34 |
| 10 | 15 | 10/15/93 | 11.30 | 11.28 | 10.83 | 13.73 | 12.15 | 11.28 | 9.35 | 11.28 | 13.73 | 12.85 | 10.32 | 10.43 | 10.46 |
| 10 | 16 | 10/16/93 | 11.38 | 13.00 | 11.05 | 13.95 | 11.43 | 11.48 | 9.20 | 11.15 | 13.95 | 11.70 | 10.09 | 10.23 | 10.23 |
| 10 | 17 | 10/17/93 | 12.50 | 16.50 | 13.50 | 18.00 | 14.50 | 15.00 | 11.50 | 13.50 | 18.00 | 12.25 | 12.18 | 12.43 | 12.50 |
| 10 | 18 | 10/18/93 | 16.00 | 15.00 | 13.00 | 16.00 | 17.50 | 16.00 | 12.50 | 14.50 | 16.00 | 15.00 | 13.61 | 13.82 | 13.97 |
| 10 | 19 | 10/19/93 | 13.00 | 11.50 | 10.50 | 15.50 | 13.50 | 10.60 | 9.00 | 10.00 | 15.50 | 12.85 | 9.94 | 10.16 | 10.30 |
| 10 | 20 | 10/20/93 | 12.00 | 11.50 | 12.00 | 14.50 | 15.00 | 10.73 | 9.18 | 12.50 | 14.50 | 16.00 | 10.73 | 10.87 | 11.05 |
| 10 | 21 | 10/21/93 | 12.00 | 11.90 | 11.55 | 15.50 | 13.18 | 11.15 | 10.64 | 12.70 | 15.50 | 12.45 | 11.33 | 11.44 | 11.54 |
| 10 | 22 | 10/22/93 | 13.38 | 13.45 | 11.53 | 15.63 | 13.05 | 12.70 | 10.88 | 13.08 | 15.63 | 13.58 | 11.81 | 11.93 | 11.95 |
| 10 | 23 | 10/23/93 | 13.78 | 13.23 | 11.95 | 16.10 | 13.90 | 12.50 | 11.78 | 14.35 | 16.10 | 13.88 | 12.63 | 12.74 | 12.80 |
| 10 | 24 | 10/24/93 | 14.23 | 14.45 | 11.50 | 16.90 | 13.84 | 13.39 | 13.00 | 14.50 | 16.90 | 14.48 | 13.01 | 13.11 | 13.11 |
| 10 | 25 | 10/25/93 | 13.90 | 13.90 | 10.95 | 17.50 | 15.00 | 11.85 | 12.50 | 13.88 | 17.50 | 14.65 | 12.93 | 13.02 | 13.15 |
| 10 | 26 | 10/26/93 | 14.50 | 14.43 | 11.28 | 18.00 | 15.38 | 13.16 | 13.20 | 14.58 | 18.00 | 16.50 | 13.77 | 13.87 | 13.95 |
| 10 | 27 | 10/27/93 | 14.98 | 15.85 | 12.45 | 17.98 | 16.38 | 13.59 | 14.08 | 15.90 | 17.98 | 16.40 | 14.78 | 14.87 | 14.95 |
| 10 | 28 | 10/28/93 | 15.73 | 16.78 | 12.73 | 18.33 | 15.80 | 14.97 | 14.78 | 15.63 | 18.33 | 16.78 | 15.27 | 15.32 | 15.30 |
| 10 | 29 | 10/29/93 | 16.03 | 16.90 | 12.93 | 18.80 | 16.93 | 14.42 | 15.28 | 17.00 | 18.80 | 17.13 | 15.86 | 15.93 | 15.99 |
| 10 | 30 | 10/30/93 | 17.08 | 16.15 | 13.33 | 21.05 | 17.20 | 14.45 | 15.23 | 16.85 | 21.05 | 17.85 | 15.97 | 16.06 | 16.12 |
| 10 | 31 | 10/31/93 | 17.10 | 17.00 | 12.45 | 21.00 | 17.88 | 15.10 | 16.40 | 17.50 | 21.00 | 17.63 | 16.81 | 16.87 | 16.96 |
| 11 | 1 | 11/1/92 | 17.05 | 17.38 | 13.80 | 21.88 | 19.28 | 14.70 | 16.95 | 18.13 | 21.88 | 18.83 | 17.44 | 17.51 | 17.64 |
| 11 | 2 | 11/2/92 | 18.45 | 18.05 | 13.25 | 22.53 | 18.68 | 15.48 | 17.23 | 18.50 | 22.53 | 19.55 | 17.81 | 17.86 | 17.92 |
| 11 | 3 | 11/3/92 | 18.70 | 16.53 | 13.55 | 22.18 | 19.00 | 15.33 | 16.43 | 17.18 | 22.18 | 19.43 | 17.04 | 17.07 | 17.05 |
| 11 | 4 | 11/4/92 | 16.58 | 18.00 | 13.08 | 20.53 | 16.83 | 15.18 | 16.00 | 16.45 | 20.53 | 17.90 | 16.07 | 16.13 | 16.15 |
| 11 | 5 | 11/5/92 | 17.35 | 20.00 | 13.20 | 21.03 | 16.18 | 14.98 | 18.00 | 16.63 | 21.03 | 18.05 | 17.38 | 17.27 | 17.10 |
| 11 | 6 | 11/6/92 | 16.73 | 15.35 | 13.33 | 20.25 | 17.07 | 14.65 | 16.18 | 16.73 | 20.25 | 20.50 | 16.46 | 16.48 | 16.54 |
| 11 | 7 | 11/7/92 | 16.88 | 15.23 | 12.65 | 20.40 | 17.96 | 13.73 | 16.58 | 17.53 | 20.40 | 17.85 | 16.89 | 16.91 | 17.03 |
| 11 | 8 | 11/8/92 | 17.50 | 17.50 | 13.95 | 20.93 | 18.47 | 14.50 | 17.00 | 18.28 | 20.93 | 17.75 | 17.22 | 17.27 | 17.42 |
| 11 | 9 | 11/9/92 | 19.00 | 22.50 | 16.50 | 21.00 | 21.00 | 17.50 | 19.00 | 20.00 | 21.00 | 18.50 | 19.24 | 19.36 | 19.48 |
| 11 | 10 | 11/10/92 | 22.50 | 22.50 | 19.00 | 27.00 | 26.50 | 19.00 | 22.00 | 27.50 | 27.00 | 22.50 | 23.04 | 23.23 | 23.61 |
| 11 | 11 | 11/11/92 | 26.50 | 19.50 | 19.00 | 25.00 | 24.00 | 20.00 | 21.50 | 20.00 | 25.00 | 24.00 | 21.97 | 22.01 | 22.08 |
| 11 | 12 | 11/12/92 | 21.00 | 18.00 | 12.85 | 26.00 | 15.58 | 13.70 | 15.65 | 16.10 | 26.00 | 21.50 | 15.95 | 15.97 | 15.96 |
| 11 | 13 | 11/13/92 | 17.00 | 16.50 | 16.50 | 19.83 | 17.00 | 14.12 | 15.13 | 17.50 | 19.83 | 17.15 | 15.76 | 15.83 | 15.91 |
| 11 | 14 | 11/14/92 | 18.00 | 19.00 | 16.00 | 20.68 | 18.50 | 17.00 | 18.50 | 19.00 | 20.68 | 20.00 | 18.67 | 18.63 | 18.62 |
| 11 | 15 | 11/15/92 | 20.50 | 16.50 | 17.00 | 20.53 | 18.50 | 16.50 | 19.00 | 19.50 | 20.53 | 19.50 | 19.09 | 19.03 | 19.06 |
| 11 | 16 | 11/16/92 | 19.00 | 17.88 | 15.15 | 21.63 | 19.48 | 16.38 | 18.10 | 19.35 | 21.63 | 19.33 | 18.50 | 18.55 | 18.64 |
| 11 | 17 | 11/17/92 | 19.30 | 18.40 | 15.13 | 23.10 | 19.51 | 15.79 | 17.90 | 18.65 | 23.10 | 19.95 | 18.40 | 18.46 | 18.52 |
| 11 | 18 | 11/18/92 | 20.38 | 18.68 | 14.85 | 22.68 | 22.23 | 16.50 | 19.35 | 21.40 | 22.68 | 21.03 | 19.97 | 20.04 | 20.25 |
| 11 | 19 | 11/19/92 | 21.55 | 19.50 | 17.50 | 23.15 | 23.00 | 20.00 | 20.00 | 20.50 | 23.15 | 20.60 | 19.84 | 19.95 | 20.23 |
| 11 | 20 | 11/20/92 | 21.25 | 19.50 | 20.00 | 24.10 | 21.50 | 16.50 | 19.50 | 19.50 | 24.10 | 22.00 | 19.93 | 19.94 | 20.02 |
| 11 | 21 | 11/21/92 | 20.13 | 19.25 | 16.25 | 24.00 | 21.29 | 20.50 | 19.95 | 21.23 | 24.00 | 20.48 | 20.21 | 20.24 | 20.39 |
| 11 | 22 | 11/22/92 | 21.40 | 21.00 | 17.30 | 25.00 | 21.95 | 17.70 | 21.00 | 21.85 | 25.00 | 21.78 | 21.12 | 21.14 | 21.26 |
| 11 | 23 | 11/23/92 | 23.00 | 26.50 | 18.00 | 24.70 | 25.50 | 21.00 | 22.50 | 27.00 | 24.70 | 23.00 | 23.38 | 23.53 | 23.74 |
| 11 | 24 | 11/24/92 | 27.00 | 22.00 | 21.00 | 25.50 | 32.50 | 20.50 | 22.50 | 28.50 | 25.50 | 26.00 | 24.42 | 24.71 | 25.30 |
| 11 | 25 | 11/25/92 | 27.00 | 19.73 | 16.08 | 28.00 | 25.00 | 17.95 | 22.50 | 23.50 | 28.00 | 27.00 | 23.39 | 23.38 | 23.52 |
| 11 | 26 | 11/26/92 | 23.50 | 20.55 | 17.08 | 30.00 | 28.00 | 18.46 | 22.50 | 24.00 | 30.00 | 26.50 | 23.29 | 23.32 | 23.77 |
| 11 | 27 | 11/27/92 | 23.20 | 20.45 | 17.28 | 31.50 | 22.31 | 18.08 | 23.50 | 22.30 | 31.50 | 26.50 | 22.58 | 22.29 | 22.33 |
| 11 | 28 | 11/28/92 | 22.78 | 24.50 | 19.00 | 27.00 | 26.00 | 19.00 | 24.00 | 25.50 | 27.00 | 23.48 | 23.99 | 24.07 | 24.34 |
| 11 | 29 | 11/29/92 | 24.50 | 25.50 | 22.00 | 26.38 | 27.50 | 23.00 | 27.00 | 30.00 | 26.38 | 25.50 | 27.02 | 27.00 | 27.23 |
| 11 | 30 | 11/30/92 | 25.50 | 22.00 | 16.48 | 31.00 | 21.50 | 17.50 | 23.50 | 21.08 | 31.00 | 29.50 | 23.67 | 23.49 | 23.27 |
| 12 | 1 | 12/1/92 | 21.50 | 26.00 | 16.70 | 26.50 | 23.50 | 20.00 | 26.00 | 24.50 | 26.50 | 26.00 | 25.31 | 25.15 | 25.11 |
| 12 | 2 | 12/2/92 | 26.00 | 24.50 | 20.00 | 31.50 | 27.50 | 20.00 | 26.00 | 25.50 | 31.50 | 26.00 | 25.95 | 25.98 | 26.18 |
| 12 | 3 | 12/3/92 | 26.00 | 27.50 | 22.50 | 37.50 | 30.50 | 27.00 | 27.50 | 27.00 | 37.50 | 30.50 | 27.89 | 28.00 | 28.10 |
| 12 | 4 | 12/4/92 | 27.00 | 25.00 | 20.00 | 39.00 | 33.00 | 21.00 | 28.50 | 29.00 | 39.00 | 30.50 | 28.84 | 28.94 | 29.33 |
| 12 | 5 | 12/5/92 | 32.50 | 28.50 | 24.00 | 41.50 | 36.50 | 26.50 | 31.50 | 37.00 | 41.50 | 34.00 | 32.76 | 32.91 | 33.35 |
| 12 | 6 | 12/6/92 | 35.00 | 25.00 | 17.03 | 41.50 | 30.00 | 21.00 | 31.50 | 30.50 | 41.50 | 36.00 | 31.77 | 31.60 | 31.62 |
| 12 | 7 | 12/7/92 | 31.50 | 25.50 | 19.50 | 39.00 | 26.00 | 22.50 | 31.50 | 30.50 | 39.00 | 31.00 | 30.85 | 30.64 | 30.56 |
| 12 | 8 | 12/8/92 | 28.50 | 20.55 | 16.93 | 36.00 | 22.90 | 18.76 | 24.50 | 23.50 | 36.00 | 29.00 | 24.53 | 24.35 | 24.14 |
| 12 | 9 | 12/9/92 | 24.08 | 22.00 | 16.00 | 33.00 | 23.50 | 21.00 | 23.00 | 22.50 | 33.00 | 24.00 | 23.10 | 23.16 | 23.21 |
| 12 | 10 | 12/10/92 | 22.50 | 23.50 | 16.78 | 29.50 | 21.40 | 20.00 | 23.00 | 24.00 | 29.50 | 23.00 | 22.96 | 22.91 | 22.81 |
| 12 | 11 | 12/11/92 | 25.50 | 24.00 | 20.00 | 30.00 | 24.00 | 22.00 | 25.00 | 27.00 | 30.00 | 25.00 | 25.22 | 25.22 | 25.26 |
| 12 | 12 | 12/12/92 | 24.00 | 26.00 | 19.50 | 32.50 | 22.15 | 20.00 | 23.00 | 22.50 | 32.50 | 24.00 | 23.11 | 23.15 | 23.04 |
| 12 | 13 | 12/13/92 | 23.50 | 22.00 | 17.93 | 27.50 | 23.76 | 18.32 | 22.95 | 24.00 | 27.50 | 25.50 | 23.04 | 23.03 | 23.20 |
| 12 | 14 | 12/14/92 | 24.50 | 21.25 | 19.50 | 27.50 | 23.59 | 19.06 | 23.00 | 23.66 | 27.50 | 24.13 | 23.27 | 23.28 | 23.37 |
| 12 | 15 | 12/15/92 | 25.50 | 24.50 | 22.50 | 27.85 | 25.13 | 22.50 | 27.00 | 25.50 | 27.85 | 26.50 | 26.39 | 26.20 | 26.19 |
| 12 | 16 | 12/16/92 | 26.00 | 26.50 | 23.00 | 32.00 | 29.00 | 24.50 | 30.00 | 29.00 | 32.00 | 29.00 | 29.35 | 29.25 | 29.37 |
| 12 | 17 | 12/17/92 | 28.50 | 27.00 | 23.50 | 35.00 | 29.50 | 23.00 | 27.00 | 31.00 | 35.00 | 29.00 | 27.96 | 28.07 | 28.29 |
| 12 | 18 | 12/18/92 | 32.50 | 31.50 | 23.50 | 34.00 | 30.00 | 27.00 | 31.00 | 32.00 | 34.00 | 33.00 | 31.34 | 31.28 | 31.24 |
| 12 | 19 | 12/19/92 | 32.00 | 23.31 | 21.50 | 31.50 | 26.65 | 23.50 | 25.88 | 27.30 | 31.50 | 31.00 | 26.38 | 26.36 | 26.47 |
| 12 | 20 | 12/20/92 | 27.50 | 23.28 | 20.13 | 31.08 | 25.98 | 20.78 | 26.30 | 26.53 | 31.08 | 27.20 | 26.38 | 26.34 | 26.42 |
| 12 | 21 | 12/21/92 | 27.05 | 24.00 | 20.55 | 31.53 | 26.50 | 21.49 | 26.30 | 26.23 | 31.53 | 28.15 | 26.47 | 26.43 | 26.50 |
| 12 | 22 | 12/22/92 | 26.60 | 23.65 | 20.53 | 31.43 | 26.83 | 20.48 | 25.93 | 26.53 | 31.43 | 28.20 | 26.25 | 26.23 | 26.34 |
| 12 | 23 | 12/23/92 | 27.03 | 22.88 | 21.50 | 31.50 | 27.48 | 20.00 | 26.10 | 26.95 | 31.50 | 28.05 | 26.44 | 26.42 | 26.60 |
| 12 | 24 | 12/24/92 | 26.73 | 23.50 | 19.50 | 31.10 | 26.15 | 21.00 | 25.55 | 26.35 | 31.10 | 27.08 | 25.83 | 25.81 | 25.94 |
| 12 | 25 | 12/25/92 | 26.58 | 27.50 | 24.00 | 31.63 | 26.50 | 26.00 | 27.50 | 27.50 | 31.63 | 26.90 | 26.82 | 26.81 | 26.89 |
| 12 | 26 | 12/26/92 | 27.00 | 23.50 | 20.50 | 31.10 | 25.27 | 19.00 | 25.60 | 25.10 | 31.10 | 26.83 | 25.57 | 25.51 | 25.59 |
| 12 | 27 | 12/27/92 | 25.15 | 27.00 | 20.00 | 30.45 | 24.15 | 22.50 | 25.00 | 23.10 | 30.45 | 25.83 | 24.03 | 24.01 | 23.93 |
| 12 | 28 | 12/28/92 | 24.43 | 24.50 | 23.50 | 30.50 | 25.25 | 23.50 | 25.40 | 25.80 | 30.50 | 25.98 | 25.34 | 25.29 | 25.41 |
| 12 | 29 | 12/29/92 | 25.88 | 26.50 | 27.00 | 31.00 | 27.50 | 26.50 | 27.00 | 29.00 | 31.00 | 27.60 | 26.70 | 26.82 | 27.03 |
| 12 | 30 | 12/30/92 | 29.00 | 28.00 | 26.00 | 37.00 | 28.50 | 27.00 | 31.50 | 29.00 | 37.00 | 29.50 | 30.59 | 30.50 | 30.48 |
| 12 | 31 | 12/31/92 | 30.00 | 31.00 | 23.00 | 39.50 | 27.50 | 27.50 | 33.50 | 32.00 | 39.50 | 30.00 | 32.34 | 32.19 | 32.08 |
| Total | | | 5,489 | 5,766 | 4,974 | 6,407 | 5,470 | 5,420 | 4,984 | 5,333 | 6,407 | 5,657 | 5,143 | 5,168 | 5,169 |

# Appendix 2-23: Comparison of Weather Scenarios – Portland



# Appendix 2-24: Hybrid Heat Customers

NW Natural is monitoring the spread of hybrid heat systems, a heat pump sold with natural gas back up, because of their recent gain in market-share. Conversion and existing residential customers are the likeliest candidates, but the existence of new construction opportunities also concern the Company. Although it is difficult to measure Air Source Heat Pump sales in NW Natural's market, at the national level the Air Conditioning and Refrigeration Institute (ARI) observed an increase of over 21.5 percent between 2004 and 2006. Due to the relatively mild winter climate in the Pacific Northwest it makes intuitive sense that this is one of the most favorable markets for heat pumps. The ETO's processing of approximately twice as many heat pump rebates in 2006 (based on the first six months) which may be evident with the ETO as it did in 2005, supports this theory.

In the Pacific Northwest, utilities see a push rather than a pull trend when it comes to this market shift. A number of contributing factors influence the promotion of heat pumps by HVAC dealers. First, the higher installed cost of a heat pump yields greater margins for dealers. Second, incentives provided from manufacturers, distributors, the ETO, and government agencies allow dealers to lower the cost of hybrid systems. Third, the increased price of natural gas and the continued uncertainty surrounding the future direction of energy prices is a key selling point. Fourth, there is a greening of the market that is increasing consumer inquiries about alternative energy solutions and technologies – anything that even has the *appearance* of being renewable or environmentally friendly is catching the attention of consumer.

Should this trend be of any concern to NW Natural with decoupling in place? The short answer to this question is, yes. In the context of an IRP this is a development that goes far beyond conservation efforts and maintaining profitability. The Company is relatively indifferent to the estimated 70% decrease in overall use per customer for those residential customers that elect to utilize a hybrid system. However, over time, the potential reduction in NW Natural's overall load factor (i.e., more winter peaking) by hybrid systems would increase capacity costs on a per unit basis. Under this scenario, current rate design would spread these capacity costs over less therms, and in time would be more costly to traditional core customers that retain traditional gas-fired furnace heat (normal, anticipated load factor) – essentially subsidizing hybrid heat customers (extremely low load factor) by spreading the added peaking costs across all delivered therms irrespective of the load shape of core customers.

While the IRP is not the appropriate setting for a rate design discussion, it is worth noting that straight-fixed variable pricing provides the optimal solution to both accommodate the fixed-costs associated with hybrid heat customers as well as avoid their subsidization by core customers.

NW Natural chose to include this analysis in the current IRP because the Company is seeing the initial effects in the market, effects that are unlikely to wane over time.

Based on data provided from the ETO coupled with recent national trends the expectation is that conversions to a hybrid heat system will peak at approximately 15% for those with systems needing replacement. Over time, NW Natural anticipates this trend will sustain itself indefinitely at a level of approximately 12 percent. Although this translates into less than 50,000 existing customers, the costs associated with maintaining the peak capacity for these customers would be spread over the remaining core customers under NW Natural's current rate structure. Estimates for the new construction sector are even hazier, but at this time NW Natural estimates that 5% of new construction customers will utilize a hybrid heating system, leading to another

14,000 customers moving away from a dedicated furnace-based heating system. The combined effect results in an average annual loss in load of 2.40%, with peak load remaining unchanged. The Company found that peak load remained the same because daily temperature profiles for the coldest days over the last few years reflected temperatures, and their subsequent HDDs, that persist over the entire 24-hour period at or below the hybrid heat system's balance point temperature (level the furnace shuts off, and the furnace turns on) of 35°F.

Predicting the impact of hybrid heat pumps on the new construction market is a very complicated process. In order to gather the necessary data to forecast their usage the Company utilizes several sources. Included among those sources are regional distributors of major equipment manufacturers, local HVAC dealers, HVAC permit data, and general conversations with builders, and other stakeholders in the new construction market.

The distributors themselves find it hard to track the use of gas furnaces as backups to heat pumps. One source stated that gas furnace sales have not changed significantly from last year although their heat pump sales increased 20-25%. This indicates to some equipment manufacturers that most heat pumps are being installed on existing homes. These manufacturers would agree that the use of hybrid heat pumps captured a small, 3-5%, segment of the heating market and most of that in the add-on market, with only 1% attributable to the new construction market.

Dealers confirmed that in both new and existing construction, consumers ask more and more about hybrid heat. One dealer sees the actual installation of hybrid heat, predominantly in existing construction, equaling 5 percent. They admit that gas heating is the primary heating source in the vast majority of new homes. Cooling is often added later as an owner upgrade option, sometimes during the sale transaction and sometimes 1 or 2 years later. In these cases, heat pumps are very attractive to the consumer and to the dealer. Although the original installation went in as gas primary heat, gas becomes a backup heat in these types of cases.

NW Natural sees the increased interest in hybrid heat systems. Actual market penetration has been limited, but distributors and dealers alike, confirmed the numbers are increasing. The uncertainty surrounding potential market penetration creates a newfound risk for NW Natural that did not exist in prior resource plans. As mentioned above, the low load factor characteristic that these customers exhibit, in time, will distort the Company's avoided cost figures and makes it potentially difficult to predict the overall level of usage expected on the system as well as at the resource center level.

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## Incremental Supply-Side Resources Modeled in *SENDOUT®*

| Incremental Resources | Assumed Size (Dth) | Assumed Cost/Rates[1] | Assumed Availability |
|---|---|---|---|
| **Interstate Pipeline Segments** | | | |
| NWPL Zones 12-9 (Grants Pass Lat.) | 74,200/d | Existing NWPL fixed rate X 1.5 | November 2011 |
| NWPL Zones 26-12 ("mainline") | 2,031,000/d | Existing NWPL fixed rate X 1.5 | November 2011 |
| Upstream of NWPL z26-12: | | | |
| Rockies-Stanfield | 1,062,000/d | Existing NWPL fixed rate X 2.0 + monthly basis differential adder (Rockies – avg. of Aeco & Malin) | November 2011 |
| Alberta-Stanfield | 969,000/d | Existing rates on TCPL-Alberta, TCPL-BC, and GTN | November 2011 |
| Palomar East | 200,000/d | Precedent Agreement rate ceiling | November 2011 |
| Palomar West | 100,000/d | Precedent Agreement rate floor | November 2011 |
| Pacific Connector | 100,000/d | Assumed cost = $0.50/Dth | November 2011 |
| GP recall (recall of existing NWPL capacity) | 3,500/d each from Rockies & Sumas | Existing NWPL fixed rate | November 2008 |
| March Point NWPL capacity | 12,000/d Rockies to Portland | Existing NWPL fixed rate | November 2017 |
| | | | |
| **Mist Storage Recall** (incremental to existing Mist for core): | | | |
| 1,710,000 capacity | 75,630/d delivery | Daily rate based on capacity cost = $0.004/Dth | 2008 |
| 600,000 capacity; (cumulative = 2,310,000) | 26,537/d delivery (cum. = 102,167) | " | 2010 |
| 1,560,000 capacity; (cumulative = 3,870,000) | 68,996/d delivery (cum. = 171,163) | " | 2011 |
| 320,000 capacity; (cumulative = 4,190,000) | 14,153/d delivery (cum. = 185,316) | " | 2012 |
| 1,089,000 capacity; (cumulative = 5,279,000) | 48,165/d delivery (cum. = 233,481) | " | 2015 |
| 1,260,000 capacity; (cumulative = 6,539,000) | 55,727/d delivery (cum. = 289,208) | " | 2017 |
| | | | |
| **Imported LNG Projects**: | | | |
| Bradwood Landing LNG | 50,000/d in 2011, increasing by 5,000/d each year until 2015, then increasing by 10,000/d | Netback commodity price = 50/50 Rockies/Malin spot less transport:<br>• Rockies = NWPL (Opal-Stanfield) + GTN (Stanfield-Madras) + Palomar E & W<br>• Malin = GTN (Malin–Madras) + Palomar E & W | November 2011 |
| Transportation from LNG terminal | 100,000/d | Palomar W | November 2011 |
| Jordan Cove LNG | 50,000/d in 2011, increasing by 5,000/d each year | Netback commodity price = Malin spot less Pacific Connector transport | November 2011 |
| Transportation from LNG terminal | • Up to 25,000 Dth/d into Grants Pass Lateral via Pacific Connector<br>• > 25,000 Dth/d to Portland via Pacific Connector, GTN, and Palomar E | • Up to 25,000 Dth/d = Pacific Connector "West" + 50% of NWPL existing rate (to Eugene)<br>• > 25,000 Dth/d = Pacific Connector "West" & "East" + GTN (Malin-Madras) + Palomar E | November 2011 |
| | | | |

1 All NWPL rates also include the existing variable charge and fuel %.

| | | | |
|---|---|---|---|
| **Satellite LNG**<br>(available for installation in Albany, Salem and Eugene) | 90,000 capacity;<br>30,000/d delivery for 3 days | $6.5 million capital<br>$330,000 annual O&M | April 2009 |
| | | | |
| **NWN Projects:** | | | |
| Newport Pipeline enhancement | 40,000/d | $15 million capital | November 2012 |
| Brownsville to Eugene<br>(restore river crossing) | 5,000/d | $420,000 capital | November 2011 |
| Willamette Valley Feeder: | | | |
| Sherwood-Perrydale | 120,000/d | $16.6 million capital | November 2010 |
| Perrydale-Independence | 82,000/d | $14.4 million capital | November 2011 |
| Independence-N. Albany | 50,000/d | $13.7 million capital | November 2011 |
| N. Albany-S. Albany | 38,000/d | $8.8 million capital | November 2011 |
| S. Albany-Halsey | 26,000/d | $12.3 million capital | November 2011 |
| Halsey-Eugene | 26,000/d | $16.7 million capital | November 2011 |

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# Appendix 4-1: Achievable DSM Screened at Base Case Avoided Cost - Oregon

**Cumulative Savings by Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 12 | 44 | 79 | 115 | 150 | 186 | 221 | 257 | 292 | 328 | 363 | 399 | 434 | 470 | 505 | 541 | 576 | 612 | 648 | 683 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 133 | 284 | 459 | 665 | 902 | 1,167 | 1,463 | 1,793 | 2,122 | 2,452 | 2,782 | 3,111 | 3,441 | 3,770 | 4,100 | 4,430 | 4,759 | 5,089 | 5,418 | 5,748 |
| SF New DHW | Residential | New Const SF | *Must Take* | 164 | 334 | 533 | 772 | 1,052 | 1,378 | 1,746 | 2,160 | 2,574 | 2,988 | 3,403 | 3,817 | 4,231 | 4,645 | 5,059 | 5,473 | 5,887 | 6,301 | 6,715 | 7,129 |
| SF New Heating | Residential | New Const SF | *Must Take* | 153 | 308 | 475 | 657 | 865 | 1,098 | 1,359 | 1,649 | 1,939 | 2,229 | 2,519 | 2,809 | 3,099 | 3,389 | 3,679 | 3,969 | 4,259 | 4,549 | 4,839 | 5,129 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 530 | 1,135 | 1,837 | 2,660 | 3,605 | 4,665 | 5,850 | 7,035 | 8,219 | 9,404 | 10,589 | 11,485 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 92 | 196 | 317 | 459 | 622 | 806 | 1,010 | 1,215 | 1,419 | 1,624 | 1,828 | 2,033 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 337 | 337 | 720 | 1,165 | 1,687 | 2,287 | 2,959 | 3,711 | 4,462 | 5,214 | 5,965 | 6,717 | 7,468 | 8,220 | 8,220 | 8,220 | 8,220 | 8,220 | 8,220 | 8,220 |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 635 | 1,355 | 2,192 | 3,163 | 4,276 | 5,507 | 6,881 | 8,227 | 9,724 | 11,194 | 12,634 | 14,074 | 15,470 | 16,866 | 18,216 | 19,565 | 20,866 | 22,166 | 23,415 | 24,664 |
| Coml New | Commercial | New Const | *Must Take* | 222 | 469 | 757 | 1,089 | 1,471 | 1,897 | 2,373 | 2,844 | 3,368 | 3,888 | 4,402 | 4,916 | 5,422 | 5,928 | 6,424 | 6,920 | 7,407 | 7,893 | 8,368 | 8,843 |
| Industrial Retro | Industrial | N/A | *Discretionary* | 20 | 42 | 68 | 99 | 134 | 173 | 218 | 262 | 306 | 350 | 394 | 438 | 482 | 482 | 482 | 482 | 482 | 482 | 482 | 482 |
| Industrial Repl | Industrial | N/A | *Must Take* | 2 | 5 | 8 | 12 | 16 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 85 |
| Subtotal - Residential | | | | 1,084 | 2,301 | 3,700 | 5,328 | 7,196 | 9,300 | 11,649 | 14,109 | 16,565 | 19,025 | 21,484 | 23,654 | 25,824 | 26,893 | 27,962 | 29,032 | 30,100 | 31,170 | 32,239 | 33,308 |
| Subtotal - Commercial | | | | 1,194 | 2,161 | 3,669 | 5,417 | 7,434 | 9,691 | 12,213 | 14,782 | 17,554 | 20,296 | 23,001 | 25,707 | 28,360 | 31,014 | 32,860 | 34,705 | 36,493 | 38,279 | 40,003 | 41,727 |
| Subtotal - Residential & Commercial | | | | 2,278 | 4,462 | 7,369 | 10,745 | 14,630 | 18,991 | 23,862 | 28,891 | 34,119 | 39,321 | 44,485 | 49,361 | 54,184 | 57,907 | 60,822 | 63,737 | 66,593 | 69,449 | 72,242 | 75,035 |
| Subtotal - Industrial | | | | 22 | 47 | 76 | 111 | 150 | 193 | 243 | 292 | 341 | 390 | 439 | 488 | 537 | 542 | 547 | 552 | 557 | 562 | 567 | 567 |
| Total - All DSM | | | | 2,300 | 4,509 | 7,445 | 10,856 | 14,780 | 19,184 | 24,105 | 29,183 | 34,460 | 39,711 | 44,924 | 49,849 | 54,721 | 58,449 | 61,369 | 64,289 | 67,150 | 70,011 | 72,809 | 75,602 |

**Incremental Annual Savings per Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 12 | 32 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 36 | 35 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 133 | 151 | 175 | 206 | 237 | 265 | 296 | 330 | 329 | 330 | 330 | 329 | 330 | 329 | 330 | 330 | 329 | 330 | 329 | 330 |
| SF New DHW | Residential | New Const SF | *Must Take* | 164 | 170 | 199 | 239 | 280 | 326 | 368 | 414 | 414 | 414 | 415 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 |
| SF New Heating | Residential | New Const SF | *Must Take* | 153 | 155 | 167 | 182 | 208 | 233 | 261 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 530 | 605 | 702 | 823 | 945 | 1,060 | 1,185 | 1,185 | 1,184 | 1,185 | 1,185 | 896 | 897 | - | - | - | - | - | - | - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 92 | 104 | 121 | 142 | 163 | 184 | 204 | 205 | 204 | 205 | 204 | 205 | 204 | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 337 | - | 383 | 445 | 522 | 600 | 672 | 752 | 751 | 752 | 751 | 752 | 751 | 752 | - | - | - | - | - | - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 635 | 720 | 837 | 971 | 1,113 | 1,231 | 1,374 | 1,346 | 1,497 | 1,470 | 1,440 | 1,440 | 1,396 | 1,396 | 1,350 | 1,349 | 1,301 | 1,300 | 1,249 | 1,249 |
| Coml New | Commercial | New Const | *Must Take* | 222 | 247 | 288 | 332 | 382 | 426 | 476 | 471 | 524 | 520 | 514 | 514 | 506 | 506 | 496 | 496 | 487 | 486 | 475 | 475 |
| Industrial Retro | Industrial | N/A | *Discretionary* | 20 | 22 | 26 | 31 | 35 | 39 | 45 | 44 | 44 | 44 | 44 | 44 | 44 | - | - | - | - | - | - | - |
| Industrial Repl | Industrial | N/A | *Must Take* | 2 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | - |
| Subtotal - Residential | | | | 1,084 | 1,217 | 1,399 | 1,628 | 1,868 | 2,104 | 2,349 | 2,460 | 2,456 | 2,460 | 2,459 | 2,170 | 2,170 | 1,069 | 1,069 | 1,070 | 1,068 | 1,070 | 1,069 | 1,069 |
| Subtotal - Commercial | | | | 1,194 | 967 | 1,508 | 1,748 | 2,017 | 2,257 | 2,522 | 2,569 | 2,772 | 2,742 | 2,705 | 2,706 | 2,653 | 2,654 | 1,846 | 1,845 | 1,788 | 1,786 | 1,724 | 1,724 |
| Subtotal - Residential & Commercial | | | | 2,278 | 2,184 | 2,907 | 3,376 | 3,885 | 4,361 | 4,871 | 5,029 | 5,228 | 5,202 | 5,164 | 4,876 | 4,823 | 3,723 | 2,915 | 2,915 | 2,856 | 2,856 | 2,793 | 2,793 |
| Subtotal - Industrial | | | | 22 | 25 | 29 | 35 | 39 | 43 | 50 | 49 | 49 | 49 | 49 | 49 | 49 | 5 | 5 | 5 | 5 | 5 | 5 | - |
| Total - All DSM | | | | 2,300 | 2,209 | 2,936 | 3,411 | 3,924 | 4,404 | 4,921 | 5,078 | 5,277 | 5,251 | 5,213 | 4,925 | 4,872 | 3,728 | 2,920 | 2,920 | 2,861 | 2,861 | 2,798 | 2,793 |

## Annual Utility Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 65 | $ 65 | $ 66 | $ 66 | $ 66 | $ 67 | $ 67 | $ 68 | $ 68 | $ 68 | $ 69 | $ 69 | $ 69 | $ 70 | $ 70 | $ 70 | $ 71 | $ 71 | $ 72 | $ 72 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 554 | $ 631 | $ 734 | $ 860 | $ 987 | $ 1,109 | $ 1,238 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 447 | $ 518 | $ 612 | $ 728 | $ 845 | $ 980 | $ 1,102 | $ 1,234 | $ 1,233 | $ 1,233 | $ 1,233 | $ 1,232 | $ 1,232 | $ 1,231 | $ 1,231 | $ 1,231 | $ 1,230 | $ 1,230 | $ 1,230 | $ 1,229 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 640 | $ 648 | $ 700 | $ 758 | $ 868 | $ 975 | $ 1,089 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 1,028 | $ 1,171 | $ 1,362 | $ 1,595 | $ 1,831 | $ 2,056 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 327 | $ 372 | $ 433 | $ 507 | $ 582 | $ 653 | $ 729 | $ 729 | $ 729 | $ 729 | $ 729 | $ 729 | $ 729 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 3,955 | $ 4,504 | $ 5,237 | $ 6,136 | $ 7,043 | $ 7,909 | $ 8,832 | $ 8,832 | $ 8,832 | $ 8,832 | $ 8,832 | $ 8,832 | $ 8,832 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 192 | $ 218 | $ 254 | $ 294 | $ 337 | $ 373 | $ 416 | $ 408 | $ 454 | $ 445 | $ 436 | $ 436 | $ 423 | $ 423 | $ 409 | $ 409 | $ 394 | $ 394 | $ 378 | $ 378 |
| Coml New | Commercial | New Const | *Must Take* | $ 266 | $ 296 | $ 344 | $ 398 | $ 457 | $ 510 | $ 570 | $ 564 | $ 628 | $ 622 | $ 615 | $ 615 | $ 605 | $ 605 | $ 594 | $ 594 | $ 582 | $ 582 | $ 569 | $ 569 |
| Industrial Retro | Industrial | N/A | *Discretionary* | $ 16 | $ 18 | $ 21 | $ 25 | $ 28 | $ 32 | $ 35 | $ 35 | $ 35 | $ 35 | $ 35 | $ 35 | $ 35 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Industrial Repl | Industrial | N/A | *Must Take* | $ 6 | $ 7 | $ 8 | $ 9 | $ 11 | $ 12 | $ 14 | $ 14 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 |
| Subtotal - Residential | | | | $ 3,061 | $ 3,405 | $ 3,907 | $ 4,514 | $ 5,179 | $ 5,840 | $ 6,521 | $ 6,916 | $ 6,915 | $ 6,915 | $ 6,916 | $ 6,915 | $ 6,915 | $ 3,890 | $ 3,890 | $ 3,890 | $ 3,890 | $ 3,890 | $ 3,891 | $ 3,890 |
| Subtotal - Commercial | | | | $ 4,413 | $ 5,018 | $ 5,835 | $ 6,828 | $ 7,837 | $ 8,792 | $ 9,818 | $ 9,804 | $ 9,914 | $ 9,899 | $ 9,883 | $ 9,883 | $ 9,860 | $ 1,028 | $ 1,003 | $ 1,003 | $ 976 | $ 976 | $ 947 | $ 947 |
| Subtotal - Residential & Commercial | | | | $ 7,474 | $ 8,423 | $ 9,742 | $ 11,342 | $ 13,016 | $ 14,632 | $ 16,339 | $ 16,720 | $ 16,829 | $ 16,814 | $ 16,799 | $ 16,798 | $ 16,775 | $ 4,918 | $ 4,893 | $ 4,893 | $ 4,866 | $ 4,866 | $ 4,838 | $ 4,837 |
| Subtotal - Industrial | | | | $ 22 | $ 25 | $ 29 | $ 34 | $ 39 | $ 44 | $ 49 | $ 49 | $ 50 | $ 50 | $ 50 | $ 50 | $ 50 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 |
| Total - All DSM | | | | $ 7,496 | $ 8,448 | $ 9,771 | $ 11,376 | $ 13,055 | $ 14,676 | $ 16,388 | $ 16,769 | $ 16,879 | $ 16,864 | $ 16,849 | $ 16,848 | $ 16,825 | $ 4,933 | $ 4,908 | $ 4,908 | $ 4,881 | $ 4,881 | $ 4,853 | $ 4,852 |

## Annual Societal Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 204 | $ 205 | $ 206 | $ 207 | $ 208 | $ 209 | $ 211 | $ 212 | $ 213 | $ 214 | $ 215 | $ 216 | $ 217 | $ 219 | $ 220 | $ 221 | $ 222 | $ 223 | $ 224 | $ 225 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 1,738 | $ 1,980 | $ 2,302 | $ 2,697 | $ 3,096 | $ 3,476 | $ 3,882 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 1,402 | $ 1,623 | $ 1,920 | $ 2,283 | $ 2,650 | $ 3,075 | $ 3,457 | $ 3,868 | $ 3,867 | $ 3,866 | $ 3,865 | $ 3,864 | $ 3,863 | $ 3,862 | $ 3,860 | $ 3,859 | $ 3,858 | $ 3,857 | $ 3,856 | $ 3,855 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 2,006 | $ 2,031 | $ 2,194 | $ 2,378 | $ 2,723 | $ 3,058 | $ 3,415 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 3,225 | $ 3,673 | $ 4,270 | $ 5,003 | $ 5,742 | $ 6,448 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 1,024 | $ 1,166 | $ 1,356 | $ 1,589 | $ 1,824 | $ 2,048 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 12,403 | $ 14,125 | $ 16,423 | $ 19,240 | $ 22,086 | $ 24,801 | $ 27,696 | $ 27,696 | $ 27,696 | $ 27,696 | $ 27,696 | $ 27,696 | $ 27,696 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 603 | $ 684 | $ 795 | $ 922 | $ 1,058 | $ 1,169 | $ 1,305 | $ 1,278 | $ 1,422 | $ 1,396 | $ 1,368 | $ 1,368 | $ 1,326 | $ 1,326 | $ 1,282 | $ 1,282 | $ 1,235 | $ 1,235 | $ 1,186 | $ 1,186 |
| Coml New | Commercial | New Const | *Must Take* | $ 833 | $ 928 | $ 1,079 | $ 1,248 | $ 1,433 | $ 1,600 | $ 1,786 | $ 1,769 | $ 1,969 | $ 1,951 | $ 1,930 | $ 1,930 | $ 1,899 | $ 1,899 | $ 1,864 | $ 1,864 | $ 1,825 | $ 1,825 | $ 1,785 | $ 1,785 |
| Industrial Retro | Industrial | N/A | *Discretionary* | $ 50 | $ 57 | $ 66 | $ 77 | $ 89 | $ 99 | $ 111 | $ 111 | $ 111 | $ 111 | $ 111 | $ 111 | $ 111 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Industrial Repl | Industrial | N/A | *Must Take* | $ 19 | $ 22 | $ 25 | $ 30 | $ 34 | $ 38 | $ 43 | $ 43 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 |
| Subtotal - Residential | | | | $ 9,599 | $ 10,678 | $ 12,248 | $ 14,157 | $ 16,243 | $ 18,314 | $ 20,453 | $ 21,687 | $ 21,687 | $ 21,687 | $ 21,687 | $ 21,687 | $ 21,687 | $ 12,200 | $ 12,199 | $ 12,199 | $ 12,199 | $ 12,199 | $ 12,199 | $ 12,199 |
| Subtotal - Commercial | | | | $ 13,839 | $ 15,737 | $ 18,297 | $ 21,410 | $ 24,577 | $ 27,570 | $ 30,787 | $ 30,743 | $ 31,087 | $ 31,043 | $ 30,994 | $ 30,994 | $ 30,921 | $ 3,225 | $ 3,146 | $ 3,146 | $ 3,060 | $ 3,060 | $ 2,971 | $ 2,971 |
| Subtotal - Residential & Commercial | | | | $ 23,438 | $ 26,415 | $ 30,545 | $ 35,567 | $ 40,820 | $ 45,884 | $ 51,240 | $ 52,430 | $ 52,774 | $ 52,730 | $ 52,681 | $ 52,681 | $ 52,608 | $ 15,425 | $ 15,345 | $ 15,345 | $ 15,259 | $ 15,259 | $ 15,170 | $ 15,170 |
| Subtotal - Industrial | | | | $ 69 | $ 79 | $ 91 | $ 107 | $ 123 | $ 137 | $ 154 | $ 154 | $ 159 | $ 159 | $ 159 | $ 159 | $ 159 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 |
| Total - All DSM | | | | $ 23,507 | $ 26,494 | $ 30,636 | $ 35,674 | $ 40,943 | $ 46,021 | $ 51,394 | $ 52,584 | $ 52,933 | $ 52,889 | $ 52,840 | $ 52,840 | $ 52,767 | $ 15,473 | $ 15,393 | $ 15,393 | $ 15,307 | $ 15,307 | $ 15,218 | $ 15,218 |

# Appendix 4-2: Achievable DSM Screened at Base Case Avoided Cost - Washington

**Cumulative Savings by Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 9 | 19 | 31 | 45 | 62 | 80 | 102 | 124 | 145 | 168 | 190 | 213 | 236 | 259 | 284 | 308 | 333 | 358 | 383 | 409 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 23 | 49 | 78 | 113 | 153 | 197 | 245 | 294 | 342 | 389 | 437 | 484 | 530 | 577 | 623 | 668 | 713 | 758 | 803 | 847 |
| SF New DHW | Residential | New Const SF | *Must Take* | 12 | 26 | 43 | 62 | 86 | 112 | 142 | 172 | 203 | 235 | 267 | 299 | 332 | 366 | 400 | 434 | 469 | 505 | 542 | 579 |
| SF New Heating | Residential | New Const SF | *Must Take* | 13 | 28 | 45 | 66 | 90 | 118 | 149 | 181 | 213 | 246 | 279 | 313 | 348 | 383 | 418 | 454 | 491 | 528 | 566 | 605 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 48 | 104 | 168 | 243 | 329 | 426 | 535 | 643 | 751 | 859 | 968 | 1,076 | 1,184 | 1,206 | 1,206 | 1,206 | 1,206 | 1,206 | 1,206 | 1,206 |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 8 | 18 | 29 | 42 | 57 | 73 | 92 | 110 | 129 | 148 | 166 | 185 | 203 | 207 | 207 | 207 | 207 | 207 | 207 | 207 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 27 | 58 | 94 | 136 | 185 | 239 | 300 | 361 | 422 | 482 | 543 | 604 | 665 | 677 | 677 | 677 | 677 | 677 | 677 | 677 |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 47 | 100 | 162 | 233 | 314 | 405 | 505 | 604 | 702 | 811 | 918 | 1,024 | 1,130 | 1,235 | 1,338 | 1,441 | 1,543 | 1,644 | 1,744 | 1,843 |
| Coml New | Commercial | New Const | *Must Take* | 66 | 145 | 241 | 362 | 508 | 680 | 883 | 1,095 | 1,318 | 1,579 | 1,853 | 2,141 | 2,444 | 2,763 | 3,098 | 3,450 | 3,825 | 4,222 | 4,624 | 5,031 |
| Subtotal - Residential | | | | 113 | 244 | 394 | 571 | 777 | 1,006 | 1,265 | 1,524 | 1,783 | 2,045 | 2,307 | 2,570 | 2,833 | 2,998 | 3,138 | 3,277 | 3,419 | 3,562 | 3,707 | 3,853 |
| Subtotal - Commercial | | | | 140 | 303 | 497 | 731 | 1,007 | 1,324 | 1,688 | 2,060 | 2,442 | 2,872 | 3,314 | 3,769 | 4,239 | 4,675 | 5,113 | 5,568 | 6,045 | 6,543 | 7,045 | 7,551 |
| Total - All DSM | | | | 253 | 547 | 891 | 1,302 | 1,784 | 2,330 | 2,953 | 3,584 | 4,225 | 4,917 | 5,621 | 6,339 | 7,072 | 7,673 | 8,251 | 8,845 | 9,464 | 10,105 | 10,752 | 11,404 |

**Incremental Annual Savings per Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 9 | 10 | 12 | 14 | 17 | 18 | 22 | 22 | 21 | 23 | 22 | 23 | 23 | 23 | 25 | 24 | 25 | 25 | 25 | 26 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 23 | 26 | 29 | 35 | 40 | 44 | 48 | 49 | 48 | 47 | 48 | 47 | 46 | 47 | 46 | 45 | 45 | 45 | 45 | 44 |
| SF New DHW | Residential | New Const SF | *Must Take* | 12 | 14 | 17 | 19 | 24 | 26 | 30 | 30 | 31 | 32 | 32 | 32 | 33 | 34 | 34 | 34 | 35 | 36 | 37 | 37 |
| SF New Heating | Residential | New Const SF | *Must Take* | 13 | 15 | 17 | 21 | 24 | 28 | 31 | 32 | 32 | 33 | 33 | 34 | 35 | 35 | 35 | 36 | 37 | 37 | 38 | 39 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 48 | 56 | 64 | 75 | 86 | 97 | 109 | 108 | 108 | 108 | 109 | 108 | 108 | 22 | - | - | - | - | - | - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 8 | 10 | 11 | 13 | 15 | 16 | 19 | 18 | 19 | 19 | 18 | 19 | 18 | 4 | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 27 | 31 | 36 | 42 | 49 | 54 | 61 | 61 | 61 | 60 | 61 | 61 | 61 | 12 | - | - | - | - | - | - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 47 | 53 | 62 | 71 | 81 | 91 | 100 | 99 | 98 | 109 | 107 | 106 | 106 | 105 | 103 | 103 | 102 | 101 | 100 | 99 |
| Coml New | Commercial | New Const | *Must Take* | 66 | 79 | 96 | 121 | 146 | 172 | 203 | 212 | 223 | 261 | 274 | 288 | 303 | 319 | 335 | 352 | 375 | 397 | 402 | 407 |
| Subtotal - Residential | | | | 113 | 131 | 150 | 177 | 206 | 229 | 259 | 259 | 259 | 262 | 262 | 263 | 263 | 165 | 140 | 139 | 142 | 143 | 145 | 146 |
| Subtotal - Commercial | | | | 140 | 163 | 194 | 234 | 276 | 317 | 364 | 372 | 382 | 430 | 442 | 455 | 470 | 436 | 438 | 455 | 477 | 498 | 502 | 506 |
| Total - All DSM | | | | 253 | 294 | 344 | 411 | 482 | 546 | 623 | 631 | 641 | 692 | 704 | 718 | 733 | 601 | 578 | 594 | 619 | 641 | 647 | 652 |

## Annual Utility Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 26 | $ 29 | $ 33 | $ 41 | $ 47 | $ 52 | $ 61 | $ 61 | $ 61 | $ 64 | $ 64 | $ 64 | $ 66 | $ 66 | $ 69 | $ 69 | $ 71 | $ 71 | $ 71 | $ 74 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 66 | $ 75 | $ 86 | $ 100 | $ 114 | $ 127 | $ 141 | $ 140 | $ 139 | $ 138 | $ 137 | $ 136 | $ 135 | $ 134 | $ 133 | $ 132 | $ 131 | $ 130 | $ 129 | $ 128 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 33 | $ 40 | $ 48 | $ 56 | $ 65 | $ 75 | $ 84 | $ 86 | $ 88 | $ 88 | $ 90 | $ 93 | $ 93 | $ 95 | $ 96 | $ 98 | $ 98 | $ 101 | $ 104 | $ 105 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 53 | $ 61 | $ 72 | $ 86 | $ 100 | $ 114 | $ 129 | $ 131 | $ 133 | $ 135 | $ 137 | $ 139 | $ 142 | $ 144 | $ 146 | $ 149 | $ 151 | $ 154 | $ 156 | $ 159 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 94 | $ 107 | $ 124 | $ 145 | $ 167 | $ 187 | $ 209 | $ 209 | $ 209 | $ 209 | $ 209 | $ 209 | $ 209 | $ 42 | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 30 | $ 34 | $ 39 | $ 46 | $ 53 | $ 59 | $ 66 | $ 66 | $ 66 | $ 66 | $ 66 | $ 66 | $ 66 | $ 11 | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 42 | $ 48 | $ 55 | $ 65 | $ 74 | $ 84 | $ 93 | $ 93 | $ 93 | $ 93 | $ 93 | $ 93 | $ 93 | $ 19 | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 61 | $ 69 | $ 79 | $ 92 | $ 105 | $ 117 | $ 129 | $ 128 | $ 127 | $ 140 | $ 139 | $ 137 | $ 136 | $ 135 | $ 134 | $ 133 | $ 131 | $ 130 | $ 129 | $ 128 |
| Coml New | Commercial | New Const | *Must Take* | $ 92 | $ 110 | $ 134 | $ 168 | $ 203 | $ 239 | $ 281 | $ 295 | $ 310 | $ 362 | $ 381 | $ 400 | $ 422 | $ 443 | $ 466 | $ 490 | $ 521 | $ 552 | $ 559 | $ 566 |
| Subtotal - Residential | | | | $ 302 | $ 346 | $ 402 | $ 474 | $ 546 | $ 614 | $ 690 | $ 693 | $ 696 | $ 700 | $ 703 | $ 707 | $ 711 | $ 492 | $ 444 | $ 448 | $ 451 | $ 456 | $ 460 | $ 466 |
| Subtotal - Commercial | | | | $ 195 | $ 227 | $ 268 | $ 325 | $ 382 | $ 440 | $ 503 | $ 516 | $ 530 | $ 595 | $ 613 | $ 630 | $ 651 | $ 597 | $ 600 | $ 623 | $ 652 | $ 682 | $ 688 | $ 694 |
| Total - All DSM | | | | $ 497 | $ 573 | $ 670 | $ 799 | $ 928 | $ 1,054 | $ 1,193 | $ 1,209 | $ 1,226 | $ 1,295 | $ 1,316 | $ 1,337 | $ 1,362 | $ 1,089 | $ 1,044 | $ 1,071 | $ 1,103 | $ 1,138 | $ 1,148 | $ 1,160 |

## Annual Societal Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 82 | $ 89 | $ 104 | $ 127 | $ 146 | $ 164 | $ 191 | $ 191 | $ 191 | $ 199 | $ 199 | $ 199 | $ 207 | $ 207 | $ 215 | $ 215 | $ 223 | $ 223 | $ 223 | $ 231 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 207 | $ 234 | $ 270 | $ 314 | $ 358 | $ 399 | $ 442 | $ 439 | $ 435 | $ 432 | $ 429 | $ 426 | $ 423 | $ 419 | $ 416 | $ 413 | $ 410 | $ 407 | $ 404 | $ 401 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 104 | $ 126 | $ 150 | $ 174 | $ 205 | $ 236 | $ 263 | $ 270 | $ 277 | $ 276 | $ 284 | $ 291 | $ 291 | $ 299 | $ 300 | $ 308 | $ 309 | $ 318 | $ 327 | $ 328 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 166 | $ 192 | $ 226 | $ 269 | $ 313 | $ 357 | $ 405 | $ 411 | $ 417 | $ 424 | $ 430 | $ 437 | $ 444 | $ 451 | $ 459 | $ 466 | $ 474 | $ 482 | $ 490 | $ 498 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 294 | $ 335 | $ 389 | $ 456 | $ 523 | $ 588 | $ 656 | $ 656 | $ 656 | $ 656 | $ 656 | $ 656 | $ 656 | $ 131 | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 93 | $ 106 | $ 123 | $ 145 | $ 166 | $ 186 | $ 208 | $ 208 | $ 208 | $ 208 | $ 208 | $ 208 | $ 208 | $ 35 | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 131 | $ 149 | $ 174 | $ 203 | $ 233 | $ 262 | $ 293 | $ 293 | $ 293 | $ 293 | $ 293 | $ 293 | $ 293 | $ 59 | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 191 | $ 216 | $ 249 | $ 289 | $ 328 | $ 366 | $ 405 | $ 401 | $ 398 | $ 439 | $ 435 | $ 431 | $ 427 | $ 423 | $ 420 | $ 416 | $ 412 | $ 409 | $ 405 | $ 401 |
| Coml New | Commercial | New Const | *Must Take* | $ 288 | $ 344 | $ 419 | $ 528 | $ 637 | $ 751 | $ 882 | $ 925 | $ 973 | $ 1,136 | $ 1,196 | $ 1,256 | $ 1,322 | $ 1,388 | $ 1,462 | $ 1,536 | $ 1,633 | $ 1,730 | $ 1,753 | $ 1,776 |
| Subtotal - Residential | | | | $ 946 | $ 1,082 | $ 1,262 | $ 1,485 | $ 1,711 | $ 1,930 | $ 2,165 | $ 2,175 | $ 2,184 | $ 2,195 | $ 2,206 | $ 2,217 | $ 2,229 | $ 1,542 | $ 1,390 | $ 1,402 | $ 1,416 | $ 1,430 | $ 1,444 | $ 1,458 |
| Subtotal - Commercial | | | | $ 610 | $ 709 | $ 842 | $ 1,020 | $ 1,198 | $ 1,379 | $ 1,580 | $ 1,619 | $ 1,664 | $ 1,868 | $ 1,924 | $ 1,980 | $ 2,042 | $ 1,870 | $ 1,882 | $ 1,952 | $ 2,045 | $ 2,139 | $ 2,158 | $ 2,177 |
| Total - All DSM | | | | $ 1,556 | $ 1,791 | $ 2,104 | $ 2,505 | $ 2,909 | $ 3,309 | $ 3,745 | $ 3,794 | $ 3,848 | $ 4,063 | $ 4,130 | $ 4,197 | $ 4,271 | $ 3,412 | $ 3,272 | $ 3,354 | $ 3,461 | $ 3,569 | $ 3,602 | $ 3,635 |

# Appendix 4-3: Achievable DSM Screened at High Commodity Avoided Cost Sensitivity - Oregon

**Cumulative Savings by Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 12 | 44 | 79 | 115 | 150 | 186 | 221 | 257 | 292 | 328 | 363 | 399 | 434 | 470 | 505 | 541 | 576 | 612 | 648 | 683 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 133 | 284 | 459 | 665 | 902 | 1,167 | 1,463 | 1,793 | 2,122 | 2,452 | 2,782 | 3,111 | 3,441 | 3,770 | 4,100 | 4,430 | 4,759 | 5,089 | 5,418 | 5,748 |
| SF New DHW | Residential | New Const SF | *Must Take* | 164 | 334 | 533 | 772 | 1,052 | 1,378 | 1,746 | 2,160 | 2,574 | 2,988 | 3,403 | 3,817 | 4,231 | 4,645 | 5,059 | 5,473 | 5,887 | 6,301 | 6,715 | 7,129 |
| SF New Heating | Residential | New Const SF | *Must Take* | 153 | 308 | 475 | 657 | 865 | 1,098 | 1,359 | 1,649 | 1,939 | 2,229 | 2,519 | 2,809 | 3,099 | 3,389 | 3,679 | 3,969 | 4,259 | 4,549 | 4,839 | 5,129 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 530 | 1,135 | 1,837 | 2,660 | 3,605 | 4,665 | 5,850 | 7,035 | 8,219 | 9,404 | 10,589 | 11,485 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 | 12,382 |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 92 | 196 | 317 | 459 | 622 | 806 | 1,010 | 1,215 | 1,419 | 1,624 | 1,828 | 2,033 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 | 2,237 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 365 | 365 | 781 | 1,264 | 1,830 | 2,480 | 3,209 | 4,024 | 4,839 | 5,654 | 6,469 | 7,284 | 8,099 | 8,914 | 9,115 | 9,115 | 9,115 | 9,115 | 9,115 | 9,115 |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 636 | 1,358 | 2,197 | 3,169 | 4,284 | 5,517 | 6,894 | 8,242 | 9,742 | 11,215 | 12,657 | 14,100 | 15,499 | 16,898 | 18,250 | 19,602 | 20,905 | 22,208 | 23,459 | 24,710 |
| Coml New | Commercial | New Const | *Must Take* | 222 | 469 | 757 | 1,089 | 1,471 | 1,897 | 2,373 | 2,844 | 3,368 | 3,888 | 4,402 | 4,916 | 5,422 | 5,928 | 6,424 | 6,920 | 7,407 | 7,893 | 8,368 | 8,843 |
| Industrial Retro | Industrial | N/A | *Discretionary* | 20 | 42 | 68 | 99 | 134 | 173 | 218 | 262 | 306 | 350 | 394 | 438 | 482 | 482 | 482 | 482 | 482 | 482 | 482 | 482 |
| Industrial Repl | Industrial | N/A | *Must Take* | 2 | 4 | 7 | 10 | 14 | 18 | 22 | 27 | 32 | 37 | 42 | 47 | 52 | 57 | 62 | 67 | 72 | 77 | 82 | 87 |
| Subtotal - Residential | | | | 1,084 | 2,301 | 3,700 | 5,328 | 7,196 | 9,300 | 11,649 | 14,109 | 16,565 | 19,025 | 21,484 | 23,654 | 25,824 | 26,893 | 27,962 | 29,032 | 30,100 | 31,170 | 32,239 | 33,308 |
| Subtotal - Commercial | | | | 1,223 | 2,192 | 3,735 | 5,522 | 7,585 | 9,894 | 12,476 | 15,110 | 17,949 | 20,757 | 23,528 | 26,300 | 29,020 | 31,740 | 33,789 | 35,637 | 37,427 | 39,216 | 40,942 | 42,668 |
| Subtotal - Residential & Commercial | | | | 2,307 | 4,493 | 7,435 | 10,850 | 14,781 | 19,194 | 24,125 | 29,219 | 34,514 | 39,782 | 45,012 | 49,954 | 54,844 | 58,633 | 61,751 | 64,669 | 67,527 | 70,386 | 73,181 | 75,976 |
| Subtotal - Industrial | | | | 22 | 46 | 75 | 109 | 148 | 191 | 240 | 289 | 338 | 387 | 436 | 485 | 534 | 539 | 544 | 549 | 554 | 559 | 564 | 569 |
| Total - All DSM | | | | 2,329 | 4,539 | 7,510 | 10,959 | 14,929 | 19,385 | 24,365 | 29,508 | 34,852 | 40,169 | 45,448 | 50,439 | 55,378 | 59,172 | 62,295 | 65,218 | 68,081 | 70,945 | 73,745 | 76,545 |

**Incremental Annual Savings per Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 12 | 32 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 35 | 36 | 36 | 35 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 133 | 151 | 175 | 206 | 237 | 265 | 296 | 330 | 329 | 330 | 330 | 329 | 330 | 329 | 330 | 330 | 329 | 330 | 329 | 330 |
| SF New DHW | Residential | New Const SF | *Must Take* | 164 | 170 | 199 | 239 | 280 | 326 | 368 | 414 | 414 | 414 | 415 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 | 414 |
| SF New Heating | Residential | New Const SF | *Must Take* | 153 | 155 | 167 | 182 | 208 | 233 | 261 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 530 | 605 | 702 | 823 | 945 | 1,060 | 1,185 | 1,185 | 1,184 | 1,185 | 1,185 | 896 | 897 | - | - | - | - | - | - | - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 92 | 104 | 121 | 142 | 163 | 184 | 204 | 205 | 204 | 205 | 204 | 205 | 204 | - | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 365 | - | 416 | 483 | 566 | 650 | 729 | 815 | 815 | 815 | 815 | 815 | 815 | 815 | 201 | - | - | - | - | - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 636 | 722 | 839 | 972 | 1,115 | 1,233 | 1,377 | 1,348 | 1,500 | 1,473 | 1,442 | 1,443 | 1,399 | 1,399 | 1,352 | 1,352 | 1,303 | 1,303 | 1,251 | 1,251 |
| Coml New | Commercial | New Const | *Must Take* | 222 | 247 | 288 | 332 | 382 | 426 | 476 | 471 | 524 | 520 | 514 | 514 | 506 | 506 | 496 | 496 | 487 | 486 | 475 | 475 |
| Industrial Retro | Industrial | N/A | *Discretionary* | 20 | 22 | 26 | 31 | 35 | 39 | 45 | 44 | 44 | 44 | 44 | 44 | 44 | - | - | - | - | - | - | - |
| Industrial Repl | Industrial | N/A | *Must Take* | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Subtotal - Residential | | | | 1,084 | 1,217 | 1,399 | 1,628 | 1,868 | 2,104 | 2,349 | 2,460 | 2,456 | 2,460 | 2,459 | 2,170 | 2,170 | 1,069 | 1,069 | 1,070 | 1,068 | 1,070 | 1,069 | 1,069 |
| Subtotal - Commercial | | | | 1,223 | 969 | 1,543 | 1,787 | 2,063 | 2,309 | 2,582 | 2,634 | 2,839 | 2,808 | 2,771 | 2,772 | 2,720 | 2,720 | 2,049 | 1,848 | 1,790 | 1,789 | 1,726 | 1,726 |
| Subtotal - Residential & Commercial | | | | 2,307 | 2,186 | 2,942 | 3,415 | 3,931 | 4,413 | 4,931 | 5,094 | 5,295 | 5,268 | 5,230 | 4,942 | 4,890 | 3,789 | 3,118 | 2,918 | 2,858 | 2,859 | 2,795 | 2,795 |
| Subtotal - Industrial | | | | 22 | 24 | 29 | 34 | 39 | 43 | 49 | 49 | 49 | 49 | 49 | 49 | 49 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Total - All DSM | | | | 2,329 | 2,210 | 2,971 | 3,449 | 3,970 | 4,456 | 4,980 | 5,143 | 5,344 | 5,317 | 5,279 | 4,991 | 4,939 | 3,794 | 3,123 | 2,923 | 2,863 | 2,864 | 2,800 | 2,800 |

## Annual Utility Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 65 | $ 65 | $ 66 | $ 66 | $ 66 | $ 67 | $ 67 | $ 68 | $ 68 | $ 68 | $ 69 | $ 69 | $ 69 | $ 70 | $ 70 | $ 70 | $ 71 | $ 71 | $ 72 | $ 72 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 554 | $ 631 | $ 734 | $ 860 | $ 987 | $ 1,109 | $ 1,238 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 | $ 1,377 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 447 | $ 518 | $ 612 | $ 728 | $ 845 | $ 980 | $ 1,102 | $ 1,234 | $ 1,233 | $ 1,233 | $ 1,233 | $ 1,232 | $ 1,232 | $ 1,231 | $ 1,231 | $ 1,231 | $ 1,230 | $ 1,230 | $ 1,230 | $ 1,229 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 640 | $ 648 | $ 700 | $ 758 | $ 868 | $ 975 | $ 1,089 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 | $ 1,212 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 1,028 | $ 1,171 | $ 1,362 | $ 1,595 | $ 1,831 | $ 2,056 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ 2,296 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 327 | $ 372 | $ 433 | $ 507 | $ 582 | $ 653 | $ 729 | $ 729 | $ 729 | $ 729 | $ 729 | $ 729 | $ 729 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 5,023 | $ 5,721 | $ 6,652 | $ 7,793 | $ 8,945 | $ 10,045 | $ 11,218 | $ 11,218 | $ 11,218 | $ 11,218 | $ 11,218 | $ 11,218 | $ 11,218 | $ 3,639 | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 193 | $ 219 | $ 254 | $ 295 | $ 338 | $ 374 | $ 417 | $ 409 | $ 454 | $ 446 | $ 437 | $ 437 | $ 424 | $ 424 | $ 410 | $ 410 | $ 395 | $ 395 | $ 379 | $ 379 |
| Coml New | Commercial | New Const | *Must Take* | $ 266 | $ 296 | $ 344 | $ 398 | $ 457 | $ 510 | $ 570 | $ 564 | $ 628 | $ 622 | $ 615 | $ 615 | $ 605 | $ 605 | $ 594 | $ 594 | $ 582 | $ 582 | $ 569 | $ 569 |
| Industrial Retro | Industrial | N/A | *Discretionary* | $ 16 | $ 18 | $ 21 | $ 25 | $ 28 | $ 32 | $ 35 | $ 35 | $ 35 | $ 35 | $ 35 | $ 35 | $ 35 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Industrial Repl | Industrial | N/A | *Must Take* | $ 6 | $ 7 | $ 8 | $ 9 | $ 11 | $ 12 | $ 14 | $ 14 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 |
| Subtotal - Residential | | | | $ 3,061 | $ 3,405 | $ 3,907 | $ 4,514 | $ 5,179 | $ 5,840 | $ 6,521 | $ 6,916 | $ 6,915 | $ 6,915 | $ 6,916 | $ 6,915 | $ 6,915 | $ 3,890 | $ 3,890 | $ 3,890 | $ 3,890 | $ 3,890 | $ 3,891 | $ 3,890 |
| Subtotal - Commercial | | | | $ 5,482 | $ 6,236 | $ 7,250 | $ 8,486 | $ 9,740 | $ 10,929 | $ 12,205 | $ 12,191 | $ 12,300 | $ 12,286 | $ 12,270 | $ 12,270 | $ 12,247 | $ 4,668 | $ 1,004 | $ 1,004 | $ 977 | $ 977 | $ 948 | $ 948 |
| Subtotal - Residential & Commercial | | | | $ 8,543 | $ 9,641 | $ 11,157 | $ 13,000 | $ 14,919 | $ 16,769 | $ 18,726 | $ 19,107 | $ 19,215 | $ 19,201 | $ 19,186 | $ 19,185 | $ 19,162 | $ 8,558 | $ 4,894 | $ 4,894 | $ 4,867 | $ 4,867 | $ 4,839 | $ 4,838 |
| Subtotal - Industrial | | | | $ 22 | $ 25 | $ 29 | $ 34 | $ 39 | $ 44 | $ 49 | $ 49 | $ 50 | $ 50 | $ 50 | $ 50 | $ 50 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 |
| Total - All DSM | | | | $ 8,565 | $ 9,666 | $ 11,186 | $ 13,034 | $ 14,958 | $ 16,813 | $ 18,775 | $ 19,156 | $ 19,265 | $ 19,251 | $ 19,236 | $ 19,235 | $ 19,212 | $ 8,573 | $ 4,909 | $ 4,909 | $ 4,882 | $ 4,882 | $ 4,854 | $ 4,853 |

## Annual Societal Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 204 | $ 205 | $ 206 | $ 207 | $ 208 | $ 209 | $ 211 | $ 212 | $ 213 | $ 214 | $ 215 | $ 216 | $ 217 | $ 219 | $ 220 | $ 221 | $ 222 | $ 223 | $ 224 | $ 225 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 1,738 | $ 1,980 | $ 2,302 | $ 2,697 | $ 3,096 | $ 3,476 | $ 3,882 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 | $ 4,319 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 1,402 | $ 1,623 | $ 1,920 | $ 2,283 | $ 2,650 | $ 3,075 | $ 3,457 | $ 3,868 | $ 3,867 | $ 3,866 | $ 3,865 | $ 3,864 | $ 3,863 | $ 3,862 | $ 3,860 | $ 3,859 | $ 3,858 | $ 3,857 | $ 3,856 | $ 3,855 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 2,006 | $ 2,031 | $ 2,194 | $ 2,378 | $ 2,723 | $ 3,058 | $ 3,415 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 | $ 3,800 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 3,225 | $ 3,673 | $ 4,270 | $ 5,003 | $ 5,742 | $ 6,448 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ 7,201 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 1,024 | $ 1,166 | $ 1,356 | $ 1,589 | $ 1,824 | $ 2,048 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ 2,287 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 15,752 | $ 17,939 | $ 20,858 | $ 24,437 | $ 28,050 | $ 31,499 | $ 35,177 | $ 35,177 | $ 35,177 | $ 35,177 | $ 35,177 | $ 35,177 | $ 35,177 | $ 11,411 | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 605 | $ 685 | $ 797 | $ 924 | $ 1,060 | $ 1,171 | $ 1,308 | $ 1,281 | $ 1,425 | $ 1,399 | $ 1,371 | $ 1,371 | $ 1,329 | $ 1,329 | $ 1,285 | $ 1,285 | $ 1,238 | $ 1,238 | $ 1,189 | $ 1,189 |
| Coml New | Commercial | New Const | *Must Take* | $ 833 | $ 928 | $ 1,079 | $ 1,248 | $ 1,433 | $ 1,600 | $ 1,786 | $ 1,769 | $ 1,969 | $ 1,951 | $ 1,930 | $ 1,930 | $ 1,899 | $ 1,899 | $ 1,864 | $ 1,864 | $ 1,825 | $ 1,825 | $ 1,785 | $ 1,785 |
| Industrial Retro | Industrial | N/A | *Discretionary* | $ 50 | $ 57 | $ 66 | $ 77 | $ 89 | $ 99 | $ 111 | $ 111 | $ 111 | $ 111 | $ 111 | $ 111 | $ 111 | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Industrial Repl | Industrial | N/A | *Must Take* | $ 19 | $ 22 | $ 25 | $ 30 | $ 34 | $ 38 | $ 43 | $ 43 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 |
| Subtotal - Residential | | | | $ 9,599 | $ 10,678 | $ 12,248 | $ 14,157 | $ 16,243 | $ 18,314 | $ 20,453 | $ 21,687 | $ 21,687 | $ 21,687 | $ 21,687 | $ 21,687 | $ 21,687 | $ 12,200 | $ 12,199 | $ 12,199 | $ 12,199 | $ 12,199 | $ 12,199 | $ 12,199 |
| Subtotal - Commercial | | | | $ 17,190 | $ 19,552 | $ 22,734 | $ 26,609 | $ 30,543 | $ 34,270 | $ 38,271 | $ 38,227 | $ 38,571 | $ 38,527 | $ 38,478 | $ 38,478 | $ 38,405 | $ 14,639 | $ 3,149 | $ 3,149 | $ 3,063 | $ 3,063 | $ 2,974 | $ 2,974 |
| Subtotal - Residential & Commercial | | | | $ 26,789 | $ 30,230 | $ 34,982 | $ 40,766 | $ 46,786 | $ 52,584 | $ 58,724 | $ 59,914 | $ 60,258 | $ 60,214 | $ 60,165 | $ 60,165 | $ 60,092 | $ 26,839 | $ 15,348 | $ 15,348 | $ 15,262 | $ 15,262 | $ 15,173 | $ 15,173 |
| Subtotal - Industrial | | | | $ 69 | $ 79 | $ 91 | $ 107 | $ 123 | $ 137 | $ 154 | $ 154 | $ 159 | $ 159 | $ 159 | $ 159 | $ 159 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 | $ 48 |
| Total - All DSM | | | | $ 26,858 | $ 30,309 | $ 35,073 | $ 40,873 | $ 46,909 | $ 52,721 | $ 58,878 | $ 60,068 | $ 60,417 | $ 60,373 | $ 60,324 | $ 60,324 | $ 60,251 | $ 26,887 | $ 15,396 | $ 15,396 | $ 15,310 | $ 15,310 | $ 15,221 | $ 15,221 |

# Appendix 4-4: Achievable DSM Screened at High Commodity Avoided Cost Sensitivity - Washington

**Cumulative Savings by Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / Discretionary | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 9 | 19 | 31 | 45 | 62 | 80 | 102 | 124 | 145 | 168 | 190 | 213 | 236 | 259 | 284 | 308 | 333 | 358 | 383 | 409 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 23 | 49 | 78 | 113 | 153 | 197 | 245 | 294 | 342 | 389 | 437 | 484 | 530 | 577 | 623 | 668 | 713 | 758 | 803 | 847 |
| SF New DHW | Residential | New Const SF | *Must Take* | 12 | 26 | 43 | 62 | 86 | 112 | 142 | 172 | 203 | 235 | 267 | 299 | 332 | 366 | 400 | 434 | 469 | 505 | 542 | 579 |
| SF New Heating | Residential | New Const SF | *Must Take* | 13 | 28 | 45 | 66 | 90 | 118 | 149 | 181 | 213 | 246 | 279 | 313 | 348 | 383 | 418 | 454 | 491 | 528 | 566 | 605 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 48 | 104 | 168 | 243 | 329 | 426 | 535 | 643 | 751 | 859 | 968 | 1,076 | 1,184 | 1,206 | 1,206 | 1,206 | 1,206 | 1,206 | 1,206 | 1,206 |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 19 | 40 | 65 | 93 | 127 | 164 | 205 | 247 | 289 | 330 | 372 | 413 | 455 | 462 | 462 | 462 | 462 | 462 | 462 | 462 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 30 | 63 | 102 | 148 | 201 | 260 | 325 | 391 | 457 | 523 | 589 | 655 | 721 | 734 | 734 | 734 | 734 | 734 | 734 | 734 |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 47 | 101 | 162 | 234 | 315 | 406 | 506 | 605 | 704 | 812 | 920 | 1,027 | 1,133 | 1,237 | 1,341 | 1,444 | 1,546 | 1,648 | 1,748 | 1,847 |
| Coml New | Commercial | New Const | *Must Take* | 68 | 149 | 248 | 373 | 523 | 700 | 908 | 1,127 | 1,356 | 1,625 | 1,907 | 2,203 | 2,515 | 2,843 | 3,189 | 3,551 | 3,938 | 4,350 | 4,762 | 5,176 |
| Subtotal - Residential | | | | 124 | 266 | 430 | 622 | 847 | 1,097 | 1,378 | 1,661 | 1,943 | 2,227 | 2,513 | 2,798 | 3,085 | 3,253 | 3,393 | 3,532 | 3,674 | 3,817 | 3,962 | 4,108 |
| Subtotal - Commercial | | | | 145 | 313 | 512 | 755 | 1,039 | 1,366 | 1,739 | 2,123 | 2,517 | 2,960 | 3,416 | 3,885 | 4,369 | 4,814 | 5,264 | 5,729 | 6,218 | 6,732 | 7,244 | 7,757 |
| Total - All DSM | | | | 269 | 579 | 942 | 1,377 | 1,886 | 2,463 | 3,117 | 3,784 | 4,460 | 5,187 | 5,929 | 6,683 | 7,454 | 8,067 | 8,657 | 9,261 | 9,892 | 10,549 | 11,206 | 11,865 |

**Incremental Annual Savings per Year, Thousands of Therms**

| DSM Program | Applicable Customer | | Must Take / Discretionary | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | 9 | 10 | 12 | 14 | 17 | 18 | 22 | 22 | 21 | 23 | 22 | 23 | 23 | 23 | 25 | 24 | 25 | 25 | 25 | 26 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | 23 | 26 | 29 | 35 | 40 | 44 | 48 | 49 | 48 | 47 | 48 | 47 | 46 | 47 | 46 | 45 | 45 | 45 | 45 | 44 |
| SF New DHW | Residential | New Const SF | *Must Take* | 12 | 14 | 17 | 19 | 24 | 26 | 30 | 30 | 31 | 32 | 32 | 32 | 33 | 34 | 34 | 34 | 35 | 36 | 37 | 37 |
| SF New Heating | Residential | New Const SF | *Must Take* | 13 | 15 | 17 | 21 | 24 | 28 | 31 | 32 | 32 | 33 | 33 | 34 | 35 | 35 | 35 | 36 | 37 | 37 | 38 | 39 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | 48 | 56 | 64 | 75 | 86 | 97 | 109 | 108 | 108 | 108 | 109 | 108 | 108 | 22 | - | - | - | - | - | - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | 19 | 21 | 25 | 28 | 34 | 37 | 41 | 42 | 42 | 41 | 42 | 41 | 42 | 7 | - | - | - | - | - | - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | 30 | 33 | 39 | 46 | 53 | 59 | 65 | 66 | 66 | 66 | 66 | 66 | 66 | 13 | - | - | - | - | - | - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | 47 | 54 | 61 | 72 | 81 | 91 | 100 | 99 | 99 | 108 | 108 | 107 | 106 | 104 | 104 | 103 | 102 | 102 | 100 | 99 |
| Coml New | Commercial | New Const | *Must Take* | 68 | 81 | 99 | 125 | 150 | 177 | 208 | 219 | 229 | 269 | 282 | 296 | 312 | 328 | 346 | 362 | 387 | 412 | 412 | 414 |
| Subtotal - Residential | | | | 124 | 142 | 164 | 192 | 225 | 250 | 281 | 283 | 282 | 284 | 286 | 285 | 287 | 168 | 140 | 139 | 142 | 143 | 145 | 146 |
| Subtotal - Commercial | | | | 145 | 168 | 199 | 243 | 284 | 327 | 373 | 384 | 394 | 443 | 456 | 469 | 484 | 445 | 450 | 465 | 489 | 514 | 512 | 513 |
| Total - All DSM | | | | 269 | 310 | 363 | 435 | 509 | 577 | 654 | 667 | 676 | 727 | 742 | 754 | 771 | 613 | 590 | 604 | 631 | 657 | 657 | 659 |

## Annual Utility Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 26 | $ 29 | $ 33 | $ 41 | $ 47 | $ 52 | $ 61 | $ 61 | $ 61 | $ 64 | $ 64 | $ 64 | $ 66 | $ 66 | $ 69 | $ 69 | $ 71 | $ 71 | $ 71 | $ 74 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 66 | $ 75 | $ 86 | $ 100 | $ 114 | $ 127 | $ 141 | $ 140 | $ 139 | $ 138 | $ 137 | $ 136 | $ 135 | $ 134 | $ 133 | $ 132 | $ 131 | $ 130 | $ 129 | $ 128 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 33 | $ 40 | $ 48 | $ 56 | $ 65 | $ 75 | $ 84 | $ 86 | $ 88 | $ 88 | $ 90 | $ 93 | $ 93 | $ 95 | $ 96 | $ 98 | $ 98 | $ 101 | $ 104 | $ 105 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 53 | $ 61 | $ 72 | $ 86 | $ 100 | $ 114 | $ 129 | $ 131 | $ 133 | $ 135 | $ 137 | $ 139 | $ 142 | $ 144 | $ 146 | $ 149 | $ 151 | $ 154 | $ 156 | $ 159 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 94 | $ 107 | $ 124 | $ 145 | $ 167 | $ 187 | $ 209 | $ 209 | $ 209 | $ 209 | $ 209 | $ 209 | $ 209 | $ 42 | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 79 | $ 90 | $ 105 | $ 122 | $ 141 | $ 158 | $ 176 | $ 176 | $ 176 | $ 176 | $ 176 | $ 176 | $ 176 | $ 29 | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 50 | $ 57 | $ 67 | $ 78 | $ 90 | $ 101 | $ 113 | $ 113 | $ 113 | $ 113 | $ 113 | $ 113 | $ 113 | $ 23 | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 70 | $ 80 | $ 92 | $ 107 | $ 121 | $ 135 | $ 149 | $ 148 | $ 147 | $ 162 | $ 160 | $ 159 | $ 158 | $ 156 | $ 155 | $ 154 | $ 152 | $ 151 | $ 150 | $ 148 |
| Coml New | Commercial | New Const | *Must Take* | $ 141 | $ 168 | $ 205 | $ 259 | $ 312 | $ 368 | $ 432 | $ 453 | $ 477 | $ 557 | $ 586 | $ 615 | $ 648 | $ 680 | $ 716 | $ 753 | $ 803 | $ 854 | $ 856 | $ 859 |
| Subtotal - Residential | | | | $ 351 | $ 402 | $ 468 | $ 550 | $ 634 | $ 713 | $ 800 | $ 803 | $ 806 | $ 810 | $ 813 | $ 817 | $ 821 | $ 510 | $ 444 | $ 448 | $ 451 | $ 456 | $ 460 | $ 466 |
| Subtotal - Commercial | | | | $ 261 | $ 305 | $ 364 | $ 444 | $ 523 | $ 604 | $ 694 | $ 714 | $ 737 | $ 832 | $ 859 | $ 887 | $ 919 | $ 859 | $ 871 | $ 907 | $ 955 | $ 1,005 | $ 1,006 | $ 1,007 |
| Total - All DSM | | | | $ 612 | $ 707 | $ 832 | $ 994 | $ 1,157 | $ 1,317 | $ 1,494 | $ 1,517 | $ 1,543 | $ 1,642 | $ 1,672 | $ 1,704 | $ 1,740 | $ 1,369 | $ 1,315 | $ 1,355 | $ 1,406 | $ 1,461 | $ 1,466 | $ 1,473 |

## Annual Societal Cost, Thousand of $2007 Dollars

| DSM Program | Applicable Customer | | Must Take / | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Class | Sub-Class(es) | Discretionary | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| MF New DHW | Residential | New Const MF | *Must Take* | $ 82 | $ 89 | $ 104 | $ 127 | $ 146 | $ 164 | $ 191 | $ 191 | $ 191 | $ 199 | $ 199 | $ 199 | $ 207 | $ 207 | $ 215 | $ 215 | $ 223 | $ 223 | $ 223 | $ 231 |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 207 | $ 234 | $ 270 | $ 314 | $ 358 | $ 399 | $ 442 | $ 439 | $ 435 | $ 432 | $ 429 | $ 426 | $ 423 | $ 419 | $ 416 | $ 413 | $ 410 | $ 407 | $ 404 | $ 401 |
| SF New DHW | Residential | New Const SF | *Must Take* | $ 104 | $ 126 | $ 150 | $ 174 | $ 205 | $ 236 | $ 263 | $ 270 | $ 277 | $ 276 | $ 284 | $ 291 | $ 291 | $ 299 | $ 300 | $ 308 | $ 309 | $ 318 | $ 327 | $ 328 |
| SF New Heating | Residential | New Const SF | *Must Take* | $ 166 | $ 192 | $ 226 | $ 269 | $ 313 | $ 357 | $ 405 | $ 411 | $ 417 | $ 424 | $ 430 | $ 437 | $ 444 | $ 451 | $ 459 | $ 466 | $ 474 | $ 482 | $ 490 | $ 498 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 294 | $ 335 | $ 389 | $ 456 | $ 523 | $ 588 | $ 656 | $ 656 | $ 656 | $ 656 | $ 656 | $ 656 | $ 656 | $ 131 | $ - | $ - | $ - | $ - | $ - | $ - |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 248 | $ 282 | $ 328 | $ 384 | $ 441 | $ 495 | $ 553 | $ 553 | $ 553 | $ 553 | $ 553 | $ 553 | $ 553 | $ 92 | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | | | | | | | | | | | | | | | | | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 158 | $ 180 | $ 209 | $ 245 | $ 282 | $ 316 | $ 353 | $ 353 | $ 353 | $ 353 | $ 353 | $ 353 | $ 353 | $ 71 | $ - | $ - | $ - | $ - | $ - | $ - |
| Coml Replace | Commercial | Existing & Conv | *Must Take* | $ 221 | $ 250 | $ 288 | $ 334 | $ 380 | $ 423 | $ 468 | $ 464 | $ 460 | $ 508 | $ 503 | $ 499 | $ 494 | $ 490 | $ 486 | $ 481 | $ 477 | $ 473 | $ 469 | $ 465 |
| Coml New | Commercial | New Const | *Must Take* | $ 442 | $ 527 | $ 644 | $ 811 | $ 979 | $ 1,153 | $ 1,354 | $ 1,420 | $ 1,494 | $ 1,745 | $ 1,837 | $ 1,929 | $ 2,031 | $ 2,133 | $ 2,246 | $ 2,360 | $ 2,518 | $ 2,677 | $ 2,685 | $ 2,692 |
| Subtotal - Residential | | | | $ 1,101 | $ 1,258 | $ 1,467 | $ 1,724 | $ 1,986 | $ 2,239 | $ 2,510 | $ 2,520 | $ 2,529 | $ 2,540 | $ 2,551 | $ 2,562 | $ 2,574 | $ 1,599 | $ 1,390 | $ 1,402 | $ 1,416 | $ 1,430 | $ 1,444 | $ 1,458 |
| Subtotal - Commercial | | | | $ 821 | $ 957 | $ 1,141 | $ 1,390 | $ 1,641 | $ 1,892 | $ 2,175 | $ 2,237 | $ 2,307 | $ 2,606 | $ 2,693 | $ 2,781 | $ 2,878 | $ 2,694 | $ 2,732 | $ 2,841 | $ 2,995 | $ 3,150 | $ 3,154 | $ 3,157 |
| Total - All DSM | | | | $ 1,922 | $ 2,215 | $ 2,608 | $ 3,114 | $ 3,627 | $ 4,131 | $ 4,685 | $ 4,757 | $ 4,836 | $ 5,146 | $ 5,244 | $ 5,343 | $ 5,452 | $ 4,293 | $ 4,122 | $ 4,243 | $ 4,411 | $ 4,580 | $ 4,598 | $ 4,615 |

# Appendix 4-5: DSM Levelized Program Costs

## Levelized Program Costs - Oregon

| DSM Program | Applicable Customer | | Must Take / Discretionary | Levelized Program Costs ($2007/Therm) | |
|---|---|---|---|---|---|
| | Class | Sub-Class(es) | | Base Case | High Commodity Sensitivity |
| Replace DHW | Residential | Existing & Conv | *Must Take* | $ 0.659 | $ 0.659 |
| New SF DHW | Residential | New Const SF | *Must Take* | $ 0.571 | $ 0.571 |
| New SF Heating | Residential | New Const SF | *Must Take* | $ 0.629 | $ 0.629 |
| New MF DHW | Residential | New Const MF | *Must Take* | $ 0.726 | $ 0.726 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 0.306 | $ 0.306 |
| Retro HVAC | Residential | Existing & Conv | *Discretionary* | $ 0.906 | $ 0.906 |
| | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 0.370 | $ 0.415 |
| Coml Rpl | Commercial | Existing & Conv | *Must Take* | $ 0.373 | $ 0.374 |
| Coml New | Commercial | New Const | *Must Take* | $ 0.434 | $ 0.434 |
| | | | | | |
| Industrial Retro | Industrial | N/A | *Discretionary* | $ 0.216 | $ 0.216 |
| Industrial Rpl | Industrial | N/A | *Must Take* | $ 0.401 | $ 0.401 |

## Levelized Program Costs - Washington

| DSM Program | Applicable Customer | | Must Take / Discretionary | Levelized Program Costs ($2007/Therm) | |
|---|---|---|---|---|---|
| | Class | Sub-Class(es) | | Base Case | High Commodity Sensitivity |
| ReplaceDHW | Residential | Existing & Conv | *Must Take* | $ 0.662 | $ 0.662 |
| New SF DHW | Residential | New Const SF | *Must Take* | $ 0.522 | $ 0.522 |
| New SF Heating | Residential | New Const SF | *Must Take* | $ 0.668 | $ 0.668 |
| New MF DHW | Residential | New Const MF | *Must Take* | $ 0.746 | $ 0.746 |
| Retro Wx | Residential | Existing & Conv | *Discretionary* | $ 0.391 | $ 0.391 |
| HVACRetro | Residential | Existing & Conv | *Discretionary* | $ 0.932 | $ 1.042 |
| | | | | | |
| Coml Retro | Commercial | Existing & Conv | *Discretionary* | $ 0.380 | $ 0.427 |
| Coml Rpl | Commercial | Existing & Conv | *Must Take* | $ 0.381 | $ 0.382 |
| Coml New | Commercial | New Const | *Must Take* | $ 0.434 | $ 0.448 |

# Appendix 4-6: DSM Program Monthly Load Distribution

## Program Monthly Load Distribution - Oregon

| DSM Program | Customer Class | Must Take / Discretionary | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Replace DHW | Residential | *Must Take* | 11% | 10% | 10% | 9% | 7% | 6% | 6% | 6% | 6% | 7% | 9.2% | 11% | 100% |
| New DHW | Residential | *Must Take* | 11% | 10% | 10% | 9% | 7% | 6% | 6% | 6% | 6% | 7% | 9.2% | 11% | 100% |
| SF New Heating | Residential | *Must Take* | 11% | 10% | 10% | 9% | 7% | 6% | 6% | 6% | 6% | 7% | 9.2% | 11% | 100% |
| | | | | | | | | | | | | | | | |
| Retrofit Wx | Residential | *Discretionary* | 17% | 13% | 13% | 9% | 5% | 2% | 2% | 1% | 3% | 8% | 11.0% | 16% | 100% |
| Retrofit HVAC | Residential | *Discretionary* | 17% | 13% | 13% | 9% | 5% | 2% | 2% | 1% | 3% | 8% | 11.0% | 16% | 100% |
| | | | | | | | | | | | | | | | |
| Retrofit | Commercial | *Discretionary* | 11% | 9% | 9% | 8% | 7% | 7% | 7% | 7% | 7% | 8% | 10% | 11% | 100% |
| Replace | Commercial | *Must Take* | 15% | 11% | 10% | 8% | 5% | 4% | 4% | 4% | 5% | 8% | 12% | 16% | 100% |
| New | Commercial | *Must Take* | 15% | 11% | 10% | 8% | 5% | 4% | 4% | 4% | 5% | 8% | 12% | 16% | 100% |
| | | | | | | | | | | | | | | | |
| Retrofit | Industrial | *Discretionary* | 10% | 8% | 9% | 8% | 8% | 7% | 8% | 8% | 8% | 8% | 9% | 10% | 100% |
| Replace | Industrial | *Must Take* | 9% | 8% | 9% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 9% | 9% | 100% |

## Program Monthly Load Distribution - Washington

| DSM Program | Customer Class | Must Take / Discretionary | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Replace DHW | Residential | *Must Take* | 13% | 11% | 10% | 8% | 6% | 5% | 5% | 4% | 5% | 8% | 11% | 14% | 100% |
| New DHW | Residential | *Must Take* | 13% | 11% | 10% | 8% | 6% | 5% | 5% | 4% | 5% | 8% | 11% | 14% | 100% |
| SF New Heating | Residential | *Must Take* | 16% | 11% | 10% | 7% | 5% | 3% | 3% | 3% | 4% | 8% | 12% | 17% | 100% |
| | | | | | | | | | | | | | | | |
| Retrofit Wx | Residential | *Discretionary* | 17% | 13% | 13% | 9% | 5% | 2% | 2% | 1% | 3% | 8% | 11% | 16% | 100% |
| Retrofit HVAC | Residential | *Discretionary* | 17% | 13% | 13% | 9% | 5% | 2% | 2% | 1% | 3% | 8% | 11% | 16% | 100% |
| | | | | | | | | | | | | | | | |
| Retrofit | Commercial | *Discretionary* | 15% | 12% | 12% | 9% | 6% | 3% | 3% | 2% | 4% | 8% | 11% | 15% | 100% |
| Replace | Commercial | *Must Take* | 15% | 11% | 10% | 7% | 5% | 4% | 4% | 3% | 4% | 8% | 12% | 16% | 100% |
| New | Commercial | *Must Take* | 15% | 11% | 10% | 7% | 5% | 4% | 4% | 3% | 4% | 8% | 12% | 16% | 100% |

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**Base Case:** **IRP RMix 1 - 85% Probability Weather - Baseline Incremental Resources**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Com-Conv | 0 | 0 | 1 | 1 | 2 | 4 | 5 | 7 | 10 | 13 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 45 | 50 | 54 |
| | Com-Exist | 6 | 10 | 16 | 24 | 32 | 42 | 52 | 62 | 73 | 83 | 93 | 103 | 112 | 120 | 125 | 129 | 134 | 137 | 141 | 144 |
| | Com-NC | 1 | 3 | 4 | 6 | 9 | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 35 | 38 | 41 | 44 | 47 | 49 | 52 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Albany | Res-Conv | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 9 | 10 | 11 | 12 | 13 | 13 | 14 |
| | Res-Exist | 5 | 10 | 16 | 23 | 32 | 40 | 50 | 60 | 69 | 79 | 88 | 95 | 102 | 103 | 104 | 104 | 105 | 106 | 106 | 107 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 6 | 9 | 12 | 17 | 21 | 27 | 33 | 39 | 45 | 51 | 57 | 63 | 69 | 75 | 81 | 87 | 93 | 99 | 105 |
| | Total | 15 | 29 | 48 | 69 | 94 | 122 | 153 | 185 | 218 | 251 | 284 | 315 | 346 | 369 | 389 | 407 | 427 | 445 | 464 | 482 |
| | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 11 | 12 | 13 | 14 | 16 |
| | Com-Exist | 2 | 4 | 7 | 11 | 14 | 19 | 23 | 28 | 32 | 37 | 41 | 46 | 50 | 53 | 55 | 57 | 58 | 60 | 61 | 62 |
| | Com-NC | 1 | 2 | 3 | 4 | 5 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 25 | 27 | 29 | 31 | 32 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Astoria | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 10 |
| | Res-Exist | 1 | 3 | 5 | 6 | 9 | 11 | 14 | 16 | 19 | 21 | 24 | 26 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 29 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 17 | 18 | 19 | 20 | 22 |
| | Total | 5 | 10 | 17 | 25 | 33 | 44 | 55 | 66 | 78 | 90 | 102 | 113 | 124 | 133 | 140 | 146 | 153 | 159 | 165 | 172 |
| | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 7 | 8 | 9 | 10 | 11 | 13 | 14 | 16 |
| | Com-Exist | 2 | 3 | 5 | 7 | 10 | 13 | 16 | 19 | 23 | 26 | 29 | 32 | 35 | 37 | 39 | 40 | 41 | 43 | 44 | 44 |
| | Com-NC | 0 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 13 | 14 | 16 | 18 | 19 | 21 | 22 | 23 | 25 | 26 |
| The Dalles | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| (OR) | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 5 |
| | Res-Exist | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 0 | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | Total | 3 | 6 | 11 | 16 | 22 | 29 | 36 | 44 | 52 | 60 | 68 | 76 | 83 | 90 | 96 | 101 | 106 | 111 | 117 | 122 |
| | Com-Conv | 0 | 1 | 2 | 5 | 8 | 12 | 17 | 24 | 32 | 41 | 51 | 62 | 75 | 88 | 99 | 112 | 124 | 138 | 152 | 167 |
| | Com-Exist | 9 | 15 | 26 | 38 | 52 | 67 | 84 | 100 | 117 | 134 | 149 | 165 | 179 | 193 | 200 | 206 | 212 | 218 | 222 | 227 |
| | Com-NC | 3 | 6 | 9 | 13 | 18 | 23 | 29 | 35 | 41 | 47 | 54 | 60 | 66 | 72 | 78 | 84 | 90 | 96 | 101 | 107 |
| Eugene & | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 |
| Coos Bay | Res-Conv | 0 | 0 | 1 | 1 | 2 | 4 | 5 | 7 | 9 | 12 | 15 | 17 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 |
| | Res-Exist | 4 | 9 | 14 | 20 | 27 | 35 | 43 | 52 | 60 | 68 | 76 | 82 | 88 | 89 | 90 | 90 | 91 | 92 | 93 | 93 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 5 | 8 | 12 | 16 | 20 | 26 | 31 | 37 | 43 | 49 | 55 | 60 | 66 | 72 | 78 | 84 | 89 | 95 | 101 |
| | Total | 19 | 37 | 62 | 92 | 126 | 164 | 208 | 254 | 303 | 352 | 401 | 449 | 497 | 539 | 572 | 606 | 639 | 672 | 706 | 739 |
| | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 11 | 13 | 14 | 16 | 17 |
| | Com-Exist | 2 | 4 | 7 | 10 | 13 | 17 | 21 | 26 | 30 | 34 | 39 | 43 | 46 | 50 | 51 | 53 | 54 | 56 | 57 | 58 |
| | Com-NC | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 13 | 14 | 15 | 16 | 18 | 19 | 20 | 21 | 22 |
| Newport & | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lincoln | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 7 |
| City | Res-Exist | 1 | 2 | 3 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 17 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 21 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 1 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 12 | 14 | 15 | 17 | 18 | 20 | 21 | 23 | 24 | 26 |
| | Total | 5 | 9 | 15 | 21 | 29 | 38 | 48 | 58 | 68 | 79 | 89 | 99 | 109 | 117 | 123 | 129 | 135 | 141 | 147 | 153 |
| | Com-Conv | 1 | 3 | 7 | 13 | 22 | 34 | 49 | 67 | 89 | 114 | 142 | 173 | 207 | 244 | 276 | 310 | 347 | 386 | 426 | 468 |
| | Com-Exist | 63 | 109 | 185 | 272 | 370 | 478 | 597 | 714 | 839 | 958 | 1,072 | 1,182 | 1,287 | 1,388 | 1,442 | 1,492 | 1,540 | 1,584 | 1,623 | 1,658 |
| | Com-NC | 12 | 25 | 40 | 57 | 77 | 100 | 125 | 149 | 177 | 204 | 231 | 258 | 284 | 311 | 337 | 363 | 389 | 415 | 440 | 465 |
| | Industrial | 1 | 3 | 5 | 7 | 9 | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 32 | 32 | 33 | 33 | 33 | 34 | 34 |
| Portland | Res-Conv | 1 | 2 | 6 | 10 | 17 | 26 | 38 | 52 | 69 | 87 | 107 | 127 | 149 | 163 | 176 | 190 | 204 | 218 | 232 | 247 |
| | Res-Exist | 55 | 118 | 189 | 271 | 365 | 468 | 582 | 696 | 808 | 919 | 1,027 | 1,113 | 1,200 | 1,211 | 1,221 | 1,231 | 1,242 | 1,252 | 1,261 | 1,270 |
| | Res-NC MF | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 22 | 25 | 28 | 31 | 34 | 37 | 40 | 43 | 46 | 49 | 52 | 55 | 58 |
| | Res-NC SF | 19 | 38 | 60 | 85 | 114 | 147 | 185 | 227 | 269 | 311 | 353 | 394 | 437 | 479 | 521 | 562 | 605 | 647 | 689 | 731 |
| | Total | 153 | 301 | 498 | 725 | 987 | 1,280 | 1,608 | 1,944 | 2,295 | 2,643 | 2,989 | 3,310 | 3,632 | 3,866 | 4,049 | 4,228 | 4,409 | 4,588 | 4,762 | 4,931 |
| | Com-Conv | 0 | 1 | 1 | 2 | 4 | 6 | 9 | 13 | 17 | 21 | 26 | 32 | 38 | 45 | 51 | 58 | 65 | 72 | 79 | 87 |
| | Com-Exist | 14 | 25 | 42 | 62 | 85 | 109 | 136 | 163 | 191 | 218 | 243 | 268 | 291 | 314 | 326 | 338 | 348 | 358 | 366 | 374 |
| | Com-NC | 5 | 11 | 18 | 26 | 36 | 46 | 57 | 69 | 81 | 94 | 106 | 119 | 131 | 143 | 155 | 167 | 178 | 190 | 201 | 213 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| Salem | Res-Conv | 0 | 0 | 1 | 2 | 3 | 4 | 6 | 8 | 11 | 13 | 16 | 19 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 |
| | Res-Exist | 11 | 23 | 37 | 53 | 71 | 91 | 113 | 134 | 156 | 177 | 197 | 213 | 229 | 231 | 233 | 234 | 236 | 238 | 239 | 241 |
| | Res-NC MF | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| | Res-NC SF | 6 | 13 | 20 | 29 | 39 | 50 | 63 | 77 | 91 | 106 | 120 | 134 | 148 | 162 | 177 | 191 | 205 | 219 | 233 | 247 |
| | Total | 38 | 74 | 122 | 177 | 240 | 310 | 389 | 470 | 554 | 636 | 718 | 795 | 872 | 932 | 980 | 1,028 | 1,075 | 1,122 | 1,167 | 1,212 |
| | Com-Conv | 0 | 1 | 2 | 3 | 5 | 7 | 11 | 14 | 18 | 23 | 28 | 34 | 40 | 45 | 50 | 56 | 61 | 67 | 73 | 79 |
| | Com-Exist | 7 | 16 | 25 | 35 | 47 | 59 | 73 | 86 | 98 | 111 | 123 | 135 | 146 | 153 | 159 | 164 | 169 | 173 | 178 | 182 |
| Vancouver | Com-NC | 7 | 15 | 25 | 38 | 53 | 70 | 92 | 113 | 137 | 164 | 192 | 222 | 253 | 286 | 321 | 357 | 397 | 438 | 479 | 521 |
| & The | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | Res-Conv | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 12 | 15 | 16 | 18 | 19 | 21 | 22 | 24 | 26 |
| (WA) | Res-Exist | 8 | 18 | 28 | 41 | 55 | 70 | 87 | 104 | 121 | 137 | 154 | 170 | 185 | 191 | 195 | 198 | 201 | 204 | 207 | 210 |
| | Res-NC MF | 1 | 2 | 3 | 5 | 6 | 8 | 11 | 13 | 15 | 17 | 20 | 22 | 24 | 27 | 29 | 32 | 34 | 37 | 40 | 42 |
| | Res-NC SF | 3 | 6 | 9 | 13 | 18 | 24 | 30 | 37 | 43 | 50 | 57 | 63 | 70 | 78 | 85 | 92 | 99 | 107 | 115 | 122 |
| | Total | 26 | 57 | 93 | 135 | 185 | 242 | 307 | 372 | 439 | 511 | 584 | 658 | 734 | 797 | 856 | 917 | 982 | 1,049 | 1,116 | 1,182 |
| | Com-Conv | 2 | 5 | 12 | 23 | 38 | 59 | 86 | 118 | 157 | 201 | 250 | 304 | 364 | 430 | 487 | 548 | 612 | 680 | 751 | 825 |
| | Com-Exist | 98 | 170 | 288 | 423 | 577 | 745 | 929 | 1,112 | 1,306 | 1,490 | 1,667 | 1,837 | 1,999 | 2,155 | 2,238 | 2,316 | 2,388 | 2,455 | 2,514 | 2,567 |
| | Com-NC | 23 | 49 | 79 | 113 | 153 | 197 | 246 | 295 | 350 | 404 | 457 | 510 | 563 | 615 | 667 | 718 | 769 | 819 | 869 | 917 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 57 |
| Oregon | Res-Conv | 1 | 4 | 8 | 15 | 25 | 38 | 55 | 75 | 99 | 125 | 154 | 183 | 214 | 233 | 252 | 271 | 291 | 312 | 332 | 353 |
| Total | Res-Exist | 78 | 166 | 266 | 381 | 513 | 658 | 817 | 976 | 1,134 | 1,288 | 1,439 | 1,558 | 1,678 | 1,693 | 1,707 | 1,720 | 1,735 | 1,748 | 1,761 | 1,773 |
| | Res-NC MF | 1 | 4 | 8 | 12 | 15 | 19 | 23 | 26 | 30 | 33 | 37 | 41 | 44 | 48 | 51 | 55 | 59 | 62 | 66 | 70 |
| | Res-NC SF | 32 | 65 | 103 | 146 | 195 | 252 | 316 | 388 | 460 | 532 | 603 | 675 | 747 | 819 | 890 | 961 | 1,034 | 1,106 | 1,177 | 1,248 |
| | Res&Com Subtotal | 236 | 463 | 764 | 1,113 | 1,516 | 1,968 | 2,472 | 2,991 | 3,534 | 4,072 | 4,607 | 5,108 | 5,610 | 5,992 | 6,293 | 6,589 | 6,888 | 7,182 | 7,470 | 7,753 |
| | Total | 238 | 467 | 771 | 1,124 | 1,531 | 1,987 | 2,497 | 3,020 | 3,568 | 4,112 | 4,651 | 5,157 | 5,664 | 6,047 | 6,348 | 6,645 | 6,944 | 7,239 | 7,527 | 7,810 |
| | Com-Conv | 2 | 6 | 14 | 26 | 43 | 66 | 96 | 132 | 175 | 224 | 278 | 338 | 404 | 475 | 537 | 603 | 674 | 747 | 824 | 904 |
| | Com-Exist | 106 | 185 | 313 | 459 | 624 | 804 | 1,002 | 1,198 | 1,404 | 1,602 | 1,790 | 1,972 | 2,146 | 2,308 | 2,397 | 2,479 | 2,557 | 2,628 | 2,692 | 2,749 |
| | Com-NC | 30 | 64 | 104 | 150 | 205 | 267 | 338 | 408 | 486 | 567 | 649 | 732 | 816 | 902 | 988 | 1,075 | 1,165 | 1,257 | 1,348 | 1,439 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 57 |
| System | Res-Conv | 1 | 4 | 9 | 16 | 26 | 41 | 59 | 80 | 105 | 133 | 164 | 195 | 228 | 249 | 269 | 290 | 312 | 334 | 356 | 379 |
| Total | Res-Exist | 86 | 183 | 294 | 422 | 567 | 728 | 904 | 1,081 | 1,255 | 1,425 | 1,592 | 1,728 | 1,864 | 1,884 | 1,902 | 1,918 | 1,936 | 1,952 | 1,968 | 1,982 |
| | Res-NC MF | 2 | 6 | 11 | 16 | 22 | 27 | 33 | 39 | 45 | 51 | 57 | 63 | 69 | 75 | 81 | 87 | 93 | 99 | 106 | 112 |
| | Res-NC SF | 35 | 71 | 112 | 159 | 214 | 276 | 347 | 424 | 503 | 581 | 660 | 738 | 817 | 896 | 975 | 1,053 | 1,133 | 1,212 | 1,292 | 1,371 |
| | Total | 264 | 524 | 864 | 1,259 | 1,716 | 2,229 | 2,803 | 3,392 | 4,007 | 4,622 | 5,235 | 5,815 | 6,398 | 6,843 | 7,204 | 7,562 | 7,926 | 8,287 | 8,643 | 8,992 |

**Sensitivity 2:** **IRP RMix 1 - 85% Probability Weather - Low Demand/High Price Scenario**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | Com-Conv | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 6 | 7 | 9 | 11 | 13 | 16 | 18 | 20 | 23 | 25 | 28 | 31 |
| | Com-Exist | 6 | 10 | 16 | 24 | 32 | 42 | 52 | 62 | 73 | 83 | 93 | 103 | 112 | 120 | 125 | 129 | 134 | 137 | 141 | 144 |
| | Com-NC | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 12 | 13 | 15 | 17 | 18 | 20 | 21 | 23 | 25 | 26 | 28 | 29 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Res-Exist | 5 | 10 | 16 | 23 | 32 | 40 | 50 | 60 | 69 | 79 | 88 | 95 | 102 | 103 | 104 | 104 | 105 | 106 | 106 | 107 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 10 | 11 | 12 | 12 | 13 | 14 | 15 | 15 | 16 |
| | Total | 13 | 25 | 40 | 57 | 76 | 98 | 122 | 146 | 171 | 195 | 219 | 240 | 262 | 276 | 286 | 296 | 305 | 315 | 324 | 333 |
| Astoria | Com-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 7 | 7 | 8 | 9 |
| | Com-Exist | 2 | 4 | 7 | 11 | 14 | 19 | 23 | 28 | 32 | 37 | 41 | 46 | 50 | 53 | 55 | 57 | 58 | 60 | 61 | 62 |
| | Com-NC | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 1 | 3 | 5 | 6 | 9 | 11 | 14 | 16 | 19 | 21 | 24 | 26 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 29 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Total | 5 | 9 | 14 | 21 | 28 | 36 | 45 | 54 | 63 | 72 | 80 | 88 | 96 | 102 | 106 | 110 | 113 | 117 | 120 | 123 |
| The Dalles (OR) | Com-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 9 |
| | Com-Exist | 2 | 3 | 5 | 7 | 10 | 13 | 16 | 19 | 23 | 26 | 29 | 32 | 35 | 37 | 39 | 40 | 41 | 43 | 44 | 44 |
| | Com-NC | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 13 | 14 | 15 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| | Total | 3 | 5 | 9 | 13 | 18 | 23 | 28 | 34 | 40 | 46 | 52 | 57 | 62 | 67 | 70 | 73 | 76 | 79 | 81 | 84 |
| Eugene & Coos Bay | Com-Conv | 0 | 1 | 2 | 3 | 5 | 7 | 10 | 14 | 19 | 24 | 29 | 36 | 43 | 50 | 56 | 63 | 70 | 78 | 85 | 94 |
| | Com-Exist | 9 | 15 | 26 | 38 | 52 | 67 | 84 | 100 | 117 | 134 | 149 | 165 | 179 | 193 | 200 | 206 | 212 | 218 | 222 | 227 |
| | Com-NC | 2 | 4 | 6 | 8 | 11 | 14 | 17 | 20 | 24 | 27 | 31 | 34 | 38 | 41 | 44 | 47 | 51 | 54 | 57 | 60 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 |
| | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 |
| | Res-Exist | 4 | 9 | 14 | 20 | 27 | 35 | 43 | 52 | 60 | 68 | 76 | 82 | 88 | 89 | 90 | 90 | 91 | 92 | 93 | 93 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 7 | 8 | 9 | 10 | 10 | 11 | 12 | 13 | 13 | 14 | 15 | 16 |
| | Total | 17 | 32 | 52 | 75 | 102 | 132 | 165 | 199 | 234 | 269 | 304 | 337 | 369 | 396 | 414 | 433 | 451 | 469 | 486 | 503 |
| Newport & Lincoln City | Com-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 10 |
| | Com-Exist | 2 | 4 | 7 | 10 | 13 | 17 | 21 | 26 | 30 | 34 | 39 | 43 | 46 | 50 | 51 | 53 | 54 | 56 | 57 | 58 |
| | Com-NC | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 9 | 10 | 11 | 11 | 12 | 13 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 1 | 2 | 3 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 17 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 21 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| | Total | 4 | 7 | 12 | 18 | 24 | 31 | 38 | 46 | 54 | 61 | 69 | 76 | 83 | 88 | 91 | 95 | 98 | 101 | 104 | 107 |
| Portland | Com-Conv | 1 | 2 | 5 | 9 | 14 | 21 | 30 | 40 | 53 | 67 | 83 | 100 | 120 | 140 | 158 | 178 | 198 | 220 | 242 | 265 |
| | Com-Exist | 63 | 109 | 185 | 272 | 370 | 478 | 597 | 714 | 839 | 958 | 1,072 | 1,182 | 1,287 | 1,388 | 1,442 | 1,492 | 1,540 | 1,584 | 1,623 | 1,658 |
| | Com-NC | 9 | 18 | 27 | 37 | 48 | 61 | 75 | 89 | 104 | 120 | 135 | 149 | 164 | 179 | 193 | 207 | 222 | 236 | 249 | 263 |
| | Industrial | 1 | 3 | 5 | 7 | 9 | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 32 | 32 | 33 | 33 | 33 | 34 | 34 |
| | Res-Conv | 0 | 1 | 2 | 3 | 4 | 6 | 8 | 11 | 14 | 17 | 20 | 23 | 26 | 28 | 29 | 31 | 33 | 34 | 36 | 38 |
| | Res-Exist | 55 | 118 | 189 | 271 | 365 | 468 | 582 | 696 | 808 | 919 | 1,027 | 1,113 | 1,200 | 1,211 | 1,221 | 1,231 | 1,242 | 1,252 | 1,261 | 1,270 |
| | Res-NC MF | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 8 | 9 | 9 |
| | Res-NC SF | 11 | 17 | 21 | 25 | 30 | 35 | 41 | 47 | 53 | 59 | 65 | 70 | 76 | 81 | 87 | 92 | 97 | 102 | 108 | 113 |
| | Total | 142 | 268 | 434 | 625 | 843 | 1,084 | 1,351 | 1,619 | 1,897 | 2,168 | 2,433 | 2,673 | 2,910 | 3,065 | 3,170 | 3,271 | 3,372 | 3,470 | 3,562 | 3,649 |
| Salem | Com-Conv | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 7 | 10 | 12 | 15 | 18 | 22 | 26 | 29 | 33 | 36 | 40 | 45 | 49 |
| | Com-Exist | 14 | 25 | 42 | 62 | 85 | 109 | 136 | 163 | 191 | 218 | 243 | 268 | 291 | 314 | 326 | 338 | 348 | 358 | 366 | 374 |
| | Com-NC | 4 | 8 | 12 | 17 | 22 | 28 | 34 | 41 | 48 | 55 | 62 | 68 | 75 | 82 | 88 | 95 | 101 | 107 | 114 | 120 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 |
| | Res-Exist | 11 | 23 | 37 | 53 | 71 | 91 | 113 | 134 | 156 | 177 | 197 | 213 | 229 | 231 | 233 | 234 | 236 | 238 | 239 | 241 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 4 | 6 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 29 | 31 | 33 | 35 | 36 | 38 |
| | Total | 34 | 63 | 101 | 144 | 193 | 248 | 308 | 368 | 430 | 491 | 550 | 604 | 656 | 693 | 719 | 745 | 769 | 793 | 816 | 837 |
| Vancouver & The Dalles (WA) | Com-Conv | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 9 | 10 | 11 | 12 | 13 | 14 |
| | Com-Exist | 7 | 16 | 25 | 35 | 47 | 59 | 73 | 86 | 98 | 111 | 123 | 135 | 146 | 153 | 159 | 164 | 169 | 173 | 178 | 182 |
| | Com-NC | 4 | 6 | 9 | 12 | 15 | 18 | 22 | 26 | 30 | 35 | 40 | 45 | 50 | 56 | 61 | 67 | 73 | 80 | 86 | 93 |
| | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Res-Exist | 8 | 18 | 28 | 41 | 55 | 70 | 87 | 104 | 121 | 137 | 154 | 170 | 185 | 191 | 195 | 198 | 201 | 204 | 207 | 210 |
| | Res-NC MF | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-NC SF | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 10 |
| | Total | 22 | 43 | 66 | 92 | 122 | 155 | 191 | 227 | 262 | 297 | 332 | 366 | 401 | 420 | 436 | 451 | 467 | 483 | 498 | 513 |
| Oregon Total | Com-Conv | 2 | 4 | 8 | 15 | 24 | 36 | 51 | 70 | 92 | 117 | 145 | 176 | 210 | 246 | 278 | 312 | 348 | 385 | 424 | 465 |
| | Com-Exist | 98 | 170 | 288 | 423 | 577 | 745 | 929 | 1,112 | 1,306 | 1,490 | 1,667 | 1,837 | 1,999 | 2,155 | 2,238 | 2,316 | 2,388 | 2,455 | 2,514 | 2,567 |
| | Com-NC | 18 | 34 | 52 | 72 | 94 | 119 | 147 | 175 | 205 | 235 | 265 | 294 | 323 | 352 | 380 | 408 | 436 | 463 | 490 | 517 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 57 |
| | Res-Conv | 1 | 2 | 3 | 4 | 6 | 9 | 12 | 16 | 19 | 24 | 28 | 32 | 37 | 39 | 42 | 44 | 47 | 49 | 52 | 54 |
| | Res-Exist | 78 | 166 | 266 | 381 | 513 | 658 | 817 | 976 | 1,134 | 1,288 | 1,439 | 1,558 | 1,678 | 1,693 | 1,707 | 1,720 | 1,735 | 1,748 | 1,761 | 1,773 |
| | Res-NC MF | 1 | 2 | 3 | 3 | 4 | 5 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 11 |
| | Res-NC SF | 20 | 28 | 36 | 43 | 51 | 60 | 70 | 81 | 91 | 101 | 111 | 120 | 130 | 139 | 148 | 157 | 166 | 175 | 184 | 192 |
| | Res&Com Subtotal | 217 | 405 | 655 | 942 | 1,269 | 1,631 | 2,032 | 2,435 | 2,853 | 3,262 | 3,661 | 4,025 | 4,385 | 4,633 | 4,802 | 4,966 | 5,128 | 5,286 | 5,435 | 5,579 |
| | Total | 219 | 409 | 663 | 953 | 1,284 | 1,651 | 2,057 | 2,465 | 2,888 | 3,301 | 3,706 | 4,074 | 4,439 | 4,687 | 4,857 | 5,021 | 5,185 | 5,342 | 5,492 | 5,637 |
| System Total | Com-Conv | 2 | 4 | 9 | 15 | 25 | 38 | 54 | 73 | 96 | 122 | 151 | 183 | 217 | 255 | 288 | 322 | 359 | 397 | 437 | 479 |
| | Com-Exist | 106 | 185 | 313 | 459 | 624 | 804 | 1,002 | 1,198 | 1,404 | 1,602 | 1,790 | 1,972 | 2,146 | 2,308 | 2,397 | 2,479 | 2,557 | 2,628 | 2,692 | 2,749 |
| | Com-NC | 22 | 40 | 60 | 83 | 109 | 138 | 170 | 201 | 236 | 270 | 305 | 339 | 373 | 408 | 441 | 475 | 509 | 543 | 577 | 610 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 57 |
| | Res-Conv | 1 | 2 | 3 | 5 | 7 | 9 | 13 | 16 | 20 | 25 | 29 | 34 | 38 | 41 | 43 | 46 | 48 | 51 | 54 | 56 |
| | Res-Exist | 86 | 183 | 294 | 422 | 567 | 728 | 904 | 1,081 | 1,255 | 1,425 | 1,592 | 1,728 | 1,864 | 1,884 | 1,902 | 1,918 | 1,936 | 1,952 | 1,968 | 1,982 |
| | Res-NC MF | 1 | 3 | 4 | 4 | 5 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 13 | 13 | 14 |
| | Res-NC SF | 21 | 30 | 38 | 46 | 55 | 64 | 74 | 86 | 97 | 107 | 117 | 127 | 137 | 146 | 156 | 165 | 174 | 184 | 193 | 202 |
| | Total | 240 | 452 | 728 | 1,045 | 1,407 | 1,806 | 2,248 | 2,691 | 3,149 | 3,598 | 4,038 | 4,441 | 4,839 | 5,107 | 5,293 | 5,473 | 5,652 | 5,825 | 5,991 | 6,150 |

**Sensitivity 6:** **IRP RMix 1 - Original Design Weather - Old Design Weather (Coldest 20 Year Peak & Annual)**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | Com-Conv | 0 | 0 | 1 | 1 | 2 | 4 | 6 | 8 | 11 | 14 | 17 | 21 | 25 | 29 | 33 | 38 | 42 | 47 | 52 | 57 |
| | Com-Exist | 6 | 10 | 17 | 25 | 34 | 44 | 55 | 65 | 77 | 87 | 98 | 107 | 117 | 126 | 131 | 135 | 140 | 144 | 148 | 151 |
| | Com-NC | 1 | 3 | 5 | 7 | 9 | 12 | 15 | 18 | 21 | 24 | 28 | 31 | 34 | 37 | 40 | 43 | 46 | 49 | 52 | 55 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 |
| | Res-Conv | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 6 | 7 | 8 | 10 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| | Res-Exist | 5 | 11 | 18 | 26 | 35 | 44 | 55 | 65 | 76 | 86 | 96 | 104 | 112 | 112 | 113 | 114 | 114 | 115 | 116 | 116 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 6 | 9 | 13 | 17 | 22 | 28 | 34 | 40 | 46 | 52 | 59 | 65 | 71 | 77 | 83 | 89 | 96 | 102 | 108 |
| | Total | 15 | 31 | 50 | 73 | 100 | 129 | 162 | 196 | 231 | 267 | 301 | 334 | 366 | 391 | 411 | 430 | 451 | 470 | 489 | 508 |
| Astoria | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 12 | 14 | 15 | 16 |
| | Com-Exist | 3 | 4 | 7 | 11 | 15 | 19 | 24 | 29 | 33 | 38 | 43 | 47 | 51 | 55 | 57 | 59 | 60 | 61 | 63 | 64 |
| | Com-NC | 1 | 2 | 3 | 4 | 6 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 24 | 26 | 28 | 30 | 32 | 34 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 7 | 8 | 9 | 9 | 10 | 10 |
| | Res-Exist | 1 | 3 | 5 | 7 | 9 | 12 | 15 | 18 | 20 | 23 | 26 | 28 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 31 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 1 | 1 | 2 | 3 | 3 | 4 | 6 | 7 | 8 | 9 | 11 | 12 | 13 | 14 | 16 | 17 | 18 | 19 | 21 | 22 |
| | Total | 6 | 11 | 18 | 26 | 35 | 46 | 57 | 69 | 82 | 94 | 106 | 118 | 129 | 139 | 145 | 152 | 159 | 166 | 172 | 178 |
| The Dalles (OR) | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 12 | 14 | 15 | 17 |
| | Com-Exist | 2 | 3 | 5 | 8 | 11 | 14 | 17 | 21 | 24 | 27 | 31 | 34 | 37 | 39 | 41 | 42 | 44 | 45 | 46 | 47 |
| | Com-NC | 0 | 1 | 2 | 3 | 4 | 6 | 7 | 9 | 11 | 12 | 14 | 16 | 17 | 19 | 20 | 22 | 24 | 25 | 27 | 28 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 |
| | Res-Exist | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 12 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 0 | 1 | 1 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| | Total | 3 | 7 | 12 | 17 | 23 | 30 | 38 | 47 | 55 | 64 | 72 | 81 | 89 | 96 | 102 | 107 | 113 | 119 | 124 | 130 |
| Eugene & Coos Bay | Com-Conv | 0 | 1 | 3 | 5 | 8 | 12 | 18 | 25 | 33 | 42 | 53 | 64 | 77 | 91 | 103 | 116 | 129 | 143 | 157 | 173 |
| | Com-Exist | 9 | 16 | 27 | 40 | 54 | 70 | 87 | 104 | 122 | 139 | 155 | 171 | 186 | 200 | 207 | 214 | 221 | 226 | 231 | 236 |
| | Com-NC | 3 | 6 | 10 | 14 | 19 | 25 | 31 | 37 | 44 | 50 | 57 | 64 | 70 | 77 | 83 | 89 | 95 | 102 | 108 | 114 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | Res-Conv | 0 | 0 | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 13 | 16 | 19 | 22 | 24 | 26 | 28 | 30 | 32 | 35 | 37 |
| | Res-Exist | 5 | 10 | 15 | 22 | 29 | 38 | 47 | 56 | 65 | 73 | 82 | 88 | 95 | 96 | 97 | 97 | 98 | 99 | 100 | 100 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 5 | 8 | 12 | 16 | 21 | 26 | 32 | 38 | 44 | 50 | 56 | 62 | 68 | 74 | 80 | 85 | 91 | 97 | 103 |
| | Total | 20 | 39 | 66 | 96 | 132 | 173 | 219 | 267 | 318 | 369 | 421 | 471 | 522 | 565 | 600 | 634 | 669 | 704 | 739 | 773 |
| Newport & Lincoln City | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 12 | 13 | 15 | 16 | 18 |
| | Com-Exist | 2 | 4 | 7 | 10 | 13 | 17 | 22 | 26 | 31 | 35 | 39 | 43 | 47 | 51 | 52 | 54 | 55 | 57 | 58 | 59 |
| | Com-NC | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 12 | 13 | 14 | 16 | 17 | 18 | 19 | 21 | 22 | 23 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 |
| | Res-Exist | 1 | 2 | 4 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 18 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 22 | 22 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 1 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 13 | 14 | 16 | 17 | 19 | 20 | 22 | 23 | 24 | 26 |
| | Total | 5 | 9 | 15 | 22 | 30 | 39 | 49 | 59 | 70 | 81 | 92 | 102 | 112 | 120 | 127 | 133 | 139 | 145 | 151 | 157 |
| Portland | Com-Conv | 1 | 3 | 7 | 14 | 23 | 35 | 51 | 70 | 93 | 119 | 148 | 180 | 216 | 255 | 289 | 325 | 363 | 404 | 447 | 491 |
| | Com-Exist | 65 | 114 | 193 | 283 | 386 | 498 | 622 | 744 | 874 | 998 | 1,117 | 1,231 | 1,340 | 1,445 | 1,502 | 1,556 | 1,606 | 1,652 | 1,693 | 1,731 |
| | Com-NC | 13 | 26 | 42 | 60 | 82 | 105 | 131 | 157 | 186 | 215 | 243 | 272 | 300 | 328 | 356 | 383 | 410 | 438 | 464 | 491 |
| | Industrial | 1 | 3 | 5 | 7 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 33 | 33 | 34 | 34 | 34 | 35 | 35 |
| | Res-Conv | 1 | 3 | 6 | 11 | 19 | 29 | 42 | 58 | 76 | 96 | 118 | 140 | 164 | 178 | 193 | 208 | 223 | 238 | 254 | 270 |
| | Res-Exist | 60 | 128 | 206 | 296 | 398 | 511 | 635 | 759 | 882 | 1,002 | 1,120 | 1,215 | 1,307 | 1,318 | 1,328 | 1,338 | 1,348 | 1,358 | 1,367 | 1,376 |
| | Res-NC MF | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 22 | 26 | 29 | 32 | 35 | 38 | 41 | 44 | 47 | 50 | 54 | 57 | 60 |
| | Res-NC SF | 19 | 39 | 62 | 87 | 118 | 152 | 190 | 233 | 277 | 320 | 363 | 406 | 449 | 493 | 536 | 579 | 623 | 666 | 710 | 753 |
| | Total | 162 | 320 | 528 | 769 | 1,047 | 1,358 | 1,705 | 2,062 | 2,433 | 2,802 | 3,168 | 3,508 | 3,847 | 4,090 | 4,281 | 4,470 | 4,658 | 4,844 | 5,026 | 5,205 |
| Salem | Com-Conv | 0 | 1 | 1 | 3 | 4 | 7 | 10 | 13 | 17 | 22 | 28 | 34 | 40 | 48 | 54 | 61 | 68 | 75 | 83 | 91 |
| | Com-Exist | 15 | 26 | 44 | 65 | 88 | 114 | 142 | 169 | 199 | 227 | 253 | 279 | 303 | 327 | 340 | 351 | 363 | 373 | 382 | 390 |
| | Com-NC | 6 | 12 | 19 | 28 | 37 | 48 | 60 | 72 | 85 | 98 | 111 | 124 | 137 | 149 | 162 | 174 | 186 | 198 | 210 | 222 |
| | Industrial | 0 | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 7 | 8 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 |
| | Res-Conv | 0 | 0 | 1 | 2 | 3 | 4 | 6 | 9 | 11 | 14 | 18 | 21 | 25 | 27 | 29 | 31 | 33 | 36 | 38 | 40 |
| | Res-Exist | 12 | 25 | 40 | 57 | 76 | 98 | 121 | 145 | 168 | 190 | 212 | 230 | 247 | 249 | 250 | 252 | 254 | 255 | 257 | 258 |
| | Res-NC MF | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| | Res-NC SF | 7 | 13 | 21 | 30 | 40 | 51 | 64 | 79 | 94 | 108 | 123 | 137 | 152 | 166 | 181 | 195 | 210 | 224 | 239 | 253 |
| | Total | 40 | 78 | 128 | 186 | 252 | 326 | 409 | 493 | 582 | 669 | 755 | 835 | 915 | 977 | 1,028 | 1,077 | 1,126 | 1,175 | 1,222 | 1,268 |
| Vancouver & The Dalles (WA) | Com-Conv | 0 | 1 | 2 | 3 | 5 | 8 | 11 | 15 | 20 | 25 | 30 | 36 | 42 | 48 | 54 | 59 | 65 | 72 | 78 | 85 |
| | Com-Exist | 8 | 17 | 26 | 37 | 50 | 63 | 77 | 91 | 104 | 118 | 131 | 143 | 155 | 163 | 168 | 174 | 179 | 184 | 188 | 193 |
| | Com-NC | 7 | 16 | 26 | 40 | 56 | 74 | 97 | 120 | 144 | 173 | 203 | 234 | 267 | 302 | 339 | 377 | 418 | 462 | 506 | 550 |
| | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Res-Conv | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 5 | 7 | 9 | 11 | 13 | 16 | 18 | 19 | 21 | 22 | 24 | 26 | 28 |
| | Res-Exist | 9 | 19 | 30 | 44 | 59 | 76 | 95 | 113 | 131 | 149 | 166 | 184 | 201 | 207 | 210 | 214 | 217 | 220 | 223 | 226 |
| | Res-NC MF | 1 | 2 | 3 | 5 | 7 | 9 | 11 | 14 | 16 | 18 | 21 | 23 | 26 | 28 | 31 | 34 | 36 | 39 | 42 | 45 |
| | Res-NC SF | 3 | 6 | 10 | 14 | 19 | 25 | 32 | 39 | 45 | 53 | 60 | 67 | 74 | 82 | 89 | 97 | 105 | 113 | 121 | 129 |
| | Total | 28 | 61 | 99 | 144 | 197 | 258 | 327 | 396 | 467 | 544 | 622 | 701 | 782 | 848 | 911 | 976 | 1,044 | 1,114 | 1,185 | 1,255 |
| Oregon Total | Com-Conv | 2 | 6 | 13 | 24 | 40 | 62 | 90 | 123 | 164 | 210 | 261 | 318 | 381 | 449 | 509 | 573 | 640 | 712 | 786 | 864 |
| | Com-Exist | 102 | 177 | 301 | 442 | 601 | 776 | 968 | 1,158 | 1,359 | 1,552 | 1,735 | 1,912 | 2,081 | 2,242 | 2,330 | 2,412 | 2,488 | 2,559 | 2,621 | 2,678 |
| | Com-NC | 24 | 51 | 83 | 119 | 161 | 207 | 259 | 311 | 368 | 425 | 481 | 537 | 592 | 648 | 702 | 756 | 809 | 862 | 914 | 966 |
| | Industrial | 2 | 5 | 8 | 12 | 16 | 20 | 25 | 30 | 36 | 41 | 46 | 51 | 56 | 56 | 57 | 57 | 58 | 58 | 59 | 59 |
| | Res-Conv | 1 | 4 | 9 | 16 | 27 | 42 | 60 | 83 | 108 | 137 | 169 | 200 | 234 | 254 | 275 | 296 | 318 | 340 | 362 | 384 |
| | Res-Exist | 85 | 180 | 289 | 415 | 558 | 716 | 890 | 1,063 | 1,234 | 1,401 | 1,565 | 1,696 | 1,825 | 1,839 | 1,853 | 1,866 | 1,879 | 1,892 | 1,904 | 1,916 |
| | Res-NC MF | 1 | 5 | 8 | 12 | 16 | 19 | 23 | 27 | 31 | 34 | 38 | 42 | 45 | 49 | 53 | 57 | 60 | 64 | 68 | 71 |
| | Res-NC SF | 33 | 67 | 105 | 149 | 201 | 259 | 325 | 398 | 472 | 546 | 620 | 693 | 767 | 841 | 915 | 987 | 1,062 | 1,136 | 1,209 | 1,282 |
| | Res&Com Subtotal | 249 | 490 | 809 | 1,178 | 1,604 | 2,081 | 2,615 | 3,163 | 3,736 | 4,304 | 4,869 | 5,397 | 5,925 | 6,322 | 6,636 | 6,946 | 7,257 | 7,564 | 7,864 | 8,160 |
| | Total | 251 | 495 | 816 | 1,189 | 1,619 | 2,101 | 2,640 | 3,193 | 3,771 | 4,345 | 4,914 | 5,448 | 5,981 | 6,379 | 6,693 | 7,003 | 7,315 | 7,622 | 7,923 | 8,219 |
| System Total | Com-Conv | 2 | 6 | 15 | 27 | 45 | 70 | 101 | 138 | 183 | 234 | 291 | 354 | 423 | 497 | 563 | 632 | 706 | 783 | 864 | 948 |
| | Com-Exist | 110 | 194 | 327 | 479 | 651 | 839 | 1,045 | 1,249 | 1,464 | 1,670 | 1,866 | 2,055 | 2,236 | 2,405 | 2,498 | 2,586 | 2,667 | 2,743 | 2,809 | 2,870 |
| | Com-NC | 31 | 67 | 109 | 158 | 216 | 282 | 356 | 430 | 512 | 598 | 684 | 771 | 860 | 950 | 1,041 | 1,133 | 1,228 | 1,324 | 1,420 | 1,516 |
| | Industrial | 2 | 5 | 8 | 12 | 16 | 20 | 25 | 30 | 36 | 41 | 46 | 51 | 56 | 56 | 57 | 57 | 58 | 58 | 59 | 59 |
| | Res-Conv | 1 | 4 | 9 | 17 | 29 | 44 | 64 | 88 | 115 | 146 | 180 | 213 | 250 | 272 | 294 | 317 | 340 | 364 | 388 | 412 |
| | Res-Exist | 94 | 199 | 320 | 459 | 617 | 792 | 984 | 1,176 | 1,365 | 1,550 | 1,732 | 1,879 | 2,026 | 2,046 | 2,063 | 2,079 | 2,096 | 2,112 | 2,127 | 2,142 |
| | Res-NC MF | 2 | 7 | 12 | 17 | 22 | 28 | 34 | 40 | 46 | 53 | 59 | 65 | 71 | 77 | 84 | 90 | 97 | 103 | 110 | 116 |
| | Res-NC SF | 36 | 73 | 115 | 163 | 220 | 284 | 357 | 437 | 518 | 599 | 680 | 760 | 842 | 923 | 1,004 | 1,085 | 1,167 | 1,249 | 1,330 | 1,411 |
| | Total | 279 | 556 | 915 | 1,333 | 1,817 | 2,359 | 2,967 | 3,590 | 4,239 | 4,889 | 5,536 | 6,148 | 6,763 | 7,227 | 7,604 | 7,979 | 8,358 | 8,736 | 9,108 | 9,474 |

**Sensitivity 7:** **IRP RMix 1 - 85% Probability Weather - Negative Load Growth (-1% Decrease per Year)**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 13 | 14 |
| | Com-Exist | 6 | 10 | 16 | 24 | 32 | 42 | 52 | 62 | 73 | 83 | 93 | 103 | 112 | 120 | 125 | 129 | 134 | 137 | 141 | 144 |
| | Com-NC | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 8 | 9 | 10 | 10 | 11 | 12 | 12 | 13 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 5 | 10 | 16 | 23 | 31 | 39 | 48 | 57 | 66 | 74 | 82 | 89 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Total | 13 | 23 | 37 | 52 | 70 | 89 | 110 | 131 | 153 | 173 | 193 | 211 | 228 | 238 | 245 | 251 | 257 | 263 | 268 | 273 |
| Astoria | Com-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 |
| | Com-Exist | 2 | 4 | 7 | 11 | 14 | 19 | 23 | 28 | 32 | 37 | 41 | 46 | 50 | 53 | 55 | 57 | 58 | 60 | 61 | 62 |
| | Com-NC | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 8 | 8 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Exist | 1 | 3 | 4 | 6 | 8 | 11 | 13 | 16 | 18 | 20 | 22 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Total | 5 | 8 | 13 | 19 | 25 | 32 | 40 | 48 | 56 | 63 | 71 | 77 | 83 | 88 | 91 | 93 | 95 | 97 | 99 | 101 |
| The Dalles (OR) | Com-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 |
| | Com-Exist | 2 | 3 | 5 | 7 | 10 | 13 | 16 | 19 | 23 | 26 | 29 | 32 | 35 | 37 | 39 | 40 | 41 | 43 | 44 | 44 |
| | Com-NC | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Exist | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Total | 3 | 5 | 8 | 12 | 16 | 20 | 25 | 30 | 35 | 39 | 44 | 48 | 53 | 56 | 58 | 60 | 62 | 64 | 65 | 67 |
| Eugene & Coos Bay | Com-Conv | 0 | 0 | 1 | 2 | 2 | 4 | 5 | 7 | 9 | 11 | 14 | 16 | 20 | 23 | 26 | 29 | 32 | 35 | 39 | 43 |
| | Com-Exist | 9 | 15 | 26 | 38 | 52 | 67 | 84 | 100 | 117 | 134 | 149 | 165 | 179 | 193 | 200 | 206 | 212 | 218 | 222 | 227 |
| | Com-NC | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 13 | 14 | 15 | 17 | 18 | 20 | 21 | 23 | 24 | 26 | 27 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 4 | 9 | 14 | 20 | 26 | 34 | 41 | 49 | 57 | 64 | 71 | 76 | 81 | 82 | 82 | 82 | 83 | 83 | 83 | 83 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Total | 16 | 29 | 47 | 68 | 91 | 117 | 145 | 173 | 202 | 231 | 258 | 284 | 308 | 327 | 339 | 350 | 361 | 372 | 382 | 391 |
| Newport & Lincoln City | Com-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 |
| | Com-Exist | 2 | 4 | 7 | 10 | 13 | 17 | 21 | 26 | 30 | 34 | 39 | 43 | 46 | 50 | 51 | 53 | 54 | 56 | 57 | 58 |
| | Com-NC | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Exist | 1 | 2 | 3 | 5 | 6 | 8 | 10 | 11 | 13 | 15 | 16 | 18 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Total | 4 | 7 | 11 | 16 | 22 | 28 | 34 | 41 | 48 | 54 | 61 | 67 | 72 | 76 | 79 | 81 | 83 | 85 | 86 | 88 |
| Portland | Com-Conv | 1 | 1 | 3 | 5 | 8 | 11 | 15 | 20 | 26 | 33 | 40 | 48 | 56 | 66 | 74 | 83 | 92 | 102 | 113 | 124 |
| | Com-Exist | 63 | 109 | 185 | 272 | 370 | 478 | 597 | 714 | 839 | 958 | 1,072 | 1,182 | 1,287 | 1,388 | 1,442 | 1,492 | 1,540 | 1,584 | 1,623 | 1,658 |
| | Com-NC | 7 | 12 | 16 | 21 | 26 | 32 | 38 | 44 | 51 | 58 | 64 | 71 | 77 | 84 | 90 | 96 | 103 | 109 | 116 | 122 |
| | Industrial | 1 | 3 | 4 | 6 | 8 | 11 | 13 | 16 | 18 | 20 | 23 | 25 | 27 | 27 | 27 | 27 | 27 | 27 | 26 | 26 |
| | Res-Conv | 0 | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | Res-Exist | 55 | 116 | 185 | 265 | 354 | 451 | 558 | 663 | 766 | 866 | 962 | 1,037 | 1,111 | 1,114 | 1,118 | 1,120 | 1,124 | 1,126 | 1,128 | 1,129 |
| | Res-NC MF | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 10 | 13 | 14 | 16 | 17 | 18 | 20 | 21 | 22 | 23 | 24 | 25 | 25 | 26 | 26 | 27 | 27 | 27 | 28 | 28 |
| | Total | 138 | 256 | 411 | 587 | 787 | 1,006 | 1,247 | 1,485 | 1,730 | 1,966 | 2,194 | 2,396 | 2,594 | 2,715 | 2,788 | 2,856 | 2,924 | 2,987 | 3,045 | 3,098 |
| Salem | Com-Conv | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 13 | 15 | 17 | 18 | 20 | 22 |
| | Com-Exist | 14 | 25 | 42 | 62 | 85 | 109 | 136 | 163 | 191 | 218 | 243 | 268 | 291 | 314 | 326 | 338 | 348 | 358 | 366 | 374 |
| | Com-NC | 3 | 5 | 7 | 9 | 12 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 35 | 38 | 41 | 43 | 46 | 49 | 52 | 55 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 11 | 23 | 36 | 52 | 69 | 88 | 108 | 128 | 148 | 166 | 184 | 199 | 212 | 213 | 213 | 213 | 214 | 214 | 214 | 214 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 3 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | Total | 32 | 58 | 93 | 131 | 175 | 222 | 275 | 326 | 379 | 430 | 479 | 523 | 566 | 594 | 611 | 627 | 643 | 657 | 671 | 684 |
| Vancouver & The Dalles (WA) | Com-Conv | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Com-Exist | 7 | 15 | 25 | 35 | 46 | 58 | 71 | 84 | 95 | 108 | 119 | 130 | 141 | 147 | 151 | 156 | 160 | 164 | 168 | 171 |
| | Com-NC | 3 | 5 | 6 | 7 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 8 | 17 | 27 | 39 | 52 | 67 | 82 | 98 | 112 | 127 | 141 | 154 | 167 | 171 | 172 | 173 | 175 | 176 | 177 | 178 |
| | Res-NC MF | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| | Res-NC SF | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 |
| | Total | 21 | 41 | 62 | 85 | 112 | 140 | 171 | 200 | 228 | 256 | 283 | 309 | 334 | 345 | 352 | 359 | 366 | 373 | 379 | 384 |
| Oregon Total | Com-Conv | 1 | 2 | 5 | 8 | 13 | 18 | 26 | 34 | 44 | 56 | 68 | 82 | 98 | 114 | 128 | 144 | 160 | 177 | 195 | 214 |
| | Com-Exist | 98 | 170 | 288 | 423 | 577 | 745 | 929 | 1,112 | 1,306 | 1,490 | 1,667 | 1,837 | 1,999 | 2,155 | 2,238 | 2,316 | 2,388 | 2,455 | 2,514 | 2,567 |
| | Com-NC | 13 | 22 | 30 | 40 | 50 | 61 | 73 | 85 | 98 | 111 | 124 | 137 | 150 | 162 | 175 | 187 | 200 | 212 | 225 | 237 |
| | Industrial | 2 | 5 | 7 | 11 | 14 | 18 | 22 | 26 | 31 | 35 | 38 | 42 | 46 | 46 | 46 | 45 | 45 | 45 | 45 | 44 |
| | Res-Conv | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 |
| | Res-Exist | 78 | 164 | 261 | 372 | 498 | 635 | 784 | 931 | 1,074 | 1,213 | 1,348 | 1,451 | 1,554 | 1,558 | 1,563 | 1,565 | 1,570 | 1,573 | 1,575 | 1,577 |
| | Res-NC MF | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-NC SF | 17 | 22 | 24 | 27 | 29 | 31 | 34 | 36 | 38 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 46 | 47 | 47 | 47 |
| | Res&Com Subtotal | 209 | 382 | 613 | 875 | 1,172 | 1,497 | 1,854 | 2,208 | 2,572 | 2,923 | 3,261 | 3,564 | 3,858 | 4,049 | 4,164 | 4,273 | 4,379 | 4,479 | 4,572 | 4,659 |
| | Total | 211 | 387 | 620 | 886 | 1,186 | 1,515 | 1,876 | 2,235 | 2,602 | 2,957 | 3,300 | 3,606 | 3,904 | 4,095 | 4,209 | 4,318 | 4,424 | 4,525 | 4,617 | 4,703 |
| System Total | Com-Conv | 1 | 3 | 5 | 9 | 13 | 19 | 27 | 36 | 46 | 58 | 71 | 85 | 100 | 117 | 131 | 147 | 163 | 181 | 199 | 218 |
| | Com-Exist | 106 | 185 | 313 | 458 | 623 | 803 | 1,000 | 1,196 | 1,401 | 1,598 | 1,786 | 1,967 | 2,140 | 2,302 | 2,389 | 2,472 | 2,548 | 2,619 | 2,682 | 2,739 |
| | Com-NC | 17 | 27 | 37 | 47 | 58 | 71 | 84 | 97 | 112 | 126 | 140 | 153 | 167 | 181 | 194 | 208 | 221 | 235 | 248 | 261 |
| | Industrial | 2 | 5 | 7 | 11 | 14 | 18 | 22 | 26 | 31 | 35 | 38 | 42 | 46 | 46 | 46 | 45 | 45 | 45 | 45 | 44 |
| | Res-Conv | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 12 | 13 | 13 | 13 | 13 | 14 | 14 | 14 | 14 |
| | Res-Exist | 86 | 181 | 289 | 412 | 550 | 701 | 866 | 1,028 | 1,187 | 1,340 | 1,488 | 1,605 | 1,721 | 1,729 | 1,735 | 1,739 | 1,745 | 1,749 | 1,752 | 1,755 |
| | Res-NC MF | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Res-NC SF | 18 | 24 | 27 | 29 | 32 | 34 | 37 | 40 | 42 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 50 | 51 | 51 | 52 |
| | Total | 232 | 427 | 682 | 971 | 1,297 | 1,655 | 2,047 | 2,434 | 2,830 | 3,213 | 3,583 | 3,915 | 4,238 | 4,440 | 4,562 | 4,677 | 4,790 | 4,897 | 4,995 | 5,087 |

**Sensitivity 8:** **IRP RMix 1 - 85% Probability Weather - Negative Short Term Load Growth (First 5 Years)**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 5 | 7 | 9 | 11 | 14 | 18 | 21 | 24 | 27 | 31 | 35 | 39 |
| | Com-Exist | 6 | 10 | 16 | 24 | 32 | 42 | 52 | 62 | 73 | 83 | 93 | 103 | 112 | 120 | 125 | 129 | 134 | 137 | 141 | 144 |
| | Com-NC | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 7 | 9 | 11 | 14 | 16 | 19 | 22 | 24 | 27 | 29 | 32 | 34 | 37 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 7 | 8 |
| | Res-Exist | 5 | 10 | 16 | 23 | 31 | 39 | 49 | 58 | 67 | 76 | 85 | 92 | 99 | 100 | 101 | 101 | 102 | 102 | 103 | 104 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 1 | 2 | 2 | 2 | 2 | 3 | 4 | 7 | 11 | 15 | 19 | 24 | 28 | 32 | 37 | 42 | 46 | 51 | 56 | 60 |
| | Total | 13 | 23 | 37 | 52 | 70 | 90 | 114 | 140 | 168 | 197 | 226 | 252 | 280 | 300 | 316 | 332 | 349 | 365 | 381 | 396 |
| Astoria | Com-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | Com-Exist | 2 | 4 | 7 | 11 | 14 | 19 | 23 | 28 | 32 | 37 | 41 | 46 | 50 | 53 | 55 | 57 | 58 | 60 | 61 | 62 |
| | Com-NC | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 6 | 7 | 9 | 10 | 12 | 13 | 15 | 17 | 18 | 20 | 21 | 23 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 5 |
| | Res-Exist | 1 | 3 | 4 | 6 | 8 | 11 | 13 | 16 | 18 | 21 | 23 | 25 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 28 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Res-NC SF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 12 |
| | Total | 5 | 8 | 13 | 19 | 25 | 33 | 41 | 51 | 61 | 72 | 82 | 92 | 101 | 109 | 115 | 121 | 126 | 132 | 137 | 143 |
| The Dalles (OR) | Com-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| | Com-Exist | 2 | 3 | 5 | 7 | 10 | 13 | 16 | 19 | 23 | 26 | 29 | 32 | 35 | 37 | 39 | 40 | 41 | 43 | 44 | 44 |
| | Com-NC | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 6 | 7 | 8 | 10 | 11 | 12 | 14 | 15 | 16 | 18 | 19 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 |
| | Res-Exist | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 12 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 8 | 9 | 10 |
| | Total | 3 | 5 | 8 | 12 | 16 | 20 | 26 | 32 | 39 | 46 | 53 | 60 | 66 | 72 | 77 | 82 | 86 | 91 | 95 | 100 |
| Eugene & Coos Bay | Com-Conv | 0 | 0 | 1 | 2 | 2 | 4 | 6 | 10 | 15 | 21 | 28 | 36 | 45 | 55 | 64 | 74 | 84 | 95 | 107 | 119 |
| | Com-Exist | 9 | 15 | 26 | 38 | 52 | 67 | 84 | 100 | 117 | 134 | 149 | 165 | 179 | 193 | 200 | 206 | 212 | 218 | 222 | 227 |
| | Com-NC | 1 | 2 | 3 | 4 | 5 | 7 | 10 | 14 | 18 | 23 | 29 | 34 | 39 | 44 | 49 | 55 | 60 | 65 | 70 | 75 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 7 | 9 | 10 | 12 | 13 | 15 | 16 | 18 | 19 |
| | Res-Exist | 4 | 9 | 14 | 20 | 26 | 34 | 42 | 50 | 58 | 66 | 73 | 79 | 85 | 86 | 87 | 88 | 88 | 89 | 90 | 90 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 1 | 2 | 2 | 2 | 2 | 3 | 4 | 7 | 10 | 14 | 18 | 23 | 27 | 31 | 36 | 40 | 44 | 49 | 53 | 58 |
| | Total | 16 | 29 | 47 | 68 | 91 | 118 | 150 | 186 | 226 | 268 | 309 | 350 | 392 | 427 | 455 | 484 | 512 | 541 | 569 | 598 |
| Newport & Lincoln City | Com-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | Com-Exist | 2 | 4 | 7 | 10 | 13 | 17 | 21 | 26 | 30 | 34 | 39 | 43 | 46 | 50 | 51 | 53 | 54 | 56 | 57 | 58 |
| | Com-NC | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 11 | 12 | 13 | 14 | 15 | 16 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 |
| | Res-Exist | 1 | 2 | 3 | 5 | 6 | 8 | 10 | 12 | 13 | 15 | 17 | 18 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 15 |
| | Total | 4 | 7 | 11 | 16 | 22 | 28 | 35 | 44 | 53 | 62 | 71 | 80 | 88 | 95 | 101 | 106 | 111 | 116 | 121 | 126 |
| Portland | Com-Conv | 1 | 1 | 3 | 5 | 8 | 12 | 18 | 28 | 42 | 58 | 78 | 100 | 125 | 152 | 178 | 205 | 235 | 267 | 300 | 334 |
| | Com-Exist | 63 | 109 | 185 | 272 | 370 | 478 | 597 | 714 | 839 | 958 | 1,072 | 1,182 | 1,287 | 1,388 | 1,442 | 1,492 | 1,540 | 1,584 | 1,623 | 1,658 |
| | Com-NC | 7 | 12 | 16 | 21 | 26 | 34 | 46 | 62 | 83 | 104 | 126 | 148 | 171 | 194 | 217 | 240 | 263 | 286 | 309 | 332 |
| | Industrial | 1 | 3 | 4 | 6 | 8 | 11 | 13 | 16 | 19 | 21 | 24 | 27 | 29 | 29 | 30 | 30 | 30 | 31 | 31 | 31 |
| | Res-Conv | 0 | 1 | 1 | 2 | 3 | 4 | 6 | 11 | 19 | 29 | 40 | 52 | 66 | 76 | 86 | 97 | 108 | 119 | 130 | 141 |
| | Res-Exist | 55 | 116 | 185 | 265 | 354 | 454 | 565 | 675 | 784 | 891 | 996 | 1,079 | 1,163 | 1,173 | 1,184 | 1,193 | 1,203 | 1,213 | 1,222 | 1,230 |
| | Res-NC MF | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 5 | 7 | 9 | 12 | 14 | 16 | 19 | 21 | 24 | 26 | 28 | 31 | 33 |
| | Res-NC SF | 10 | 13 | 14 | 16 | 17 | 20 | 30 | 48 | 75 | 103 | 132 | 162 | 193 | 224 | 256 | 287 | 320 | 352 | 385 | 417 |
| | Total | 138 | 256 | 411 | 587 | 787 | 1,015 | 1,279 | 1,559 | 1,867 | 2,174 | 2,479 | 2,764 | 3,050 | 3,256 | 3,413 | 3,568 | 3,725 | 3,879 | 4,030 | 4,177 |
| Salem | Com-Conv | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 5 | 8 | 11 | 14 | 18 | 23 | 28 | 33 | 38 | 43 | 49 | 55 | 62 |
| | Com-Exist | 14 | 25 | 42 | 62 | 85 | 109 | 136 | 163 | 191 | 218 | 243 | 268 | 291 | 314 | 326 | 338 | 348 | 358 | 366 | 374 |
| | Com-NC | 3 | 5 | 7 | 9 | 12 | 15 | 21 | 28 | 38 | 47 | 58 | 68 | 78 | 89 | 99 | 110 | 120 | 131 | 141 | 151 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 11 | 13 | 15 | 16 | 18 | 19 | 21 |
| | Res-Exist | 11 | 23 | 36 | 52 | 69 | 88 | 109 | 130 | 151 | 171 | 191 | 207 | 222 | 224 | 226 | 227 | 229 | 230 | 232 | 233 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 4 | 5 | 5 | 6 | 7 | 10 | 16 | 26 | 35 | 45 | 55 | 66 | 76 | 87 | 98 | 108 | 119 | 130 | 141 |
| | Total | 32 | 58 | 93 | 131 | 175 | 225 | 284 | 349 | 421 | 493 | 565 | 632 | 700 | 752 | 793 | 834 | 875 | 916 | 955 | 994 |
| Vancouver & The Dalles (WA) | Com-Conv | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 5 | 7 | 10 | 13 | 17 | 20 | 23 | 27 | 31 | 34 | 39 | 43 |
| | Com-Exist | 7 | 15 | 25 | 35 | 46 | 58 | 72 | 84 | 97 | 109 | 121 | 133 | 144 | 151 | 156 | 161 | 166 | 170 | 174 | 178 |
| | Com-NC | 3 | 5 | 6 | 7 | 9 | 11 | 17 | 26 | 38 | 53 | 70 | 87 | 107 | 127 | 149 | 173 | 198 | 225 | 253 | 281 |
| | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | Res-Exist | 8 | 17 | 27 | 39 | 52 | 67 | 84 | 100 | 116 | 132 | 148 | 163 | 178 | 184 | 187 | 190 | 193 | 196 | 198 | 201 |
| | Res-NC MF | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 13 | 15 | 16 | 18 | 20 | 22 |
| | Res-NC SF | 1 | 2 | 2 | 2 | 3 | 3 | 5 | 7 | 11 | 15 | 19 | 24 | 28 | 33 | 38 | 43 | 48 | 53 | 58 | 63 |
| | Total | 21 | 41 | 62 | 85 | 112 | 143 | 181 | 224 | 273 | 325 | 378 | 433 | 489 | 533 | 574 | 616 | 661 | 707 | 754 | 801 |
| Oregon Total | Com-Conv | 1 | 2 | 5 | 8 | 13 | 20 | 32 | 49 | 73 | 102 | 136 | 175 | 219 | 268 | 314 | 362 | 414 | 470 | 528 | 589 |
| | Com-Exist | 98 | 170 | 288 | 423 | 577 | 745 | 929 | 1,112 | 1,306 | 1,490 | 1,667 | 1,837 | 1,999 | 2,155 | 2,238 | 2,316 | 2,388 | 2,455 | 2,514 | 2,567 |
| | Com-NC | 13 | 22 | 30 | 40 | 50 | 66 | 90 | 121 | 162 | 204 | 248 | 292 | 337 | 382 | 428 | 473 | 519 | 564 | 609 | 653 |
| | Industrial | 2 | 5 | 7 | 11 | 14 | 18 | 23 | 27 | 32 | 36 | 41 | 45 | 50 | 50 | 51 | 51 | 51 | 52 | 52 | 52 |
| | Res-Conv | 1 | 1 | 2 | 3 | 4 | 5 | 9 | 16 | 27 | 41 | 58 | 75 | 94 | 109 | 123 | 138 | 154 | 169 | 185 | 201 |
| | Res-Exist | 78 | 164 | 261 | 372 | 498 | 638 | 793 | 947 | 1,100 | 1,249 | 1,395 | 1,511 | 1,627 | 1,641 | 1,655 | 1,667 | 1,681 | 1,694 | 1,706 | 1,717 |
| | Res-NC MF | 1 | 1 | 2 | 2 | 2 | 3 | 4 | 6 | 8 | 11 | 14 | 17 | 20 | 22 | 25 | 28 | 31 | 34 | 37 | 40 |
| | Res-NC SF | 17 | 22 | 24 | 27 | 29 | 35 | 52 | 83 | 129 | 177 | 227 | 278 | 330 | 384 | 438 | 492 | 547 | 603 | 658 | 714 |
| | Res&Com Subtotal | 209 | 382 | 613 | 875 | 1,172 | 1,512 | 1,908 | 2,333 | 2,804 | 3,274 | 3,744 | 4,184 | 4,627 | 4,961 | 5,220 | 5,476 | 5,734 | 5,988 | 6,237 | 6,481 |
| | Total | 211 | 387 | 620 | 886 | 1,186 | 1,530 | 1,931 | 2,360 | 2,835 | 3,310 | 3,784 | 4,229 | 4,676 | 5,011 | 5,271 | 5,527 | 5,785 | 6,040 | 6,289 | 6,534 |
| System Total | Com-Conv | 1 | 3 | 5 | 9 | 13 | 21 | 34 | 52 | 78 | 109 | 146 | 188 | 236 | 288 | 337 | 389 | 445 | 504 | 566 | 632 |
| | Com-Exist | 106 | 185 | 313 | 458 | 623 | 803 | 1,001 | 1,197 | 1,402 | 1,600 | 1,788 | 1,970 | 2,143 | 2,306 | 2,394 | 2,477 | 2,554 | 2,625 | 2,688 | 2,746 |
| | Com-NC | 17 | 27 | 37 | 47 | 58 | 77 | 107 | 146 | 200 | 257 | 317 | 379 | 444 | 510 | 577 | 646 | 717 | 789 | 861 | 934 |
| | Industrial | 2 | 5 | 7 | 11 | 14 | 18 | 23 | 27 | 32 | 36 | 41 | 45 | 50 | 50 | 51 | 51 | 51 | 52 | 52 | 52 |
| | Res-Conv | 1 | 1 | 2 | 3 | 4 | 5 | 10 | 17 | 29 | 44 | 61 | 79 | 100 | 115 | 131 | 147 | 164 | 180 | 197 | 214 |
| | Res-Exist | 86 | 181 | 289 | 412 | 550 | 705 | 877 | 1,047 | 1,216 | 1,381 | 1,543 | 1,674 | 1,805 | 1,824 | 1,841 | 1,856 | 1,873 | 1,889 | 1,904 | 1,918 |
| | Res-NC MF | 1 | 2 | 3 | 3 | 3 | 4 | 5 | 8 | 12 | 16 | 21 | 25 | 29 | 34 | 38 | 43 | 48 | 52 | 57 | 62 |
| | Res-NC SF | 18 | 24 | 27 | 29 | 32 | 38 | 57 | 90 | 140 | 192 | 246 | 302 | 359 | 417 | 476 | 535 | 595 | 656 | 716 | 777 |
| | Total | 232 | 427 | 682 | 971 | 1,297 | 1,673 | 2,112 | 2,584 | 3,108 | 3,635 | 4,162 | 4,662 | 5,165 | 5,544 | 5,845 | 6,143 | 6,446 | 6,747 | 7,043 | 7,335 |

**Sensitivity 9:** **IRP RMix1 - 85% Probability Weather - Negative Long Term Load Growth (Last 12 Years)**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | Com-Conv | 0 | 0 | 1 | 1 | 2 | 4 | 5 | 6 | 8 | 9 | 11 | 12 | 14 | 16 | 17 | 19 | 20 | 22 | 23 | 25 |
| | Com-Exist | 6 | 10 | 16 | 24 | 32 | 42 | 52 | 62 | 73 | 83 | 93 | 103 | 112 | 120 | 125 | 129 | 134 | 137 | 141 | 144 |
| | Com-NC | 1 | 3 | 4 | 6 | 9 | 11 | 13 | 14 | 16 | 17 | 18 | 19 | 20 | 20 | 21 | 22 | 23 | 23 | 24 | 25 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-Conv | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Res-Exist | 5 | 10 | 16 | 23 | 32 | 40 | 50 | 60 | 69 | 77 | 86 | 92 | 98 | 98 | 98 | 98 | 98 | 98 | 97 | 97 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 3 | 6 | 9 | 12 | 17 | 20 | 23 | 26 | 27 | 28 | 29 | 30 | 30 | 31 | 32 | 32 | 32 | 33 | 33 | 33 |
| | Total | 15 | 29 | 48 | 69 | 94 | 120 | 148 | 173 | 198 | 221 | 243 | 263 | 282 | 294 | 301 | 308 | 314 | 321 | 326 | 332 |
| Astoria | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 7 | 7 |
| | Com-Exist | 2 | 4 | 7 | 11 | 14 | 19 | 23 | 28 | 32 | 37 | 41 | 46 | 50 | 53 | 55 | 57 | 58 | 60 | 61 | 62 |
| | Com-NC | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 10 | 11 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 15 | 15 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-Exist | 1 | 3 | 5 | 6 | 9 | 11 | 14 | 16 | 19 | 21 | 23 | 25 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 |
| | Total | 5 | 10 | 17 | 25 | 33 | 43 | 53 | 62 | 71 | 80 | 88 | 95 | 102 | 107 | 110 | 113 | 115 | 117 | 119 | 121 |
| The Dalles (OR) | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 |
| | Com-Exist | 2 | 3 | 5 | 7 | 10 | 13 | 16 | 19 | 23 | 26 | 29 | 32 | 35 | 37 | 39 | 40 | 41 | 43 | 44 | 44 |
| | Com-NC | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 11 | 11 | 11 | 12 | 12 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Exist | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-NC SF | 0 | 1 | 1 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | Total | 3 | 6 | 11 | 16 | 22 | 28 | 35 | 41 | 46 | 52 | 57 | 62 | 67 | 70 | 73 | 75 | 77 | 79 | 81 | 82 |
| Eugene & Coos Bay | Com-Conv | 0 | 1 | 2 | 5 | 8 | 12 | 16 | 21 | 25 | 30 | 35 | 40 | 46 | 51 | 55 | 60 | 64 | 69 | 74 | 79 |
| | Com-Exist | 9 | 15 | 26 | 38 | 52 | 67 | 84 | 100 | 117 | 134 | 149 | 165 | 179 | 193 | 200 | 206 | 212 | 218 | 222 | 227 |
| | Com-NC | 3 | 6 | 9 | 13 | 18 | 23 | 27 | 30 | 33 | 35 | 37 | 39 | 41 | 42 | 44 | 45 | 47 | 48 | 49 | 51 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | Res-Conv | 0 | 0 | 1 | 1 | 2 | 3 | 5 | 6 | 7 | 8 | 8 | 9 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 11 |
| | Res-Exist | 4 | 9 | 14 | 20 | 27 | 35 | 43 | 52 | 59 | 67 | 74 | 79 | 84 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 3 | 5 | 8 | 12 | 16 | 19 | 22 | 24 | 26 | 27 | 28 | 28 | 29 | 30 | 30 | 30 | 31 | 31 | 31 | 32 |
| | Total | 19 | 37 | 62 | 92 | 126 | 162 | 201 | 237 | 272 | 306 | 338 | 368 | 396 | 418 | 432 | 445 | 457 | 469 | 480 | 491 |
| Newport & Lincoln City | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 |
| | Com-Exist | 2 | 4 | 7 | 10 | 13 | 17 | 21 | 26 | 30 | 34 | 39 | 43 | 46 | 50 | 51 | 53 | 54 | 56 | 57 | 58 |
| | Com-NC | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 8 | 9 | 9 | 9 | 10 | 10 | 10 | 11 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Res-Exist | 1 | 2 | 3 | 5 | 6 | 8 | 10 | 12 | 14 | 15 | 17 | 18 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Total | 5 | 9 | 15 | 21 | 29 | 37 | 46 | 54 | 62 | 69 | 76 | 83 | 89 | 94 | 96 | 98 | 101 | 103 | 104 | 106 |
| Portland | Com-Conv | 1 | 3 | 7 | 13 | 22 | 33 | 45 | 58 | 71 | 84 | 98 | 113 | 128 | 144 | 156 | 169 | 182 | 196 | 210 | 224 |
| | Com-Exist | 63 | 109 | 185 | 272 | 370 | 478 | 597 | 714 | 839 | 958 | 1,072 | 1,182 | 1,287 | 1,388 | 1,442 | 1,492 | 1,540 | 1,584 | 1,623 | 1,658 |
| | Com-NC | 12 | 25 | 40 | 57 | 77 | 97 | 115 | 129 | 140 | 150 | 159 | 168 | 176 | 183 | 190 | 197 | 204 | 210 | 216 | 222 |
| | Industrial | 1 | 3 | 5 | 7 | 9 | 11 | 14 | 17 | 20 | 22 | 25 | 27 | 30 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| | Res-Conv | 1 | 2 | 6 | 10 | 17 | 25 | 34 | 41 | 48 | 55 | 61 | 67 | 72 | 73 | 74 | 75 | 76 | 77 | 77 | 78 |
| | Res-Exist | 55 | 118 | 189 | 271 | 365 | 468 | 582 | 696 | 802 | 904 | 1,003 | 1,078 | 1,152 | 1,153 | 1,154 | 1,154 | 1,155 | 1,155 | 1,154 | 1,152 |
| | Res-NC MF | 1 | 4 | 7 | 10 | 13 | 15 | 16 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |
| | Res-NC SF | 19 | 38 | 60 | 85 | 114 | 140 | 162 | 177 | 187 | 195 | 202 | 207 | 212 | 216 | 220 | 222 | 225 | 228 | 230 | 232 |
| | Total | 153 | 301 | 498 | 725 | 987 | 1,268 | 1,565 | 1,849 | 2,124 | 2,386 | 2,638 | 2,859 | 3,075 | 3,205 | 3,284 | 3,357 | 3,429 | 3,497 | 3,558 | 3,614 |
| Salem | Com-Conv | 0 | 1 | 1 | 2 | 4 | 6 | 8 | 11 | 13 | 16 | 18 | 21 | 24 | 26 | 29 | 31 | 34 | 36 | 39 | 41 |
| | Com-Exist | 14 | 25 | 42 | 62 | 85 | 109 | 136 | 163 | 191 | 218 | 243 | 268 | 291 | 314 | 326 | 338 | 348 | 358 | 366 | 374 |
| | Com-NC | 5 | 11 | 18 | 26 | 36 | 45 | 53 | 59 | 64 | 69 | 73 | 77 | 80 | 84 | 87 | 90 | 93 | 96 | 98 | 101 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Res-Conv | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 12 |
| | Res-Exist | 11 | 23 | 37 | 53 | 71 | 91 | 113 | 134 | 154 | 174 | 192 | 206 | 220 | 220 | 220 | 220 | 220 | 219 | 219 | 219 |
| | Res-NC MF | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 6 | 13 | 20 | 29 | 39 | 48 | 55 | 60 | 64 | 66 | 68 | 70 | 72 | 73 | 74 | 75 | 76 | 77 | 77 | 78 |
| | Total | 38 | 74 | 122 | 177 | 240 | 306 | 375 | 439 | 500 | 558 | 613 | 661 | 708 | 738 | 756 | 774 | 791 | 807 | 821 | 834 |
| Vancouver & The Dalles (WA) | Com-Conv | 0 | 1 | 2 | 3 | 5 | 7 | 10 | 12 | 13 | 15 | 17 | 19 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | Com-Exist | 7 | 16 | 25 | 35 | 47 | 59 | 73 | 86 | 98 | 110 | 121 | 132 | 142 | 147 | 152 | 155 | 159 | 162 | 165 | 168 |
| | Com-NC | 7 | 15 | 25 | 38 | 53 | 68 | 82 | 93 | 101 | 110 | 118 | 126 | 133 | 141 | 148 | 155 | 162 | 169 | 176 | 182 |
| | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Res-Conv | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Res-Exist | 8 | 18 | 28 | 41 | 55 | 70 | 87 | 104 | 120 | 134 | 149 | 162 | 175 | 179 | 180 | 180 | 181 | 182 | 182 | 182 |
| | Res-NC MF | 1 | 2 | 3 | 5 | 6 | 8 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 13 | 13 | 13 | 13 | 13 |
| | Res-NC SF | 3 | 6 | 9 | 13 | 18 | 23 | 27 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 36 | 37 | 38 | 38 | 39 |
| | Total | 26 | 57 | 93 | 135 | 185 | 238 | 291 | 337 | 377 | 417 | 454 | 490 | 524 | 543 | 558 | 571 | 585 | 598 | 610 | 621 |
| Oregon Total | Com-Conv | 2 | 5 | 12 | 23 | 38 | 57 | 79 | 101 | 124 | 147 | 172 | 197 | 224 | 252 | 273 | 295 | 318 | 342 | 367 | 392 |
| | Com-Exist | 98 | 170 | 288 | 423 | 577 | 745 | 929 | 1,112 | 1,306 | 1,490 | 1,667 | 1,837 | 1,999 | 2,155 | 2,238 | 2,316 | 2,388 | 2,455 | 2,514 | 2,567 |
| | Com-NC | 23 | 49 | 79 | 113 | 153 | 191 | 227 | 254 | 277 | 297 | 314 | 331 | 346 | 361 | 375 | 388 | 401 | 413 | 425 | 436 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 33 | 38 | 42 | 46 | 50 | 50 | 50 | 50 | 50 | 49 | 49 | 49 |
| | Res-Conv | 1 | 4 | 8 | 15 | 25 | 36 | 48 | 59 | 69 | 79 | 88 | 96 | 104 | 105 | 106 | 107 | 109 | 110 | 111 | 112 |
| | Res-Exist | 78 | 166 | 266 | 381 | 513 | 658 | 817 | 976 | 1,125 | 1,267 | 1,404 | 1,509 | 1,612 | 1,613 | 1,613 | 1,613 | 1,613 | 1,612 | 1,611 | 1,608 |
| | Res-NC MF | 1 | 4 | 8 | 12 | 15 | 18 | 20 | 20 | 21 | 21 | 21 | 21 | 21 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| | Res-NC SF | 32 | 65 | 103 | 146 | 195 | 240 | 277 | 303 | 320 | 333 | 345 | 354 | 362 | 368 | 374 | 379 | 384 | 388 | 391 | 394 |
| | Res&Com Subtotal | 236 | 463 | 764 | 1,113 | 1,516 | 1,945 | 2,398 | 2,826 | 3,240 | 3,634 | 4,011 | 4,345 | 4,668 | 4,876 | 5,001 | 5,119 | 5,234 | 5,342 | 5,441 | 5,532 |
| | Total | 238 | 467 | 771 | 1,124 | 1,531 | 1,965 | 2,422 | 2,855 | 3,274 | 3,672 | 4,053 | 4,391 | 4,718 | 4,926 | 5,051 | 5,169 | 5,284 | 5,391 | 5,490 | 5,581 |
| System Total | Com-Conv | 2 | 6 | 14 | 26 | 43 | 64 | 88 | 113 | 137 | 163 | 189 | 216 | 245 | 274 | 296 | 319 | 343 | 368 | 394 | 419 |
| | Com-Exist | 106 | 185 | 313 | 459 | 624 | 804 | 1,002 | 1,198 | 1,403 | 1,600 | 1,788 | 1,968 | 2,141 | 2,302 | 2,390 | 2,471 | 2,547 | 2,617 | 2,679 | 2,735 |
| | Com-NC | 30 | 64 | 104 | 150 | 205 | 259 | 310 | 347 | 378 | 406 | 432 | 457 | 480 | 502 | 522 | 542 | 563 | 582 | 601 | 619 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 33 | 38 | 42 | 46 | 50 | 50 | 50 | 50 | 50 | 49 | 49 | 49 |
| | Res-Conv | 1 | 4 | 9 | 16 | 26 | 39 | 52 | 63 | 73 | 84 | 94 | 102 | 111 | 112 | 114 | 115 | 116 | 118 | 119 | 120 |
| | Res-Exist | 86 | 183 | 294 | 422 | 567 | 728 | 904 | 1,081 | 1,244 | 1,401 | 1,553 | 1,671 | 1,787 | 1,792 | 1,793 | 1,793 | 1,794 | 1,794 | 1,793 | 1,791 |
| | Res-NC MF | 2 | 6 | 11 | 16 | 22 | 26 | 29 | 30 | 31 | 32 | 32 | 33 | 33 | 34 | 34 | 34 | 35 | 35 | 35 | 35 |
| | Res-NC SF | 35 | 71 | 112 | 159 | 214 | 263 | 304 | 332 | 350 | 365 | 377 | 387 | 396 | 403 | 410 | 415 | 421 | 425 | 430 | 433 |
| | Total | 264 | 524 | 864 | 1,259 | 1,716 | 2,202 | 2,713 | 3,193 | 3,650 | 4,089 | 4,508 | 4,881 | 5,243 | 5,469 | 5,609 | 5,740 | 5,869 | 5,989 | 6,100 | 6,202 |

**Sensitivity 12:** **IRP RMix 1 - 85% Probability Weather - Limited North American Supply**

**DSM Demand Savings by Region and Sub-Class, MDth**

| Region | Class | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | Com-Conv | 0 | 0 | 1 | 1 | 2 | 4 | 6 | 8 | 10 | 13 | 16 | 20 | 24 | 29 | 33 | 37 | 41 | 46 | 51 | 56 |
| | Com-Exist | 6 | 10 | 17 | 24 | 33 | 43 | 53 | 64 | 75 | 86 | 96 | 105 | 115 | 124 | 129 | 133 | 138 | 141 | 145 | 148 |
| | Com-NC | 1 | 3 | 4 | 6 | 9 | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 35 | 38 | 41 | 44 | 47 | 49 | 52 |
| | Industrial | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | Res-Conv | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 9 | 10 | 11 | 12 | 13 | 13 | 14 |
| | Res-Exist | 5 | 10 | 16 | 23 | 32 | 40 | 50 | 60 | 69 | 79 | 88 | 95 | 102 | 103 | 104 | 104 | 105 | 106 | 106 | 107 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 6 | 9 | 12 | 17 | 21 | 27 | 33 | 39 | 45 | 51 | 57 | 63 | 69 | 75 | 81 | 87 | 93 | 99 | 105 |
| | Total | 15 | 29 | 48 | 70 | 95 | 123 | 154 | 187 | 220 | 254 | 287 | 318 | 349 | 373 | 394 | 412 | 432 | 451 | 469 | 487 |
| Astoria | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 12 | 13 | 15 | 16 |
| | Com-Exist | 3 | 4 | 7 | 11 | 15 | 19 | 24 | 29 | 33 | 38 | 43 | 47 | 51 | 55 | 57 | 59 | 60 | 62 | 63 | 64 |
| | Com-NC | 1 | 2 | 3 | 4 | 5 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 25 | 27 | 29 | 31 | 32 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 10 |
| | Res-Exist | 1 | 3 | 5 | 6 | 9 | 11 | 14 | 16 | 19 | 21 | 24 | 26 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 29 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 17 | 18 | 19 | 20 | 22 |
| | Total | 5 | 10 | 17 | 25 | 34 | 44 | 55 | 67 | 79 | 91 | 103 | 115 | 126 | 135 | 142 | 149 | 155 | 162 | 168 | 174 |
| The Dalles (OR) | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 16 |
| | Com-Exist | 2 | 3 | 5 | 8 | 10 | 13 | 17 | 20 | 23 | 27 | 30 | 33 | 36 | 39 | 40 | 42 | 43 | 44 | 45 | 46 |
| | Com-NC | 0 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 13 | 14 | 16 | 18 | 19 | 21 | 22 | 23 | 25 | 26 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 5 |
| | Res-Exist | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 11 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Res-NC SF | 0 | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | Total | 3 | 6 | 11 | 16 | 22 | 29 | 36 | 44 | 52 | 61 | 69 | 77 | 85 | 91 | 97 | 102 | 108 | 113 | 118 | 123 |
| Eugene & Coos Bay | Com-Conv | 0 | 1 | 2 | 5 | 8 | 12 | 18 | 25 | 33 | 42 | 53 | 64 | 77 | 91 | 103 | 116 | 129 | 143 | 157 | 172 |
| | Com-Exist | 9 | 16 | 27 | 39 | 53 | 69 | 86 | 103 | 121 | 138 | 154 | 169 | 184 | 198 | 207 | 213 | 219 | 225 | 229 | 234 |
| | Com-NC | 3 | 6 | 9 | 13 | 18 | 23 | 29 | 35 | 41 | 47 | 54 | 60 | 66 | 72 | 78 | 84 | 90 | 96 | 101 | 107 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 |
| | Res-Conv | 0 | 0 | 1 | 1 | 2 | 4 | 5 | 7 | 9 | 12 | 15 | 17 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 |
| | Res-Exist | 4 | 9 | 14 | 20 | 27 | 35 | 43 | 52 | 60 | 68 | 76 | 82 | 88 | 89 | 90 | 90 | 91 | 92 | 93 | 93 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 3 | 5 | 8 | 12 | 16 | 20 | 26 | 31 | 37 | 43 | 49 | 55 | 60 | 66 | 72 | 78 | 84 | 89 | 95 | 101 |
| | Total | 20 | 38 | 63 | 93 | 127 | 167 | 211 | 257 | 307 | 357 | 407 | 456 | 505 | 548 | 583 | 617 | 650 | 684 | 717 | 751 |
| Newport & Lincoln City | Com-Conv | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 12 | 13 | 15 | 16 | 18 |
| | Com-Exist | 2 | 4 | 7 | 10 | 14 | 18 | 22 | 27 | 31 | 36 | 40 | 44 | 48 | 52 | 54 | 55 | 57 | 58 | 59 | 60 |
| | Com-NC | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 11 | 13 | 14 | 15 | 16 | 18 | 19 | 20 | 21 | 22 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Res-Conv | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 7 |
| | Res-Exist | 1 | 2 | 3 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 17 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 21 | 21 |
| | Res-NC MF | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| | Res-NC SF | 1 | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 10 | 11 | 12 | 14 | 15 | 17 | 18 | 20 | 21 | 23 | 24 | 26 |
| | Total | 5 | 9 | 15 | 22 | 30 | 39 | 48 | 59 | 69 | 80 | 91 | 101 | 111 | 119 | 126 | 132 | 138 | 144 | 149 | 155 |
| Portland | Com-Conv | 1 | 3 | 7 | 14 | 22 | 34 | 50 | 69 | 91 | 117 | 146 | 177 | 212 | 250 | 285 | 320 | 358 | 397 | 438 | 481 |
| | Com-Exist | 65 | 111 | 189 | 278 | 379 | 490 | 612 | 734 | 862 | 985 | 1,102 | 1,215 | 1,323 | 1,427 | 1,492 | 1,542 | 1,589 | 1,632 | 1,670 | 1,705 |
| | Com-NC | 12 | 25 | 40 | 57 | 77 | 100 | 125 | 149 | 177 | 204 | 231 | 258 | 284 | 311 | 337 | 363 | 389 | 415 | 440 | 465 |
| | Industrial | 1 | 3 | 4 | 6 | 9 | 11 | 14 | 17 | 20 | 23 | 26 | 29 | 32 | 32 | 32 | 33 | 33 | 33 | 33 | 34 |
| | Res-Conv | 1 | 2 | 6 | 10 | 17 | 26 | 38 | 52 | 69 | 87 | 107 | 127 | 149 | 163 | 176 | 190 | 204 | 218 | 232 | 247 |
| | Res-Exist | 55 | 118 | 189 | 271 | 365 | 468 | 582 | 696 | 808 | 919 | 1,027 | 1,113 | 1,200 | 1,211 | 1,221 | 1,231 | 1,242 | 1,252 | 1,261 | 1,270 |
| | Res-NC MF | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 22 | 25 | 28 | 31 | 34 | 37 | 40 | 43 | 46 | 49 | 52 | 55 | 58 |
| | Res-NC SF | 19 | 38 | 60 | 85 | 114 | 147 | 185 | 227 | 269 | 311 | 353 | 394 | 437 | 479 | 521 | 562 | 605 | 647 | 689 | 731 |
| | Total | 155 | 303 | 502 | 731 | 997 | 1,293 | 1,625 | 1,965 | 2,321 | 2,673 | 3,022 | 3,347 | 3,674 | 3,912 | 4,108 | 4,286 | 4,468 | 4,647 | 4,821 | 4,990 |
| Salem | Com-Conv | 0 | 1 | 1 | 3 | 4 | 6 | 9 | 13 | 17 | 22 | 27 | 33 | 39 | 46 | 53 | 59 | 66 | 74 | 81 | 89 |
| | Com-Exist | 15 | 25 | 43 | 64 | 87 | 112 | 139 | 167 | 196 | 223 | 250 | 275 | 300 | 323 | 337 | 348 | 359 | 369 | 377 | 385 |
| | Com-NC | 5 | 11 | 18 | 26 | 36 | 46 | 57 | 69 | 81 | 94 | 106 | 119 | 131 | 143 | 155 | 167 | 178 | 190 | 201 | 213 |
| | Industrial | 0 | 1 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | Res-Conv | 0 | 0 | 1 | 2 | 3 | 4 | 6 | 8 | 11 | 13 | 16 | 19 | 23 | 25 | 27 | 29 | 31 | 33 | 35 | 37 |
| | Res-Exist | 11 | 23 | 37 | 53 | 71 | 91 | 113 | 134 | 156 | 177 | 197 | 213 | 229 | 231 | 233 | 234 | 236 | 238 | 239 | 241 |
| | Res-NC MF | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 |
| | Res-NC SF | 6 | 13 | 20 | 29 | 39 | 50 | 63 | 77 | 91 | 106 | 120 | 134 | 148 | 162 | 177 | 191 | 205 | 219 | 233 | 247 |
| | Total | 38 | 75 | 123 | 178 | 242 | 313 | 393 | 474 | 559 | 643 | 726 | 804 | 881 | 942 | 993 | 1,040 | 1,088 | 1,134 | 1,180 | 1,225 |
| Vancouver & The Dalles (WA) | Com-Conv | 0 | 1 | 2 | 3 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 35 | 41 | 46 | 52 | 57 | 63 | 69 | 75 | 81 |
| | Com-Exist | 8 | 16 | 26 | 36 | 48 | 61 | 75 | 89 | 102 | 115 | 127 | 140 | 151 | 158 | 163 | 168 | 173 | 178 | 182 | 186 |
| | Com-NC | 7 | 15 | 26 | 39 | 54 | 73 | 94 | 117 | 141 | 168 | 198 | 228 | 261 | 295 | 331 | 368 | 408 | 451 | 494 | 536 |
| | Industrial | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Res-Conv | 0 | 0 | 1 | 1 | 2 | 3 | 4 | 6 | 7 | 9 | 11 | 14 | 16 | 18 | 20 | 22 | 23 | 25 | 27 | 29 |
| | Res-Exist | 9 | 20 | 32 | 46 | 62 | 79 | 99 | 118 | 137 | 155 | 174 | 192 | 210 | 216 | 219 | 222 | 225 | 228 | 231 | 233 |
| | Res-NC MF | 1 | 2 | 3 | 5 | 6 | 8 | 11 | 13 | 15 | 17 | 20 | 22 | 24 | 27 | 29 | 32 | 34 | 37 | 40 | 42 |
| | Res-NC SF | 3 | 6 | 9 | 13 | 18 | 24 | 30 | 37 | 43 | 50 | 57 | 63 | 70 | 78 | 85 | 92 | 99 | 107 | 115 | 122 |
| | Total | 28 | 60 | 98 | 143 | 196 | 256 | 324 | 393 | 463 | 539 | 616 | 694 | 774 | 838 | 899 | 961 | 1,027 | 1,095 | 1,163 | 1,230 |
| Oregon Total | Com-Conv | 2 | 5 | 12 | 23 | 39 | 60 | 88 | 121 | 161 | 206 | 257 | 313 | 374 | 442 | 503 | 565 | 631 | 700 | 772 | 847 |
| | Com-Exist | 101 | 173 | 295 | 434 | 591 | 764 | 953 | 1,142 | 1,342 | 1,532 | 1,714 | 1,889 | 2,056 | 2,217 | 2,316 | 2,393 | 2,464 | 2,530 | 2,588 | 2,640 |
| | Com-NC | 23 | 49 | 79 | 113 | 153 | 197 | 246 | 295 | 350 | 404 | 457 | 510 | 563 | 615 | 667 | 718 | 769 | 819 | 869 | 917 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 54 | 55 | 55 | 56 | 56 | 57 | 57 |
| | Res-Conv | 1 | 4 | 8 | 15 | 25 | 38 | 55 | 75 | 99 | 125 | 154 | 183 | 214 | 233 | 252 | 271 | 291 | 312 | 332 | 353 |
| | Res-Exist | 78 | 166 | 266 | 381 | 513 | 658 | 817 | 976 | 1,134 | 1,288 | 1,439 | 1,558 | 1,678 | 1,693 | 1,707 | 1,720 | 1,735 | 1,748 | 1,761 | 1,773 |
| | Res-NC MF | 1 | 4 | 8 | 12 | 15 | 19 | 23 | 26 | 30 | 33 | 37 | 41 | 44 | 48 | 51 | 55 | 59 | 62 | 66 | 70 |
| | Res-NC SF | 32 | 65 | 103 | 146 | 195 | 252 | 316 | 388 | 460 | 532 | 603 | 675 | 747 | 819 | 890 | 961 | 1,034 | 1,106 | 1,177 | 1,248 |
| | Res&Com Subtotal | 239 | 466 | 771 | 1,123 | 1,531 | 1,988 | 2,499 | 3,024 | 3,574 | 4,119 | 4,660 | 5,168 | 5,677 | 6,066 | 6,387 | 6,684 | 6,983 | 7,277 | 7,566 | 7,849 |
| | Total | 241 | 471 | 778 | 1,134 | 1,546 | 2,007 | 2,523 | 3,053 | 3,608 | 4,158 | 4,704 | 5,217 | 5,730 | 6,120 | 6,442 | 6,739 | 7,038 | 7,334 | 7,622 | 7,906 |
| System Total | Com-Conv | 2 | 6 | 14 | 27 | 44 | 68 | 99 | 135 | 180 | 230 | 286 | 347 | 415 | 488 | 555 | 622 | 694 | 769 | 847 | 929 |
| | Com-Exist | 109 | 189 | 320 | 470 | 640 | 825 | 1,029 | 1,231 | 1,443 | 1,647 | 1,841 | 2,028 | 2,208 | 2,375 | 2,479 | 2,561 | 2,637 | 2,708 | 2,770 | 2,826 |
| | Com-NC | 30 | 64 | 104 | 152 | 207 | 269 | 340 | 412 | 490 | 572 | 655 | 738 | 824 | 910 | 997 | 1,086 | 1,177 | 1,270 | 1,362 | 1,454 |
| | Industrial | 2 | 5 | 8 | 11 | 15 | 19 | 24 | 29 | 34 | 39 | 44 | 49 | 54 | 54 | 55 | 55 | 56 | 56 | 57 | 57 |
| | Res-Conv | 1 | 4 | 9 | 16 | 27 | 41 | 59 | 81 | 106 | 134 | 166 | 196 | 230 | 251 | 272 | 293 | 315 | 337 | 359 | 381 |
| | Res-Exist | 87 | 186 | 298 | 427 | 575 | 737 | 916 | 1,094 | 1,271 | 1,443 | 1,613 | 1,750 | 1,888 | 1,909 | 1,926 | 1,942 | 1,960 | 1,976 | 1,992 | 2,006 |
| | Res-NC MF | 2 | 6 | 11 | 16 | 22 | 27 | 33 | 39 | 45 | 51 | 57 | 63 | 69 | 75 | 81 | 87 | 93 | 99 | 106 | 112 |
| | Res-NC SF | 35 | 71 | 112 | 159 | 214 | 276 | 347 | 424 | 503 | 581 | 660 | 738 | 817 | 896 | 975 | 1,053 | 1,133 | 1,212 | 1,292 | 1,371 |
| | Total | 269 | 531 | 876 | 1,277 | 1,742 | 2,263 | 2,847 | 3,446 | 4,071 | 4,697 | 5,320 | 5,910 | 6,505 | 6,958 | 7,341 | 7,700 | 8,065 | 8,429 | 8,785 | 9,136 |

## Table of Contents

**Scenario 1: Current Resource Portfolio - 85% Probability Weather**

| Peak Day Unserved Demand, MDTH/day | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
| Albany | 2 | 3 | 3 | 4 | 4 | 7 | 13 | 14 | 15 | 16 | 19 | 18 | 19 | 19 | 21 | 19 | 19 | 19 | 19 | 19 |
| Astoria | 0.3 | 0.3 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 7 | 7 | 7 | 12 | 12 | 12 | 7 | 7 | 10 | 7 |
| Dalles | 0.4 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 6 | 3 | 6 | 3 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 |
| Eugene | 4 | 7 | 8 | 9 | 10 | 10 | 13 | 22 | 13 | 23 | 22 | 28 | 35 | 35 | 37 | 38 | 36 | 36 | 36 | 42 |
| Newport LC | - | - | - | - | 0.2 | 0.2 | 0.2 | 0.2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 6 | 6 | 6 |
| Portland | 14 | 22 | 28 | 31 | 35 | 38 | 41 | 44 | 63 | 92 | 119 | 156 | 181 | 215 | 214 | 223 | 255 | 282 | 306 | 292 |
| Salem | 4 | 8 | 9 | 10 | 11 | 13 | 14 | 15 | 38 | 40 | 45 | 45 | 49 | 50 | 52 | 54 | 56 | 57 | 51 | 61 |
| Vancouver | 3 | 4 | 8 | 14 | 23 | 30 | 30 | 31 | 32 | 32 | 33 | 34 | 44 | 72 | 83 | 78 | 81 | 84 | 86 | 89 |
| System Total | 28 | 45 | 57 | 70 | 85 | 100 | 115 | 130 | 171 | 211 | 252 | 293 | 344 | 413 | 429 | 434 | 464 | 498 | 522 | 524 |

| Annual Unserved Demand, MDTH/Year | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
| Albany | 2 | 3 | 3 | 4 | 5 | 8 | 15 | 16 | 21 | 23 | 26 | 26 | 27 | 40 | 42 | 122 | 148 | 151 | 151 | 153 |
| Astoria | 0.3 | 0.3 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 9 | 9 | 10 | 19 | 28 | 38 | 46 | 68 | 88 | 109 |
| Dalles | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 6 | 4 | 8 | 8 | 12 | 21 | 44 | 53 | 73 | 86 | 107 | 135 |
| Eugene | 4 | 7 | 8 | 9 | 13 | 14 | 17 | 26 | 26 | 37 | 37 | 46 | 54 | 66 | 106 | 312 | 341 | 357 | 363 | 405 |
| Newport LC | - | - | - | - | 4 | 8 | 14 | 30 | 40 | 52 | 63 | 97 | 104 | 114 | 137 | 162 | 167 | 178 | 188 | 197 |
| Portland | 14 | 22 | 28 | 31 | 35 | 38 | 41 | 44 | 67 | 121 | 181 | 245 | 308 | 551 | 1,095 | 1,601 | 1,889 | 2,311 | 2,753 | 3,280 |
| Salem | 4 | 8 | 9 | 10 | 87 | 198 | 307 | 423 | 544 | 661 | 807 | 962 | 1,120 | 1,254 | 1,358 | 1,487 | 1,578 | 1,664 | 1,780 | 1,925 |
| Vancouver | 3 | 4 | 8 | 14 | 23 | 30 | 30 | 31 | 33 | 40 | 50 | 58 | 85 | 140 | 213 | 235 | 406 | 508 | 642 | 788 |
| System Total | 28 | 45 | 57 | 70 | 170 | 299 | 427 | 573 | 739 | 941 | 1,182 | 1,451 | 1,720 | 2,206 | 3,024 | 4,011 | 4,650 | 5,323 | 6,073 | 6,993 |

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**Scenarios - Ranked by NPV 20-year System Cost (High to Low)**

| Scenario / Sensitivity (RMix/Weather) | | Notes: | NPV 20-Year System Cost ($ Millions) | 20-Year Served Demand (BCF) | 20-Year Unserved Demand (BCF) | New RMix Selection | Brownsville to Eugene | Incremental CD via Stanfield | March Point Capacity | LNG Enhancment to Salem | Incremental CD 12-9 | Palomar East | Palomar West | Pacific Connector East | Pacific Connector West | WVF - Main | Existing CD Turnback | Mist Recall | GP Recall | Satellite Albany | Satellite Eugene | Satellite Salem |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Net Incremental Daily Deliverability* | | | | | | | | | | | | | | | | |
| SE12 | IRP RMix 1 - 85% Probability Weather | Limited North American Supply (+20% in Commodity | $ 11,465 | 1,641 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2023/24 | 2010/11 | 2025/26 |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 43 | - | - | - | 4 | (77) | 10 | 7 | 10 | 0.4 | 3 |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 95 | - | - | - | 4 | (77) | 157 | 7 | 27 | 17 | 4 |
| SE03 | IRP RMix 1 - 85% Probability Weather | High Demand/High Price Scenario | $ 11,081 | 1,872 | 0.053 | Begin Year | 2013/14 | 2027/28 | 2017/18 | 2012/13 | 2026/27 | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2019/20 | 2009/10 | 2018/19 |
| | | | | | | Begin BBtu | 0.3 | 12 | 12 | 21 | 2 | 59 | - | - | - | 19 | (77) | 10 | 7 | 9 | 4.1 | 6 |
| | | | | | | Max BBtu | 5 | 12 | 12 | 21 | 5 | 200 | - | - | - | 19 | (77) | 289 | 7 | 30 | 30 | 30 |
| SE10 | IRP RMix 1 - 85% Probability Weather | Limited Canadian Supply 1 (3% increase in AECO) | $ 9,924 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | 2010/11 | 2023/24 |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 39 | - | - | - | 5 | (77) | 10 | 7 | - | 0.4 | 7 |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 95 | - | - | - | 5 | (77) | 162 | 7 | - | 23 | 21 |
| SE06 | IRP RMix 1 - Original Design Weather | Old Design Weather (Coldest 20 Year Peak & Annual) | $ 9,528 | 1,797 | 0.033 | Begin Year | 2012/13 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | 2009/10 | 2009/10 |
| | | | | | | Begin BBtu | 1 | - | 12 | 23 | - | 64 | - | - | - | 14 | (77) | 10 | 7 | - | 1.8 | 9 |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 106 | - | - | - | 14 | (77) | 280 | 7 | - | 11 | 9 |
| SC01 | Current Resources - 85% Probability Weather | Current Portfolio | $ 8,959 | 1,698 | 40 | Begin Year | | | | | | | | | | | | | | | | |
| | | | | | | Begin BBtu | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | | | Max BBtu | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC05 | IRP RMix 4 - 85% Probability Weather | No Palomar, No CD Turnback | $ 8,774 | 1,643 | 0.016 | Begin Year | 2011/12 | 2025/26 | 2017/18 | 2012/13 | | | | | | 2010/11 | | 2008/09 | 2008/09 | 2024/25 | 2010/11 | 2025/26 |
| | | | | | | Begin BBtu | 0.9 | 2 | 12 | 23 | - | - | - | - | - | 6 | - | 10 | 7 | 14 | 0.4 | 11 |
| | | | | | | Max BBtu | 5 | 9 | 12 | 23 | - | - | - | - | - | 6 | - | 166 | 7 | 27 | 30 | 30 |
| SE05 | IRP RMix 1 - 85% Probability Weather | Palomar at Min of 100 MDTH/d | $ 8,772 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2021/22 | 2010/11 | 2023/24 |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 100 | - | - | - | 4 | (77) | 10 | 7 | 6 | 0 | 13 |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 100 | - | - | - | 4 | (77) | 129 | 7 | 22 | 27 | 23 |
| SE14 | IRP RMix 1 - 85% Probability Weather | GTN Decontracting | $ 8,762 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2025/26 | 2010/11 | |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 41 | - | - | - | 4 | (77) | 10 | 7 | 5 | 0.4 | - |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 94 | - | - | - | 4 | (77) | 169 | 7 | 8 | 30 | - |
| SC06 | IRP RMix 1 - 85% Probability Weather | No GP Recall | $ 8,749 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | | 2025/26 | 2010/11 | |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 47 | - | - | - | 11 | (77) | 10 | - | 0 | 0 | - |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 100 | - | - | - | 11 | (77) | 175 | - | 1 | 25 | - |
| SC10 | IRP RMix 1 - 85% Probability Weather | WVF Alternative (12" pipe) with no Satellite LNG | $ 8,745 | 1,643 | 0.017 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | 2016/17 | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | | |
| | | | | | | Begin BBtu | 1.3 | - | 12 | 23 | 1 | 41 | - | - | - | 18 | (77) | 10 | 7 | - | - | - |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | 14 | 88 | - | - | - | 18 | (77) | 213 | 7 | - | - | - |
| SC08 | IRP RMix 1 - 85% Probability Weather | No Satellite LNG | $ 8,744 | 1,643 | 0.017 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | 2016/17 | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | | |
| | | | | | | Begin BBtu | 1 | - | 12 | 23 | 1 | 41 | - | - | - | 5 | (77) | 10 | 7 | - | - | - |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | 11 | 88 | - | - | - | 5 | (77) | 213 | 7 | - | - | - |
| B | IRP RMix 1 - 85% Probability Weather | Baseline Incremental Resources | $ 8,736 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | 2010/11 | 2025/26 |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 41 | - | - | - | 4 | (77) | 10 | 7 | - | 0.4 | 5 |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 94 | - | - | - | 4 | (77) | 168 | 7 | - | 30 | 9 |
| SC07 | IRP RMix 1 - 85% Probability Weather | Delayed Satellite LNG | $ 8,736 | 1,643 | 0.017 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | 2016/17 | 2024/25 |
| | | | | | | Begin BBtu | 1.3 | - | 12 | 23 | - | 41 | - | - | - | 4 | (77) | 10 | 7 | - | 0.9 | 4 |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 94 | - | - | - | 4 | (77) | 168 | 7 | - | 18 | 21 |
| SC09 | IRP RMix 1 - 85% Probability Weather | WVF Alternative (12" pipe) | $ 8,736 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2024/25 | 2010/11 | |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 41 | - | - | - | 8 | (77) | 10 | 7 | 1 | 0.4 | - |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 95 | - | - | - | 8 | (77) | 168 | 7 | 23 | 15 | - |
| SE13 | IRP RMix 1 - 85% Probability Weather | Unconstrained Mist Recall | $ 8,734 | 1,643 | - | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2025/26 | 2010/11 | |
| | | | | | | Begin BBtu | 0.9 | - | 12 | 23 | - | 41 | - | - | - | 4 | (77) | 26 | 7 | 4 | 0.4 | - |
| | | | | | | Max BBtu | 5 | - | 12 | 23 | - | 94 | - | - | - | 4 | (77) | 168 | 7 | 9 | 30 | - |
| SC03 | IRP RMix 3 - 85% Probability Weather | Southern LNG (Jordan Cove + Pacific Connector) | $ 8,697 | 1,643 | 0.016 | Begin Year | | | 2017/18 | 2012/13 | | 2011/12 | | 2026/27 | 2011/12 | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2021/22 | 2010/11 | 2023/24 |
| | | | | | | Begin BBtu | - | - | 12 | 23 | - | 27 | - | 3 | 20 | 3 | (77) | 10 | 7 | 6 | 0 | 7 |
| | | | | | | Max BBtu | - | - | 12 | 23 | - | 82 | - | 5 | 20 | 3 | (77) | 145 | 7 | 22 | 6 | 26 |
| SC02 | IRP RMix 2 - 85% Probability Weather | Northern LNG (Bradwood Landing + Palomar West) | $ 8,360 | 1,643 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | 2011/12 | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | 2010/11 | 2023/24 |
| | | | | | | Begin BBtu | 0.9 | - | 6 | 23 | - | 5 | 50 | - | - | 6 | (77) | 10 | 7 | - | 0.4 | 0 |
| | | | | | | Max BBtu | 5 | - | 6 | 23 | - | 77 | 100 | - | - | 6 | (77) | 109 | 7 | - | 15 | 6 |
| SC04 | IRP RMix 2&3 - 85% Probability Weather | Two LNG Projects (Both Bradwood & Jordan Cove) | $ 8,357 | 1,643 | 0.016 | Begin Year | | | 2017/18 | 2012/13 | | | 2011/12 | | 2011/12 | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2025/26 | 2010/11 | 2026/27 |
| | | | | | | Begin BBtu | - | - | 1 | 23 | - | - | 50 | - | 18 | 5 | (77) | 10 | 7 | 10 | 0 | 11 |
| | | | | | | Max BBtu | - | - | 1 | 23 | - | - | 100 | - | 20 | 5 | (77) | 146 | 7 | 15 | 14 | 17 |
| SE02 | IRP RMix 1 - 85% Probability Weather | Low Demand/High Price Scenario | $ 8,177 | 1,329 | - | Begin Year | | | 2017/18 | 2012/13 | | 2011/12 | | | | | 2011/12 | 2008/09 | 2008/09 | | | |
| | | | | | | Begin BBtu | - | - | 12 | 23 | - | 13 | - | - | - | - | (77) | 2 | 7 | - | - | - |
| | | | | | | Max BBtu | - | - | 12 | 23 | - | 13 | - | - | - | - | (77) | 37 | 7 | - | - | - |
| SE09 | IRP RMix1 - 85% Probability Weather | Negative Long Term Load Growth (Last 12 Years) | $ 7,829 | 1,427 | 0.016 | Begin Year | 2011/12 | | 2017/18 | 2012/13 | | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | | 2010/11 | |
| | | | | | | Begin BBtu | 1 | - | 12 | 24 | - | 44 | - | - | - | 0.2 | (77) | 10 | 7 | - | 0 | - |
| | | | | | | Max BBtu | 2 | - | 12 | 24 | - | 44 | - | - | - | 0.2 | (77) | 94 | 7 | - | 0 | - |
| SE01 | IRP RMix 1 - 85% Probability Weather | High Demand/Low Price Scenario | $ 7,643 | 1,872 | 0.053 | Begin Year | 2013/14 | 2027/28 | 2017/18 | 2012/13 | 2026/27 | 2011/12 | | | | 2010/11 | 2011/12 | 2008/09 | 2008/09 | 2018/19 | 2009/10 | 2019/20 |
| | | | | | | Begin BBtu | 0.3 | 12 | 12 | 21 | 2 | 52 | - | - | - | 16.5 | (77) | 10 | 7 | 6 | 4 | 30 |
| | | | | | | Max BBtu | 5 | 12 | 12 | 21 | 5 | 200 | - | - | - | 16.5 | (77) | 289 | 7 | 30 | 30 | 30 |
| SE08 | IRP RMix 1 - 85% Probability Weather | Negative Short Term Load Growth (First 5 Years) | $ 7,442 | 1,384 | - | Begin Year | | | 2017/18 | 2012/13 | | 2011/12 | | | | | 2011/12 | 2008/09 | 2008/09 | 2025/26 | 2023/24 | |
| | | | | | | Begin BBtu | - | - | 12 | 26 | - | 6 | - | - | - | - | (77) | 2 | 7 | 1 | 3 | - |
| | | | | | | Max BBtu | - | - | 12 | 26 | - | 30 | - | - | - | - | (77) | 24 | 7 | 2 | 21 | - |
| SE07 | IRP RMix 1 - 85% Probability Weather | Negative Load Growth (-1% Decrease per Year) | $ 6,742 | 1,210 | - | Begin Year | | | 2017/18 | | | 2011/12 | | | | | 2011/12 | 2008/09 | 2008/09 | | | |
| | | | | | | Begin BBtu | - | - | 12 | - | - | 6 | - | - | - | - | (77) | 2 | 7 | - | - | - |
| | | | | | | Max BBtu | - | - | 12 | - | - | 6 | - | - | - | - | (77) | 24 | 7 | - | - | - |
| SE04 | IRP RMix 1 - 85% Probability Weather | Low Demand/Low Price Scenario | $ 5,693 | 1,329 | - | Begin Year | | | 2017/18 | 2012/13 | | 2011/12 | | | | | 2011/12 | 2008/09 | 2008/09 | | | |
| | | | | | | Begin BBtu | - | - | 12 | 26 | - | 13 | - | - | - | - | (77) | 2 | 7 | - | - | - |
| | | | | | | Max BBtu | - | - | 12 | 29 | - | 13 | - | - | - | - | (77) | 37 | 7 | - | - | - |

Notes:
SC=Scenario (Resource Mix)
SE=Sensitivity (no change to resource mix; modifications of commodity availability, commodity cost, transportation cost, and/or load forecast inputs)

Incremental Opal to Stanfield and Malin to Stanfield - not selected in all scenarios.

**Scenarios - Ranked by NPV 20-year System Cost (High to Low)**

| Scenario / Sensitivity (RMix/Weather) | | Notes: | MDTH | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | IRP RMix 1 - 85% Probability Weather | Baseline Incremental Resources | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC01 | Current Resources - 85% Probability Weather | Current Portfolio | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Net Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Net Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | Annual Unserved | 28 | 45 | 57 | 70 | 170 | 299 | 427 | 573 | 739 | 941 | 1,182 | 1,451 | 1,720 | 2,206 | 3,024 | 4,011 | 4,650 | 5,323 | 6,073 | 6,993 |
| | | | Peak Day Unserved | 28 | 45 | 57 | 70 | 85 | 100 | 115 | 130 | 171 | 211 | 252 | 293 | 344 | 413 | 429 | 434 | 464 | 498 | 522 | 524 |
| SC02 | IRP RMix 2 - 85% Probability Weather | Northern LNG (Bradwood Landing + Palomar West) | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC03 | IRP RMix 3 - 85% Probability Weather | Southern LNG (Jordan Cove + Pacific Connector) | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC04 | IRP RMix 2&3 - 85% Probability Weather | Two LNG Projects (Both Bradwood & Jordan Cove) | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC05 | IRP RMix 4 - 85% Probability Weather | No Palomar, No CD Turnback | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC06 | IRP RMix 1 - 85% Probability Weather | No GP Recall | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SC07 | IRP RMix 1 - 85% Probability Weather | Delayed Satellite LNG | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| | | | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Scenarios - Ranked by NPV 20-year System Cost (High to Low)**

| Scenario / Sensitivity (RMix/Weather) | | Notes: | MDTH | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| SC08 | IRP RMix 1 - 85% Probability Weather | No Satellite LNG | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 75,772 | 77,856 | 80,310 | 82,611 | 84,727 | 87,113 | 89,628 | 92,303 | 94,192 | 96,614 | 99,042 | 101,937 | 103,929 | 106,398 | 109,007 | 112,019 | 114,224 | 116,795 | 119,529 | 122,880 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,621) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 75,507 | 77,331 | 79,446 | 81,352 | 83,011 | 84,884 | 86,825 | 88,911 | 90,185 | 91,993 | 93,807 | 96,123 | 97,531 | 99,554 | 101,802 | 104,457 | 106,298 | 108,508 | 110,886 | 113,887 |
| SE01 | IRP RMix 1 - 85% Probability Weather | High Demand/Low Price Scenario with Mist Expansion | Peak Day Demand | 954 | 980 | 1,012 | 1,034 | 1,065 | 1,095 | 1,127 | 1,154 | 1,181 | 1,210 | 1,240 | 1,269 | 1,298 | 1,327 | 1,358 | 1,387 | 1,420 | 1,450 | 1,482 | 1,516 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (21) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 952 | 976 | 1,005 | 1,025 | 1,052 | 1,078 | 1,105 | 1,129 | 1,151 | 1,175 | 1,200 | 1,226 | 1,249 | 1,275 | 1,304 | 1,333 | 1,361 | 1,388 | 1,418 | 1,452 |
| | | | Annual Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 2 | 3 | 4 |
| | | | Peak Day Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 1 |
| | | | Annual Demand | 72,176 | 72,076 | 71,326 | 71,326 | 70,872 | 70,686 | 70,541 | 70,604 | 70,002 | 69,954 | 69,937 | 69,928 | 69,358 | 69,171 | 68,924 | 69,053 | 68,547 | 68,286 | 68,102 | 68,221 |
| | | | DSM | (240) | (452) | (728) | (1,045) | (1,407) | (1,806) | (2,248) | (2,691) | (3,149) | (3,598) | (4,038) | (4,441) | (4,839) | (5,107) | (5,293) | (5,473) | (5,652) | (5,825) | (5,991) | (6,150) |
| | | | Net Annual Demand | 71,936 | 71,624 | 70,598 | 70,281 | 69,465 | 68,880 | 68,293 | 67,913 | 66,852 | 66,355 | 65,899 | 65,487 | 64,519 | 64,064 | 63,631 | 63,580 | 62,895 | 62,461 | 62,111 | 62,072 |
| SE02 | IRP RMix 1 - 85% Probability Weather | Low Demand/High Price Scenario | Peak Day Demand | 903 | 900 | 886 | 879 | 876 | 872 | 869 | 863 | 858 | 856 | 855 | 849 | 844 | 840 | 835 | 831 | 827 | 822 | 819 | 815 |
| | | | DSM | | | | | | | | | | | | | | | | | | | | |
| | | | Net Peak Day Demand | 901 | 896 | 880 | 871 | 865 | 858 | 851 | 843 | 833 | 828 | 824 | 816 | 806 | 801 | 795 | 791 | 784 | 778 | 773 | 770 |
| | | | Annual Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 75,772 | 77,856 | 80,310 | 82,611 | 84,727 | 87,113 | 89,628 | 92,303 | 94,192 | 96,614 | 99,042 | 101,937 | 103,929 | 106,398 | 109,007 | 112,019 | 114,224 | 116,795 | 119,529 | 122,880 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 75,507 | 77,331 | 79,446 | 81,352 | 83,011 | 84,884 | 86,825 | 88,911 | 90,185 | 91,992 | 93,807 | 96,123 | 97,531 | 99,554 | 101,802 | 104,457 | 106,298 | 108,508 | 110,886 | 113,887 |
| SE03 | IRP RMix 1 - 85% Probability Weather | High Demand/High Price Scenario with Mist Expansion | Peak Day Demand | 954 | 980 | 1,012 | 1,034 | 1,065 | 1,095 | 1,127 | 1,154 | 1,181 | 1,210 | 1,240 | 1,269 | 1,298 | 1,327 | 1,358 | 1,387 | 1,420 | 1,450 | 1,482 | 1,516 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (21) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 952 | 976 | 1,005 | 1,025 | 1,052 | 1,078 | 1,105 | 1,129 | 1,151 | 1,175 | 1,200 | 1,226 | 1,249 | 1,275 | 1,304 | 1,333 | 1,361 | 1,388 | 1,418 | 1,452 |
| | | | Annual Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 2 | 3 | 4 |
| | | | Peak Day Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 1 |
| | | | Annual Demand | 72,176 | 72,076 | 71,326 | 71,326 | 70,872 | 70,686 | 70,541 | 70,604 | 70,002 | 69,954 | 69,937 | 69,928 | 69,358 | 69,171 | 68,924 | 69,053 | 68,547 | 68,286 | 68,102 | 68,221 |
| | | | DSM | (240) | (452) | (728) | (1,045) | (1,407) | (1,806) | (2,248) | (2,691) | (3,149) | (3,598) | (4,037) | (4,440) | (4,839) | (5,107) | (5,292) | (5,472) | (5,651) | (5,824) | (5,991) | (6,150) |
| | | | Net Annual Demand | 71,936 | 71,624 | 70,598 | 70,281 | 69,465 | 68,880 | 68,293 | 67,913 | 66,853 | 66,356 | 65,900 | 65,488 | 64,520 | 64,065 | 63,632 | 63,581 | 62,896 | 62,462 | 62,111 | 62,072 |
| SE04 | IRP RMix 1 - 85% Probability Weather | Low Demand/Low Price Scenario | Peak Day Demand | 903 | 900 | 886 | 879 | 876 | 872 | 869 | 863 | 858 | 856 | 855 | 849 | 844 | 840 | 835 | 831 | 827 | 822 | 819 | 815 |
| | | | DSM | (2) | (4) | (6) | (8) | (11) | (14) | (18) | (20) | (25) | (28) | (32) | (33) | (38) | (39) | (41) | (40) | (43) | (44) | (45) | (45) |
| | | | Net Peak Day Demand | 901 | 896 | 880 | 871 | 865 | 858 | 851 | 843 | 833 | 828 | 824 | 816 | 806 | 801 | 795 | 791 | 784 | 778 | 773 | 770 |
| | | | Annual Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| SE05 | IRP RMix 1 - 85% Probability Weather | Palomar at Min of 100 MDTH/d | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 80,733 | 82,241 | 83,530 | 85,287 | 86,274 | 87,722 | 89,170 | 91,082 | 92,285 | 93,830 | 95,454 | 97,553 | 98,759 | 100,308 | 101,798 | 103,849 | 104,730 | 106,022 | 107,390 | 109,334 |
| | | | DSM | (279) | (556) | (915) | (1,333) | (1,817) | (2,359) | (2,967) | (3,590) | (4,239) | (4,889) | (5,536) | (6,148) | (6,763) | (7,227) | (7,604) | (7,979) | (8,358) | (8,736) | (9,108) | (9,474) |
| | | | Net Annual Demand | 80,454 | 81,686 | 82,615 | 83,953 | 84,457 | 85,363 | 86,203 | 87,493 | 88,046 | 88,942 | 89,918 | 91,404 | 91,996 | 93,081 | 94,194 | 95,870 | 96,372 | 97,286 | 98,282 | 99,860 |
| SE06 | IRP RMix 1 - Original Design Weather | Old Design Weather (Coldest 20 Year Peak & Annual) | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

**Scenarios - Ranked by NPV 20-year System Cost (High to Low)**

| Scenario / Sensitivity (RMix/Weather) | | Notes: | MDTH | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Annual Demand | 71,985 | 71,153 | 70,064 | 69,293 | 67,985 | 67,017 | 66,067 | 65,430 | 64,381 | 63,556 | 62,796 | 62,311 | 61,349 | 60,581 | 59,794 | 59,301 | 58,239 | 57,394 | 56,606 | 56,090 |
| | | | DSM | (232) | (427) | (682) | (971) | (1,297) | (1,655) | (2,047) | (2,434) | (2,830) | (3,213) | (3,583) | (3,915) | (4,238) | (4,440) | (4,562) | (4,677) | (4,790) | (4,897) | (4,995) | (5,087) |
| | | | Net Annual Demand | 71,753 | 70,726 | 69,382 | 68,323 | 66,688 | 65,362 | 64,020 | 62,995 | 61,551 | 60,343 | 59,213 | 58,396 | 57,111 | 56,141 | 55,232 | 54,624 | 53,449 | 52,496 | 51,610 | 51,004 |
| SE07 | IRP RMix 1 - 85% Probability Weather | Negative Load Growth (-1% Decrease per Year) | Peak Day Demand | 903 | 891 | 874 | 858 | 844 | 830 | 816 | 802 | 792 | 780 | 769 | 759 | 750 | 739 | 728 | 717 | 706 | 694 | 683 | 673 |
| | | | DSM | (2) | (3) | (5) | (7) | (10) | (13) | (16) | (18) | (22) | (25) | (28) | (29) | (33) | (34) | (35) | (34) | (37) | (37) | (38) | (37) |
| | | | Net Peak Day Demand | 901 | 887 | 869 | 851 | 833 | 816 | 800 | 784 | 770 | 755 | 741 | 730 | 717 | 705 | 693 | 683 | 670 | 657 | 645 | 636 |
| | | | Annual Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 71,985 | 71,153 | 70,064 | 69,293 | 67,985 | 67,517 | 67,544 | 68,375 | 69,269 | 70,379 | 71,545 | 73,019 | 73,920 | 75,033 | 76,103 | 77,540 | 78,210 | 79,139 | 80,123 | 81,481 |
| | | | DSM | (232) | (427) | (682) | (971) | (1,297) | (1,673) | (2,112) | (2,584) | (3,108) | (3,635) | (4,162) | (4,662) | (5,165) | (5,544) | (5,845) | (6,143) | (6,446) | (6,747) | (7,043) | (7,335) |
| | | | Net Annual Demand | 71,753 | 70,726 | 69,382 | 68,323 | 66,688 | 65,844 | 65,433 | 65,791 | 66,161 | 66,744 | 67,383 | 68,357 | 68,755 | 69,488 | 70,258 | 71,397 | 71,764 | 72,392 | 73,080 | 74,146 |
| SE08 | IRP RMix 1 - 85% Probability Weather | Negative Short Term Load Growth (First 5 Years) | Peak Day Demand | 903 | 891 | 874 | 858 | 844 | 836 | 835 | 840 | 854 | 867 | 881 | 895 | 909 | 922 | 935 | 947 | 958 | 968 | 979 | 990 |
| | | | DSM | (2) | (3) | (5) | (7) | (10) | (13) | (17) | (19) | (24) | (28) | (32) | (34) | (40) | (42) | (44) | (44) | (48) | (51) | (53) | (52) |
| | | | Net Peak Day Demand | 901 | 887 | 869 | 851 | 833 | 823 | 818 | 820 | 830 | 839 | 849 | 860 | 870 | 880 | 890 | 903 | 910 | 918 | 926 | 937 |
| | | | Annual Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 79,753 | 79,891 | 79,767 | 78,487 | 77,478 | 76,549 | 75,956 | 74,780 | 73,842 | 72,880 | 72,278 | 70,981 | 69,947 | 68,984 | 68,354 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,202) | (2,713) | (3,193) | (3,650) | (4,089) | (4,507) | (4,881) | (5,243) | (5,469) | (5,609) | (5,740) | (5,869) | (5,989) | (6,100) | (6,202) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 77,551 | 77,178 | 76,574 | 74,836 | 73,390 | 72,042 | 71,075 | 69,537 | 68,373 | 67,271 | 66,538 | 65,112 | 63,958 | 62,884 | 62,153 |
| SE09 | IRP RMix1 - 85% Probability Weather | Negative Long Term Load Growth (Last 12 Years) | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 993 | 993 | 985 | 972 | 958 | 945 | 932 | 920 | 907 | 893 | 880 | 867 | 852 | 838 | 825 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (21) | (24) | (28) | (31) | (35) | (36) | (40) | (42) | (42) | (42) | (44) | (45) | (46) | (44) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 976 | 972 | 962 | 944 | 926 | 910 | 896 | 880 | 865 | 851 | 839 | 822 | 807 | 793 | 781 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| SE10 | IRP RMix 1 - 85% Probability Weather | Limited Canadian Supply 1 | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (269) | (531) | (876) | (1,277) | (1,742) | (2,263) | (2,847) | (3,446) | (4,071) | (4,697) | (5,320) | (5,910) | (6,505) | (6,958) | (7,341) | (7,700) | (8,065) | (8,429) | (8,785) | (9,136) |
| | | | Net Annual Demand | 73,635 | 74,754 | 75,600 | 76,766 | 77,265 | 78,076 | 78,825 | 79,928 | 80,459 | 81,252 | 82,116 | 83,389 | 83,957 | 84,925 | 85,912 | 87,372 | 87,884 | 88,715 | 89,620 | 90,991 |
| SE12 | IRP RMix 1 - 85% Probability Weather | Limited North American Supply (+20% in Commodity Price) | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (36) | (40) | (43) | (49) | (52) | (55) | (55) | (60) | (62) | (65) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 972 | 984 | 995 | 1,006 | 1,019 | 1,031 | 1,044 | 1,059 | 1,072 | 1,085 | 1,098 | 1,114 | 1,124 | 1,134 | 1,145 | 1,159 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| SE13 | IRP RMix 1 - 85% Probability Weather | Unconstrainted Mist Recall | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) | |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Annual Demand | 73,904 | 75,284 | 76,476 | 78,043 | 79,007 | 80,340 | 81,672 | 83,374 | 84,530 | 85,949 | 87,436 | 89,300 | 90,462 | 91,883 | 93,252 | 95,072 | 95,949 | 97,144 | 98,405 | 100,128 |
| | | | DSM | (264) | (524) | (864) | (1,259) | (1,716) | (2,229) | (2,803) | (3,392) | (4,007) | (4,622) | (5,235) | (5,815) | (6,398) | (6,843) | (7,204) | (7,562) | (7,926) | (8,287) | (8,643) | (8,992) |
| | | | Net Annual Demand | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| SE14 | IRP RMix 1 - 85% Probability Weather | GTN Decontracting | Peak Day Demand | 928 | 944 | 957 | 971 | 986 | 1,001 | 1,016 | 1,031 | 1,050 | 1,067 | 1,084 | 1,102 | 1,121 | 1,137 | 1,153 | 1,169 | 1,184 | 1,196 | 1,210 | 1,224 |
| | | | DSM | (2) | (4) | (7) | (9) | (13) | (17) | (22) | (25) | (31) | (35) | (40) | (42) | (49) | (51) | (54) | (54) | (59) | (62) | (64) | (64) |
| | | | Net Peak Day Demand | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| | | | Annual Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | Peak Day Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Notes:
SC=Scenario (Resource Mix)
SE=Sensitivity (no change to resource mix; modifications of commodity availability, commodity cost, transportation cost, and/or load forecast inputs)

## Base Case: IRP RMix 1 - 85% Probability Weather - Baseline Incremental Resources

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,601 | $ 449,392 | $ 473,978 | $ 492,847 | $ 516,556 | $ 538,664 | $ 564,843 | $ 567,991 | $ 571,506 | $ 580,821 | $ 587,075 | $ 583,283 | $ 579,229 | $ 604,215 | $ 619,328 | $ 644,305 | $ 692,176 | $ 743,054 | $ 787,648 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,661** | **$ 449,451** | **$ 474,037** | **$ 492,906** | **$ 516,616** | **$ 538,723** | **$ 564,902** | **$ 568,050** | **$ 571,565** | **$ 580,880** | **$ 587,134** | **$ 583,342** | **$ 579,288** | **$ 604,275** | **$ 619,388** | **$ 644,364** | **$ 692,236** | **$ 743,113** | **$ 787,708** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,432 | $ 80,043 | $ 80,237 | $ 81,110 | $ 81,935 | $ 81,944 | $ 83,331 | $ 83,609 | $ 83,820 | $ 84,661 | $ 85,317 | $ 85,347 | $ 86,387 | $ 87,424 | $ 88,174 | $ 88,954 | $ 90,670 | $ 92,044 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,710 | $ 2,225 | $ 2,245 | $ 2,239 | $ 2,197 | $ 2,221 | $ 2,277 | $ 2,306 | $ 2,317 | $ 2,332 | $ 2,323 | $ 2,340 | $ 2,340 | $ 2,351 | $ 2,349 | $ 2,357 | $ 2,375 | $ 2,404 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,142** | **$ 82,268** | **$ 82,482** | **$ 83,349** | **$ 84,132** | **$ 84,165** | **$ 85,609** | **$ 85,915** | **$ 86,138** | **$ 86,993** | **$ 87,640** | **$ 87,687** | **$ 88,727** | **$ 89,775** | **$ 90,523** | **$ 91,312** | **$ 93,044** | **$ 94,448** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,184 | $ 26,025 | $ 26,025 | $ 26,025 | $ 26,420 | $ 26,743 | $ 26,817 | $ 27,186 | $ 27,541 | $ 27,820 | $ 28,460 | $ 28,843 | $ 28,965 | $ 29,150 | $ 29,533 | $ 29,749 | $ 29,749 | $ 30,131 |
| Storage Variable Costs | $ 1,483 | $ 1,561 | $ 1,943 | $ 2,355 | $ 2,408 | $ 2,425 | $ 2,636 | $ 2,691 | $ 2,550 | $ 2,654 | $ 2,642 | $ 2,662 | $ 2,704 | $ 2,766 | $ 2,797 | $ 2,848 | $ 2,950 | $ 3,099 | $ 3,233 | $ 3,189 |
| **Total Storage Costs** | **$ 24,981** | **$ 25,736** | **$ 27,126** | **$ 28,380** | **$ 28,434** | **$ 28,451** | **$ 29,056** | **$ 29,434** | **$ 29,367** | **$ 29,840** | **$ 30,183** | **$ 30,482** | **$ 31,164** | **$ 31,609** | **$ 31,761** | **$ 31,998** | **$ 32,483** | **$ 32,848** | **$ 32,982** | **$ 33,320** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,466** | **$ 542,441** | **$ 574,160** | **$ 596,860** | **$ 617,805** | **$ 644,145** | **$ 669,492** | **$ 696,480** | **$ 701,131** | **$ 705,479** | **$ 715,366** | **$ 722,794** | **$ 720,333** | **$ 704,606** | **$ 730,715** | **$ 747,140** | **$ 773,353** | **$ 822,415** | **$ 875,140** | **$ 921,488** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 97 | 97 | 97 | 97 | 116 | 117 | 118 | 133 | 137 | 145 | 168 | 168 | 168 | 168 | 168 | 168 | 168 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 1.8 | 3 | 4 | 5 | 6 | 7 | 11 | 16 | 24 | 24 | 30 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | 5 | 9 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 47 | 52 | 52 | 52 | 52 | 53 | 59 | 63 | 63 | 69 | 76 | 81 | 84 | 89 | 94 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **74** | **79** | **98** | **100** | **114** | **131** | **142** | **155** | **179** | **186** | **197** | **207** | **222** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,193 | 2,193 | 2,193 | 2,193 | 2,612 | 2,648 | 2,671 | 3,006 | 3,101 | 3,287 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 21 | 34 | 49 | 72 | 72 | 90 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 15 | 15 | 26 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,194** | **2,194** | **2,194** | **2,194** | **2,614** | **2,650** | **2,676** | **3,014** | **3,113** | **3,301** | **3,811** | **3,815** | **3,828** | **3,843** | **3,881** | **3,881** | **3,910** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | 5.3 | 6 | 7 |
| WVF Main | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| **NPV @ 5.16% Discount Rate** | |
|---|---|
| | 5.16% |
| $ | 8,736,267 |

## Base Case: IRP RMix 1 - 85% Probability Weather - Baseline Incremental Resources

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 1: Current Resource Portfolio - 85% Probability Weather

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,876 | 75,240 | 76,418 | 77,973 | 78,837 | 80,041 | 81,245 | 82,802 | 83,791 | 85,007 | 86,254 | 87,849 | 88,742 | 89,677 | 90,229 | 91,061 | 91,300 | 91,821 | 92,333 | 93,134 |
| Annual Demand Unserved | 28 | 45 | 57 | 70 | 170 | 299 | 427 | 573 | 739 | 941 | 1,182 | 1,451 | 1,720 | 2,206 | 3,024 | 4,011 | 4,650 | 5,323 | 6,073 | 6,993 |
| **Total Annual Demand (net of DSM)** | **73,904** | **75,284** | **76,476** | **78,043** | **79,007** | **80,340** | **81,672** | **83,374** | **84,530** | **85,949** | **87,436** | **89,300** | **90,462** | **91,883** | **93,252** | **95,072** | **95,949** | **97,144** | **98,405** | **100,128** |
| Peak Day Demand Served | 899 | 900 | 900 | 900 | 900 | 901 | 901 | 901 | 879 | 856 | 832 | 809 | 777 | 724 | 724 | 735 | 719 | 698 | 688 | 700 |
| Peak Day Demand Unserved | 28 | 45 | 57 | 70 | 85 | 100 | 115 | 130 | 171 | 211 | 252 | 293 | 344 | 413 | 429 | 434 | 464 | 498 | 522 | 524 |
| **Total Peak Day Demand (net of DSM)** | **928** | **944** | **957** | **971** | **986** | **1,001** | **1,016** | **1,031** | **1,050** | **1,067** | **1,084** | **1,102** | **1,121** | **1,137** | **1,153** | **1,169** | **1,184** | **1,196** | **1,210** | **1,224** |
| Supply Fixed Costs | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 |
| Supply Variable Costs | $ 433,970 | $ 423,661 | $ 449,594 | $ 486,629 | $ 509,353 | $ 536,734 | $ 566,082 | $ 608,619 | $ 621,232 | $ 624,820 | $ 641,769 | $ 647,467 | $ 644,364 | $ 640,519 | $ 664,835 | $ 673,645 | $ 698,653 | $ 746,836 | $ 796,697 | $ 838,641 |
| **Total Supply Costs** | **$ 434,040** | **$ 423,731** | **$ 449,665** | **$ 486,700** | **$ 509,423** | **$ 536,804** | **$ 566,152** | **$ 608,689** | **$ 621,302** | **$ 624,890** | **$ 641,839** | **$ 647,537** | **$ 644,434** | **$ 640,589** | **$ 664,906** | **$ 673,715** | **$ 698,723** | **$ 746,907** | **$ 796,767** | **$ 838,711** |
| Transportation Fixed Costs | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 | $ 83,867 |
| Transportation Variable Costs | $ 2,559 | $ 2,680 | $ 2,718 | $ 2,778 | $ 2,821 | $ 2,877 | $ 2,906 | $ 2,949 | $ 2,989 | $ 3,038 | $ 3,081 | $ 3,157 | $ 3,202 | $ 3,242 | $ 3,266 | $ 3,304 | $ 3,303 | $ 3,318 | $ 3,337 | $ 3,335 |
| **Total Transportation Costs** | **$ 86,426** | **$ 86,547** | **$ 86,585** | **$ 86,645** | **$ 86,688** | **$ 86,744** | **$ 86,773** | **$ 86,816** | **$ 86,856** | **$ 86,905** | **$ 86,948** | **$ 87,024** | **$ 87,069** | **$ 87,109** | **$ 87,133** | **$ 87,171** | **$ 87,170** | **$ 87,185** | **$ 87,204** | **$ 87,202** |
| Storage Fixed Costs | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 | $ 22,479 |
| Storage Variable Costs | $ 1,656 | $ 1,687 | $ 1,803 | $ 1,869 | $ 1,927 | $ 1,991 | $ 2,033 | $ 2,077 | $ 2,030 | $ 2,011 | $ 1,957 | $ 1,917 | $ 1,815 | $ 1,798 | $ 1,803 | $ 1,865 | $ 2,019 | $ 2,104 | $ 2,191 | $ 2,181 |
| **Total Storage Costs** | **$ 24,135** | **$ 24,166** | **$ 24,281** | **$ 24,348** | **$ 24,406** | **$ 24,469** | **$ 24,512** | **$ 24,555** | **$ 24,508** | **$ 24,490** | **$ 24,436** | **$ 24,396** | **$ 24,294** | **$ 24,277** | **$ 24,281** | **$ 24,344** | **$ 24,498** | **$ 24,583** | **$ 24,670** | **$ 24,660** |
| **DSM Annual Utility Costs ($2007)** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** |
| Total Levelized DSM Costs | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **Grand Total System Costs** | **$ 544,601** | **$ 534,445** | **$ 560,531** | **$ 597,692** | **$ 620,516** | **$ 648,018** | **$ 677,437** | **$ 720,060** | **$ 732,667** | **$ 736,285** | **$ 753,223** | **$ 758,957** | **$ 755,797** | **$ 751,975** | **$ 776,320** | **$ 785,230** | **$ 810,391** | **$ 858,674** | **$ 908,641** | **$ 950,574** |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,959,403 |

## Scenario 1: Current Resource Portfolio - 85% Probability Weather

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,047 | 4,122 | 4,187 | 4,270 | 4,322 | 4,392 | 4,457 | 4,547 | 4,605 | 4,680 | 4,757 | 4,857 | 4,919 | 4,981 | 5,052 | 5,068 | 5,088 | 5,148 | 5,214 | 5,301 |
| Astoria | 1,259 | 1,279 | 1,294 | 1,317 | 1,328 | 1,346 | 1,365 | 1,390 | 1,404 | 1,423 | 1,437 | 1,464 | 1,477 | 1,487 | 1,496 | 1,512 | 1,514 | 1,507 | 1,504 | 1,507 |
| Dalles | 794 | 815 | 834 | 856 | 872 | 892 | 912 | 936 | 949 | 972 | 989 | 1,015 | 1,029 | 1,039 | 1,036 | 1,052 | 1,046 | 1,050 | 1,047 | 1,041 |
| Eugene | 4,994 | 5,107 | 5,211 | 5,339 | 5,419 | 5,528 | 5,635 | 5,761 | 5,856 | 5,958 | 6,075 | 6,211 | 6,296 | 6,397 | 6,465 | 6,398 | 6,443 | 6,523 | 6,617 | 6,707 |
| Newport LC | 980 | 1,003 | 1,023 | 1,048 | 1,061 | 1,079 | 1,095 | 1,105 | 1,114 | 1,124 | 1,135 | 1,128 | 1,139 | 1,151 | 1,148 | 1,149 | 1,158 | 1,165 | 1,174 | 1,189 |
| Portland | 44,618 | 45,274 | 45,813 | 46,579 | 46,990 | 47,619 | 48,251 | 49,105 | 49,622 | 50,264 | 50,944 | 51,843 | 52,336 | 52,802 | 52,938 | 53,376 | 53,488 | 53,651 | 53,836 | 54,204 |
| Salem | 9,737 | 9,924 | 10,087 | 10,304 | 10,357 | 10,428 | 10,500 | 10,617 | 10,649 | 10,723 | 10,777 | 10,874 | 10,868 | 10,923 | 11,001 | 11,116 | 11,138 | 11,209 | 11,259 | 11,345 |
| Vancouver | 7,446 | 7,717 | 7,970 | 8,259 | 8,488 | 8,757 | 9,030 | 9,341 | 9,592 | 9,863 | 10,139 | 10,458 | 10,678 | 10,898 | 11,093 | 11,390 | 11,426 | 11,567 | 11,682 | 11,840 |
| Total | 73,876 | 75,240 | 76,418 | 77,973 | 78,837 | 80,041 | 81,245 | 82,802 | 83,791 | 85,007 | 86,254 | 87,849 | 88,742 | 89,677 | 90,229 | 91,061 | 91,300 | 91,821 | 92,333 | 93,134 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 2.2 | 3 | 3 | 4 | 5 | 8 | 15 | 16 | 21 | 23 | 26 | 26 | 27 | 40 | 42 | 122 | 148 | 151 | 151 | 153 |
| Astoria | 0.3 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 9 | 9 | 10 | 19 | 28 | 38 | 46 | 68 | 88 | 109 |
| Dalles | 0.4 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 6 | 4 | 8 | 8 | 12 | 21 | 44 | 53 | 73 | 86 | 107 | 135 |
| Eugene | 4.2 | 7 | 8 | 9 | 13 | 14 | 17 | 26 | 26 | 37 | 37 | 46 | 54 | 66 | 106 | 312 | 341 | 357 | 363 | 405 |
| Newport LC | - | - | - | - | 4 | 8 | 14 | 30 | 40 | 52 | 63 | 97 | 104 | 114 | 137 | 162 | 167 | 178 | 188 | 197 |
| Portland | 14.0 | 22 | 28 | 31 | 35 | 38 | 41 | 44 | 67 | 121 | 181 | 245 | 308 | 551 | 1,095 | 1,601 | 1,889 | 2,311 | 2,753 | 3,280 |
| Salem | 3.8 | 8 | 9 | 10 | 87 | 198 | 307 | 423 | 544 | 661 | 807 | 962 | 1,120 | 1,254 | 1,358 | 1,487 | 1,578 | 1,664 | 1,780 | 1,925 |
| Vancouver | 3.3 | 4 | 8 | 14 | 23 | 30 | 30 | 31 | 33 | 40 | 50 | 58 | 85 | 140 | 213 | 235 | 406 | 508 | 642 | 788 |
| Total | 28.2 | 45 | 57 | 70 | 170 | 299 | 427 | 573 | 739 | 941 | 1,182 | 1,451 | 1,720 | 2,206 | 3,024 | 4,011 | 4,650 | 5,323 | 6,073 | 6,993 |

## Scenario 2: IRP RMix 2 - 85% Probability Weather - Northern LNG (Bradwood Landing + Palomar West)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,620 | $ 420,570 | $ 446,482 | $ 456,116 | $ 470,343 | $ 492,204 | $ 511,726 | $ 532,662 | $ 534,060 | $ 532,334 | $ 543,352 | $ 548,578 | $ 544,143 | $ 543,214 | $ 568,632 | $ 581,605 | $ 607,199 | $ 652,293 | $ 701,732 | $ 745,832 |
| **Total Supply Costs** | **$ 435,681** | **$ 420,630** | **$ 446,541** | **$ 456,175** | **$ 470,402** | **$ 492,264** | **$ 511,785** | **$ 532,722** | **$ 534,119** | **$ 532,393** | **$ 543,411** | **$ 548,638** | **$ 544,202** | **$ 543,273** | **$ 568,691** | **$ 581,664** | **$ 607,258** | **$ 652,352** | **$ 701,791** | **$ 745,891** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,451 | $ 77,789 | $ 78,316 | $ 78,689 | $ 79,062 | $ 79,801 | $ 81,236 | $ 82,107 | $ 82,473 | $ 82,473 | $ 82,526 | $ 83,451 | $ 84,331 | $ 85,175 | $ 85,689 | $ 86,233 | $ 87,151 | $ 87,919 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,692 | $ 2,001 | $ 1,952 | $ 1,919 | $ 1,904 | $ 1,807 | $ 1,713 | $ 1,626 | $ 1,600 | $ 1,641 | $ 1,664 | $ 1,668 | $ 1,680 | $ 1,693 | $ 1,701 | $ 1,704 | $ 1,699 | $ 1,667 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,143** | **$ 79,790** | **$ 80,268** | **$ 80,608** | **$ 80,966** | **$ 81,607** | **$ 82,949** | **$ 83,733** | **$ 84,072** | **$ 84,113** | **$ 84,190** | **$ 85,120** | **$ 86,011** | **$ 86,868** | **$ 87,390** | **$ 87,937** | **$ 88,850** | **$ 89,586** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 24,931 | $ 25,525 | $ 25,525 | $ 25,525 | $ 26,063 | $ 26,454 | $ 26,483 | $ 26,521 | $ 26,563 | $ 26,603 | $ 26,641 | $ 26,697 | $ 26,827 | $ 26,960 | $ 27,067 | $ 27,112 | $ 27,112 | $ 27,264 |
| Storage Variable Costs | $ 1,483 | $ 1,558 | $ 1,775 | $ 2,276 | $ 2,258 | $ 2,286 | $ 2,385 | $ 2,416 | $ 2,255 | $ 2,265 | $ 2,232 | $ 2,241 | $ 2,225 | $ 2,262 | $ 2,295 | $ 2,349 | $ 2,440 | $ 2,608 | $ 2,720 | $ 2,713 |
| **Total Storage Costs** | **$ 24,981** | **$ 25,733** | **$ 26,706** | **$ 27,801** | **$ 27,783** | **$ 27,810** | **$ 28,448** | **$ 28,871** | **$ 28,738** | **$ 28,786** | **$ 28,795** | **$ 28,844** | **$ 28,866** | **$ 28,960** | **$ 29,122** | **$ 29,310** | **$ 29,507** | **$ 29,720** | **$ 29,832** | **$ 29,977** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,503** | **$ 542,407** | **$ 570,832** | **$ 575,941** | **$ 592,436** | **$ 616,412** | **$ 638,780** | **$ 661,178** | **$ 663,911** | **$ 663,071** | **$ 674,443** | **$ 679,779** | **$ 675,445** | **$ 663,374** | **$ 689,777** | **$ 703,821** | **$ 730,139** | **$ 776,028** | **$ 826,474** | **$ 871,466** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 83 | 83 | 83 | 83 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 109 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 1.8 | 3 | 4 | 5 | 6 | 8 | 11 | 14 | 14 | 14 | 15 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 3 | 3 | 6 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 18 | 29 | 41 | 48 | 55 | 67 | 77 |
| 9 Palomar West (Bradwood) | - | - | - | 50 | 55 | 60 | 65 | 75 | 85 | 95 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **73** | **78** | **83** | **119** | **129** | **146** | **152** | **153** | **155** | **168** | **181** | **197** | **207** | **217** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 1,882 | 1,882 | 1,882 | 1,882 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 | 2,453 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 23 | 34 | 42 | 43 | 43 | 44 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 8 | 8 | 19 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **1,883** | **1,883** | **1,883** | **1,883** | **2,455** | **2,456** | **2,459** | **2,462** | **2,465** | **2,468** | **2,471** | **2,476** | **2,489** | **2,497** | **2,505** | **2,505** | **2,516** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 1.6 | 5 | 5 |
| WVF Main | - | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

| **NPV @ 5.16% Discount Rate** | |
|---|---|
| | 5.16% |
| $ | 8,359,572 |

## Scenario 2: IRP RMix 2 - 85% Probability Weather - Northern LNG (Bradwood Landing + Palomar West)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,474 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 3: IRP RMix 3 - 85% Probability Weather - Southern LNG (Jordan Cove + Pacific Connector)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,633 | $ 420,554 | $ 447,378 | $ 471,485 | $ 491,206 | $ 514,788 | $ 535,478 | $ 563,815 | $ 567,906 | $ 568,965 | $ 580,606 | $ 585,365 | $ 579,056 | $ 579,110 | $ 603,421 | $ 617,053 | $ 642,512 | $ 689,890 | $ 740,606 | $ 785,468 |
| **Total Supply Costs** | **$ 435,694** | **$ 420,613** | **$ 447,438** | **$ 471,544** | **$ 491,266** | **$ 514,847** | **$ 535,538** | **$ 563,874** | **$ 567,965** | **$ 569,024** | **$ 580,666** | **$ 585,424** | **$ 579,115** | **$ 579,169** | **$ 603,480** | **$ 617,112** | **$ 642,572** | **$ 689,949** | **$ 740,666** | **$ 785,527** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,412 | $ 79,222 | $ 79,377 | $ 79,964 | $ 80,695 | $ 80,970 | $ 82,353 | $ 82,630 | $ 82,639 | $ 83,121 | $ 83,706 | $ 84,278 | $ 84,890 | $ 85,535 | $ 86,120 | $ 86,694 | $ 88,656 | $ 89,104 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,698 | $ 2,202 | $ 2,221 | $ 2,220 | $ 2,173 | $ 2,182 | $ 2,231 | $ 2,249 | $ 2,278 | $ 2,285 | $ 2,282 | $ 2,303 | $ 2,325 | $ 2,350 | $ 2,333 | $ 2,333 | $ 2,346 | $ 2,383 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,110** | **$ 81,424** | **$ 81,598** | **$ 82,184** | **$ 82,868** | **$ 83,152** | **$ 84,584** | **$ 84,879** | **$ 84,917** | **$ 85,405** | **$ 85,988** | **$ 86,581** | **$ 87,215** | **$ 87,885** | **$ 88,453** | **$ 89,027** | **$ 91,003** | **$ 91,487** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,069 | $ 25,799 | $ 25,799 | $ 25,799 | $ 25,995 | $ 26,146 | $ 26,411 | $ 26,870 | $ 27,307 | $ 27,658 | $ 28,004 | $ 28,361 | $ 28,762 | $ 29,071 | $ 29,300 | $ 29,401 | $ 29,401 | $ 29,911 |
| Storage Variable Costs | $ 1,483 | $ 1,563 | $ 1,776 | $ 2,058 | $ 2,134 | $ 2,147 | $ 2,351 | $ 2,454 | $ 2,316 | $ 2,366 | $ 2,350 | $ 2,412 | $ 2,481 | $ 2,588 | $ 2,676 | $ 2,728 | $ 2,879 | $ 3,004 | $ 3,077 | $ 3,084 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,738** | **$ 26,846** | **$ 27,856** | **$ 27,933** | **$ 27,945** | **$ 28,345** | **$ 28,600** | **$ 28,727** | **$ 29,236** | **$ 29,657** | **$ 30,070** | **$ 30,485** | **$ 30,949** | **$ 31,438** | **$ 31,799** | **$ 32,179** | **$ 32,405** | **$ 32,478** | **$ 32,995** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,517** | **$ 542,395** | **$ 571,834** | **$ 592,999** | **$ 614,779** | **$ 640,706** | **$ 664,332** | **$ 693,604** | **$ 699,381** | **$ 701,298** | **$ 713,405** | **$ 719,084** | **$ 713,775** | **$ 702,721** | **$ 728,086** | **$ 742,775** | **$ 769,188** | **$ 817,399** | **$ 870,147** | **$ 916,021** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 91 | 91 | 91 | 91 | 100 | 101 | 113 | 126 | 137 | 145 | 145 | 145 | 145 | 145 | 145 | 145 | 145 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 | 15 | 19 | 19 | 19 | 19 | 22 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7 | 11 | 18 | 18 | 26 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 27 | 27 | 31 | 37 | 39 | 39 | 39 | 39 | 42 | 47 | 51 | 56 | 60 | 65 | 69 | 80 | 82 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 5 |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **73** | **78** | **89** | **90** | **114** | **127** | **142** | **155** | **168** | **181** | **197** | **207** | **217** | **231** | **247** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,052 | 2,052 | 2,052 | 2,052 | 2,261 | 2,274 | 2,545 | 2,841 | 3,095 | 3,287 | 3,287 | 3,287 | 3,287 | 3,287 | 3,287 | 3,287 | 3,287 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | 18 | 44 | 57 | 58 | 58 | 58 | 65 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 | 12 | 12 | 12 | 12 | 12 | 17 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 20 | 34 | 53 | 53 | 79 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,054** | **2,054** | **2,054** | **2,054** | **2,262** | **2,275** | **2,547** | **2,842** | **3,097** | **3,289** | **3,317** | **3,342** | **3,376** | **3,392** | **3,410** | **3,410** | **3,448** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0.7 | 1 | 2 |
| WVF Main | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| **NPV @ 5.16% Discount Rate** | |
|---|---|
| | 5.16% |
| $ | 8,696,686 |

## Scenario 3: IRP RMix 3 - 85% Probability Weather - Southern LNG (Jordan Cove + Pacific Connector)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,474 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 4: IRP RMix 2&3 - 85% Probability Weather - Two LNG Projects (Both Bradwood & Jordan Cove)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,633 | $ 420,553 | $ 444,745 | $ 454,686 | $ 469,025 | $ 490,970 | $ 517,623 | $ 529,556 | $ 530,987 | $ 530,157 | $ 540,679 | $ 546,218 | $ 541,313 | $ 541,760 | $ 567,754 | $ 581,681 | $ 607,553 | $ 652,621 | $ 702,753 | $ 746,975 |
| **Total Supply Costs** | **$ 435,694** | **$ 420,613** | **$ 444,804** | **$ 454,746** | **$ 469,085** | **$ 491,030** | **$ 517,682** | **$ 529,615** | **$ 531,047** | **$ 530,216** | **$ 540,738** | **$ 546,277** | **$ 541,373** | **$ 541,819** | **$ 567,813** | **$ 581,741** | **$ 607,613** | **$ 652,681** | **$ 702,812** | **$ 747,034** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,434 | $ 79,065 | $ 79,584 | $ 79,949 | $ 80,314 | $ 81,045 | $ 81,893 | $ 82,647 | $ 83,012 | $ 83,012 | $ 83,116 | $ 83,116 | $ 83,138 | $ 83,207 | $ 83,207 | $ 83,207 | $ 83,218 | $ 83,233 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,682 | $ 1,900 | $ 1,867 | $ 1,839 | $ 1,870 | $ 1,735 | $ 1,632 | $ 1,540 | $ 1,518 | $ 1,564 | $ 1,597 | $ 1,628 | $ 1,648 | $ 1,705 | $ 1,753 | $ 1,800 | $ 1,854 | $ 1,891 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,116** | **$ 80,965** | **$ 81,451** | **$ 81,788** | **$ 82,184** | **$ 82,780** | **$ 83,524** | **$ 84,187** | **$ 84,530** | **$ 84,576** | **$ 84,713** | **$ 84,745** | **$ 84,786** | **$ 84,912** | **$ 84,960** | **$ 85,007** | **$ 85,073** | **$ 85,123** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 24,687 | $ 25,040 | $ 25,040 | $ 25,040 | $ 26,658 | $ 27,802 | $ 27,802 | $ 27,802 | $ 27,802 | $ 27,802 | $ 27,802 | $ 27,802 | $ 27,802 | $ 28,027 | $ 28,425 | $ 28,858 | $ 29,046 | $ 29,618 |
| Storage Variable Costs | $ 1,483 | $ 1,562 | $ 1,731 | $ 2,161 | $ 2,195 | $ 2,212 | $ 2,497 | $ 2,544 | $ 2,396 | $ 2,357 | $ 2,310 | $ 2,364 | $ 2,351 | $ 2,398 | $ 2,422 | $ 2,494 | $ 2,599 | $ 2,839 | $ 2,937 | $ 2,949 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,737** | **$ 26,418** | **$ 27,201** | **$ 27,235** | **$ 27,252** | **$ 29,155** | **$ 30,346** | **$ 30,198** | **$ 30,159** | **$ 30,112** | **$ 30,166** | **$ 30,153** | **$ 30,200** | **$ 30,224** | **$ 30,521** | **$ 31,024** | **$ 31,696** | **$ 31,983** | **$ 32,567** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,517** | **$ 542,393** | **$ 568,779** | **$ 575,086** | **$ 591,753** | **$ 615,799** | **$ 646,603** | **$ 660,719** | **$ 662,874** | **$ 662,721** | **$ 673,546** | **$ 679,204** | **$ 674,426** | **$ 662,786** | **$ 688,776** | **$ 703,153** | **$ 729,581** | **$ 775,403** | **$ 825,869** | **$ 870,736** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 70 | 70 | 70 | 70 | 146 | 146 | 146 | 146 | 146 | 146 | 146 | 146 | 146 | 146 | 146 | 146 | 146 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10 | 10 | 15 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 10 | 10 | 10 | 14 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 17 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9 Palomar West (Bradwood) | - | - | - | 50 | 55 | 60 | 65 | 75 | 85 | 95 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 20 | 20 |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **73** | **78** | **83** | **169** | **179** | **190** | **195** | **195** | **196** | **196** | **197** | **197** | **207** | **217** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 1,581 | 1,581 | 1,581 | 1,581 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 | 3,298 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 30 | 30 | 46 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 30 | 30 | 30 | 41 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 34 | 51 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **1,582** | **1,582** | **1,582** | **1,582** | **3,299** | **3,299** | **3,299** | **3,299** | **3,299** | **3,299** | **3,299** | **3,299** | **3,299** | **3,328** | **3,358** | **3,392** | **3,435** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 |
| WVF Main | - | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,356,906 |

## Scenario 4: IRP RMix 2&3 - 85% Probability Weather - Two LNG Projects (Both Bradwood & Jordan Cove)

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,474 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 5: IRP RMix 4 - 85% Probability Weather - No Palomar, No CD Turnback

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,597 | $ 443,302 | $ 474,396 | $ 494,089 | $ 519,451 | $ 539,136 | $ 567,605 | $ 571,942 | $ 572,922 | $ 585,266 | $ 590,143 | $ 584,889 | $ 584,150 | $ 611,550 | $ 622,367 | $ 648,243 | $ 697,093 | $ 747,822 | $ 792,775 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,656** | **$ 443,361** | **$ 474,455** | **$ 494,148** | **$ 519,511** | **$ 539,195** | **$ 567,664** | **$ 572,001** | **$ 572,981** | **$ 585,325** | **$ 590,202** | **$ 584,948** | **$ 584,210** | **$ 611,609** | **$ 622,426** | **$ 648,303** | **$ 697,152** | **$ 747,881** | **$ 792,834** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,459 | $ 84,466 | $ 84,631 | $ 84,639 | $ 84,647 | $ 84,655 | $ 86,043 | $ 86,320 | $ 86,320 | $ 86,320 | $ 86,320 | $ 86,320 | $ 86,320 | $ 86,320 | $ 86,320 | $ 86,804 | $ 88,386 | $ 89,127 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,673 | $ 2,708 | $ 2,726 | $ 2,765 | $ 2,799 | $ 2,837 | $ 2,848 | $ 2,868 | $ 2,907 | $ 2,967 | $ 3,008 | $ 3,055 | $ 3,127 | $ 3,223 | $ 3,272 | $ 3,306 | $ 3,388 | $ 3,464 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,131** | **$ 87,175** | **$ 87,357** | **$ 87,405** | **$ 87,446** | **$ 87,492** | **$ 88,891** | **$ 89,188** | **$ 89,228** | **$ 89,288** | **$ 89,328** | **$ 89,376** | **$ 89,447** | **$ 89,544** | **$ 89,592** | **$ 90,110** | **$ 91,774** | **$ 92,591** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 24,520 | $ 24,708 | $ 24,708 | $ 24,905 | $ 25,290 | $ 25,483 | $ 25,754 | $ 26,218 | $ 26,736 | $ 27,236 | $ 27,724 | $ 28,216 | $ 28,775 | $ 29,690 | $ 30,523 | $ 30,937 | $ 31,049 | $ 32,002 |
| Storage Variable Costs | $ 1,484 | $ 1,560 | $ 1,722 | $ 1,800 | $ 1,872 | $ 1,953 | $ 2,072 | $ 2,125 | $ 2,089 | $ 2,170 | $ 2,179 | $ 2,220 | $ 2,195 | $ 2,308 | $ 2,580 | $ 2,698 | $ 2,777 | $ 3,018 | $ 3,147 | $ 3,111 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,735** | **$ 26,241** | **$ 26,508** | **$ 26,579** | **$ 26,859** | **$ 27,362** | **$ 27,608** | **$ 27,843** | **$ 28,387** | **$ 28,914** | **$ 29,456** | **$ 29,919** | **$ 30,524** | **$ 31,355** | **$ 32,387** | **$ 33,300** | **$ 33,955** | **$ 34,196** | **$ 35,113** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,467** | **$ 542,435** | **$ 567,174** | **$ 600,312** | **$ 622,067** | **$ 649,504** | **$ 671,584** | **$ 700,742** | **$ 706,839** | **$ 708,716** | **$ 721,632** | **$ 727,131** | **$ 722,382** | **$ 710,131** | **$ 738,363** | **$ 750,336** | **$ 777,178** | **$ 827,236** | **$ 879,852** | **$ 926,551** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 61 | 61 | 61 | 70 | 82 | 82 | 93 | 105 | 119 | 131 | 144 | 154 | 166 | 166 | 166 | 166 | 166 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 14 | 18 | 18 | 27 |
| 3 Satellite LNG - Eugene | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1.8 | 3 | 4 | 5 | 6 | 9 | 13 | 27 | 27 | 27 | 30 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 18 | 30 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 7 | 9 |
| 8 Palomar East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **68** | **77** | **89** | **90** | **114** | **127** | **142** | **155** | **168** | **181** | **198** | **226** | **244** | **255** | **281** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 1,374 | 1,374 | 1,374 | 1,584 | 1,844 | 1,854 | 2,104 | 2,379 | 2,690 | 2,959 | 3,245 | 3,479 | 3,750 | 3,750 | 3,750 | 3,750 | 3,750 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 42 | 54 | 54 | 82 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 26 | 39 | 82 | 82 | 82 | 90 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 34 | 55 | 90 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **1,376** | **1,376** | **1,376** | **1,585** | **1,846** | **1,856** | **2,110** | **2,387** | **2,701** | **2,973** | **3,263** | **3,505** | **3,789** | **3,874** | **3,920** | **3,941** | **4,012** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 8,774,155 |

## Scenario 5: IRP RMix 4 - 85% Probability Weather - No Palomar, No CD Turnback

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 6: IRP RMix 1 - 85% Probability Weather - No GP Recall

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 | $ 70 |
| Supply Variable Costs | $ 436,330 | $ 420,200 | $ 450,173 | $ 473,625 | $ 493,190 | $ 516,998 | $ 539,680 | $ 565,907 | $ 568,533 | $ 573,185 | $ 584,744 | $ 585,966 | $ 583,997 | $ 579,985 | $ 604,683 | $ 619,951 | $ 644,840 | $ 693,101 | $ 744,014 | $ 788,501 |
| **Total Supply Costs** | **$ 436,400** | **$ 420,270** | **$ 450,243** | **$ 473,695** | **$ 493,260** | **$ 517,069** | **$ 539,750** | **$ 565,978** | **$ 568,603** | **$ 573,255** | **$ 584,814** | **$ 586,036** | **$ 584,067** | **$ 580,055** | **$ 604,753** | **$ 620,021** | **$ 644,911** | **$ 693,171** | **$ 744,085** | **$ 788,571** |
| Transportation Fixed Costs | $ 83,867 | $ 83,867 | $ 84,024 | $ 80,643 | $ 80,996 | $ 81,868 | $ 82,689 | $ 82,697 | $ 84,085 | $ 84,363 | $ 84,363 | $ 84,522 | $ 85,553 | $ 85,553 | $ 86,533 | $ 87,679 | $ 88,532 | $ 90,046 | $ 91,758 | $ 93,133 |
| Transportation Variable Costs | $ 2,578 | $ 2,657 | $ 2,715 | $ 2,157 | $ 2,165 | $ 2,166 | $ 2,145 | $ 2,168 | $ 2,221 | $ 2,256 | $ 2,273 | $ 2,297 | $ 2,280 | $ 2,295 | $ 2,287 | $ 2,297 | $ 2,280 | $ 2,276 | $ 2,294 | $ 2,310 |
| **Total Transportation Costs** | **$ 86,445** | **$ 86,524** | **$ 86,740** | **$ 82,799** | **$ 83,160** | **$ 84,034** | **$ 84,833** | **$ 84,866** | **$ 86,306** | **$ 86,619** | **$ 86,636** | **$ 86,819** | **$ 87,833** | **$ 87,848** | **$ 88,820** | **$ 89,976** | **$ 90,811** | **$ 92,322** | **$ 94,052** | **$ 95,443** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,063 | $ 25,786 | $ 25,786 | $ 25,786 | $ 26,181 | $ 26,504 | $ 26,557 | $ 27,034 | $ 27,797 | $ 28,128 | $ 28,658 | $ 29,070 | $ 29,131 | $ 29,330 | $ 29,469 | $ 29,476 | $ 29,476 | $ 29,858 |
| Storage Variable Costs | $ 1,668 | $ 1,592 | $ 2,026 | $ 2,370 | $ 2,419 | $ 2,412 | $ 2,571 | $ 2,632 | $ 2,536 | $ 2,615 | $ 2,672 | $ 2,696 | $ 2,723 | $ 2,793 | $ 2,822 | $ 2,874 | $ 2,964 | $ 3,111 | $ 3,249 | $ 3,197 |
| **Total Storage Costs** | **$ 25,167** | **$ 25,767** | **$ 27,089** | **$ 28,157** | **$ 28,206** | **$ 28,198** | **$ 28,752** | **$ 29,137** | **$ 29,093** | **$ 29,648** | **$ 30,469** | **$ 30,825** | **$ 31,382** | **$ 31,863** | **$ 31,952** | **$ 32,204** | **$ 32,433** | **$ 32,587** | **$ 32,725** | **$ 33,056** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 556,004** | **$ 541,583** | **$ 574,513** | **$ 596,826** | **$ 618,609** | **$ 645,031** | **$ 670,917** | **$ 697,958** | **$ 702,107** | **$ 707,681** | **$ 720,084** | **$ 721,864** | **$ 721,469** | **$ 705,788** | **$ 731,477** | **$ 748,180** | **$ 774,139** | **$ 824,099** | **$ 876,863** | **$ 923,082** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 90 | 90 | 90 | 90 | 109 | 111 | 111 | 131 | 150 | 150 | 174 | 175 | 175 | 175 | 175 | 175 | 175 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 1 |
| 3 Satellite LNG - Eugene | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1.8 | 3 | 4 | 5 | 6 | 7 | 8 | 16 | 16 | 16 | 25 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP * | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 47 | 49 | 54 | 60 | 60 | 60 | 60 | 60 | 61 | 67 | 67 | 74 | 81 | 85 | 90 | 96 | 100 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **10** | **41** | **51** | **61** | **62** | **68** | **73** | **92** | **94** | **107** | **128** | **150** | **158** | **182** | **190** | **198** | **210** | **216** | **221** | **236** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,045 | 2,045 | 2,045 | 2,045 | 2,464 | 2,499 | 2,499 | 2,965 | 3,402 | 3,402 | 3,924 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 | 3,952 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 3 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 20 | 23 | 47 | 47 | 47 | 74 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,046** | **2,046** | **2,046** | **2,046** | **2,465** | **2,502** | **2,505** | **2,973** | **3,413** | **3,416** | **3,941** | **3,972** | **3,975** | **3,999** | **4,000** | **4,000** | **4,029** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 4 | 5.4 | 7 | 7 |
| WVF Main | - | - | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |

| NPV @ 5.16% Discount Rate |
|---|
| 5.16% |
| $ 8,748,568 |

* Note: Existing GP Citygate Supply is available throughout run horizon

## Scenario 6: IRP RMix 1 - 85% Probability Weather - No GP Recall

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 7: IRP RMix 1 - 85% Probability Weather - Delayed Satellite LNG

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,611 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 950 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,598 | $ 449,391 | $ 474,027 | $ 492,846 | $ 516,554 | $ 538,633 | $ 564,821 | $ 567,994 | $ 571,486 | $ 580,824 | $ 587,072 | $ 583,285 | $ 579,229 | $ 604,215 | $ 619,328 | $ 644,305 | $ 692,176 | $ 743,054 | $ 787,648 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,657** | **$ 449,450** | **$ 474,086** | **$ 492,905** | **$ 516,613** | **$ 538,693** | **$ 564,880** | **$ 568,053** | **$ 571,545** | **$ 580,883** | **$ 587,132** | **$ 583,344** | **$ 579,288** | **$ 604,275** | **$ 619,388** | **$ 644,364** | **$ 692,236** | **$ 743,113** | **$ 787,708** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,433 | $ 80,054 | $ 80,236 | $ 81,109 | $ 81,935 | $ 81,943 | $ 83,327 | $ 83,605 | $ 83,821 | $ 84,661 | $ 85,317 | $ 85,347 | $ 86,386 | $ 87,424 | $ 88,173 | $ 88,954 | $ 90,669 | $ 92,044 |
| Transportation Variable Costs | $ 2,564 | $ 2,655 | $ 2,709 | $ 2,224 | $ 2,244 | $ 2,239 | $ 2,196 | $ 2,221 | $ 2,277 | $ 2,306 | $ 2,317 | $ 2,332 | $ 2,323 | $ 2,340 | $ 2,340 | $ 2,351 | $ 2,349 | $ 2,357 | $ 2,375 | $ 2,404 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,022** | **$ 87,141** | **$ 82,278** | **$ 82,481** | **$ 83,348** | **$ 84,131** | **$ 84,165** | **$ 85,605** | **$ 85,911** | **$ 86,138** | **$ 86,993** | **$ 87,641** | **$ 87,687** | **$ 88,726** | **$ 89,775** | **$ 90,522** | **$ 91,312** | **$ 93,044** | **$ 94,448** |
| Storage Fixed Costs | $ 23,498 | $ 24,165 | $ 25,173 | $ 26,022 | $ 26,022 | $ 26,022 | $ 26,417 | $ 26,744 | $ 26,819 | $ 27,186 | $ 27,541 | $ 27,820 | $ 28,459 | $ 28,843 | $ 28,965 | $ 29,150 | $ 29,533 | $ 29,749 | $ 29,749 | $ 30,131 |
| Storage Variable Costs | $ 1,483 | $ 1,561 | $ 1,937 | $ 2,355 | $ 2,410 | $ 2,427 | $ 2,636 | $ 2,694 | $ 2,555 | $ 2,657 | $ 2,645 | $ 2,664 | $ 2,706 | $ 2,767 | $ 2,799 | $ 2,850 | $ 2,951 | $ 3,100 | $ 3,235 | $ 3,191 |
| **Total Storage Costs** | **$ 24,981** | **$ 25,725** | **$ 27,110** | **$ 28,377** | **$ 28,432** | **$ 28,449** | **$ 29,054** | **$ 29,438** | **$ 29,374** | **$ 29,844** | **$ 30,186** | **$ 30,484** | **$ 31,165** | **$ 31,610** | **$ 31,763** | **$ 31,999** | **$ 32,484** | **$ 32,848** | **$ 32,983** | **$ 33,322** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,466** | **$ 542,426** | **$ 574,143** | **$ 596,916** | **$ 617,800** | **$ 644,140** | **$ 669,458** | **$ 696,461** | **$ 701,137** | **$ 705,459** | **$ 715,371** | **$ 722,794** | **$ 720,337** | **$ 704,607** | **$ 730,716** | **$ 747,141** | **$ 773,354** | **$ 822,415** | **$ 875,142** | **$ 921,490** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 97 | 97 | 97 | 97 | 116 | 117 | 118 | 133 | 137 | 145 | 168 | 168 | 168 | 168 | 168 | 168 | 168 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | 1 | 1.8 | 3 | 4 | 5 | 6 | 7 | 11 | 12 | 16 | 16 | 18 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 14 | 14 | 21 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 47 | 52 | 52 | 52 | 52 | 53 | 59 | 63 | 63 | 69 | 76 | 81 | 84 | 89 | 94 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **57** | **68** | **68** | **74** | **79** | **98** | **100** | **114** | **131** | **142** | **155** | **179** | **186** | **197** | **207** | **222** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,202 | 2,202 | 2,202 | 2,202 | 2,621 | 2,650 | 2,671 | 3,005 | 3,101 | 3,287 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | 3 | 5 | 8 | 12 | 14 | 17 | 21 | 34 | 36 | 47 | 47 | 54 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | 41 | 41 | 62 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,139** | **2,202** | **2,202** | **2,202** | **2,202** | **2,621** | **2,653** | **2,677** | **3,014** | **3,113** | **3,301** | **3,811** | **3,815** | **3,828** | **3,843** | **3,881** | **3,881** | **3,910** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 1.3 | 2 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | 5.3 | 6 | 7 |
| WVF Main | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 8,736,240 |

## Scenario 7: IRP RMix 1 - 85% Probability Weather - Delayed Satellite LNG

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,611 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 8: IRP RMix 1 - 85% Probability Weather - No Satellite LNG

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,611 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 950 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,596 | $ 449,358 | $ 474,062 | $ 492,849 | $ 516,558 | $ 538,627 | $ 564,897 | $ 567,964 | $ 571,183 | $ 581,819 | $ 587,075 | $ 582,939 | $ 581,605 | $ 604,008 | $ 621,717 | $ 645,690 | $ 692,214 | $ 742,545 | $ 786,482 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,656** | **$ 449,418** | **$ 474,122** | **$ 492,908** | **$ 516,617** | **$ 538,686** | **$ 564,956** | **$ 568,023** | **$ 571,242** | **$ 581,878** | **$ 587,134** | **$ 582,999** | **$ 581,664** | **$ 604,068** | **$ 621,776** | **$ 645,749** | **$ 692,274** | **$ 742,604** | **$ 786,541** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,445 | $ 80,067 | $ 80,243 | $ 81,116 | $ 81,941 | $ 81,949 | $ 83,518 | $ 83,987 | $ 84,525 | $ 85,317 | $ 86,175 | $ 86,491 | $ 87,093 | $ 88,555 | $ 88,917 | $ 89,482 | $ 90,706 | $ 92,887 |
| Transportation Variable Costs | $ 2,564 | $ 2,655 | $ 2,709 | $ 2,224 | $ 2,245 | $ 2,239 | $ 2,196 | $ 2,220 | $ 2,273 | $ 2,298 | $ 2,304 | $ 2,321 | $ 2,310 | $ 2,321 | $ 2,325 | $ 2,324 | $ 2,317 | $ 2,312 | $ 2,298 | $ 2,291 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,022** | **$ 87,154** | **$ 82,291** | **$ 82,488** | **$ 83,355** | **$ 84,137** | **$ 84,169** | **$ 85,791** | **$ 86,285** | **$ 86,829** | **$ 87,638** | **$ 88,484** | **$ 88,812** | **$ 89,418** | **$ 90,879** | **$ 91,233** | **$ 91,793** | **$ 93,005** | **$ 95,178** |
| Storage Fixed Costs | $ 23,498 | $ 24,165 | $ 25,173 | $ 26,022 | $ 26,022 | $ 26,022 | $ 26,417 | $ 26,732 | $ 26,809 | $ 27,092 | $ 27,492 | $ 27,834 | $ 28,405 | $ 29,047 | $ 29,279 | $ 29,614 | $ 30,067 | $ 30,219 | $ 30,219 | $ 30,219 |
| Storage Variable Costs | $ 1,484 | $ 1,560 | $ 1,933 | $ 2,355 | $ 2,410 | $ 2,426 | $ 2,637 | $ 2,694 | $ 2,532 | $ 2,649 | $ 2,654 | $ 2,690 | $ 2,722 | $ 2,831 | $ 2,890 | $ 2,991 | $ 3,144 | $ 3,353 | $ 3,480 | $ 3,438 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,725** | **$ 27,106** | **$ 28,376** | **$ 28,432** | **$ 28,448** | **$ 29,053** | **$ 29,426** | **$ 29,341** | **$ 29,741** | **$ 30,146** | **$ 30,524** | **$ 31,127** | **$ 31,878** | **$ 32,170** | **$ 32,605** | **$ 33,210** | **$ 33,572** | **$ 33,699** | **$ 33,657** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,467** | **$ 542,424** | **$ 574,119** | **$ 596,964** | **$ 617,810** | **$ 644,150** | **$ 669,457** | **$ 696,529** | **$ 701,261** | **$ 705,427** | **$ 717,019** | **$ 723,481** | **$ 720,797** | **$ 708,377** | **$ 731,607** | **$ 751,239** | **$ 776,177** | **$ 823,659** | **$ 875,309** | **$ 921,388** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 97 | 97 | 97 | 97 | 116 | 118 | 120 | 132 | 142 | 151 | 172 | 187 | 187 | 203 | 213 | 213 | 213 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 47 | 52 | 52 | 52 | 52 | 54 | 58 | 62 | 63 | 65 | 72 | 73 | 76 | 82 | 88 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **57** | **68** | **68** | **74** | **79** | **98** | **99** | **114** | **128** | **142** | **155** | **176** | **194** | **201** | **218** | **230** | **236** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,202 | 2,202 | 2,202 | 2,202 | 2,621 | 2,659 | 2,714 | 2,976 | 3,215 | 3,408 | 3,878 | 4,227 | 4,227 | 4,582 | 4,811 | 4,811 | 4,811 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,139** | **2,202** | **2,202** | **2,202** | **2,202** | **2,621** | **2,659** | **2,714** | **2,976** | **3,215** | **3,408** | **3,878** | **4,227** | **4,227** | **4,582** | **4,811** | **4,811** | **4,811** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 1.3 | 2 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 8 | 9 | 10 | 11 |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 3 | 6 | 8 | 10.0 | 12 | 15 |
| WVF Main | - | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,744,172 |

## Scenario 8: IRP RMix 1 - 85% Probability Weather - No Satellite LNG

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,611 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 9: IRP RMix 1 - 85% Probability Weather - WVF Alternative (12" pipe)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,591 | $ 449,293 | $ 474,092 | $ 492,858 | $ 516,566 | $ 538,636 | $ 564,888 | $ 567,963 | $ 571,366 | $ 581,112 | $ 586,952 | $ 583,351 | $ 579,299 | $ 604,211 | $ 619,327 | $ 644,296 | $ 692,153 | $ 743,048 | $ 787,613 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,650** | **$ 449,352** | **$ 474,151** | **$ 492,917** | **$ 516,626** | **$ 538,695** | **$ 564,948** | **$ 568,022** | **$ 571,426** | **$ 581,171** | **$ 587,012** | **$ 583,410** | **$ 579,359** | **$ 604,270** | **$ 619,386** | **$ 644,356** | **$ 692,212** | **$ 743,107** | **$ 787,672** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,462 | $ 80,072 | $ 80,246 | $ 81,117 | $ 81,937 | $ 81,945 | $ 83,333 | $ 83,610 | $ 83,862 | $ 84,611 | $ 85,297 | $ 85,297 | $ 86,301 | $ 87,336 | $ 88,080 | $ 88,894 | $ 90,621 | $ 92,036 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,709 | $ 2,226 | $ 2,247 | $ 2,241 | $ 2,198 | $ 2,223 | $ 2,278 | $ 2,307 | $ 2,318 | $ 2,334 | $ 2,326 | $ 2,341 | $ 2,339 | $ 2,351 | $ 2,348 | $ 2,354 | $ 2,372 | $ 2,398 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,171** | **$ 82,298** | **$ 82,493** | **$ 83,358** | **$ 84,134** | **$ 84,167** | **$ 85,611** | **$ 85,917** | **$ 86,179** | **$ 86,945** | **$ 87,623** | **$ 87,639** | **$ 88,641** | **$ 89,686** | **$ 90,428** | **$ 91,249** | **$ 92,992** | **$ 94,434** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,184 | $ 26,025 | $ 26,025 | $ 26,025 | $ 26,418 | $ 26,740 | $ 26,820 | $ 27,164 | $ 27,534 | $ 27,822 | $ 28,457 | $ 28,845 | $ 28,968 | $ 29,152 | $ 29,525 | $ 29,733 | $ 29,733 | $ 30,106 |
| Storage Variable Costs | $ 1,484 | $ 1,558 | $ 1,929 | $ 2,352 | $ 2,408 | $ 2,425 | $ 2,636 | $ 2,694 | $ 2,549 | $ 2,656 | $ 2,649 | $ 2,670 | $ 2,709 | $ 2,772 | $ 2,805 | $ 2,857 | $ 2,959 | $ 3,107 | $ 3,245 | $ 3,198 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,733** | **$ 27,113** | **$ 28,378** | **$ 28,433** | **$ 28,450** | **$ 29,054** | **$ 29,434** | **$ 29,369** | **$ 29,819** | **$ 30,183** | **$ 30,492** | **$ 31,165** | **$ 31,617** | **$ 31,772** | **$ 32,009** | **$ 32,484** | **$ 32,841** | **$ 32,978** | **$ 33,304** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,467** | **$ 542,428** | **$ 574,077** | **$ 597,001** | **$ 617,827** | **$ 644,164** | **$ 669,465** | **$ 696,527** | **$ 701,106** | **$ 705,321** | **$ 715,698** | **$ 722,634** | **$ 720,385** | **$ 704,637** | **$ 730,635** | **$ 747,061** | **$ 773,251** | **$ 822,320** | **$ 875,078** | **$ 921,423** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 97 | 97 | 97 | 97 | 115 | 117 | 118 | 132 | 138 | 145 | 168 | 168 | 168 | 168 | 168 | 168 | 168 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 13 | 13 | 23 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 1.8 | 3 | 4 | 5 | 6 | 7 | 11 | 15 | 15 | 15 | 15 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 46 | 52 | 52 | 52 | 52 | 53 | 58 | 63 | 63 | 69 | 76 | 81 | 84 | 90 | 95 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **74** | **79** | **98** | **100** | **114** | **130** | **142** | **155** | **178** | **186** | **197** | **207** | **222** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,193 | 2,193 | 2,193 | 2,193 | 2,610 | 2,646 | 2,675 | 2,979 | 3,113 | 3,281 | 3,795 | 3,804 | 3,804 | 3,804 | 3,804 | 3,804 | 3,804 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 40 | 40 | 68 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 20 | 33 | 46 | 46 | 46 | 46 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,194** | **2,194** | **2,194** | **2,194** | **2,611** | **2,649** | **2,680** | **2,987** | **3,125** | **3,295** | **3,813** | **3,824** | **3,837** | **3,852** | **3,889** | **3,889** | **3,917** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NA | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 8,736,170 |

## Scenario 9: IRP RMix 1 - 85% Probability Weather - WVF Alternative (12" pipe)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Scenario 10: IRP RMix 1 - 85% Probability Weather - WVF Alternative (12" pipe) with no Satellite LNG

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,611 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 950 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,590 | $ 449,246 | $ 474,231 | $ 492,869 | $ 516,576 | $ 538,554 | $ 564,940 | $ 567,969 | $ 571,216 | $ 581,984 | $ 587,078 | $ 582,703 | $ 581,678 | $ 604,023 | $ 621,744 | $ 645,780 | $ 692,217 | $ 742,545 | $ 786,484 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,650** | **$ 449,306** | **$ 474,290** | **$ 492,928** | **$ 516,635** | **$ 538,613** | **$ 564,999** | **$ 568,028** | **$ 571,276** | **$ 582,043** | **$ 587,137** | **$ 582,762** | **$ 581,738** | **$ 604,082** | **$ 621,804** | **$ 645,839** | **$ 692,276** | **$ 742,604** | **$ 786,543** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,571 | $ 80,162 | $ 80,325 | $ 81,193 | $ 82,009 | $ 82,017 | $ 83,587 | $ 84,056 | $ 84,595 | $ 85,348 | $ 86,209 | $ 86,595 | $ 87,116 | $ 88,499 | $ 88,807 | $ 89,297 | $ 90,458 | $ 93,148 |
| Transportation Variable Costs | $ 2,564 | $ 2,655 | $ 2,708 | $ 2,227 | $ 2,248 | $ 2,243 | $ 2,198 | $ 2,223 | $ 2,275 | $ 2,299 | $ 2,308 | $ 2,323 | $ 2,312 | $ 2,321 | $ 2,325 | $ 2,324 | $ 2,317 | $ 2,312 | $ 2,298 | $ 2,292 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,022** | **$ 87,279** | **$ 82,389** | **$ 82,574** | **$ 83,436** | **$ 84,207** | **$ 84,240** | **$ 85,862** | **$ 86,355** | **$ 86,903** | **$ 87,671** | **$ 88,520** | **$ 88,916** | **$ 89,440** | **$ 90,823** | **$ 91,123** | **$ 91,609** | **$ 92,757** | **$ 95,440** |
| Storage Fixed Costs | $ 23,498 | $ 24,165 | $ 25,177 | $ 26,029 | $ 26,029 | $ 26,029 | $ 26,418 | $ 26,725 | $ 26,812 | $ 27,092 | $ 27,501 | $ 27,855 | $ 28,393 | $ 29,019 | $ 29,258 | $ 29,595 | $ 30,061 | $ 30,221 | $ 30,221 | $ 30,221 |
| Storage Variable Costs | $ 1,483 | $ 1,557 | $ 1,915 | $ 2,348 | $ 2,409 | $ 2,425 | $ 2,633 | $ 2,692 | $ 2,521 | $ 2,647 | $ 2,648 | $ 2,693 | $ 2,721 | $ 2,830 | $ 2,888 | $ 2,989 | $ 3,150 | $ 3,361 | $ 3,490 | $ 3,449 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,722** | **$ 27,092** | **$ 28,377** | **$ 28,438** | **$ 28,454** | **$ 29,051** | **$ 29,417** | **$ 29,333** | **$ 29,738** | **$ 30,149** | **$ 30,548** | **$ 31,114** | **$ 31,850** | **$ 32,145** | **$ 32,585** | **$ 33,211** | **$ 33,582** | **$ 33,711** | **$ 33,671** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,467** | **$ 542,415** | **$ 574,117** | **$ 597,232** | **$ 617,923** | **$ 644,255** | **$ 669,453** | **$ 696,634** | **$ 701,328** | **$ 705,528** | **$ 717,260** | **$ 723,541** | **$ 720,584** | **$ 708,525** | **$ 731,620** | **$ 751,190** | **$ 776,157** | **$ 823,486** | **$ 875,073** | **$ 921,665** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 98 | 98 | 98 | 98 | 116 | 117 | 120 | 131 | 143 | 151 | 171 | 186 | 186 | 202 | 213 | 213 | 213 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 46 | 52 | 52 | 52 | 52 | 54 | 57 | 61 | 63 | 65 | 72 | 73 | 76 | 82 | 88 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **57** | **68** | **68** | **74** | **79** | **97** | **99** | **114** | **127** | **142** | **155** | **175** | **193** | **201** | **218** | **230** | **236** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,207 | 2,207 | 2,207 | 2,207 | 2,620 | 2,653 | 2,722 | 2,970 | 3,229 | 3,421 | 3,856 | 4,213 | 4,213 | 4,572 | 4,812 | 4,812 | 4,812 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,139** | **2,207** | **2,207** | **2,207** | **2,207** | **2,620** | **2,653** | **2,722** | **2,970** | **3,229** | **3,421** | **3,856** | **4,213** | **4,213** | **4,572** | **4,812** | **4,812** | **4,812** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 1.3 | 2 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 8 | 9 | 10 | 14 |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NA | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,744,800 |

## Scenario 10: IRP RMix 1 - 85% Probability Weather - WVF Alternative (12" pipe) with no Satellite LNG

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,474 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,611 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 1: IRP RMix 1 - 85% Probability Weather - High Demand/Low Price Scenario

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 75,465 | 77,331 | 79,446 | 81,352 | 83,011 | 84,884 | 86,825 | 88,911 | 90,185 | 91,993 | 93,807 | 96,123 | 97,531 | 99,554 | 101,802 | 104,456 | 106,297 | 108,506 | 110,884 | 113,884 |
| Annual Demand Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 2 | 3 | 4 |
| **Total Annual Demand (net of DSM)** | **75,507** | **77,331** | **79,446** | **81,352** | **83,011** | **84,884** | **86,825** | **88,911** | **90,185** | **91,993** | **93,807** | **96,123** | **97,531** | **99,554** | **101,802** | **104,457** | **106,298** | **108,508** | **110,886** | **113,887** |
| Peak Day Demand Served | 910 | 976 | 1,005 | 1,025 | 1,052 | 1,078 | 1,105 | 1,129 | 1,151 | 1,175 | 1,200 | 1,226 | 1,249 | 1,275 | 1,304 | 1,333 | 1,361 | 1,388 | 1,417 | 1,451 |
| Peak Day Demand Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 1 |
| **Total Peak Day Demand (net of DSM)** | **952** | **976** | **1,005** | **1,025** | **1,052** | **1,078** | **1,105** | **1,129** | **1,151** | **1,175** | **1,200** | **1,226** | **1,249** | **1,275** | **1,304** | **1,333** | **1,361** | **1,388** | **1,418** | **1,452** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 413,606 | $ 389,074 | $ 385,247 | $ 400,389 | $ 396,067 | $ 393,539 | $ 387,477 | $ 397,515 | $ 413,061 | $ 427,569 | $ 435,164 | $ 461,308 | $ 481,768 | $ 508,469 | $ 526,635 | $ 562,152 | $ 576,654 | $ 610,036 | $ 639,990 | $ 658,326 |
| **Total Supply Costs** | **$ 413,667** | **$ 389,134** | **$ 385,306** | **$ 400,449** | **$ 396,126** | **$ 393,598** | **$ 387,536** | **$ 397,574** | **$ 413,121** | **$ 427,629** | **$ 435,223** | **$ 461,367** | **$ 481,827** | **$ 508,528** | **$ 526,694** | **$ 562,211** | **$ 576,713** | **$ 610,095** | **$ 640,050** | **$ 658,386** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,608 | $ 81,880 | $ 83,280 | $ 84,848 | $ 86,483 | $ 86,487 | $ 87,870 | $ 88,147 | $ 88,197 | $ 88,537 | $ 92,110 | $ 95,557 | $ 99,856 | $ 104,048 | $ 108,373 | $ 113,108 | $ 118,008 | $ 127,448 |
| Transportation Variable Costs | $ 2,690 | $ 2,800 | $ 2,925 | $ 2,323 | $ 2,296 | $ 2,323 | $ 2,296 | $ 2,348 | $ 2,421 | $ 2,493 | $ 2,638 | $ 2,709 | $ 2,699 | $ 2,698 | $ 2,697 | $ 2,676 | $ 2,713 | $ 2,684 | $ 2,705 | $ 2,653 |
| **Total Transportation Costs** | **$ 86,974** | **$ 87,167** | **$ 87,533** | **$ 84,203** | **$ 85,576** | **$ 87,171** | **$ 88,779** | **$ 88,835** | **$ 90,291** | **$ 90,640** | **$ 90,835** | **$ 91,246** | **$ 94,809** | **$ 98,255** | **$ 102,553** | **$ 106,724** | **$ 111,087** | **$ 115,792** | **$ 120,712** | **$ 130,100** |
| Storage Fixed Costs | $ 24,252 | $ 25,861 | $ 27,521 | $ 28,836 | $ 29,129 | $ 29,493 | $ 30,498 | $ 31,518 | $ 32,339 | $ 33,645 | $ 35,644 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 |
| Storage Variable Costs | $ 1,431 | $ 1,538 | $ 1,920 | $ 2,080 | $ 2,091 | $ 1,972 | $ 2,005 | $ 2,027 | $ 2,102 | $ 2,182 | $ 2,238 | $ 2,257 | $ 2,349 | $ 2,383 | $ 2,421 | $ 2,458 | $ 2,531 | $ 2,715 | $ 2,859 | $ 2,777 |
| **Total Storage Costs** | **$ 25,683** | **$ 27,399** | **$ 29,442** | **$ 30,917** | **$ 31,219** | **$ 31,465** | **$ 32,503** | **$ 33,545** | **$ 34,442** | **$ 35,827** | **$ 37,882** | **$ 38,853** | **$ 38,945** | **$ 38,979** | **$ 39,017** | **$ 39,054** | **$ 39,127** | **$ 39,311** | **$ 39,455** | **$ 39,373** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,020** | **$ 10,439** | **$ 12,172** | **$ 13,978** | **$ 15,724** | **$ 17,573** | **$ 17,969** | **$ 18,105** | **$ 18,147** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,331 | $ 7,252 | $ 9,409 | $ 11,825 | $ 14,329 | $ 16,917 | $ 19,511 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 534,317** | **$ 512,720** | **$ 512,720** | **$ 527,741** | **$ 526,900** | **$ 527,958** | **$ 526,391** | **$ 537,923** | **$ 555,959** | **$ 572,243** | **$ 582,106** | **$ 609,651** | **$ 633,769** | **$ 651,784** | **$ 674,216** | **$ 713,969** | **$ 732,911** | **$ 771,216** | **$ 806,218** | **$ 833,870** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 72 | 93 | 160 | 166 | 175 | 182 | 221 | 233 | 254 | 289 | 289 | 289 | 289 | 289 | 289 | 289 | 289 | 289 | 289 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | 6 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| 3 Satellite LNG - Eugene | - | 4 | 10.6 | 10.6 | 10.6 | 10.6 | 14.3 | 14.3 | 21 | 24.8 | 27 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 12 |
| 8 Palomar East | - | - | - | 52 | 60 | 70 | 81 | 81 | 81 | 81 | 81 | 82 | 95 | 107 | 122 | 136 | 151 | 168 | 183 | 200 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **83** | **111** | **152** | **167** | **185** | **207** | **246** | **265** | **301** | **345** | **403** | **416** | **428** | **443** | **457** | **472** | **489** | **504** | **533** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 1,618 | 2,110 | 3,619 | 3,755 | 3,950 | 4,109 | 4,998 | 5,279 | 5,740 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | 17 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Satellite LNG - Eugene | - | 12 | 32 | 32 | 32 | 32 | 43 | 43 | 64 | 74 | 81 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| **Total Incremental Storage Capacity** | **230** | **1,630** | **2,142** | **3,651** | **3,787** | **3,982** | **4,152** | **5,041** | **5,343** | **5,814** | **6,637** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 4 | 4 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 5 |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 3 | 5 | 6 | 7.5 | 7 | 10 |
| WVF Main | - | - | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 7,642,747 |

## Sensitivity 1: IRP RMix 1 - 85% Probability Weather - High Demand/Low Price Scenario

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,137 | 4,243 | 4,363 | 4,468 | 4,563 | 4,669 | 4,778 | 4,894 | 4,966 | 5,067 | 5,168 | 5,295 | 5,374 | 5,485 | 5,608 | 5,751 | 5,853 | 5,973 | 6,102 | 6,263 |
| Astoria | 1,288 | 1,316 | 1,348 | 1,377 | 1,400 | 1,427 | 1,455 | 1,486 | 1,503 | 1,528 | 1,554 | 1,588 | 1,607 | 1,635 | 1,668 | 1,708 | 1,733 | 1,765 | 1,799 | 1,844 |
| Dalles | 814 | 844 | 877 | 907 | 934 | 963 | 994 | 1,025 | 1,046 | 1,075 | 1,102 | 1,135 | 1,158 | 1,187 | 1,219 | 1,255 | 1,282 | 1,313 | 1,345 | 1,385 |
| Eugene | 5,124 | 5,291 | 5,469 | 5,635 | 5,776 | 5,934 | 6,094 | 6,266 | 6,378 | 6,526 | 6,674 | 6,857 | 6,972 | 7,129 | 7,303 | 7,507 | 7,650 | 7,819 | 8,000 | 8,225 |
| Newport LC | 1,005 | 1,037 | 1,071 | 1,103 | 1,131 | 1,162 | 1,193 | 1,226 | 1,248 | 1,277 | 1,306 | 1,342 | 1,365 | 1,397 | 1,432 | 1,472 | 1,501 | 1,535 | 1,572 | 1,616 |
| Portland | 45,508 | 46,416 | 47,472 | 48,397 | 49,184 | 50,092 | 51,043 | 52,077 | 52,639 | 53,518 | 54,403 | 55,585 | 56,245 | 57,270 | 58,430 | 59,824 | 60,758 | 61,904 | 63,150 | 64,753 |
| Salem | 9,969 | 10,235 | 10,533 | 10,805 | 11,036 | 11,298 | 11,568 | 11,861 | 12,038 | 12,289 | 12,542 | 12,864 | 13,059 | 13,336 | 13,643 | 14,008 | 14,255 | 14,556 | 14,879 | 15,289 |
| Vancouver | 7,621 | 7,948 | 8,313 | 8,659 | 8,987 | 9,339 | 9,699 | 10,075 | 10,367 | 10,712 | 11,058 | 11,457 | 11,751 | 12,115 | 12,500 | 12,931 | 13,265 | 13,640 | 14,036 | 14,508 |
| Total | 75,465 | 77,331 | 79,446 | 81,352 | 83,011 | 84,884 | 86,825 | 88,911 | 90,185 | 91,993 | 93,807 | 96,123 | 97,531 | 99,554 | 101,802 | 104,456 | 106,297 | 108,506 | 110,884 | 113,884 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 2.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.2 | 1 | 1 | 2 | 3 | 4 |
| Eugene | 6.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 21.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 7.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 3.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 42.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.2 | 1 | 1 | 2 | 3 | 4 |

## Sensitivity 2: IRP RMix 1 - 85% Probability Weather - Low Demand/High Price Scenario

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 71,936 | 71,624 | 70,598 | 70,281 | 69,465 | 68,880 | 68,293 | 67,913 | 66,852 | 66,355 | 65,899 | 65,487 | 64,519 | 64,064 | 63,631 | 63,580 | 62,895 | 62,461 | 62,111 | 62,072 |
| Annual Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **71,936** | **71,624** | **70,598** | **70,281** | **69,465** | **68,880** | **68,293** | **67,913** | **66,852** | **66,355** | **65,899** | **65,487** | **64,519** | **64,064** | **63,631** | **63,580** | **62,895** | **62,461** | **62,111** | **62,072** |
| Peak Day Demand Served | 901 | 896 | 880 | 871 | 865 | 858 | 851 | 843 | 833 | 828 | 824 | 816 | 806 | 801 | 795 | 791 | 784 | 778 | 773 | 770 |
| Peak Day Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **901** | **896** | **880** | **871** | **865** | **858** | **851** | **843** | **833** | **828** | **824** | **816** | **806** | **801** | **795** | **791** | **784** | **778** | **773** | **770** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 494,665 | $ 499,385 | $ 514,988 | $ 525,899 | $ 522,499 | $ 518,298 | $ 508,401 | $ 512,298 | $ 517,656 | $ 502,251 | $ 471,358 | $ 492,791 | $ 506,639 | $ 513,230 | $ 526,530 | $ 536,814 | $ 540,952 | $ 556,498 | $ 569,963 | $ 572,064 |
| **Total Supply Costs** | **$ 494,726** | **$ 499,444** | **$ 515,047** | **$ 525,958** | **$ 522,559** | **$ 518,357** | **$ 508,460** | **$ 512,357** | **$ 517,715** | **$ 502,311** | **$ 471,417** | **$ 492,850** | **$ 506,698** | **$ 513,289** | **$ 526,589** | **$ 536,873** | **$ 541,011** | **$ 556,557** | **$ 570,023** | **$ 572,123** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,367 | $ 75,731 | $ 75,885 | $ 75,885 | $ 75,885 | $ 75,885 | $ 77,268 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 | $ 77,545 |
| Transportation Variable Costs | $ 2,480 | $ 2,530 | $ 2,521 | $ 2,304 | $ 2,275 | $ 2,251 | $ 2,228 | $ 2,216 | $ 2,171 | $ 2,141 | $ 2,133 | $ 2,125 | $ 2,093 | $ 2,078 | $ 2,060 | $ 2,055 | $ 2,027 | $ 1,979 | $ 1,990 | $ 1,975 |
| **Total Transportation Costs** | **$ 86,763** | **$ 86,897** | **$ 86,889** | **$ 78,035** | **$ 78,160** | **$ 78,136** | **$ 78,113** | **$ 78,101** | **$ 79,439** | **$ 79,687** | **$ 79,678** | **$ 79,670** | **$ 79,638** | **$ 79,623** | **$ 79,605** | **$ 79,600** | **$ 79,573** | **$ 79,525** | **$ 79,535** | **$ 79,521** |
| Storage Fixed Costs | $ 22,554 | $ 22,554 | $ 23,190 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 |
| Storage Variable Costs | $ 1,597 | $ 1,779 | $ 2,182 | $ 2,298 | $ 2,290 | $ 2,291 | $ 2,260 | $ 2,233 | $ 2,231 | $ 2,259 | $ 2,132 | $ 2,239 | $ 2,294 | $ 2,381 | $ 2,455 | $ 2,520 | $ 2,580 | $ 2,826 | $ 2,968 | $ 2,810 |
| **Total Storage Costs** | **$ 24,150** | **$ 24,332** | **$ 25,372** | **$ 26,115** | **$ 26,108** | **$ 26,108** | **$ 26,077** | **$ 26,051** | **$ 26,049** | **$ 26,076** | **$ 25,949** | **$ 26,057** | **$ 26,112** | **$ 26,198** | **$ 26,272** | **$ 26,337** | **$ 26,397** | **$ 26,644** | **$ 26,785** | **$ 26,627** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,360** | **$ 8,015** | **$ 9,094** | **$ 10,470** | **$ 11,874** | **$ 13,198** | **$ 14,604** | **$ 14,659** | **$ 14,626** | **$ 14,524** | **$ 14,407** | **$ 14,305** | **$ 14,188** | **$ 2,850** | **$ 2,743** | **$ 2,722** | **$ 2,682** | **$ 2,665** | **$ 2,623** | **$ 2,603** |
| Total Levelized DSM Costs | $ 989 | $ 1,852 | $ 2,954 | $ 4,217 | $ 5,652 | $ 7,239 | $ 8,994 | $ 10,769 | $ 12,584 | $ 14,369 | $ 16,117 | $ 17,761 | $ 19,363 | $ 20,463 | $ 21,259 | $ 22,044 | $ 22,801 | $ 23,548 | $ 24,265 | $ 24,969 |
| **Grand Total System Costs** | **$ 612,999** | **$ 618,688** | **$ 636,402** | **$ 640,578** | **$ 638,701** | **$ 635,799** | **$ 627,255** | **$ 631,167** | **$ 637,829** | **$ 622,598** | **$ 591,452** | **$ 612,881** | **$ 626,636** | **$ 621,960** | **$ 635,210** | **$ 645,533** | **$ 649,664** | **$ 665,391** | **$ 678,965** | **$ 680,874** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 2 | 2 | 2 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **9** | **9** | **9** | **(20)** | **(20)** | **(20)** | **(20)** | **(20)** | **(20)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 46 | 46 | 46 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **46** | **46** | **46** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 8,177,417 |

## Sensitivity 2: IRP RMix 1 - 85% Probability Weather - Low Demand/High Price Scenario

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 3,945 | 3,929 | 3,872 | 3,854 | 3,810 | 3,779 | 3,747 | 3,726 | 3,669 | 3,642 | 3,618 | 3,595 | 3,544 | 3,519 | 3,496 | 3,492 | 3,456 | 3,432 | 3,413 | 3,410 |
| Astoria | 1,225 | 1,216 | 1,195 | 1,186 | 1,168 | 1,154 | 1,139 | 1,129 | 1,107 | 1,095 | 1,083 | 1,073 | 1,053 | 1,042 | 1,032 | 1,028 | 1,014 | 1,005 | 997 | 994 |
| Dalles | 772 | 770 | 761 | 759 | 752 | 747 | 742 | 739 | 729 | 724 | 721 | 717 | 708 | 703 | 700 | 700 | 693 | 690 | 687 | 688 |
| Eugene | 4,856 | 4,848 | 4,796 | 4,789 | 4,744 | 4,714 | 4,684 | 4,669 | 4,606 | 4,579 | 4,556 | 4,537 | 4,479 | 4,453 | 4,431 | 4,436 | 4,396 | 4,374 | 4,357 | 4,362 |
| Newport LC | 950 | 945 | 930 | 924 | 911 | 901 | 891 | 883 | 867 | 858 | 849 | 841 | 826 | 818 | 811 | 808 | 798 | 791 | 785 | 783 |
| Portland | 43,581 | 43,387 | 42,753 | 42,552 | 42,052 | 41,690 | 41,328 | 41,088 | 40,437 | 40,129 | 39,846 | 39,590 | 38,997 | 38,719 | 38,453 | 38,419 | 38,002 | 37,735 | 37,521 | 37,494 |
| Salem | 9,475 | 9,438 | 9,306 | 9,271 | 9,164 | 9,089 | 9,015 | 8,970 | 8,830 | 8,767 | 8,710 | 8,662 | 8,535 | 8,478 | 8,423 | 8,422 | 8,332 | 8,278 | 8,235 | 8,235 |
| Vancouver | 7,131 | 7,091 | 6,984 | 6,947 | 6,865 | 6,806 | 6,747 | 6,709 | 6,608 | 6,560 | 6,516 | 6,472 | 6,377 | 6,332 | 6,286 | 6,275 | 6,204 | 6,157 | 6,117 | 6,107 |
| Total | 71,936 | 71,624 | 70,598 | 70,281 | 69,465 | 68,880 | 68,293 | 67,913 | 66,852 | 66,355 | 65,899 | 65,487 | 64,519 | 64,064 | 63,631 | 63,580 | 62,895 | 62,461 | 62,111 | 62,072 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 3: IRP RMix 1 - 85% Probability Weather - High Demand/High Price Scenario

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 75,465 | 77,331 | 79,446 | 81,352 | 83,011 | 84,884 | 86,825 | 88,911 | 90,185 | 91,992 | 93,807 | 96,123 | 97,531 | 99,554 | 101,802 | 104,456 | 106,297 | 108,506 | 110,884 | 113,884 |
| Annual Demand Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 2 | 3 | 4 |
| **Total Annual Demand (net of DSM)** | **75,507** | **77,331** | **79,446** | **81,352** | **83,011** | **84,884** | **86,825** | **88,911** | **90,185** | **91,992** | **93,807** | **96,123** | **97,531** | **99,554** | **101,802** | **104,457** | **106,298** | **108,508** | **110,886** | **113,887** |
| Peak Day Demand Served | 910 | 976 | 1,005 | 1,025 | 1,052 | 1,078 | 1,105 | 1,129 | 1,151 | 1,175 | 1,200 | 1,226 | 1,249 | 1,275 | 1,304 | 1,333 | 1,361 | 1,388 | 1,417 | 1,451 |
| Peak Day Demand Unserved | 42 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 1 |
| **Total Peak Day Demand (net of DSM)** | **952** | **976** | **1,005** | **1,025** | **1,052** | **1,078** | **1,105** | **1,129** | **1,151** | **1,175** | **1,200** | **1,226** | **1,249** | **1,275** | **1,304** | **1,333** | **1,361** | **1,388** | **1,418** | **1,452** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 530,905 | $ 544,714 | $ 583,091 | $ 615,041 | $ 626,764 | $ 648,779 | $ 659,214 | $ 682,021 | $ 714,507 | $ 720,318 | $ 691,865 | $ 741,809 | $ 783,781 | $ 814,482 | $ 860,145 | $ 901,223 | $ 934,651 | $ 997,214 | $ 1,048,806 | $ 1,092,348 |
| **Total Supply Costs** | **$ 530,966** | **$ 544,773** | **$ 583,151** | **$ 615,100** | **$ 626,824** | **$ 648,839** | **$ 659,273** | **$ 682,080** | **$ 714,566** | **$ 720,378** | **$ 691,924** | **$ 741,869** | **$ 783,840** | **$ 814,542** | **$ 860,205** | **$ 901,283** | **$ 934,710** | **$ 997,273** | **$ 1,048,866** | **$ 1,092,407** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,651 | $ 83,018 | $ 84,008 | $ 85,985 | $ 86,410 | $ 86,410 | $ 87,918 | $ 88,196 | $ 88,205 | $ 89,608 | $ 91,672 | $ 95,535 | $ 99,809 | $ 104,001 | $ 108,326 | $ 112,444 | $ 117,340 | $ 127,403 |
| Transportation Variable Costs | $ 2,694 | $ 2,786 | $ 2,896 | $ 2,239 | $ 2,241 | $ 2,230 | $ 2,241 | $ 2,289 | $ 2,387 | $ 2,439 | $ 2,612 | $ 2,704 | $ 2,683 | $ 2,649 | $ 2,645 | $ 2,655 | $ 2,650 | $ 2,665 | $ 2,683 | $ 2,646 |
| **Total Transportation Costs** | **$ 86,977** | **$ 87,153** | **$ 87,547** | **$ 85,257** | **$ 86,249** | **$ 88,214** | **$ 88,651** | **$ 88,699** | **$ 90,305** | **$ 90,635** | **$ 90,817** | **$ 92,312** | **$ 94,355** | **$ 98,184** | **$ 102,453** | **$ 106,657** | **$ 110,976** | **$ 115,109** | **$ 120,023** | **$ 130,049** |
| Storage Fixed Costs | $ 24,252 | $ 25,861 | $ 26,980 | $ 27,916 | $ 28,176 | $ 28,960 | $ 30,366 | $ 31,309 | $ 32,081 | $ 33,413 | $ 34,976 | $ 36,185 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 | $ 36,596 |
| Storage Variable Costs | $ 1,676 | $ 2,063 | $ 2,553 | $ 3,059 | $ 3,088 | $ 3,143 | $ 3,366 | $ 3,482 | $ 3,484 | $ 3,714 | $ 3,420 | $ 3,456 | $ 3,681 | $ 3,791 | $ 3,844 | $ 3,867 | $ 3,885 | $ 4,004 | $ 4,098 | $ 3,952 |
| **Total Storage Costs** | **$ 25,928** | **$ 27,924** | **$ 29,534** | **$ 30,975** | **$ 31,264** | **$ 32,103** | **$ 33,732** | **$ 34,791** | **$ 35,565** | **$ 37,127** | **$ 38,396** | **$ 39,640** | **$ 40,277** | **$ 40,387** | **$ 40,440** | **$ 40,463** | **$ 40,481** | **$ 40,600** | **$ 40,694** | **$ 40,548** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 651,864** | **$ 668,871** | **$ 710,672** | **$ 743,508** | **$ 758,320** | **$ 784,886** | **$ 799,237** | **$ 823,549** | **$ 858,542** | **$ 866,298** | **$ 839,302** | **$ 892,006** | **$ 936,660** | **$ 959,134** | **$ 1,009,050** | **$ 1,054,381** | **$ 1,092,151** | **$ 1,159,001** | **$ 1,215,583** | **$ 1,269,016** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 72 | 93 | 131 | 145 | 145 | 182 | 220 | 233 | 250 | 287 | 289 | 289 | 289 | 289 | 289 | 289 | 289 | 289 | 289 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | 9 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| 3 Satellite LNG - Eugene | - | 4 | 10.6 | 10.6 | 10.6 | 10.6 | 10.6 | 12.5 | 14 | 21.9 | 23 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | 6 | 26 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 12 |
| 8 Palomar East | - | - | - | 59 | 64 | 77 | 80 | 80 | 81 | 81 | 81 | 86 | 93 | 107 | 122 | 136 | 151 | 165 | 181 | 200 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **83** | **111** | **130** | **150** | **163** | **202** | **242** | **259** | **295** | **339** | **382** | **414** | **428** | **443** | **457** | **472** | **487** | **502** | **533** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 1,618 | 2,110 | 2,952 | 3,277 | 3,277 | 4,109 | 4,965 | 5,279 | 5,658 | 6,488 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 | 6,539 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | 27 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Satellite LNG - Eugene | - | 12 | 32 | 32 | 32 | 32 | 32 | 38 | 43 | 66 | 70 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | 18 | 79 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| **Total Incremental Storage Capacity** | **230** | **1,630** | **2,142** | **2,984** | **3,309** | **3,309** | **4,141** | **5,003** | **5,322** | **5,724** | **6,576** | **6,735** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** | **6,809** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 5 |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 3 | 4.6 | 5 | 7 |
| WVF Main | - | - | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 11,081,345 |

## Sensitivity 3: IRP RMix 1 - 85% Probability Weather - High Demand/High Price Scenario

| **Served Demand Net DSM by Area/Class (MDth)** | **2008-2009** | **2009-2010** | **2010-2011** | **2011-2012** | **2012-2013** | **2013-2014** | **2014-2015** | **2015-2016** | **2016-2017** | **2017-2018** | **2018-2019** | **2019-2020** | **2020-2021** | **2021-2022** | **2022-2023** | **2023-2024** | **2024-2025** | **2025-2026** | **2026-2027** | **2027-2028** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,137 | 4,243 | 4,363 | 4,468 | 4,563 | 4,669 | 4,778 | 4,894 | 4,966 | 5,067 | 5,168 | 5,295 | 5,374 | 5,485 | 5,608 | 5,751 | 5,853 | 5,973 | 6,102 | 6,263 |
| Astoria | 1,288 | 1,316 | 1,348 | 1,377 | 1,400 | 1,427 | 1,455 | 1,486 | 1,503 | 1,528 | 1,554 | 1,588 | 1,607 | 1,635 | 1,668 | 1,708 | 1,733 | 1,765 | 1,799 | 1,844 |
| Dalles | 814 | 844 | 877 | 907 | 934 | 963 | 993 | 1,025 | 1,046 | 1,074 | 1,102 | 1,135 | 1,158 | 1,187 | 1,219 | 1,255 | 1,282 | 1,313 | 1,345 | 1,385 |
| Eugene | 5,124 | 5,291 | 5,469 | 5,635 | 5,776 | 5,934 | 6,094 | 6,266 | 6,378 | 6,526 | 6,674 | 6,857 | 6,972 | 7,129 | 7,303 | 7,507 | 7,650 | 7,819 | 8,000 | 8,225 |
| Newport LC | 1,005 | 1,037 | 1,071 | 1,103 | 1,131 | 1,162 | 1,193 | 1,226 | 1,248 | 1,277 | 1,306 | 1,342 | 1,365 | 1,397 | 1,432 | 1,472 | 1,501 | 1,535 | 1,572 | 1,616 |
| Portland | 45,508 | 46,416 | 47,472 | 48,397 | 49,184 | 50,092 | 51,043 | 52,077 | 52,639 | 53,518 | 54,403 | 55,585 | 56,245 | 57,270 | 58,430 | 59,824 | 60,758 | 61,904 | 63,150 | 64,753 |
| Salem | 9,969 | 10,235 | 10,533 | 10,805 | 11,036 | 11,298 | 11,568 | 11,861 | 12,038 | 12,289 | 12,542 | 12,864 | 13,059 | 13,336 | 13,643 | 14,008 | 14,255 | 14,556 | 14,879 | 15,289 |
| Vancouver | 7,621 | 7,948 | 8,313 | 8,659 | 8,987 | 9,339 | 9,699 | 10,075 | 10,367 | 10,712 | 11,058 | 11,457 | 11,751 | 12,115 | 12,500 | 12,931 | 13,265 | 13,640 | 14,036 | 14,508 |
| Total | 75,465 | 77,331 | 79,446 | 81,352 | 83,011 | 84,884 | 86,825 | 88,911 | 90,185 | 91,992 | 93,807 | 96,123 | 97,531 | 99,554 | 101,802 | 104,456 | 106,297 | 108,506 | 110,884 | 113,884 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | **2008-2009** | **2009-2010** | **2010-2011** | **2011-2012** | **2012-2013** | **2013-2014** | **2014-2015** | **2015-2016** | **2016-2017** | **2017-2018** | **2018-2019** | **2019-2020** | **2020-2021** | **2021-2022** | **2022-2023** | **2023-2024** | **2024-2025** | **2025-2026** | **2026-2027** | **2027-2028** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 2.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 2 | 3 | 4 |
| Eugene | 6.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 21.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 7.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 3.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 42.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 1 | 1 | 2 | 3 | 4 |

## Sensitivity 4: IRP RMix 1 - 85% Probability Weather - Low Demand/Low Price Scenario

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 71,936 | 71,624 | 70,598 | 70,281 | 69,465 | 68,880 | 68,293 | 67,913 | 66,853 | 66,356 | 65,900 | 65,488 | 64,520 | 64,065 | 63,632 | 63,581 | 62,896 | 62,462 | 62,111 | 62,072 |
| Annual Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **71,936** | **71,624** | **70,598** | **70,281** | **69,465** | **68,880** | **68,293** | **67,913** | **66,853** | **66,356** | **65,900** | **65,488** | **64,520** | **64,065** | **63,632** | **63,581** | **62,896** | **62,462** | **62,111** | **62,072** |
| Peak Day Demand Served | 901 | 896 | 880 | 871 | 865 | 858 | 851 | 843 | 833 | 828 | 824 | 816 | 806 | 801 | 795 | 791 | 784 | 778 | 773 | 770 |
| Peak Day Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **901** | **896** | **880** | **871** | **865** | **858** | **851** | **843** | **833** | **828** | **824** | **816** | **806** | **801** | **795** | **791** | **784** | **778** | **773** | **770** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 385,725 | $ 353,144 | $ 338,841 | $ 342,933 | $ 328,940 | $ 315,842 | $ 295,829 | $ 295,654 | $ 294,346 | $ 293,237 | $ 292,629 | $ 301,384 | $ 307,086 | $ 317,175 | $ 317,457 | $ 331,658 | $ 328,656 | $ 334,796 | $ 339,682 | $ 335,768 |
| **Total Supply Costs** | **$ 385,786** | **$ 353,204** | **$ 338,901** | **$ 342,993** | **$ 328,999** | **$ 315,901** | **$ 295,888** | **$ 295,713** | **$ 294,405** | **$ 293,296** | **$ 292,688** | **$ 301,443** | **$ 307,146** | **$ 317,234** | **$ 317,516** | **$ 331,717** | **$ 328,716** | **$ 334,855** | **$ 339,741** | **$ 335,828** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,367 | $ 75,731 | $ 75,908 | $ 75,909 | $ 75,910 | $ 75,911 | $ 77,296 | $ 77,574 | $ 77,574 | $ 77,576 | $ 77,577 | $ 77,578 | $ 77,579 | $ 77,579 | $ 77,579 | $ 77,579 | $ 77,582 | $ 77,582 |
| Transportation Variable Costs | $ 2,492 | $ 2,496 | $ 2,536 | $ 2,310 | $ 2,289 | $ 2,275 | $ 2,243 | $ 2,225 | $ 2,163 | $ 2,152 | $ 2,130 | $ 2,109 | $ 2,092 | $ 2,084 | $ 2,047 | $ 2,070 | $ 2,016 | $ 2,027 | $ 2,013 | $ 1,998 |
| **Total Transportation Costs** | **$ 86,776** | **$ 86,863** | **$ 86,903** | **$ 78,042** | **$ 78,197** | **$ 78,184** | **$ 78,153** | **$ 78,136** | **$ 79,459** | **$ 79,725** | **$ 79,705** | **$ 79,684** | **$ 79,668** | **$ 79,662** | **$ 79,626** | **$ 79,649** | **$ 79,594** | **$ 79,606** | **$ 79,595** | **$ 79,580** |
| Storage Fixed Costs | $ 22,554 | $ 22,554 | $ 23,190 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 | $ 23,817 |
| Storage Variable Costs | $ 1,352 | $ 1,341 | $ 1,544 | $ 1,508 | $ 1,429 | $ 1,361 | $ 1,270 | $ 1,302 | $ 1,333 | $ 1,340 | $ 1,342 | $ 1,347 | $ 1,428 | $ 1,484 | $ 1,436 | $ 1,552 | $ 1,500 | $ 1,613 | $ 1,831 | $ 1,758 |
| **Total Storage Costs** | **$ 23,905** | **$ 23,895** | **$ 24,734** | **$ 25,326** | **$ 25,246** | **$ 25,178** | **$ 25,087** | **$ 25,120** | **$ 25,150** | **$ 25,157** | **$ 25,159** | **$ 25,164** | **$ 25,246** | **$ 25,302** | **$ 25,253** | **$ 25,370** | **$ 25,318** | **$ 25,430** | **$ 25,648** | **$ 25,575** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,360** | **$ 8,014** | **$ 9,093** | **$ 10,470** | **$ 11,871** | **$ 13,194** | **$ 14,600** | **$ 14,654** | **$ 14,620** | **$ 14,517** | **$ 14,399** | **$ 14,297** | **$ 14,179** | **$ 2,850** | **$ 2,743** | **$ 2,722** | **$ 2,682** | **$ 2,665** | **$ 2,623** | **$ 2,603** |
| Total Levelized DSM Costs | $ 989 | $ 1,852 | $ 2,954 | $ 4,217 | $ 5,651 | $ 7,238 | $ 8,993 | $ 10,768 | $ 12,582 | $ 14,367 | $ 16,114 | $ 17,757 | $ 19,358 | $ 20,458 | $ 21,253 | $ 22,038 | $ 22,794 | $ 23,541 | $ 24,265 | $ 24,969 |
| **Grand Total System Costs** | **$ 503,827** | **$ 471,976** | **$ 459,631** | **$ 456,829** | **$ 444,314** | **$ 432,457** | **$ 413,728** | **$ 413,623** | **$ 413,634** | **$ 412,697** | **$ 411,952** | **$ 420,588** | **$ 426,239** | **$ 425,048** | **$ 425,138** | **$ 439,458** | **$ 436,310** | **$ 442,556** | **$ 447,607** | **$ 443,585** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 2 | 2 | 2 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **9** | **9** | **9** | **(20)** | **(20)** | **(20)** | **(20)** | **(20)** | **(20)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** | **(8)** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 46 | 46 | 46 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 | 832 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **46** | **46** | **46** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** | **832** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LNG Enhancement to Salem | - | - | - | - | 26 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 29 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 5,692,908 |

## Sensitivity 4: IRP RMix 1 - 85% Probability Weather - Low Demand/Low Price Scenario

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 3,945 | 3,929 | 3,872 | 3,854 | 3,810 | 3,779 | 3,747 | 3,726 | 3,669 | 3,642 | 3,618 | 3,595 | 3,544 | 3,519 | 3,496 | 3,492 | 3,456 | 3,432 | 3,413 | 3,410 |
| Astoria | 1,225 | 1,216 | 1,195 | 1,186 | 1,168 | 1,154 | 1,139 | 1,129 | 1,107 | 1,095 | 1,083 | 1,073 | 1,053 | 1,042 | 1,032 | 1,028 | 1,014 | 1,005 | 997 | 994 |
| Dalles | 772 | 770 | 761 | 759 | 752 | 747 | 742 | 739 | 729 | 725 | 721 | 718 | 708 | 704 | 701 | 701 | 695 | 691 | 687 | 688 |
| Eugene | 4,856 | 4,848 | 4,796 | 4,789 | 4,744 | 4,714 | 4,684 | 4,669 | 4,606 | 4,579 | 4,556 | 4,537 | 4,479 | 4,453 | 4,431 | 4,436 | 4,396 | 4,374 | 4,357 | 4,362 |
| Newport LC | 950 | 945 | 930 | 924 | 911 | 901 | 891 | 883 | 867 | 858 | 849 | 841 | 826 | 818 | 811 | 808 | 798 | 791 | 785 | 783 |
| Portland | 43,581 | 43,387 | 42,753 | 42,552 | 42,052 | 41,690 | 41,328 | 41,088 | 40,437 | 40,129 | 39,846 | 39,590 | 38,997 | 38,719 | 38,453 | 38,419 | 38,002 | 37,735 | 37,521 | 37,494 |
| Salem | 9,475 | 9,438 | 9,306 | 9,271 | 9,164 | 9,089 | 9,015 | 8,970 | 8,830 | 8,767 | 8,710 | 8,662 | 8,535 | 8,478 | 8,423 | 8,422 | 8,332 | 8,278 | 8,235 | 8,235 |
| Vancouver | 7,131 | 7,091 | 6,984 | 6,947 | 6,865 | 6,806 | 6,747 | 6,709 | 6,608 | 6,560 | 6,516 | 6,472 | 6,377 | 6,332 | 6,286 | 6,275 | 6,204 | 6,157 | 6,117 | 6,107 |
| Total | 71,936 | 71,624 | 70,598 | 70,281 | 69,465 | 68,880 | 68,293 | 67,913 | 66,853 | 66,356 | 65,900 | 65,488 | 64,520 | 64,065 | 63,632 | 63,581 | 62,896 | 62,462 | 62,111 | 62,072 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 5: IRP RMix 1 - 85% Probability Weather - Palomar at Min of 100 MDTH/d

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,607 | $ 442,719 | $ 471,755 | $ 491,177 | $ 516,568 | $ 535,777 | $ 564,164 | $ 568,290 | $ 569,717 | $ 582,467 | $ 587,109 | $ 579,945 | $ 579,440 | $ 606,028 | $ 618,357 | $ 644,272 | $ 692,322 | $ 743,441 | $ 788,397 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,666** | **$ 442,778** | **$ 471,815** | **$ 491,236** | **$ 516,628** | **$ 535,836** | **$ 564,223** | **$ 568,350** | **$ 569,776** | **$ 582,526** | **$ 587,168** | **$ 580,004** | **$ 579,500** | **$ 606,088** | **$ 618,416** | **$ 644,331** | **$ 692,381** | **$ 743,500** | **$ 788,456** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,420 | $ 89,114 | $ 89,279 | $ 89,287 | $ 89,294 | $ 89,302 | $ 90,690 | $ 90,968 | $ 90,968 | $ 90,968 | $ 90,980 | $ 90,988 | $ 90,991 | $ 91,037 | $ 91,686 | $ 92,265 | $ 92,902 | $ 93,560 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,669 | $ 1,939 | $ 1,950 | $ 1,966 | $ 1,974 | $ 1,994 | $ 2,092 | $ 2,110 | $ 2,127 | $ 2,154 | $ 2,186 | $ 2,230 | $ 2,284 | $ 2,318 | $ 2,344 | $ 2,377 | $ 2,441 | $ 2,479 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,089** | **$ 91,053** | **$ 91,229** | **$ 91,253** | **$ 91,269** | **$ 91,296** | **$ 92,783** | **$ 93,078** | **$ 93,095** | **$ 93,122** | **$ 93,167** | **$ 93,218** | **$ 93,275** | **$ 93,355** | **$ 94,030** | **$ 94,642** | **$ 95,343** | **$ 96,039** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 24,446 | $ 24,560 | $ 24,560 | $ 24,758 | $ 25,143 | $ 25,335 | $ 25,606 | $ 26,070 | $ 26,588 | $ 27,084 | $ 27,589 | $ 28,119 | $ 28,703 | $ 29,076 | $ 29,292 | $ 29,543 | $ 29,652 | $ 30,040 |
| Storage Variable Costs | $ 1,484 | $ 1,561 | $ 1,716 | $ 1,778 | $ 1,850 | $ 1,938 | $ 2,055 | $ 2,116 | $ 2,068 | $ 2,143 | $ 2,160 | $ 2,225 | $ 2,230 | $ 2,339 | $ 2,576 | $ 2,651 | $ 2,718 | $ 2,849 | $ 2,990 | $ 2,993 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,736** | **$ 26,161** | **$ 26,338** | **$ 26,410** | **$ 26,696** | **$ 27,198** | **$ 27,452** | **$ 27,675** | **$ 28,213** | **$ 28,748** | **$ 29,309** | **$ 29,819** | **$ 30,458** | **$ 31,280** | **$ 31,727** | **$ 32,010** | **$ 32,392** | **$ 32,643** | **$ 33,033** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 555,467** | **$ 542,447** | **$ 566,469** | **$ 601,380** | **$ 622,858** | **$ 650,307** | **$ 671,884** | **$ 700,949** | **$ 706,912** | **$ 709,226** | **$ 722,534** | **$ 727,784** | **$ 721,177** | **$ 709,198** | **$ 736,595** | **$ 749,478** | **$ 776,355** | **$ 825,434** | **$ 877,487** | **$ 923,540** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 57 | 57 | 57 | 66 | 78 | 78 | 89 | 101 | 115 | 127 | 129 | 129 | 129 | 129 | 129 | 129 | 129 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | 6 | 6 | 9 | 9 | 9 | 15 | 22 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 2 | 3 | 4 | 5 | 11 | 24 | 24 | 24 | 24 | 24 | 27 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 13 | 17 | 23 | 23 | 23 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **87** | **87** | **87** | **96** | **108** | **109** | **133** | **146** | **161** | **173** | **187** | **200** | **216** | **221** | **226** | **233** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 1,283 | 1,283 | 1,283 | 1,492 | 1,752 | 1,762 | 2,012 | 2,287 | 2,598 | 2,862 | 2,907 | 2,907 | 2,907 | 2,907 | 2,907 | 2,907 | 2,907 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | 17 | 17 | 26 | 26 | 26 | 46 | 65 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 32 | 72 | 72 | 72 | 72 | 72 | 82 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 38 | 52 | 70 | 70 | 70 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **1,284** | **1,284** | **1,284** | **1,493** | **1,754** | **1,765** | **2,018** | **2,295** | **2,610** | **2,876** | **2,956** | **2,996** | **3,043** | **3,057** | **3,075** | **3,094** | **3,123** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 0 | 1 | 1 | 1.2 | 1 | 3 |
| WVF Main | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,771,709 |

## Sensitivity 5: IRP RMix 1 - 85% Probability Weather - Palomar at Min of 100 MDTH/d

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 6: IRP RMix 1 - Original Design Weather - Old Design Weather (Coldest 20 Year Peak & Annual)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 80,421 | 81,686 | 82,615 | 83,953 | 84,457 | 85,363 | 86,203 | 87,493 | 88,046 | 88,942 | 89,918 | 91,404 | 91,996 | 93,081 | 94,194 | 95,870 | 96,372 | 97,286 | 98,282 | 99,860 |
| Annual Demand Unserved | 33 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **80,454** | **81,686** | **82,615** | **83,953** | **84,457** | **85,363** | **86,203** | **87,493** | **88,046** | **88,942** | **89,918** | **91,404** | **91,996** | **93,081** | **94,194** | **95,870** | **96,372** | **97,286** | **98,282** | **99,860** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 497,973 | $ 462,889 | $ 493,478 | $ 519,627 | $ 540,115 | $ 566,791 | $ 590,324 | $ 621,449 | $ 624,967 | $ 629,147 | $ 642,257 | $ 648,400 | $ 640,837 | $ 639,981 | $ 666,480 | $ 680,467 | $ 707,996 | $ 761,807 | $ 817,544 | $ 865,793 |
| **Total Supply Costs** | **$ 498,034** | **$ 462,949** | **$ 493,537** | **$ 519,686** | **$ 540,175** | **$ 566,850** | **$ 590,383** | **$ 621,508** | **$ 625,027** | **$ 629,206** | **$ 642,316** | **$ 648,459** | **$ 640,896** | **$ 640,040** | **$ 666,539** | **$ 680,527** | **$ 708,055** | **$ 761,866** | **$ 817,603** | **$ 865,852** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,573 | $ 83,755 | $ 83,916 | $ 84,903 | $ 85,626 | $ 85,634 | $ 87,025 | $ 87,311 | $ 87,311 | $ 87,622 | $ 87,622 | $ 87,622 | $ 87,622 | $ 88,191 | $ 89,934 | $ 91,578 | $ 93,489 | $ 95,611 |
| Transportation Variable Costs | $ 2,938 | $ 3,024 | $ 3,045 | $ 2,298 | $ 2,308 | $ 2,294 | $ 2,285 | $ 2,315 | $ 2,368 | $ 2,404 | $ 2,425 | $ 2,457 | $ 2,487 | $ 2,496 | $ 2,575 | $ 2,576 | $ 2,516 | $ 2,492 | $ 2,498 | $ 2,478 |
| **Total Transportation Costs** | **$ 87,222** | **$ 87,391** | **$ 87,618** | **$ 86,053** | **$ 86,225** | **$ 87,197** | **$ 87,911** | **$ 87,949** | **$ 89,394** | **$ 89,715** | **$ 89,736** | **$ 90,079** | **$ 90,109** | **$ 90,118** | **$ 90,197** | **$ 90,767** | **$ 92,450** | **$ 94,070** | **$ 95,987** | **$ 98,089** |
| Storage Fixed Costs | $ 24,400 | $ 25,538 | $ 26,556 | $ 27,623 | $ 27,711 | $ 27,802 | $ 28,257 | $ 28,562 | $ 28,697 | $ 29,252 | $ 29,960 | $ 30,730 | $ 31,582 | $ 32,423 | $ 33,089 | $ 33,329 | $ 33,375 | $ 33,400 | $ 33,400 | $ 33,440 |
| Storage Variable Costs | $ 1,826 | $ 1,936 | $ 2,252 | $ 2,488 | $ 2,571 | $ 2,624 | $ 2,770 | $ 2,844 | $ 2,762 | $ 2,836 | $ 2,891 | $ 2,986 | $ 3,000 | $ 3,187 | $ 3,136 | $ 3,232 | $ 3,438 | $ 3,651 | $ 3,792 | $ 3,727 |
| **Total Storage Costs** | **$ 26,226** | **$ 27,474** | **$ 28,808** | **$ 30,110** | **$ 30,282** | **$ 30,427** | **$ 31,027** | **$ 31,405** | **$ 31,458** | **$ 32,088** | **$ 32,851** | **$ 33,716** | **$ 34,582** | **$ 35,610** | **$ 36,224** | **$ 36,561** | **$ 36,813** | **$ 37,051** | **$ 37,192** | **$ 37,166** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 619,475** | **$ 586,835** | **$ 620,404** | **$ 648,025** | **$ 670,664** | **$ 700,204** | **$ 726,902** | **$ 758,839** | **$ 763,984** | **$ 769,168** | **$ 783,068** | **$ 790,440** | **$ 783,773** | **$ 771,790** | **$ 798,912** | **$ 813,834** | **$ 843,302** | **$ 899,007** | **$ 956,783** | **$ 1,007,119** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 72 | 73 | 128 | 132 | 132 | 137 | 155 | 156 | 162 | 183 | 199 | 222 | 244 | 266 | 280 | 280 | 280 | 280 | 280 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1.8 | 3 | 4 | 5 | 6 | 7 | 8 | 8 | 10 | 10 | 11 |
| 4 Satellite LNG - Salem | - | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 64 | 64 | 71 | 75 | 75 | 75 | 75 | 75 | 77 | 77 | 77 | 77 | 81 | 87 | 92 | 99 | 106 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **89** | **91** | **132** | **137** | **143** | **152** | **171** | **172** | **189** | **211** | **231** | **255** | **278** | **301** | **319** | **325** | **332** | **339** | **347** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 1,619 | 1,661 | 2,883 | 2,995 | 2,995 | 3,091 | 3,505 | 3,536 | 3,658 | 4,136 | 4,505 | 5,019 | 5,519 | 6,017 | 6,327 | 6,327 | 6,327 | 6,327 | 6,327 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 8 | 12 | 14 | 17 | 20 | 23 | 25 | 30 | 30 | 33 |
| Satellite LNG - Salem | - | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| **Total Incremental Storage Capacity** | **230** | **1,651** | **1,692** | **2,914** | **3,026** | **3,026** | **3,122** | **3,536** | **3,567** | **3,689** | **4,170** | **4,542** | **5,059** | **5,562** | **6,063** | **6,376** | **6,378** | **6,383** | **6,383** | **6,386** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | 1 | 2 | 2 | 3 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 5 | 6.5 | 9 | 9 |
| WVF Main | - | - | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 9,528,224 |

## Sensitivity 6: IRP RMix 1 - Original Design Weather - Old Design Weather (Coldest 20 Year Peak & Annual)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,459 | 4,529 | 4,581 | 4,652 | 4,682 | 4,732 | 4,779 | 4,847 | 4,880 | 4,930 | 4,983 | 5,062 | 5,098 | 5,157 | 5,217 | 5,304 | 5,333 | 5,381 | 5,434 | 5,515 |
| Astoria | 1,396 | 1,411 | 1,421 | 1,436 | 1,439 | 1,449 | 1,456 | 1,470 | 1,474 | 1,482 | 1,492 | 1,508 | 1,512 | 1,523 | 1,536 | 1,555 | 1,560 | 1,569 | 1,580 | 1,598 |
| Dalles | 888 | 909 | 926 | 949 | 958 | 974 | 989 | 1,010 | 1,019 | 1,034 | 1,049 | 1,072 | 1,081 | 1,097 | 1,113 | 1,138 | 1,145 | 1,158 | 1,173 | 1,196 |
| Eugene | 5,450 | 5,561 | 5,647 | 5,754 | 5,811 | 5,890 | 5,962 | 6,059 | 6,114 | 6,186 | 6,262 | 6,367 | 6,420 | 6,498 | 6,581 | 6,696 | 6,743 | 6,811 | 6,885 | 6,991 |
| Newport LC | 1,043 | 1,063 | 1,078 | 1,097 | 1,108 | 1,122 | 1,135 | 1,152 | 1,162 | 1,174 | 1,188 | 1,206 | 1,216 | 1,230 | 1,245 | 1,266 | 1,275 | 1,288 | 1,302 | 1,321 |
| Portland | 48,456 | 49,029 | 49,410 | 50,057 | 50,175 | 50,552 | 50,895 | 51,527 | 51,692 | 52,083 | 52,527 | 53,297 | 53,509 | 54,040 | 54,591 | 55,495 | 55,679 | 56,128 | 56,629 | 57,490 |
| Salem | 10,592 | 10,780 | 10,908 | 11,083 | 11,159 | 11,281 | 11,394 | 11,560 | 11,640 | 11,760 | 11,891 | 12,082 | 12,169 | 12,312 | 12,458 | 12,671 | 12,744 | 12,865 | 12,996 | 13,196 |
| Vancouver | 8,138 | 8,403 | 8,643 | 8,926 | 9,124 | 9,363 | 9,592 | 9,868 | 10,065 | 10,292 | 10,526 | 10,811 | 10,992 | 11,225 | 11,453 | 11,744 | 11,892 | 12,084 | 12,284 | 12,553 |
| Total | 80,421 | 81,686 | 82,615 | 83,953 | 84,457 | 85,363 | 86,203 | 87,493 | 88,046 | 88,942 | 89,918 | 91,404 | 91,996 | 93,081 | 94,194 | 95,870 | 96,372 | 97,286 | 98,282 | 99,860 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | 0.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 20.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 32.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 7: IRP RMix 1 - 85% Probability Weather - Negative Load Growth (-1% Decrease per Year)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 71,753 | 70,726 | 69,382 | 68,323 | 66,688 | 65,362 | 64,020 | 62,995 | 61,551 | 60,343 | 59,213 | 58,396 | 57,111 | 56,141 | 55,232 | 54,624 | 53,449 | 52,496 | 51,610 | 51,004 |
| Annual Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **71,753** | **70,726** | **69,382** | **68,323** | **66,688** | **65,362** | **64,020** | **62,995** | **61,551** | **60,343** | **59,213** | **58,396** | **57,111** | **56,141** | **55,232** | **54,624** | **53,449** | **52,496** | **51,610** | **51,004** |
| Peak Day Demand Served | 901 | 887 | 869 | 851 | 833 | 816 | 800 | 784 | 770 | 755 | 741 | 730 | 717 | 705 | 693 | 683 | 670 | 657 | 645 | 636 |
| Peak Day Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **901** | **887** | **869** | **851** | **833** | **816** | **800** | **784** | **770** | **755** | **741** | **730** | **717** | **705** | **693** | **683** | **670** | **657** | **645** | **636** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 419,425 | $ 394,560 | $ 408,468 | $ 418,125 | $ 423,976 | $ 429,398 | $ 429,078 | $ 437,683 | $ 422,941 | $ 409,993 | $ 404,396 | $ 396,869 | $ 380,976 | $ 371,258 | $ 375,953 | $ 374,109 | $ 380,410 | $ 393,029 | $ 407,458 | $ 417,912 |
| **Total Supply Costs** | **$ 419,486** | **$ 394,619** | **$ 408,527** | **$ 418,184** | **$ 424,035** | **$ 429,458** | **$ 429,137** | **$ 437,742** | **$ 423,000** | **$ 410,053** | **$ 404,455** | **$ 396,928** | **$ 381,035** | **$ 371,317** | **$ 376,012** | **$ 374,168** | **$ 380,470** | **$ 393,088** | **$ 407,517** | **$ 417,971** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,367 | $ 74,631 | $ 74,631 | $ 74,631 | $ 74,631 | $ 74,631 | $ 76,014 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 | $ 76,292 |
| Transportation Variable Costs | $ 2,461 | $ 2,485 | $ 2,471 | $ 2,317 | $ 2,257 | $ 2,205 | $ 2,149 | $ 2,119 | $ 2,058 | $ 2,006 | $ 1,954 | $ 1,915 | $ 1,866 | $ 1,834 | $ 1,801 | $ 1,779 | $ 1,744 | $ 1,719 | $ 1,680 | $ 1,630 |
| **Total Transportation Costs** | **$ 86,745** | **$ 86,852** | **$ 86,838** | **$ 76,948** | **$ 76,888** | **$ 76,836** | **$ 76,780** | **$ 76,750** | **$ 78,072** | **$ 78,298** | **$ 78,245** | **$ 78,207** | **$ 78,158** | **$ 78,126** | **$ 78,092** | **$ 78,071** | **$ 78,036** | **$ 78,011** | **$ 77,972** | **$ 77,921** |
| Storage Fixed Costs | $ 22,550 | $ 22,550 | $ 22,956 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 |
| Storage Variable Costs | $ 1,447 | $ 1,486 | $ 1,825 | $ 1,817 | $ 1,871 | $ 1,917 | $ 1,968 | $ 1,973 | $ 1,938 | $ 1,978 | $ 1,945 | $ 1,951 | $ 1,903 | $ 1,933 | $ 1,956 | $ 2,011 | $ 2,237 | $ 2,545 | $ 2,563 | $ 2,500 |
| **Total Storage Costs** | **$ 23,997** | **$ 24,037** | **$ 24,781** | **$ 25,174** | **$ 25,228** | **$ 25,274** | **$ 25,325** | **$ 25,329** | **$ 25,295** | **$ 25,334** | **$ 25,302** | **$ 25,308** | **$ 25,259** | **$ 25,290** | **$ 25,313** | **$ 25,367** | **$ 25,594** | **$ 25,901** | **$ 25,920** | **$ 25,857** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,179** | **$ 7,736** | **$ 8,714** | **$ 9,974** | **$ 11,245** | **$ 12,426** | **$ 13,674** | **$ 13,627** | **$ 13,506** | **$ 13,336** | **$ 13,156** | **$ 12,989** | **$ 12,812** | **$ 2,134** | **$ 2,025** | **$ 1,991** | **$ 1,942** | **$ 1,912** | **$ 1,865** | **$ 1,835** |
| Total Levelized DSM Costs | $ 948 | $ 1,736 | $ 2,739 | $ 3,877 | $ 5,157 | $ 6,559 | $ 8,094 | $ 9,626 | $ 11,171 | $ 12,671 | $ 14,117 | $ 15,450 | $ 16,730 | $ 17,539 | $ 18,055 | $ 18,554 | $ 19,021 | $ 19,473 | $ 19,892 | $ 20,295 |
| **Grand Total System Costs** | **$ 537,406** | **$ 513,244** | **$ 528,861** | **$ 530,280** | **$ 537,396** | **$ 543,994** | **$ 544,916** | **$ 553,448** | **$ 539,873** | **$ 527,021** | **$ 521,157** | **$ 513,431** | **$ 497,264** | **$ 476,867** | **$ 481,442** | **$ 479,598** | **$ 486,042** | **$ 498,912** | **$ 513,273** | **$ 523,585** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 2 | 2 | 2 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **9** | **9** | **9** | **(40)** | **(40)** | **(40)** | **(40)** | **(40)** | **(40)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 44 | 44 | 44 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **44** | **44** | **44** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LNG Enhancement to Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 6,742,154 |

## Sensitivity 7: IRP RMix 1 - 85% Probability Weather - Negative Load Growth (-1% Decrease per Year)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 3,938 | 3,880 | 3,804 | 3,743 | 3,653 | 3,579 | 3,504 | 3,446 | 3,367 | 3,300 | 3,238 | 3,192 | 3,122 | 3,068 | 3,017 | 2,983 | 2,918 | 2,865 | 2,816 | 2,781 |
| Astoria | 1,220 | 1,197 | 1,170 | 1,147 | 1,115 | 1,088 | 1,061 | 1,039 | 1,010 | 986 | 962 | 945 | 919 | 899 | 881 | 869 | 847 | 829 | 812 | 800 |
| Dalles | 769 | 757 | 742 | 729 | 711 | 696 | 680 | 668 | 652 | 638 | 625 | 616 | 601 | 590 | 579 | 572 | 559 | 548 | 538 | 531 |
| Eugene | 4,825 | 4,754 | 4,662 | 4,590 | 4,479 | 4,388 | 4,297 | 4,227 | 4,127 | 4,044 | 3,967 | 3,910 | 3,821 | 3,753 | 3,691 | 3,649 | 3,570 | 3,507 | 3,448 | 3,408 |
| Newport LC | 946 | 929 | 908 | 891 | 867 | 846 | 825 | 808 | 786 | 766 | 748 | 734 | 714 | 698 | 685 | 674 | 657 | 644 | 630 | 621 |
| Portland | 43,505 | 42,912 | 42,121 | 41,500 | 40,528 | 39,742 | 38,944 | 38,337 | 37,474 | 36,753 | 36,080 | 35,598 | 34,829 | 34,254 | 33,714 | 33,356 | 32,651 | 32,079 | 31,548 | 31,187 |
| Salem | 9,441 | 9,300 | 9,118 | 8,976 | 8,754 | 8,575 | 8,394 | 8,257 | 8,061 | 7,899 | 7,747 | 7,639 | 7,465 | 7,334 | 7,212 | 7,131 | 6,973 | 6,846 | 6,728 | 6,649 |
| Vancouver | 7,109 | 6,996 | 6,857 | 6,745 | 6,582 | 6,448 | 6,315 | 6,212 | 6,074 | 5,956 | 5,847 | 5,764 | 5,638 | 5,545 | 5,453 | 5,390 | 5,274 | 5,179 | 5,090 | 5,028 |
| Total | 71,753 | 70,726 | 69,382 | 68,323 | 66,688 | 65,362 | 64,020 | 62,995 | 61,551 | 60,343 | 59,213 | 58,396 | 57,111 | 56,141 | 55,232 | 54,624 | 53,449 | 52,496 | 51,610 | 51,004 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 8: IRP RMix 1 - 85% Probability Weather - Negative Short Term Load Growth (First 5 Years)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 71,753 | 70,726 | 69,382 | 68,323 | 66,688 | 65,844 | 65,433 | 65,791 | 66,161 | 66,744 | 67,383 | 68,357 | 68,755 | 69,488 | 70,258 | 71,397 | 71,764 | 72,392 | 73,080 | 74,146 |
| Annual Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **71,753** | **70,726** | **69,382** | **68,323** | **66,688** | **65,844** | **65,433** | **65,791** | **66,161** | **66,744** | **67,383** | **68,357** | **68,755** | **69,488** | **70,258** | **71,397** | **71,764** | **72,392** | **73,080** | **74,146** |
| Peak Day Demand Served | 901 | 887 | 869 | 851 | 833 | 823 | 818 | 820 | 830 | 839 | 849 | 860 | 870 | 880 | 890 | 903 | 910 | 918 | 926 | 937 |
| Peak Day Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **901** | **887** | **869** | **851** | **833** | **823** | **818** | **820** | **830** | **839** | **849** | **860** | **870** | **880** | **890** | **903** | **910** | **918** | **926** | **937** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 419,425 | $ 394,560 | $ 408,468 | $ 418,269 | $ 423,684 | $ 432,372 | $ 439,724 | $ 459,761 | $ 459,137 | $ 459,329 | $ 469,333 | $ 473,632 | $ 469,651 | $ 472,306 | $ 488,421 | $ 502,184 | $ 523,047 | $ 557,292 | $ 600,787 | $ 633,985 |
| **Total Supply Costs** | **$ 419,486** | **$ 394,619** | **$ 408,527** | **$ 418,328** | **$ 423,743** | **$ 432,431** | **$ 439,784** | **$ 459,820** | **$ 459,196** | **$ 459,388** | **$ 469,393** | **$ 473,691** | **$ 469,711** | **$ 472,365** | **$ 488,480** | **$ 502,243** | **$ 523,106** | **$ 557,351** | **$ 600,847** | **$ 634,045** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,367 | $ 74,631 | $ 74,806 | $ 74,806 | $ 74,806 | $ 74,806 | $ 76,189 | $ 76,466 | $ 76,466 | $ 76,466 | $ 76,466 | $ 76,466 | $ 76,724 | $ 77,927 | $ 78,488 | $ 78,734 | $ 80,056 | $ 80,163 |
| Transportation Variable Costs | $ 2,461 | $ 2,485 | $ 2,471 | $ 2,318 | $ 2,260 | $ 2,228 | $ 2,210 | $ 2,226 | $ 2,215 | $ 2,228 | $ 2,256 | $ 2,288 | $ 2,302 | $ 2,342 | $ 2,352 | $ 2,318 | $ 2,306 | $ 2,287 | $ 2,277 | $ 2,321 |
| **Total Transportation Costs** | **$ 86,745** | **$ 86,852** | **$ 86,838** | **$ 76,949** | **$ 77,066** | **$ 77,034** | **$ 77,016** | **$ 77,032** | **$ 78,404** | **$ 78,694** | **$ 78,722** | **$ 78,755** | **$ 78,768** | **$ 78,808** | **$ 79,076** | **$ 80,246** | **$ 80,794** | **$ 81,021** | **$ 82,332** | **$ 82,484** |
| Storage Fixed Costs | $ 22,550 | $ 22,550 | $ 22,956 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,357 | $ 23,436 | $ 23,576 | $ 23,778 | $ 23,879 | $ 23,879 | $ 24,293 |
| Storage Variable Costs | $ 1,447 | $ 1,486 | $ 1,825 | $ 1,817 | $ 1,863 | $ 1,893 | $ 1,953 | $ 1,989 | $ 1,933 | $ 1,997 | $ 1,971 | $ 2,009 | $ 1,983 | $ 2,247 | $ 2,089 | $ 2,119 | $ 2,292 | $ 2,416 | $ 2,659 | $ 2,699 |
| **Total Storage Costs** | **$ 23,997** | **$ 24,037** | **$ 24,781** | **$ 25,174** | **$ 25,220** | **$ 25,249** | **$ 25,310** | **$ 25,346** | **$ 25,289** | **$ 25,353** | **$ 25,328** | **$ 25,366** | **$ 25,339** | **$ 25,604** | **$ 25,525** | **$ 25,695** | **$ 26,069** | **$ 26,294** | **$ 26,538** | **$ 26,991** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,179** | **$ 7,736** | **$ 8,714** | **$ 9,974** | **$ 11,245** | **$ 12,519** | **$ 13,996** | **$ 14,287** | **$ 14,576** | **$ 14,764** | **$ 14,899** | **$ 15,020** | **$ 15,108** | **$ 3,856** | **$ 3,865** | **$ 3,949** | **$ 4,006** | **$ 4,080** | **$ 4,113** | **$ 4,165** |
| Total Levelized DSM Costs | $ 948 | $ 1,736 | $ 2,739 | $ 3,877 | $ 5,157 | $ 6,640 | $ 8,402 | $ 10,341 | $ 12,505 | $ 14,695 | $ 16,890 | $ 19,021 | $ 21,145 | $ 22,796 | $ 24,161 | $ 25,535 | $ 26,899 | $ 28,272 | $ 29,629 | $ 30,987 |
| **Grand Total System Costs** | **$ 537,406** | **$ 513,244** | **$ 528,861** | **$ 530,425** | **$ 537,274** | **$ 547,233** | **$ 556,106** | **$ 576,484** | **$ 577,465** | **$ 578,200** | **$ 588,341** | **$ 592,832** | **$ 588,925** | **$ 580,633** | **$ 596,946** | **$ 612,134** | **$ 633,976** | **$ 668,746** | **$ 713,830** | **$ 747,685** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 2 | 2 | 2 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 2 |
| 3 Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 7 | 12 | 12 | 21 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 8 | 16 | 19 | 21 | 29 | 30 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **9** | **9** | **9** | **(40)** | **(40)** | **(40)** | **(40)** | **(40)** | **(40)** | **(28)** | **(28)** | **(28)** | **(28)** | **(28)** | **(26)** | **(15)** | **(8)** | **(0)** | **9** | **20** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 44 | 44 | 44 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 7 |
| Satellite LNG - Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10 | 21 | 36 | 36 | 63 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **44** | **44** | **44** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **546** | **556** | **567** | **585** | **585** | **616** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LNG Enhancement to Salem | - | - | - | - | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 7,442,189 |

## Sensitivity 8: IRP RMix 1 - 85% Probability Weather - Negative Short Term Load Growth (First 5 Years)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 3,938 | 3,880 | 3,804 | 3,743 | 3,653 | 3,606 | 3,583 | 3,602 | 3,625 | 3,658 | 3,694 | 3,748 | 3,772 | 3,813 | 3,856 | 3,917 | 3,938 | 3,972 | 4,010 | 4,067 |
| Astoria | 1,220 | 1,197 | 1,170 | 1,147 | 1,115 | 1,096 | 1,085 | 1,087 | 1,089 | 1,094 | 1,101 | 1,113 | 1,115 | 1,123 | 1,132 | 1,147 | 1,150 | 1,157 | 1,165 | 1,179 |
| Dalles | 769 | 757 | 742 | 729 | 711 | 702 | 699 | 705 | 714 | 725 | 736 | 750 | 759 | 770 | 782 | 798 | 805 | 815 | 826 | 841 |
| Eugene | 4,825 | 4,754 | 4,662 | 4,590 | 4,479 | 4,423 | 4,403 | 4,441 | 4,482 | 4,537 | 4,595 | 4,675 | 4,714 | 4,773 | 4,838 | 4,927 | 4,962 | 5,016 | 5,073 | 5,156 |
| Newport LC | 946 | 929 | 908 | 891 | 867 | 853 | 846 | 851 | 858 | 867 | 877 | 891 | 897 | 908 | 919 | 936 | 943 | 953 | 963 | 978 |
| Portland | 43,505 | 42,912 | 42,121 | 41,500 | 40,528 | 40,008 | 39,710 | 39,840 | 39,941 | 40,175 | 40,447 | 40,926 | 41,064 | 41,410 | 41,780 | 42,373 | 42,510 | 42,805 | 43,138 | 43,699 |
| Salem | 9,441 | 9,300 | 9,118 | 8,976 | 8,754 | 8,639 | 8,585 | 8,639 | 8,693 | 8,777 | 8,868 | 9,007 | 9,064 | 9,166 | 9,273 | 9,431 | 9,482 | 9,570 | 9,667 | 9,815 |
| Vancouver | 7,109 | 6,996 | 6,857 | 6,745 | 6,582 | 6,519 | 6,522 | 6,626 | 6,760 | 6,911 | 7,064 | 7,247 | 7,370 | 7,526 | 7,679 | 7,868 | 7,974 | 8,103 | 8,238 | 8,411 |
| Total | 71,753 | 70,726 | 69,382 | 68,323 | 66,688 | 65,844 | 65,433 | 65,791 | 66,161 | 66,744 | 67,383 | 68,357 | 68,755 | 69,488 | 70,258 | 71,397 | 71,764 | 72,392 | 73,080 | 74,146 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 9: IRP RMix1 - 85% Probability Weather - Negative Long Term Load Growth (Last 12 Years)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 77,551 | 77,178 | 76,574 | 74,836 | 73,390 | 72,042 | 71,075 | 69,537 | 68,373 | 67,271 | 66,538 | 65,112 | 63,958 | 62,884 | 62,153 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **77,551** | **77,178** | **76,574** | **74,836** | **73,390** | **72,042** | **71,075** | **69,537** | **68,373** | **67,271** | **66,538** | **65,112** | **63,958** | **62,884** | **62,153** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 976 | 972 | 962 | 944 | 926 | 910 | 896 | 880 | 865 | 851 | 839 | 822 | 807 | 793 | 781 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **976** | **972** | **962** | **944** | **926** | **910** | **896** | **880** | **865** | **851** | **839** | **822** | **807** | **793** | **781** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,600 | $ 447,849 | $ 473,552 | $ 494,143 | $ 511,031 | $ 523,079 | $ 540,244 | $ 522,798 | $ 507,225 | $ 501,572 | $ 491,809 | $ 471,433 | $ 457,918 | $ 463,622 | $ 461,200 | $ 467,444 | $ 485,072 | $ 507,545 | $ 517,792 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,659** | **$ 447,908** | **$ 473,611** | **$ 494,203** | **$ 511,091** | **$ 523,139** | **$ 540,303** | **$ 522,857** | **$ 507,284** | **$ 501,631** | **$ 491,869** | **$ 471,492** | **$ 457,977** | **$ 463,682** | **$ 461,259** | **$ 467,503** | **$ 485,132** | **$ 507,604** | **$ 517,851** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,370 | $ 80,483 | $ 80,653 | $ 80,656 | $ 80,656 | $ 80,656 | $ 82,039 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 | $ 82,316 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,701 | $ 2,181 | $ 2,212 | $ 2,237 | $ 2,195 | $ 2,181 | $ 2,158 | $ 2,118 | $ 2,085 | $ 2,065 | $ 2,006 | $ 1,959 | $ 1,923 | $ 1,892 | $ 1,844 | $ 1,823 | $ 1,777 | $ 1,749 |
| **Total Transportation Costs** | **$ 86,848** | **$ 87,023** | **$ 87,071** | **$ 82,665** | **$ 82,864** | **$ 82,893** | **$ 82,851** | **$ 82,837** | **$ 84,197** | **$ 84,434** | **$ 84,401** | **$ 84,381** | **$ 84,323** | **$ 84,275** | **$ 84,239** | **$ 84,208** | **$ 84,160** | **$ 84,140** | **$ 84,093** | **$ 84,065** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,124 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 | $ 25,906 |
| Storage Variable Costs | $ 1,484 | $ 1,564 | $ 1,803 | $ 2,201 | $ 2,404 | $ 2,219 | $ 2,303 | $ 2,363 | $ 2,186 | $ 2,172 | $ 2,135 | $ 2,160 | $ 2,084 | $ 2,100 | $ 2,101 | $ 2,114 | $ 2,308 | $ 2,343 | $ 2,638 | $ 2,630 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,739** | **$ 26,926** | **$ 28,107** | **$ 28,310** | **$ 28,125** | **$ 28,209** | **$ 28,269** | **$ 28,092** | **$ 28,078** | **$ 28,041** | **$ 28,066** | **$ 27,990** | **$ 28,006** | **$ 28,007** | **$ 28,020** | **$ 28,214** | **$ 28,249** | **$ 28,544** | **$ 28,536** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,570** | **$ 17,100** | **$ 17,041** | **$ 16,683** | **$ 16,309** | **$ 15,939** | **$ 15,613** | **$ 15,297** | **$ 3,785** | **$ 3,574** | **$ 3,458** | **$ 3,335** | **$ 3,242** | **$ 3,127** | **$ 3,040** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,274 | $ 11,371 | $ 13,328 | $ 15,151 | $ 16,900 | $ 18,564 | $ 20,087 | $ 21,535 | $ 22,459 | $ 23,061 | $ 23,639 | $ 24,178 | $ 24,697 | $ 25,174 | $ 25,629 |
| **Grand Total System Costs** | **$ 555,467** | **$ 542,442** | **$ 572,347** | **$ 596,557** | **$ 619,360** | **$ 637,679** | **$ 651,298** | **$ 668,450** | **$ 651,830** | **$ 636,105** | **$ 630,011** | **$ 619,929** | **$ 599,102** | **$ 574,044** | **$ 579,502** | **$ 576,945** | **$ 583,213** | **$ 600,762** | **$ 623,368** | **$ 633,493** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **68** | **68** | **68** | **68** | **80** | **80** | **80** | **80** | **80** | **80** | **80** | **80** | **80** | **80** | **80** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 | 2,119 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** | **2,120** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Newport LNG Enhancement to Salem | - | - | - | - | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Main | - | - | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

| **NPV @ 5.16% Discount Rate** | |
|---|---|
| | 5.16% |
| $ | 7,828,925 |

## Sensitivity 9: IRP RMix1 - 85% Probability Weather - Negative Long Term Load Growth (Last 12 Years)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,246 | 4,224 | 4,187 | 4,092 | 4,011 | 3,937 | 3,882 | 3,799 | 3,734 | 3,673 | 3,631 | 3,553 | 3,488 | 3,429 | 3,387 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,295 | 1,283 | 1,267 | 1,232 | 1,203 | 1,175 | 1,155 | 1,124 | 1,100 | 1,078 | 1,063 | 1,036 | 1,015 | 994 | 980 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 857 | 854 | 846 | 826 | 809 | 793 | 782 | 764 | 750 | 737 | 728 | 712 | 699 | 686 | 678 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,334 | 5,311 | 5,267 | 5,143 | 5,041 | 4,945 | 4,875 | 4,766 | 4,681 | 4,604 | 4,553 | 4,454 | 4,375 | 4,301 | 4,251 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,039 | 1,032 | 1,020 | 993 | 970 | 948 | 931 | 907 | 888 | 871 | 859 | 838 | 821 | 805 | 793 |
| Portland | 44,474 | 44,995 | 45,343 | 45,886 | 46,038 | 46,087 | 45,810 | 45,443 | 44,434 | 43,596 | 42,815 | 42,262 | 41,368 | 40,698 | 40,063 | 39,647 | 38,816 | 38,145 | 37,521 | 37,100 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,238 | 10,185 | 10,101 | 9,863 | 9,668 | 9,487 | 9,360 | 9,152 | 8,995 | 8,847 | 8,750 | 8,557 | 8,403 | 8,260 | 8,165 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,454 | 8,479 | 8,443 | 8,254 | 8,092 | 7,942 | 7,829 | 7,658 | 7,527 | 7,398 | 7,308 | 7,146 | 7,012 | 6,887 | 6,799 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 77,551 | 77,178 | 76,574 | 74,836 | 73,390 | 72,042 | 71,075 | 69,537 | 68,373 | 67,271 | 66,538 | 65,112 | 63,958 | 62,884 | 62,153 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | 0.3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 10: IRP RMix 1 - 85% Probability Weather - Limited Canadian Supply 1 (3% increase in AECO)

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 512,635 | $ 533,248 | $ 563,256 | $ 583,775 | $ 589,142 | $ 596,735 | $ 600,907 | $ 616,273 | $ 638,076 | $ 635,431 | $ 609,517 | $ 648,378 | $ 681,337 | $ 699,952 | $ 731,581 | $ 759,916 | $ 778,928 | $ 819,890 | $ 851,868 | $ 876,234 |
| **Total Supply Costs** | **$ 512,696** | **$ 533,307** | **$ 563,315** | **$ 583,835** | **$ 589,202** | **$ 596,794** | **$ 600,966** | **$ 616,332** | **$ 638,135** | **$ 635,490** | **$ 609,576** | **$ 648,438** | **$ 681,396** | **$ 700,011** | **$ 731,640** | **$ 759,976** | **$ 778,987** | **$ 819,949** | **$ 851,927** | **$ 876,293** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,436 | $ 79,827 | $ 80,174 | $ 81,047 | $ 81,872 | $ 81,880 | $ 83,268 | $ 83,546 | $ 84,077 | $ 84,656 | $ 85,178 | $ 85,610 | $ 86,572 | $ 87,527 | $ 88,174 | $ 89,138 | $ 90,854 | $ 92,228 |
| Transportation Variable Costs | $ 2,532 | $ 2,615 | $ 2,649 | $ 2,219 | $ 2,225 | $ 2,224 | $ 2,178 | $ 2,235 | $ 2,259 | $ 2,289 | $ 2,302 | $ 2,308 | $ 2,305 | $ 2,318 | $ 2,327 | $ 2,347 | $ 2,354 | $ 2,358 | $ 2,376 | $ 2,408 |
| **Total Transportation Costs** | **$ 86,816** | **$ 86,983** | **$ 87,085** | **$ 82,046** | **$ 82,399** | **$ 83,271** | **$ 84,050** | **$ 84,115** | **$ 85,527** | **$ 85,834** | **$ 86,379** | **$ 86,964** | **$ 87,484** | **$ 87,928** | **$ 88,899** | **$ 89,874** | **$ 90,528** | **$ 91,496** | **$ 93,230** | **$ 94,636** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,210 | $ 26,077 | $ 26,077 | $ 26,077 | $ 26,472 | $ 26,795 | $ 26,848 | $ 27,071 | $ 27,456 | $ 27,884 | $ 28,379 | $ 28,673 | $ 28,895 | $ 29,210 | $ 29,579 | $ 29,743 | $ 29,743 | $ 30,125 |
| Storage Variable Costs | $ 1,617 | $ 1,886 | $ 2,262 | $ 2,780 | $ 2,774 | $ 2,677 | $ 2,909 | $ 2,751 | $ 2,925 | $ 2,956 | $ 2,897 | $ 2,975 | $ 3,179 | $ 3,280 | $ 3,373 | $ 3,422 | $ 3,485 | $ 3,586 | $ 3,645 | $ 3,484 |
| **Total Storage Costs** | **$ 25,115** | **$ 26,061** | **$ 27,472** | **$ 28,858** | **$ 28,852** | **$ 28,755** | **$ 29,381** | **$ 29,546** | **$ 29,773** | **$ 30,028** | **$ 30,354** | **$ 30,859** | **$ 31,558** | **$ 31,953** | **$ 32,267** | **$ 32,632** | **$ 33,064** | **$ 33,329** | **$ 33,388** | **$ 33,608** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 632,620** | **$ 655,372** | **$ 688,313** | **$ 706,913** | **$ 714,436** | **$ 724,549** | **$ 731,978** | **$ 747,971** | **$ 771,540** | **$ 769,511** | **$ 744,474** | **$ 784,446** | **$ 818,625** | **$ 825,914** | **$ 858,759** | **$ 888,461** | **$ 908,563** | **$ 950,793** | **$ 984,546** | **$ 1,010,550** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 98 | 98 | 98 | 98 | 117 | 119 | 119 | 127 | 137 | 148 | 162 | 162 | 162 | 162 | 162 | 162 | 162 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 2 | 3 | 4 | 5 | 6 | 9 | 9 | 13 | 21 | 21 | 23 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 7 | 11 | 13 | 13 | 21 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 39 | 41 | 46 | 52 | 52 | 52 | 52 | 55 | 59 | 62 | 65 | 71 | 77 | 81 | 84 | 90 | 95 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **69** | **75** | **80** | **99** | **101** | **114** | **127** | **142** | **157** | **175** | **184** | **197** | **209** | **222** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,226 | 2,226 | 2,226 | 2,226 | 2,645 | 2,680 | 2,681 | 2,877 | 3,103 | 3,354 | 3,661 | 3,665 | 3,665 | 3,665 | 3,665 | 3,665 | 3,665 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 26 | 27 | 40 | 63 | 63 | 70 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 21 | 33 | 40 | 40 | 62 |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,227** | **2,227** | **2,227** | **2,227** | **2,646** | **2,682** | **2,686** | **2,885** | **3,114** | **3,369** | **3,679** | **3,691** | **3,713** | **3,738** | **3,767** | **3,767** | **3,796** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 3 | 5.0 | 6 | 6 |
| WVF Main | - | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

| **NPV @ 5.16% Discount Rate** |
|---|
| 5.16% |
| $ 9,923,521 |

## Sensitivity 10: IRP RMix 1 - 85% Probability Weather - Limited Canadian Supply 1 (3% increase in AECO)

| **Served Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| **Unserved Demand Net DSM by Area/Class (MDth)** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 12: IRP RMix 1 - 85% Probability Weather - Limited North American Supply

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,619 | 74,754 | 75,600 | 76,766 | 77,265 | 78,076 | 78,825 | 79,928 | 80,459 | 81,252 | 82,116 | 83,389 | 83,957 | 84,925 | 85,912 | 87,372 | 87,884 | 88,715 | 89,620 | 90,991 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,635** | **74,754** | **75,600** | **76,766** | **77,265** | **78,076** | **78,825** | **79,928** | **80,459** | **81,252** | **82,116** | **83,389** | **83,957** | **84,925** | **85,912** | **87,372** | **87,884** | **88,715** | **89,620** | **90,991** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 972 | 984 | 995 | 1,006 | 1,019 | 1,031 | 1,044 | 1,059 | 1,072 | 1,085 | 1,098 | 1,114 | 1,124 | 1,134 | 1,145 | 1,159 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **972** | **984** | **995** | **1,006** | **1,019** | **1,031** | **1,044** | **1,059** | **1,072** | **1,085** | **1,098** | **1,114** | **1,124** | **1,134** | **1,145** | **1,159** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 613,184 | $ 626,733 | $ 661,568 | $ 692,391 | $ 698,931 | $ 706,227 | $ 709,219 | $ 728,389 | $ 754,503 | $ 754,800 | $ 722,100 | $ 766,148 | $ 804,723 | $ 828,822 | $ 864,880 | $ 898,224 | $ 920,663 | $ 968,866 | $ 1,006,455 | $ 1,035,346 |
| **Total Supply Costs** | **$ 613,245** | **$ 626,793** | **$ 661,627** | **$ 692,451** | **$ 698,991** | **$ 706,286** | **$ 709,278** | **$ 728,448** | **$ 754,563** | **$ 754,859** | **$ 722,159** | **$ 766,207** | **$ 804,782** | **$ 828,881** | **$ 864,940** | **$ 898,283** | **$ 920,722** | **$ 968,925** | **$ 1,006,515** | **$ 1,035,405** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,431 | $ 80,387 | $ 80,550 | $ 81,198 | $ 82,017 | $ 82,359 | $ 83,747 | $ 84,025 | $ 84,118 | $ 84,604 | $ 85,292 | $ 85,949 | $ 86,678 | $ 87,535 | $ 88,176 | $ 89,137 | $ 90,849 | $ 92,218 |
| Transportation Variable Costs | $ 2,567 | $ 2,656 | $ 2,701 | $ 2,196 | $ 2,224 | $ 2,235 | $ 2,180 | $ 2,205 | $ 2,246 | $ 2,283 | $ 2,303 | $ 2,322 | $ 2,311 | $ 2,317 | $ 2,335 | $ 2,362 | $ 2,365 | $ 2,372 | $ 2,390 | $ 2,424 |
| **Total Transportation Costs** | **$ 86,850** | **$ 87,023** | **$ 87,132** | **$ 82,583** | **$ 82,774** | **$ 83,433** | **$ 84,198** | **$ 84,564** | **$ 85,993** | **$ 86,308** | **$ 86,421** | **$ 86,925** | **$ 87,603** | **$ 88,266** | **$ 89,014** | **$ 89,897** | **$ 90,541** | **$ 91,509** | **$ 93,239** | **$ 94,642** |
| Storage Fixed Costs | $ 23,497 | $ 24,173 | $ 25,139 | $ 25,939 | $ 25,939 | $ 25,939 | $ 26,175 | $ 26,377 | $ 26,595 | $ 26,998 | $ 27,437 | $ 27,792 | $ 28,122 | $ 28,450 | $ 28,821 | $ 29,189 | $ 29,560 | $ 29,725 | $ 29,725 | $ 30,110 |
| Storage Variable Costs | $ 1,942 | $ 2,247 | $ 2,567 | $ 3,194 | $ 3,307 | $ 3,238 | $ 3,406 | $ 3,372 | $ 3,239 | $ 3,408 | $ 3,401 | $ 3,473 | $ 3,682 | $ 3,813 | $ 3,922 | $ 3,982 | $ 4,061 | $ 4,168 | $ 4,243 | $ 4,055 |
| **Total Storage Costs** | **$ 25,440** | **$ 26,419** | **$ 27,705** | **$ 29,133** | **$ 29,246** | **$ 29,177** | **$ 29,581** | **$ 29,749** | **$ 29,834** | **$ 30,406** | **$ 30,838** | **$ 31,265** | **$ 31,805** | **$ 32,263** | **$ 32,743** | **$ 33,171** | **$ 33,621** | **$ 33,893** | **$ 33,967** | **$ 34,165** |
| **DSM Annual Utility Costs ($2007)** | **$ 9,177** | **$ 10,373** | **$ 12,018** | **$ 14,028** | **$ 16,115** | **$ 18,130** | **$ 20,269** | **$ 20,673** | **$ 20,808** | **$ 20,893** | **$ 20,908** | **$ 20,939** | **$ 20,952** | **$ 9,942** | **$ 6,224** | **$ 6,264** | **$ 6,288** | **$ 6,343** | **$ 6,320** | **$ 6,326** |
| Total Levelized DSM Costs | $ 1,159 | $ 2,296 | $ 3,781 | $ 5,510 | $ 7,504 | $ 9,744 | $ 12,251 | $ 14,856 | $ 17,542 | $ 20,241 | $ 22,932 | $ 25,541 | $ 28,137 | $ 30,180 | $ 31,933 | $ 33,609 | $ 35,275 | $ 36,953 | $ 38,607 | $ 40,262 |
| **Grand Total System Costs** | **$ 734,712** | **$ 750,608** | **$ 788,482** | **$ 818,195** | **$ 827,126** | **$ 837,026** | **$ 843,326** | **$ 863,435** | **$ 891,198** | **$ 892,466** | **$ 860,326** | **$ 905,336** | **$ 945,142** | **$ 959,353** | **$ 992,920** | **$ 1,027,615** | **$ 1,051,172** | **$ 1,100,670** | **$ 1,140,041** | **$ 1,170,537** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 95 | 95 | 95 | 95 | 106 | 107 | 115 | 126 | 137 | 144 | 153 | 157 | 157 | 157 | 157 | 157 | 157 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 10 | 18 | 18 | 18 | 27 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 2 | 3 | 4 | 5 | 6 | 9 | 9 | 10 | 17 | 17 | 17 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 4 |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 43 | 43 | 47 | 53 | 55 | 55 | 55 | 55 | 58 | 63 | 67 | 72 | 77 | 81 | 84 | 90 | 95 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **72** | **78** | **91** | **92** | **113** | **126** | **141** | **154** | **168** | **181** | **197** | **209** | **222** | **228** | **242** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 918 | 1,137 | 2,140 | 2,140 | 2,140 | 2,140 | 2,390 | 2,418 | 2,598 | 2,858 | 3,097 | 3,262 | 3,453 | 3,560 | 3,560 | 3,560 | 3,560 | 3,560 | 3,560 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 31 | 55 | 55 | 55 | 80 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 28 | 28 | 30 | 52 | 52 | 52 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 | 8 | 12 |
| **Total Incremental Storage Capacity** | **230** | **918** | **1,139** | **2,141** | **2,141** | **2,141** | **2,141** | **2,391** | **2,420** | **2,604** | **2,866** | **3,108** | **3,276** | **3,471** | **3,588** | **3,619** | **3,644** | **3,674** | **3,674** | **3,703** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 4 | 4.8 | 6 | 7 |
| WVF Main | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 11,465,478 |

## Sensitivity 12: IRP RMix 1 - 85% Probability Weather - Limited North American Supply

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,204 | 4,232 | 4,277 | 4,318 | 4,376 | 4,406 | 4,449 | 4,496 | 4,565 | 4,596 | 4,648 | 4,701 | 4,778 | 4,805 | 4,848 | 4,896 | 4,967 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,295 | 1,304 | 1,311 | 1,324 | 1,327 | 1,334 | 1,343 | 1,358 | 1,361 | 1,371 | 1,382 | 1,401 | 1,405 | 1,414 | 1,424 | 1,442 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 877 | 894 | 903 | 916 | 929 | 946 | 956 | 969 | 983 | 1,002 | 1,011 | 1,023 | 1,035 | 1,053 |
| Eugene | 4,975 | 5,076 | 5,156 | 5,255 | 5,305 | 5,375 | 5,441 | 5,529 | 5,575 | 5,639 | 5,706 | 5,801 | 5,845 | 5,914 | 5,987 | 6,094 | 6,134 | 6,196 | 6,263 | 6,362 |
| Newport LC | 976 | 994 | 1,008 | 1,026 | 1,035 | 1,048 | 1,060 | 1,076 | 1,084 | 1,095 | 1,107 | 1,125 | 1,133 | 1,145 | 1,159 | 1,179 | 1,187 | 1,200 | 1,212 | 1,231 |
| Portland | 44,472 | 44,993 | 45,339 | 45,879 | 46,028 | 46,363 | 46,667 | 47,184 | 47,368 | 47,713 | 48,103 | 48,740 | 48,970 | 49,440 | 49,925 | 50,690 | 50,909 | 51,315 | 51,769 | 52,494 |
| Salem | 9,699 | 9,856 | 9,974 | 10,136 | 10,202 | 10,313 | 10,415 | 10,566 | 10,635 | 10,742 | 10,858 | 11,032 | 11,107 | 11,235 | 11,366 | 11,563 | 11,628 | 11,739 | 11,860 | 12,045 |
| Vancouver | 7,420 | 7,661 | 7,880 | 8,130 | 8,315 | 8,531 | 8,737 | 8,979 | 9,161 | 9,364 | 9,573 | 9,822 | 9,989 | 10,201 | 10,407 | 10,664 | 10,806 | 10,980 | 11,162 | 11,398 |
| Total | 73,619 | 74,754 | 75,600 | 76,766 | 77,265 | 78,076 | 78,825 | 79,928 | 80,459 | 81,252 | 82,116 | 83,389 | 83,957 | 84,925 | 85,912 | 87,372 | 87,884 | 88,715 | 89,620 | 90,991 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 13: IRP RMix 1 - 85% Probability Weather - Unconstrained Mist Recall

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 926 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 433,321 | $ 420,601 | $ 449,380 | $ 473,988 | $ 492,847 | $ 516,556 | $ 538,666 | $ 564,841 | $ 567,990 | $ 571,511 | $ 580,821 | $ 587,075 | $ 583,283 | $ 579,229 | $ 604,215 | $ 619,328 | $ 644,305 | $ 692,176 | $ 743,054 | $ 787,648 |
| **Total Supply Costs** | **$ 433,382** | **$ 420,661** | **$ 449,439** | **$ 474,047** | **$ 492,906** | **$ 516,616** | **$ 538,725** | **$ 564,900** | **$ 568,049** | **$ 571,570** | **$ 580,880** | **$ 587,134** | **$ 583,342** | **$ 579,288** | **$ 604,275** | **$ 619,388** | **$ 644,364** | **$ 692,236** | **$ 743,113** | **$ 787,708** |
| Transportation Fixed Costs | $ 84,284 | $ 84,367 | $ 84,432 | $ 80,046 | $ 80,238 | $ 81,111 | $ 81,936 | $ 81,945 | $ 83,332 | $ 83,610 | $ 83,820 | $ 84,661 | $ 85,317 | $ 85,347 | $ 86,387 | $ 87,424 | $ 88,174 | $ 88,954 | $ 90,670 | $ 92,044 |
| Transportation Variable Costs | $ 2,549 | $ 2,656 | $ 2,710 | $ 2,225 | $ 2,245 | $ 2,239 | $ 2,197 | $ 2,221 | $ 2,277 | $ 2,306 | $ 2,317 | $ 2,332 | $ 2,323 | $ 2,340 | $ 2,340 | $ 2,351 | $ 2,349 | $ 2,357 | $ 2,375 | $ 2,404 |
| **Total Transportation Costs** | **$ 86,833** | **$ 87,023** | **$ 87,142** | **$ 82,271** | **$ 82,483** | **$ 83,350** | **$ 84,133** | **$ 84,166** | **$ 85,610** | **$ 85,916** | **$ 86,138** | **$ 86,993** | **$ 87,640** | **$ 87,687** | **$ 88,727** | **$ 89,775** | **$ 90,523** | **$ 91,312** | **$ 93,044** | **$ 94,448** |
| Storage Fixed Costs | $ 23,741 | $ 24,175 | $ 25,322 | $ 26,024 | $ 26,024 | $ 26,024 | $ 26,420 | $ 26,743 | $ 26,817 | $ 27,186 | $ 27,541 | $ 27,820 | $ 28,460 | $ 28,843 | $ 28,965 | $ 29,150 | $ 29,533 | $ 29,749 | $ 29,749 | $ 30,131 |
| Storage Variable Costs | $ 1,503 | $ 1,560 | $ 1,940 | $ 2,356 | $ 2,409 | $ 2,426 | $ 2,636 | $ 2,693 | $ 2,551 | $ 2,655 | $ 2,643 | $ 2,663 | $ 2,704 | $ 2,766 | $ 2,798 | $ 2,850 | $ 2,951 | $ 3,098 | $ 3,232 | $ 3,189 |
| **Total Storage Costs** | **$ 25,244** | **$ 25,735** | **$ 27,263** | **$ 28,380** | **$ 28,434** | **$ 28,450** | **$ 29,055** | **$ 29,435** | **$ 29,368** | **$ 29,841** | **$ 30,184** | **$ 30,482** | **$ 31,164** | **$ 31,609** | **$ 31,762** | **$ 32,000** | **$ 32,483** | **$ 32,847** | **$ 32,981** | **$ 33,320** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 553,452** | **$ 542,440** | **$ 574,285** | **$ 596,873** | **$ 617,805** | **$ 644,145** | **$ 669,494** | **$ 696,479** | **$ 701,131** | **$ 705,487** | **$ 715,367** | **$ 722,795** | **$ 720,334** | **$ 704,607** | **$ 730,715** | **$ 747,142** | **$ 773,354** | **$ 822,414** | **$ 875,139** | **$ 921,488** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 26 | 41 | 50 | 97 | 97 | 97 | 97 | 116 | 117 | 118 | 133 | 137 | 145 | 168 | 168 | 168 | 168 | 168 | 168 | 168 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 4 | 9 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.9 | 2 | 3 | 4 | 5 | 6 | 7 | 11 | 16 | 25 | 25 | 30 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 47 | 52 | 52 | 52 | 52 | 53 | 59 | 63 | 63 | 69 | 76 | 81 | 84 | 89 | 94 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **33** | **48** | **58** | **68** | **68** | **74** | **79** | **98** | **100** | **114** | **131** | **142** | **155** | **179** | **186** | **197** | **207** | **222** | **228** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 594 | 919 | 1,139 | 2,193 | 2,193 | 2,193 | 2,193 | 2,612 | 2,647 | 2,670 | 3,006 | 3,101 | 3,287 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 | 3,794 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 11 | 11 | 26 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 21 | 34 | 49 | 76 | 76 | 90 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **594** | **919** | **1,140** | **2,194** | **2,194** | **2,194** | **2,194** | **2,613** | **2,650** | **2,676** | **3,014** | **3,113** | **3,301** | **3,811** | **3,815** | **3,828** | **3,843** | **3,881** | **3,881** | **3,910** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | 5.3 | 6 | 7 |
| WVF Main | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,734,386 |

## Sensitivity 13: IRP RMix 1 - 85% Probability Weather - Unconstrained Mist Recall

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,035 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,979 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,479 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,703 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,423 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,640 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Sensitivity 14: IRP RMix 1 - 85% Probability Weather - GTN Decontracting

| (BBtu / Thousand $2007 dollars) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual Demand Served | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |
| Annual Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Annual Demand (net of DSM)** | **73,640** | **74,760** | **75,612** | **76,784** | **77,291** | **78,111** | **78,869** | **79,982** | **80,523** | **81,327** | **82,201** | **83,485** | **84,064** | **85,040** | **86,048** | **87,510** | **88,023** | **88,856** | **89,762** | **91,135** |
| Peak Day Demand Served | 909 | 940 | 951 | 961 | 973 | 984 | 995 | 1,007 | 1,019 | 1,031 | 1,045 | 1,059 | 1,072 | 1,086 | 1,099 | 1,115 | 1,125 | 1,135 | 1,146 | 1,160 |
| Peak Day Demand Unserved | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Peak Day Demand (net of DSM)** | **926** | **940** | **951** | **961** | **973** | **984** | **995** | **1,007** | **1,019** | **1,031** | **1,045** | **1,059** | **1,072** | **1,086** | **1,099** | **1,115** | **1,125** | **1,135** | **1,146** | **1,160** |
| Supply Fixed Costs | $ 61 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 | $ 59 |
| Supply Variable Costs | $ 435,583 | $ 420,602 | $ 449,394 | $ 473,975 | $ 492,847 | $ 516,556 | $ 538,664 | $ 564,843 | $ 567,993 | $ 571,508 | $ 580,814 | $ 587,240 | $ 583,263 | $ 579,227 | $ 604,203 | $ 619,325 | $ 644,319 | $ 692,209 | $ 743,010 | $ 787,625 |
| **Total Supply Costs** | **$ 435,644** | **$ 420,661** | **$ 449,453** | **$ 474,034** | **$ 492,906** | **$ 516,616** | **$ 538,723** | **$ 564,902** | **$ 568,053** | **$ 571,567** | **$ 580,873** | **$ 587,299** | **$ 583,322** | **$ 579,286** | **$ 604,263** | **$ 619,384** | **$ 644,379** | **$ 692,268** | **$ 743,069** | **$ 787,684** |
| Transportation Fixed Costs | $ 86,291 | $ 86,374 | $ 86,438 | $ 82,049 | $ 82,243 | $ 83,116 | $ 83,942 | $ 83,950 | $ 85,338 | $ 85,615 | $ 85,826 | $ 86,669 | $ 87,278 | $ 87,310 | $ 88,366 | $ 89,417 | $ 90,154 | $ 90,815 | $ 92,654 | $ 94,297 |
| Transportation Variable Costs | $ 2,564 | $ 2,656 | $ 2,710 | $ 2,225 | $ 2,245 | $ 2,239 | $ 2,197 | $ 2,221 | $ 2,277 | $ 2,306 | $ 2,317 | $ 2,332 | $ 2,325 | $ 2,340 | $ 2,339 | $ 2,351 | $ 2,353 | $ 2,364 | $ 2,376 | $ 2,402 |
| **Total Transportation Costs** | **$ 88,855** | **$ 89,030** | **$ 89,148** | **$ 84,274** | **$ 84,488** | **$ 85,355** | **$ 86,139** | **$ 86,171** | **$ 87,615** | **$ 87,922** | **$ 88,143** | **$ 89,001** | **$ 89,603** | **$ 89,651** | **$ 90,705** | **$ 91,768** | **$ 92,508** | **$ 93,179** | **$ 95,030** | **$ 96,699** |
| Storage Fixed Costs | $ 23,498 | $ 24,175 | $ 25,184 | $ 26,025 | $ 26,025 | $ 26,025 | $ 26,421 | $ 26,744 | $ 26,817 | $ 27,187 | $ 27,541 | $ 27,841 | $ 28,496 | $ 28,871 | $ 28,978 | $ 29,156 | $ 29,599 | $ 29,859 | $ 29,859 | $ 30,132 |
| Storage Variable Costs | $ 1,484 | $ 1,561 | $ 1,943 | $ 2,354 | $ 2,408 | $ 2,425 | $ 2,635 | $ 2,691 | $ 2,550 | $ 2,652 | $ 2,640 | $ 2,665 | $ 2,708 | $ 2,769 | $ 2,801 | $ 2,851 | $ 2,952 | $ 3,105 | $ 3,236 | $ 3,191 |
| **Total Storage Costs** | **$ 24,982** | **$ 25,736** | **$ 27,127** | **$ 28,379** | **$ 28,433** | **$ 28,451** | **$ 29,056** | **$ 29,434** | **$ 29,367** | **$ 29,839** | **$ 30,181** | **$ 30,506** | **$ 31,204** | **$ 31,640** | **$ 31,778** | **$ 32,007** | **$ 32,552** | **$ 32,964** | **$ 33,095** | **$ 33,323** |
| **DSM Annual Utility Costs ($2007)** | **$ 7,993** | **$ 9,021** | **$ 10,441** | **$ 12,175** | **$ 13,983** | **$ 15,730** | **$ 17,581** | **$ 17,978** | **$ 18,105** | **$ 18,159** | **$ 18,165** | **$ 18,185** | **$ 18,187** | **$ 6,022** | **$ 5,952** | **$ 5,979** | **$ 5,984** | **$ 6,019** | **$ 6,001** | **$ 6,012** |
| Total Levelized DSM Costs | $ 1,115 | $ 2,233 | $ 3,665 | $ 5,332 | $ 7,252 | $ 9,411 | $ 11,827 | $ 14,331 | $ 16,917 | $ 19,516 | $ 22,104 | $ 24,612 | $ 27,105 | $ 29,072 | $ 30,730 | $ 32,394 | $ 34,047 | $ 35,710 | $ 37,351 | $ 38,993 |
| **Grand Total System Costs** | **$ 557,474** | **$ 544,448** | **$ 576,169** | **$ 598,863** | **$ 619,811** | **$ 646,151** | **$ 671,498** | **$ 698,486** | **$ 703,139** | **$ 707,486** | **$ 717,363** | **$ 724,992** | **$ 722,316** | **$ 706,599** | **$ 732,698** | **$ 749,138** | **$ 775,422** | **$ 824,430** | **$ 877,194** | **$ 923,717** |

| ***Net Incremental Daily Citygate Deliverability*** | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Mist Recall | 10 | 41 | 50 | 97 | 97 | 97 | 97 | 116 | 117 | 118 | 133 | 137 | 146 | 169 | 169 | 169 | 169 | 169 | 169 | 169 |
| 2 Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | 5 | 8 |
| 3 Satellite LNG - Eugene | - | - | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 11 | 15 | 26 | 26 | 30 |
| 4 Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 Recalled GP | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 6 Incremental CD via March Point | - | - | - | - | - | - | - | - | - | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 7 Incremental CD via Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 8 Palomar East | - | - | - | 41 | 41 | 47 | 52 | 52 | 52 | 52 | 53 | 59 | 63 | 63 | 69 | 76 | 81 | 83 | 89 | 94 |
| 9 Palomar West (Bradwood) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 Pacific Connector East | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 Pacific Connector West (Jordan Cove) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 Existing TF-1 Turnback | - | - | - | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) | (77) |
| **Total Incremental Daily Citygate Capacity** | **17** | **48** | **58** | **68** | **68** | **74** | **79** | **98** | **100** | **114** | **131** | **142** | **156** | **179** | **187** | **197** | **207** | **225** | **231** | **243** |
| ***Incremental Storage Capacity*** | | | | | | | | | | | | | | | | | | | | |
| Mist Recall | 230 | 919 | 1,139 | 2,193 | 2,193 | 2,193 | 2,193 | 2,613 | 2,648 | 2,671 | 3,006 | 3,101 | 3,310 | 3,816 | 3,816 | 3,816 | 3,816 | 3,816 | 3,816 | 3,816 |
| Satellite LNG - Albany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 16 | 16 | 24 |
| Satellite LNG - Eugene | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 5 | 8 | 12 | 14 | 17 | 20 | 32 | 46 | 77 | 77 | 90 |
| Satellite LNG - Salem | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Incremental Storage Capacity** | **230** | **919** | **1,140** | **2,194** | **2,194** | **2,194** | **2,194** | **2,614** | **2,651** | **2,676** | **3,015** | **3,112** | **3,324** | **3,834** | **3,836** | **3,848** | **3,863** | **3,909** | **3,909** | **3,930** |
| ***Upstream & Downstream - Highlights (see Rmix tab for additional components)*** | | | | | | | | | | | | | | | | | | | | |
| Brownsville to Eugene | - | - | - | 0.9 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Newport LNG Enhancement to Salem | - | - | - | - | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |
| Incremental CD 12-9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Opal to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Malin to Stanfield | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| WVF Phase 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 4 | 4 | 4 | 5.3 | 6 | 7 |
| WVF Main | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |

| NPV @ 5.16% Discount Rate | |
|---|---|
| | 5.16% |
| $ | 8,762,416 |

## Sensitivity 14: IRP RMix 1 - 85% Probability Weather - GTN Decontracting

| Served Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 4,033 | 4,096 | 4,142 | 4,205 | 4,233 | 4,278 | 4,319 | 4,378 | 4,408 | 4,452 | 4,499 | 4,568 | 4,600 | 4,652 | 4,706 | 4,783 | 4,810 | 4,853 | 4,901 | 4,972 |
| Astoria | 1,254 | 1,269 | 1,278 | 1,293 | 1,296 | 1,304 | 1,312 | 1,325 | 1,328 | 1,335 | 1,344 | 1,360 | 1,363 | 1,373 | 1,385 | 1,404 | 1,407 | 1,416 | 1,427 | 1,444 |
| Dalles | 791 | 809 | 824 | 842 | 852 | 865 | 878 | 894 | 904 | 916 | 930 | 947 | 957 | 971 | 985 | 1,004 | 1,012 | 1,024 | 1,037 | 1,055 |
| Eugene | 4,975 | 5,077 | 5,156 | 5,256 | 5,306 | 5,377 | 5,443 | 5,533 | 5,579 | 5,644 | 5,712 | 5,808 | 5,853 | 5,923 | 5,998 | 6,105 | 6,145 | 6,208 | 6,274 | 6,374 |
| Newport LC | 976 | 994 | 1,008 | 1,027 | 1,036 | 1,049 | 1,061 | 1,077 | 1,085 | 1,097 | 1,109 | 1,126 | 1,134 | 1,147 | 1,162 | 1,182 | 1,190 | 1,202 | 1,215 | 1,234 |
| Portland | 44,473 | 44,995 | 45,343 | 45,886 | 46,038 | 46,376 | 46,684 | 47,205 | 47,393 | 47,742 | 48,137 | 48,778 | 49,012 | 49,486 | 49,984 | 50,749 | 50,967 | 51,374 | 51,828 | 52,553 |
| Salem | 9,700 | 9,857 | 9,975 | 10,137 | 10,205 | 10,316 | 10,418 | 10,571 | 10,640 | 10,748 | 10,866 | 11,041 | 11,116 | 11,245 | 11,379 | 11,576 | 11,641 | 11,752 | 11,872 | 12,058 |
| Vancouver | 7,422 | 7,664 | 7,885 | 8,138 | 8,326 | 8,545 | 8,754 | 9,000 | 9,186 | 9,393 | 9,605 | 9,858 | 10,029 | 10,242 | 10,449 | 10,707 | 10,850 | 11,026 | 11,209 | 11,446 |
| Total | 73,624 | 74,760 | 75,612 | 76,784 | 77,291 | 78,111 | 78,869 | 79,982 | 80,523 | 81,327 | 82,201 | 83,485 | 84,064 | 85,040 | 86,048 | 87,510 | 88,023 | 88,856 | 89,762 | 91,135 |

| Unserved Demand Net DSM by Area/Class (MDth) | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 | 2025-2026 | 2026-2027 | 2027-2028 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Astoria | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Dalles | 0.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Eugene | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Newport LC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Portland | 5.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Salem | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Vancouver | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 16.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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# Monte Carlo Correlation Matrix

| **Weather to Weather Correlation** | | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Weather Pattern Name (1)* | *Weather Pattern Name (2)* | | | | | | | | | | | | |
| NRM PLN-ALB | NRM PLN-AST | 0.887 | 0.946 | 0.927 | 0.927 | 0 | 0 | 0 | 0 | 0 | 0.844 | 0.844 | 0.819 |
| NRM PLN-ALB | NRM PLN-DAL | 0.778 | 0.909 | 0.739 | 0.739 | 0 | 0 | 0 | 0 | 0 | 0.866 | 0.866 | 0.738 |
| NRM PLN-ALB | NRM PLN-EUG | 0.969 | 0.972 | 0.958 | 0.958 | 0 | 0 | 0 | 0 | 0 | 0.965 | 0.965 | 0.954 |
| NRM PLN-ALB | NRM PLN-NPT | 0.839 | 0.902 | 0.919 | 0.919 | 0 | 0 | 0 | 0 | 0 | 0.905 | 0.905 | 0.826 |
| NRM PLN-ALB | NRM PLN-PRT | 0.923 | 0.975 | 0.906 | 0.906 | 0 | 0 | 0 | 0 | 0 | 0.967 | 0.967 | 0.927 |
| NRM PLN-ALB | NRM PLN-SAL | 0.977 | 0.975 | 0.978 | 0.978 | 0 | 0 | 0 | 0 | 0 | 0.987 | 0.987 | 0.966 |
| NRM PLN-ALB | NRM PLN-VAN | 0.778 | 0.909 | 0.739 | 0.739 | 0 | 0 | 0 | 0 | 0 | 0.866 | 0.866 | 0.738 |
| NRM PLN-AST | NRM PLN-DAL | 0.628 | 0.87 | 0.782 | 0.782 | 0 | 0 | 0 | 0 | 0 | 0.778 | 0.778 | 0.755 |
| NRM PLN-AST | NRM PLN-EUG | 0.866 | 0.917 | 0.898 | 0.898 | 0 | 0 | 0 | 0 | 0 | 0.783 | 0.783 | 0.731 |
| NRM PLN-AST | NRM PLN-NPT | 0.923 | 0.926 | 0.916 | 0.916 | 0 | 0 | 0 | 0 | 0 | 0.844 | 0.844 | 0.948 |
| NRM PLN-AST | NRM PLN-PRT | 0.843 | 0.963 | 0.895 | 0.895 | 0 | 0 | 0 | 0 | 0 | 0.865 | 0.865 | 0.881 |
| NRM PLN-AST | NRM PLN-SAL | 0.885 | 0.93 | 0.917 | 0.917 | 0 | 0 | 0 | 0 | 0 | 0.828 | 0.828 | 0.837 |
| NRM PLN-AST | NRM PLN-VAN | 0.628 | 0.87 | 0.782 | 0.782 | 0 | 0 | 0 | 0 | 0 | 0.778 | 0.778 | 0.755 |
| NRM PLN-DAL | NRM PLN-EUG | 0.735 | 0.873 | 0.68 | 0.68 | 0 | 0 | 0 | 0 | 0 | 0.913 | 0.913 | 0.65 |
| NRM PLN-DAL | NRM PLN-NPT | 0.53 | 0.746 | 0.651 | 0.651 | 0 | 0 | 0 | 0 | 0 | 0.754 | 0.754 | 0.667 |
| NRM PLN-DAL | NRM PLN-PRT | 0.88 | 0.943 | 0.904 | 0.904 | 0 | 0 | 0 | 0 | 0 | 0.907 | 0.907 | 0.874 |
| NRM PLN-DAL | NRM PLN-SAL | 0.794 | 0.88 | 0.721 | 0.721 | 0 | 0 | 0 | 0 | 0 | 0.884 | 0.884 | 0.735 |
| NRM PLN-DAL | NRM PLN-VAN | 0.977 | 0.975 | 0.978 | 0.978 | 0 | 0 | 0 | 0 | 0 | 0.987 | 0.987 | 0.966 |
| NRM PLN-EUG | NRM PLN-NPT | 0.808 | 0.85 | 0.869 | 0.869 | 0 | 0 | 0 | 0 | 0 | 0.832 | 0.832 | 0.785 |
| NRM PLN-EUG | NRM PLN-PRT | 0.891 | 0.955 | 0.845 | 0.845 | 0 | 0 | 0 | 0 | 0 | 0.947 | 0.947 | 0.851 |
| NRM PLN-EUG | NRM PLN-SAL | 0.951 | 0.971 | 0.943 | 0.943 | 0 | 0 | 0 | 0 | 0 | 0.974 | 0.974 | 0.916 |
| NRM PLN-EUG | NRM PLN-VAN | 0.735 | 0.873 | 0.68 | 0.68 | 0 | 0 | 0 | 0 | 0 | 0.913 | 0.913 | 0.65 |
| NRM PLN-NPT | NRM PLN-PRT | 0.761 | 0.871 | 0.815 | 0.815 | 0 | 0 | 0 | 0 | 0 | 0.881 | 0.881 | 0.857 |
| NRM PLN-NPT | NRM PLN-SAL | 0.839 | 0.881 | 0.905 | 0.905 | 0 | 0 | 0 | 0 | 0 | 0.875 | 0.875 | 0.854 |
| NRM PLN-NPT | NRM PLN-VAN | 0.53 | 0.746 | 0.651 | 0.651 | 0 | 0 | 0 | 0 | 0 | 0.754 | 0.754 | 0.667 |
| NRM PLN-PRT | NRM PLN-SAL | 0.958 | 0.95 | 0.903 | 0.903 | 0 | 0 | 0 | 0 | 0 | 0.978 | 0.978 | 0.956 |
| NRM PLN-PRT | NRM PLN-VAN | 0.88 | 0.943 | 0.904 | 0.904 | 0 | 0 | 0 | 0 | 0 | 0.907 | 0.907 | 0.874 |
| NRM PLN-SAL | NRM PLN-VAN | 0.794 | 0.88 | 0.721 | 0.721 | 0 | 0 | 0 | 0 | 0 | 0.884 | 0.884 | 0.735 |

| **Price to Price Correlation** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Price Index Name (1)* | *Price Index Name (2)* | | | | | | | | | | | | |
| Rock - Base | Sumas - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Rock - Base | Aeco - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Rock - Base | Malin - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Rock - Base | Brad2 - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Rock - Base | JC - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sumas - Base | Aeco - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sumas - Base | Malin - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sumas - Base | Brad2 - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sumas - Base | JC - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Aeco - Base | Malin - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Aeco - Base | Brad2 - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Aeco - Base | JC - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Brad2 - Base | JC - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Malin - Base | JC - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Malin - Base | Brad2 - Base | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |

| **Month to Month Price Correlation** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Price Index Name (1)* | *Price Index Name (2)* | | | | | | | | | | | | |
| Brad2 - Base | Brad2 - Base | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| JC - Base | JC - Base | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Rock - Base | Rock - Base | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Sumas - Base | Sumas - Base | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Aeco - Base | Aeco - Base | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Malin - Base | Malin - Base | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

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# Appendix 6-1: Base Case - Avoided Cost Estimates

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007-2008 | Nov | 7.93 | 7.93 | 7.93 | 7.93 | 7.99 | 7.93 | 7.95 | 7.94 | 7.94 | 7.94 |
| 2007-2008 | Dec | 8.13 | 8.13 | 8.13 | 8.13 | 8.15 | 8.13 | 8.15 | 8.15 | 8.14 | 8.14 |
| 2007-2008 | Jan | 7.97 | 8.15 | 8.13 | 7.97 | 8.17 | 8.15 | 8.15 | 8.15 | 8.13 | 8.13 |
| 2007-2008 | Feb | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 |
| 2007-2008 | Mar | 7.05 | 7.05 | 7.05 | 7.05 | 7.41 | 7.05 | 7.25 | 7.05 | 7.09 | 7.08 |
| 2007-2008 | Apr | 6.78 | 6.80 | 6.78 | 6.78 | 6.93 | 6.82 | 6.78 | 6.78 | 6.81 | 6.81 |
| 2007-2008 | May | 6.70 | 6.72 | 6.70 | 6.70 | 6.85 | 6.70 | 6.70 | 6.70 | 6.70 | 6.70 |
| 2007-2008 | Jun | 6.87 | 6.89 | 6.87 | 6.87 | 7.03 | 6.87 | 6.87 | 6.87 | 6.88 | 6.88 |
| 2007-2008 | Jul | 6.89 | 6.91 | 6.89 | 6.89 | 7.05 | 6.89 | 6.89 | 6.89 | 6.90 | 6.90 |
| 2007-2008 | Aug | 6.91 | 6.93 | 6.91 | 6.91 | 7.07 | 6.91 | 6.91 | 6.91 | 6.92 | 6.92 |
| 2007-2008 | Sep | 6.93 | 6.95 | 6.93 | 6.93 | 7.09 | 6.93 | 6.93 | 6.93 | 6.94 | 6.94 |
| 2007-2008 | Oct | 7.15 | 7.17 | 7.15 | 7.15 | 7.31 | 7.15 | 7.15 | 7.15 | 7.15 | 7.15 |
| **Average 2007-2008** | | **$ 7.29** | **$ 7.31** | **$ 7.30** | **$ 7.29** | **$ 7.43** | **$ 7.30** | **$ 7.32** | **$ 7.30** | **$ 7.31** | **$ 7.31** |
| **Winter 2007-2008** | | **$ 7.84** | **$ 7.87** | **$ 7.87** | **$ 7.84** | **$ 7.79** | **$ 7.87** | **$ 7.92** | **$ 7.88** | **$ 7.87** | **$ 7.88** |
| 2008-2009 | Nov | 7.48 | 7.49 | 7.48 | 7.48 | 7.52 | 7.49 | 7.49 | 7.50 | 7.49 | 7.49 |
| 2008-2009 | Dec | 7.63 | 7.65 | 7.65 | 7.63 | 7.65 | 7.65 | 7.63 | 7.67 | 7.65 | 7.65 |
| 2008-2009 | Jan | 7.60 | 7.70 | 7.69 | 7.60 | 7.70 | 7.70 | 7.62 | 7.71 | 7.68 | 7.68 |
| 2008-2009 | Feb | 7.55 | 7.55 | 7.55 | 7.55 | 7.55 | 7.55 | 7.55 | 7.55 | 7.55 | 7.55 |
| 2008-2009 | Mar | 7.17 | 7.17 | 7.17 | 7.17 | 7.34 | 7.17 | 7.18 | 7.17 | 7.17 | 7.17 |
| 2008-2009 | Apr | 6.99 | 6.99 | 6.99 | 6.99 | 7.15 | 6.99 | 6.99 | 6.99 | 6.99 | 6.99 |
| 2008-2009 | May | 6.88 | 6.90 | 6.88 | 6.88 | 6.98 | 6.88 | 6.88 | 6.88 | 6.88 | 6.88 |
| 2008-2009 | Jun | 6.83 | 6.85 | 6.83 | 6.83 | 6.98 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 |
| 2008-2009 | Jul | 6.87 | 6.89 | 6.87 | 6.87 | 7.03 | 6.87 | 6.87 | 6.87 | 6.88 | 6.88 |
| 2008-2009 | Aug | 6.92 | 6.94 | 6.92 | 6.92 | 7.07 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 |
| 2008-2009 | Sep | 6.93 | 6.95 | 6.93 | 6.93 | 7.08 | 6.93 | 6.93 | 6.93 | 6.93 | 6.93 |
| 2008-2009 | Oct | 6.96 | 6.98 | 6.96 | 6.96 | 7.12 | 7.00 | 6.96 | 6.96 | 6.99 | 6.99 |
| **Average 2008-2009** | | **$ 7.15** | **$ 7.17** | **$ 7.16** | **$ 7.15** | **$ 7.27** | **$ 7.17** | **$ 7.15** | **$ 7.17** | **$ 7.16** | **$ 7.16** |
| **Winter 2008-2009** | | **$ 7.49** | **$ 7.51** | **$ 7.51** | **$ 7.49** | **$ 7.49** | **$ 7.51** | **$ 7.49** | **$ 7.52** | **$ 7.51** | **$ 7.51** |
| 2009-2010 | Nov | 7.25 | 7.25 | 7.25 | 7.25 | 7.28 | 7.26 | 7.25 | 7.26 | 7.25 | 7.26 |
| 2009-2010 | Dec | 7.28 | 7.35 | 7.35 | 7.28 | 7.35 | 7.35 | 7.30 | 7.37 | 7.34 | 7.34 |
| 2009-2010 | Jan | 7.32 | 7.40 | 7.39 | 7.32 | 7.40 | 7.40 | 7.32 | 7.41 | 7.38 | 7.38 |
| 2009-2010 | Feb | 8.42 | 8.39 | 8.40 | 8.44 | 7.36 | 8.39 | 8.58 | 8.58 | 8.41 | 8.43 |
| 2009-2010 | Mar | 7.07 | 7.07 | 7.07 | 7.07 | 7.23 | 7.07 | 7.07 | 7.07 | 7.07 | 7.07 |
| 2009-2010 | Apr | 6.88 | 6.88 | 6.88 | 6.88 | 7.03 | 6.88 | 6.88 | 6.88 | 6.88 | 6.88 |
| 2009-2010 | May | 6.88 | 6.90 | 6.88 | 6.88 | 6.98 | 6.88 | 6.88 | 6.88 | 6.88 | 6.88 |
| 2009-2010 | Jun | 6.86 | 6.88 | 6.86 | 6.86 | 7.01 | 6.86 | 6.86 | 6.86 | 6.86 | 6.86 |
| 2009-2010 | Jul | 6.90 | 6.92 | 6.90 | 6.90 | 7.06 | 6.90 | 6.90 | 6.90 | 6.91 | 6.91 |
| 2009-2010 | Aug | 6.95 | 6.97 | 6.95 | 6.95 | 7.10 | 6.95 | 6.95 | 6.95 | 6.95 | 6.95 |
| 2009-2010 | Sep | 6.99 | 7.01 | 6.99 | 6.99 | 7.15 | 6.99 | 6.99 | 6.99 | 7.00 | 7.00 |
| 2009-2010 | Oct | 7.04 | 7.06 | 7.04 | 7.04 | 7.20 | 7.04 | 7.04 | 7.04 | 7.04 | 7.04 |
| **Average 2009-2010** | | **$ 7.15** | **$ 7.17** | **$ 7.16** | **$ 7.15** | **$ 7.18** | **$ 7.16** | **$ 7.17** | **$ 7.18** | **$ 7.16** | **$ 7.17** |
| **Winter 2009-2010** | | **$ 7.47** | **$ 7.49** | **$ 7.49** | **$ 7.47** | **$ 7.28** | **$ 7.49** | **$ 7.51** | **$ 7.54** | **$ 7.49** | **$ 7.49** |
| 2010-2011 | Nov | 7.30 | 7.31 | 7.31 | 7.30 | 7.34 | 7.31 | 7.30 | 7.33 | 7.31 | 7.31 |
| 2010-2011 | Dec | 7.33 | 7.42 | 7.42 | 7.33 | 7.42 | 7.42 | 7.37 | 7.44 | 7.40 | 7.40 |
| 2010-2011 | Jan | 7.37 | 7.47 | 7.46 | 7.37 | 7.46 | 7.47 | 7.40 | 7.48 | 7.44 | 7.45 |
| 2010-2011 | Feb | 8.59 | 8.57 | 8.58 | 10.55 | 7.34 | 8.57 | 8.63 | 10.55 | 8.71 | 8.90 |
| 2010-2011 | Mar | 7.19 | 7.19 | 7.19 | 7.19 | 7.35 | 7.19 | 7.19 | 7.19 | 7.19 | 7.19 |
| 2010-2011 | Apr | 6.99 | 6.99 | 6.99 | 6.99 | 7.15 | 6.99 | 6.99 | 6.99 | 6.99 | 6.99 |
| 2010-2011 | May | 7.04 | 7.06 | 7.04 | 7.04 | 7.17 | 7.04 | 7.04 | 7.04 | 7.04 | 7.04 |
| 2010-2011 | Jun | 7.05 | 7.07 | 7.05 | 7.05 | 7.21 | 7.05 | 7.05 | 7.05 | 7.05 | 7.05 |
| 2010-2011 | Jul | 7.09 | 7.11 | 7.09 | 7.09 | 7.25 | 7.09 | 7.09 | 7.09 | 7.10 | 7.10 |
| 2010-2011 | Aug | 7.14 | 7.16 | 7.14 | 7.14 | 7.30 | 7.14 | 7.14 | 7.14 | 7.14 | 7.14 |
| 2010-2011 | Sep | 7.19 | 7.21 | 7.19 | 7.19 | 7.35 | 7.19 | 7.19 | 7.19 | 7.19 | 7.19 |
| 2010-2011 | Oct | 7.24 | 7.26 | 7.24 | 7.24 | 7.41 | 7.24 | 7.24 | 7.24 | 7.25 | 7.25 |
| **Average 2010-2011** | | **$ 7.29** | **$ 7.32** | **$ 7.31** | **$ 7.46** | **$ 7.31** | **$ 7.31** | **$ 7.30** | **$ 7.48** | **$ 7.32** | **$ 7.33** |
| **Winter 2010-2011** | | **$ 7.56** | **$ 7.59** | **$ 7.59** | **$ 7.95** | **$ 7.34** | **$ 7.59** | **$ 7.58** | **$ 8.00** | **$ 7.61** | **$ 7.65** |
| 2011-2012 | Nov | 8.06 | 8.06 | 8.07 | 8.06 | 8.12 | 8.06 | 8.06 | 8.09 | 8.06 | 8.06 |
| 2011-2012 | Dec | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.35 | 8.33 | 8.33 |
| 2011-2012 | Jan | 8.38 | 8.38 | 8.38 | 8.38 | 8.38 | 8.38 | 8.38 | 8.40 | 8.38 | 8.38 |
| 2011-2012 | Feb | 8.77 | 8.75 | 8.75 | 9.06 | 7.95 | 8.75 | 8.86 | 9.06 | 8.78 | 8.81 |
| 2011-2012 | Mar | 7.66 | 7.66 | 7.66 | 7.66 | 7.83 | 7.66 | 7.66 | 7.66 | 7.66 | 7.66 |
| 2011-2012 | Apr | 7.37 | 7.37 | 7.37 | 7.37 | 7.54 | 7.37 | 7.37 | 7.37 | 7.38 | 7.38 |
| 2011-2012 | May | 7.23 | 7.25 | 7.23 | 7.23 | 7.39 | 7.23 | 7.23 | 7.23 | 7.23 | 7.23 |
| 2011-2012 | Jun | 7.27 | 7.29 | 7.27 | 7.27 | 7.44 | 7.27 | 7.27 | 7.27 | 7.28 | 7.28 |
| 2011-2012 | Jul | 7.32 | 7.34 | 7.32 | 7.32 | 7.49 | 7.32 | 7.32 | 7.32 | 7.33 | 7.33 |
| 2011-2012 | Aug | 7.37 | 7.39 | 7.37 | 7.37 | 7.53 | 7.37 | 7.37 | 7.37 | 7.37 | 7.37 |
| 2011-2012 | Sep | 7.42 | 7.44 | 7.42 | 7.42 | 7.58 | 7.42 | 7.42 | 7.42 | 7.42 | 7.42 |
| 2011-2012 | Oct | 7.51 | 7.53 | 7.51 | 7.51 | 7.68 | 7.51 | 7.51 | 7.51 | 7.52 | 7.52 |
| **Average 2011-2012** | | **$ 7.72** | **$ 7.73** | **$ 7.72** | **$ 7.75** | **$ 7.77** | **$ 7.72** | **$ 7.73** | **$ 7.75** | **$ 7.73** | **$ 7.73** |
| **Winter 2011-2012** | | **$ 8.24** | **$ 8.23** | **$ 8.24** | **$ 8.30** | **$ 8.02** | **$ 8.23** | **$ 8.26** | **$ 8.31** | **$ 8.24** | **$ 8.25** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2012-2013 | Nov | 8.37 | 8.37 | 8.38 | 8.37 | 8.43 | 8.37 | 8.38 | 8.40 | 8.37 | 8.37 |
| 2012-2013 | Dec | 8.65 | 8.65 | 8.65 | 8.65 | 8.65 | 8.65 | 8.65 | 8.67 | 8.65 | 8.65 |
| 2012-2013 | Jan | 8.70 | 8.70 | 8.71 | 8.70 | 8.70 | 8.70 | 8.70 | 8.72 | 8.70 | 8.71 |
| 2012-2013 | Feb | 8.68 | 8.67 | 8.68 | 8.99 | 8.23 | 8.67 | 8.77 | 8.99 | 8.71 | 8.74 |
| 2012-2013 | Mar | 7.91 | 7.91 | 7.91 | 7.91 | 8.09 | 7.91 | 7.91 | 7.91 | 7.91 | 7.91 |
| 2012-2013 | Apr | 7.58 | 7.58 | 7.58 | 7.58 | 7.75 | 7.58 | 7.58 | 7.58 | 7.59 | 7.59 |
| 2012-2013 | May | 7.46 | 7.48 | 7.46 | 7.46 | 7.63 | 7.46 | 7.46 | 7.46 | 7.47 | 7.47 |
| 2012-2013 | Jun | 7.51 | 7.53 | 7.51 | 7.51 | 7.68 | 7.51 | 7.51 | 7.51 | 7.52 | 7.51 |
| 2012-2013 | Jul | 7.56 | 7.58 | 7.56 | 7.56 | 7.73 | 7.56 | 7.56 | 7.56 | 7.56 | 7.56 |
| 2012-2013 | Aug | 7.61 | 7.63 | 7.61 | 7.61 | 7.78 | 7.61 | 7.61 | 7.61 | 7.61 | 7.61 |
| 2012-2013 | Sep | 7.66 | 7.68 | 7.66 | 7.66 | 7.83 | 7.66 | 7.66 | 7.66 | 7.66 | 7.66 |
| 2012-2013 | Oct | 7.75 | 7.77 | 7.75 | 7.75 | 7.93 | 7.75 | 7.75 | 7.75 | 7.76 | 7.76 |
| **Average 2012-2013** | | **$ 7.95** | **$ 7.96** | **$ 7.95** | **$ 7.98** | **$ 8.04** | **$ 7.95** | **$ 7.96** | **$ 7.99** | **$ 7.96** | **$ 7.96** |
| **Winter 2012-2013** | | **$ 8.46** | **$ 8.46** | **$ 8.47** | **$ 8.52** | **$ 8.31** | **$ 8.46** | **$ 8.48** | **$ 8.54** | **$ 8.47** | **$ 8.48** |
| 2013-2014 | Nov | 8.66 | 8.66 | 8.68 | 8.66 | 8.72 | 8.66 | 8.67 | 8.69 | 8.66 | 8.67 |
| 2013-2014 | Dec | 8.95 | 8.95 | 8.95 | 8.95 | 8.95 | 8.95 | 8.95 | 8.97 | 8.95 | 8.95 |
| 2013-2014 | Jan | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.02 | 9.00 | 9.00 |
| 2013-2014 | Feb | 8.98 | 8.96 | 8.97 | 9.29 | 8.53 | 8.96 | 9.11 | 9.29 | 9.00 | 9.03 |
| 2013-2014 | Mar | 8.17 | 8.17 | 8.17 | 8.17 | 8.36 | 8.17 | 8.17 | 8.18 | 8.18 | 8.18 |
| 2013-2014 | Apr | 7.92 | 7.92 | 7.92 | 7.92 | 8.09 | 7.92 | 7.92 | 7.92 | 7.92 | 7.92 |
| 2013-2014 | May | 7.71 | 7.73 | 7.71 | 7.71 | 7.87 | 7.71 | 7.71 | 7.71 | 7.72 | 7.72 |
| 2013-2014 | Jun | 7.72 | 7.74 | 7.72 | 7.72 | 7.89 | 7.72 | 7.72 | 7.72 | 7.72 | 7.72 |
| 2013-2014 | Jul | 7.76 | 7.78 | 7.76 | 7.76 | 7.94 | 7.76 | 7.76 | 7.76 | 7.77 | 7.77 |
| 2013-2014 | Aug | 7.81 | 7.83 | 7.81 | 7.81 | 7.99 | 7.81 | 7.81 | 7.81 | 7.82 | 7.82 |
| 2013-2014 | Sep | 7.86 | 7.88 | 7.86 | 7.86 | 8.04 | 7.86 | 7.86 | 7.86 | 7.87 | 7.87 |
| 2013-2014 | Oct | 7.96 | 7.98 | 7.96 | 7.96 | 8.14 | 7.96 | 7.96 | 7.96 | 7.96 | 7.96 |
| **Average 2013-2014** | | **$ 8.21** | **$ 8.22** | **$ 8.21** | **$ 8.23** | **$ 8.29** | **$ 8.21** | **$ 8.22** | **$ 8.24** | **$ 8.21** | **$ 8.22** |
| **Winter 2013-2014** | | **$ 8.75** | **$ 8.75** | **$ 8.75** | **$ 8.81** | **$ 8.61** | **$ 8.75** | **$ 8.78** | **$ 8.83** | **$ 8.76** | **$ 8.77** |
| 2014-2015 | Nov | 8.90 | 8.90 | 8.92 | 8.90 | 8.96 | 8.90 | 8.91 | 8.93 | 8.90 | 8.91 |
| 2014-2015 | Dec | 9.20 | 9.20 | 9.21 | 9.20 | 9.20 | 9.20 | 9.20 | 9.23 | 9.20 | 9.20 |
| 2014-2015 | Jan | 9.26 | 9.26 | 9.27 | 9.26 | 9.26 | 9.26 | 9.26 | 9.29 | 9.26 | 9.26 |
| 2014-2015 | Feb | 9.28 | 9.25 | 9.27 | 9.59 | 8.76 | 9.25 | 9.46 | 9.59 | 9.30 | 9.33 |
| 2014-2015 | Mar | 8.38 | 8.38 | 8.38 | 8.38 | 8.57 | 8.38 | 8.38 | 8.38 | 8.38 | 8.38 |
| 2014-2015 | Apr | 8.10 | 8.10 | 8.10 | 8.10 | 8.29 | 8.10 | 8.10 | 8.10 | 8.11 | 8.11 |
| 2014-2015 | May | 7.99 | 8.01 | 7.99 | 7.99 | 8.16 | 7.99 | 7.99 | 7.99 | 7.99 | 7.99 |
| 2014-2015 | Jun | 8.01 | 8.03 | 8.01 | 8.01 | 8.19 | 8.01 | 8.01 | 8.01 | 8.02 | 8.02 |
| 2014-2015 | Jul | 8.06 | 8.08 | 8.06 | 8.06 | 8.24 | 8.06 | 8.06 | 8.06 | 8.07 | 8.07 |
| 2014-2015 | Aug | 8.11 | 8.13 | 8.11 | 8.11 | 8.30 | 8.11 | 8.11 | 8.11 | 8.12 | 8.12 |
| 2014-2015 | Sep | 8.16 | 8.18 | 8.16 | 8.16 | 8.35 | 8.16 | 8.16 | 8.16 | 8.17 | 8.17 |
| 2014-2015 | Oct | 8.29 | 8.31 | 8.29 | 8.29 | 8.48 | 8.29 | 8.29 | 8.29 | 8.30 | 8.30 |
| **Average 2014-2015** | | **$ 8.48** | **$ 8.49** | **$ 8.48** | **$ 8.51** | **$ 8.56** | **$ 8.48** | **$ 8.50** | **$ 8.51** | **$ 8.48** | **$ 8.49** |
| **Winter 2014-2015** | | **$ 9.00** | **$ 9.00** | **$ 9.01** | **$ 9.07** | **$ 8.84** | **$ 9.00** | **$ 9.04** | **$ 9.08** | **$ 9.01** | **$ 9.02** |
| 2015-2016 | Nov | 9.30 | 9.30 | 9.32 | 9.31 | 9.37 | 9.30 | 9.31 | 9.34 | 9.31 | 9.31 |
| 2015-2016 | Dec | 9.60 | 9.60 | 9.62 | 9.60 | 9.61 | 9.60 | 9.61 | 9.64 | 9.61 | 9.61 |
| 2015-2016 | Jan | 9.66 | 9.66 | 9.68 | 9.66 | 9.66 | 9.66 | 9.66 | 9.70 | 9.66 | 9.67 |
| 2015-2016 | Feb | 9.60 | 9.57 | 9.59 | 10.43 | 9.51 | 9.57 | 9.82 | 10.43 | 9.67 | 9.76 |
| 2015-2016 | Mar | 8.79 | 8.79 | 8.79 | 8.79 | 8.99 | 8.79 | 8.79 | 8.79 | 8.79 | 8.79 |
| 2015-2016 | Apr | 8.53 | 8.53 | 8.53 | 8.53 | 8.72 | 8.53 | 8.53 | 8.53 | 8.53 | 8.53 |
| 2015-2016 | May | 8.27 | 8.29 | 8.27 | 8.27 | 8.44 | 8.27 | 8.27 | 8.27 | 8.27 | 8.27 |
| 2015-2016 | Jun | 8.28 | 8.30 | 8.28 | 8.28 | 8.47 | 8.28 | 8.28 | 8.28 | 8.28 | 8.28 |
| 2015-2016 | Jul | 8.33 | 8.35 | 8.33 | 8.33 | 8.52 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 |
| 2015-2016 | Aug | 8.38 | 8.40 | 8.38 | 8.38 | 8.57 | 8.38 | 8.38 | 8.38 | 8.39 | 8.39 |
| 2015-2016 | Sep | 8.44 | 8.46 | 8.44 | 8.44 | 8.63 | 8.44 | 8.44 | 8.44 | 8.44 | 8.44 |
| 2015-2016 | Oct | 8.56 | 8.58 | 8.56 | 8.56 | 8.76 | 8.56 | 8.56 | 8.56 | 8.57 | 8.57 |
| **Average 2015-2016** | | **$ 8.81** | **$ 8.82** | **$ 8.82** | **$ 8.88** | **$ 8.94** | **$ 8.81** | **$ 8.83** | **$ 8.89** | **$ 8.82** | **$ 8.83** |
| **Winter 2015-2016** | | **$ 9.39** | **$ 9.39** | **$ 9.40** | **$ 9.56** | **$ 9.31** | **$ 9.39** | **$ 9.44** | **$ 9.58** | **$ 9.41** | **$ 9.43** |
| 2016-2017 | Nov | 9.56 | 9.56 | 9.58 | 9.56 | 9.63 | 9.56 | 9.58 | 9.60 | 9.57 | 9.57 |
| 2016-2017 | Dec | 9.86 | 9.86 | 9.86 | 9.86 | 9.87 | 9.86 | 9.86 | 9.88 | 9.86 | 9.87 |
| 2016-2017 | Jan | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 | 9.94 | 9.92 | 9.92 |
| 2016-2017 | Feb | 9.88 | 9.86 | 9.86 | 10.72 | 10.26 | 9.86 | 10.10 | 10.72 | 9.97 | 10.05 |
| 2016-2017 | Mar | 9.01 | 9.01 | 9.01 | 9.01 | 9.22 | 9.01 | 9.01 | 9.01 | 9.01 | 9.01 |
| 2016-2017 | Apr | 8.74 | 8.74 | 8.74 | 8.74 | 8.94 | 8.74 | 8.74 | 8.74 | 8.74 | 8.74 |
| 2016-2017 | May | 8.05 | 8.05 | 8.05 | 8.05 | 8.23 | 8.05 | 8.05 | 8.05 | 8.06 | 8.05 |
| 2016-2017 | Jun | 7.97 | 7.97 | 7.97 | 7.97 | 8.15 | 7.97 | 7.97 | 7.97 | 7.97 | 7.97 |
| 2016-2017 | Jul | 8.02 | 8.02 | 8.02 | 8.02 | 8.20 | 8.02 | 8.02 | 8.02 | 8.02 | 8.02 |
| 2016-2017 | Aug | 8.07 | 8.07 | 8.07 | 8.07 | 8.25 | 8.07 | 8.07 | 8.07 | 8.07 | 8.07 |
| 2016-2017 | Sep | 8.12 | 8.12 | 8.12 | 8.12 | 8.30 | 8.12 | 8.12 | 8.12 | 8.13 | 8.12 |
| 2016-2017 | Oct | 8.25 | 8.25 | 8.25 | 8.25 | 8.44 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| **Average 2016-2017** | | **$ 8.79** | **$ 8.79** | **$ 8.79** | **$ 8.86** | **$ 8.95** | **$ 8.79** | **$ 8.81** | **$ 8.86** | **$ 8.80** | **$ 8.81** |
| **Winter 2016-2017** | | **$ 9.65** | **$ 9.64** | **$ 9.65** | **$ 9.82** | **$ 9.64** | **$ 9.64** | **$ 9.70** | **$ 9.83** | **$ 9.67** | **$ 9.69** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-2018 | Nov | 9.29 | 9.29 | 9.30 | 9.29 | 9.35 | 9.29 | 9.30 | 9.31 | 9.29 | 9.29 |
| 2017-2018 | Dec | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 |
| 2017-2018 | Jan | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 |
| 2017-2018 | Feb | 9.60 | 9.58 | 9.58 | 10.49 | 10.01 | 9.58 | 9.86 | 10.49 | 9.70 | 9.79 |
| 2017-2018 | Mar | 8.80 | 8.80 | 8.80 | 8.80 | 9.01 | 8.80 | 8.81 | 8.80 | 8.81 | 8.81 |
| 2017-2018 | Apr | 8.55 | 8.55 | 8.55 | 8.55 | 8.74 | 8.55 | 8.55 | 8.55 | 8.55 | 8.55 |
| 2017-2018 | May | 8.28 | 8.28 | 8.28 | 8.28 | 8.45 | 8.28 | 8.28 | 8.28 | 8.28 | 8.28 |
| 2017-2018 | Jun | 8.27 | 8.27 | 8.27 | 8.27 | 8.45 | 8.27 | 8.27 | 8.27 | 8.27 | 8.27 |
| 2017-2018 | Jul | 8.32 | 8.32 | 8.32 | 8.32 | 8.50 | 8.32 | 8.32 | 8.32 | 8.32 | 8.32 |
| 2017-2018 | Aug | 8.37 | 8.37 | 8.37 | 8.37 | 8.56 | 8.37 | 8.37 | 8.37 | 8.37 | 8.37 |
| 2017-2018 | Sep | 8.42 | 8.42 | 8.42 | 8.42 | 8.61 | 8.42 | 8.42 | 8.42 | 8.43 | 8.43 |
| 2017-2018 | Oct | 8.55 | 8.55 | 8.55 | 8.55 | 8.75 | 8.55 | 8.55 | 8.55 | 8.55 | 8.55 |
| **Average 2017-2018** | | **$ 8.80** | **$ 8.80** | **$ 8.80** | **$ 8.88** | **$ 8.97** | **$ 8.80** | **$ 8.83** | **$ 8.88** | **$ 8.82** | **$ 8.82** |
| **Winter 2017-2018** | | **$ 9.38** | **$ 9.38** | **$ 9.38** | **$ 9.56** | **$ 9.39** | **$ 9.38** | **$ 9.44** | **$ 9.56** | **$ 9.40** | **$ 9.42** |
| 2018-2019 | Nov | 9.59 | 9.59 | 9.60 | 9.59 | 9.66 | 9.59 | 9.60 | 9.61 | 9.59 | 9.59 |
| 2018-2019 | Dec | 9.88 | 9.88 | 9.88 | 9.88 | 9.88 | 9.88 | 9.88 | 9.90 | 9.88 | 9.88 |
| 2018-2019 | Jan | 9.94 | 9.94 | 9.94 | 9.94 | 9.94 | 9.94 | 9.94 | 9.95 | 9.94 | 9.94 |
| 2018-2019 | Feb | 9.90 | 9.88 | 9.89 | 10.79 | 10.47 | 9.88 | 10.31 | 10.79 | 10.02 | 10.11 |
| 2018-2019 | Mar | 9.09 | 9.09 | 9.09 | 9.09 | 9.31 | 9.09 | 9.10 | 9.09 | 9.10 | 9.10 |
| 2018-2019 | Apr | 8.78 | 8.78 | 8.78 | 8.78 | 8.98 | 8.78 | 8.78 | 8.78 | 8.79 | 8.79 |
| 2018-2019 | May | 8.47 | 8.47 | 8.47 | 8.47 | 8.66 | 8.47 | 8.47 | 8.47 | 8.47 | 8.47 |
| 2018-2019 | Jun | 8.03 | 8.03 | 8.03 | 8.03 | 8.22 | 8.03 | 8.03 | 8.03 | 8.04 | 8.04 |
| 2018-2019 | Jul | 8.09 | 8.09 | 8.09 | 8.09 | 8.27 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 |
| 2018-2019 | Aug | 8.14 | 8.14 | 8.14 | 8.14 | 8.32 | 8.14 | 8.14 | 8.14 | 8.14 | 8.14 |
| 2018-2019 | Sep | 8.19 | 8.19 | 8.19 | 8.19 | 8.37 | 8.19 | 8.19 | 8.19 | 8.19 | 8.19 |
| 2018-2019 | Oct | 8.32 | 8.32 | 8.32 | 8.32 | 8.51 | 8.32 | 8.32 | 8.32 | 8.32 | 8.32 |
| **Average 2018-2019** | | **$ 8.87** | **$ 8.87** | **$ 8.87** | **$ 8.94** | **$ 9.05** | **$ 8.87** | **$ 8.90** | **$ 8.95** | **$ 8.88** | **$ 8.89** |
| **Winter 2018-2019** | | **$ 9.68** | **$ 9.68** | **$ 9.68** | **$ 9.86** | **$ 9.71** | **$ 9.68** | **$ 9.77** | **$ 9.87** | **$ 9.71** | **$ 9.73** |
| 2019-2020 | Nov | 9.33 | 9.33 | 9.34 | 9.34 | 9.40 | 9.33 | 9.35 | 9.36 | 9.33 | 9.34 |
| 2019-2020 | Dec | 9.63 | 9.63 | 9.64 | 9.63 | 9.64 | 9.63 | 9.64 | 9.66 | 9.64 | 9.64 |
| 2019-2020 | Jan | 9.69 | 9.69 | 9.70 | 9.69 | 9.70 | 9.69 | 9.70 | 9.71 | 9.69 | 9.70 |
| 2019-2020 | Feb | 9.78 | 9.60 | 9.61 | 10.48 | 10.40 | 9.60 | 10.26 | 10.48 | 9.79 | 9.87 |
| 2019-2020 | Mar | 8.82 | 8.82 | 8.82 | 8.82 | 9.03 | 8.82 | 8.83 | 8.82 | 8.83 | 8.83 |
| 2019-2020 | Apr | 8.53 | 8.53 | 8.53 | 8.53 | 8.73 | 8.53 | 8.53 | 8.53 | 8.54 | 8.54 |
| 2019-2020 | May | 8.39 | 8.39 | 8.39 | 8.39 | 8.58 | 8.39 | 8.39 | 8.39 | 8.39 | 8.39 |
| 2019-2020 | Jun | 8.08 | 8.08 | 8.08 | 8.08 | 8.26 | 8.08 | 8.08 | 8.08 | 8.09 | 8.09 |
| 2019-2020 | Jul | 8.13 | 8.13 | 8.13 | 8.13 | 8.32 | 8.13 | 8.13 | 8.13 | 8.14 | 8.14 |
| 2019-2020 | Aug | 8.19 | 8.19 | 8.19 | 8.19 | 8.37 | 8.19 | 8.19 | 8.19 | 8.19 | 8.19 |
| 2019-2020 | Sep | 8.24 | 8.24 | 8.24 | 8.24 | 8.42 | 8.24 | 8.24 | 8.24 | 8.24 | 8.24 |
| 2019-2020 | Oct | 8.38 | 8.38 | 8.38 | 8.38 | 8.57 | 8.38 | 8.38 | 8.38 | 8.38 | 8.38 |
| **Average 2019-2020** | | **$ 8.77** | **$ 8.75** | **$ 8.75** | **$ 8.83** | **$ 8.95** | **$ 8.75** | **$ 8.81** | **$ 8.83** | **$ 8.77** | **$ 8.78** |
| **Winter 2019-2020** | | **$ 9.45** | **$ 9.42** | **$ 9.42** | **$ 9.59** | **$ 9.48** | **$ 9.42** | **$ 9.56** | **$ 9.60** | **$ 9.46** | **$ 9.47** |
| 2020-2021 | Nov | 9.35 | 9.35 | 9.36 | 9.36 | 9.42 | 9.35 | 9.37 | 9.38 | 9.35 | 9.35 |
| 2020-2021 | Dec | 9.65 | 9.65 | 9.65 | 9.65 | 9.66 | 9.65 | 9.65 | 9.66 | 9.65 | 9.65 |
| 2020-2021 | Jan | 9.71 | 9.71 | 9.71 | 9.71 | 9.71 | 9.71 | 9.71 | 9.71 | 9.71 | 9.71 |
| 2020-2021 | Feb | 10.40 | 9.65 | 9.66 | 10.50 | 10.84 | 9.65 | 10.69 | 10.84 | 9.94 | 10.04 |
| 2020-2021 | Mar | 8.73 | 8.73 | 8.73 | 8.73 | 8.93 | 8.73 | 8.73 | 8.73 | 8.73 | 8.73 |
| 2020-2021 | Apr | 8.42 | 8.42 | 8.42 | 8.42 | 8.61 | 8.42 | 8.42 | 8.42 | 8.42 | 8.42 |
| 2020-2021 | May | 8.16 | 8.16 | 8.16 | 8.16 | 8.35 | 8.16 | 8.16 | 8.16 | 8.17 | 8.17 |
| 2020-2021 | Jun | 7.75 | 7.75 | 7.75 | 7.75 | 7.93 | 7.75 | 7.75 | 7.75 | 7.76 | 7.76 |
| 2020-2021 | Jul | 7.80 | 7.80 | 7.80 | 7.80 | 7.98 | 7.80 | 7.80 | 7.80 | 7.81 | 7.81 |
| 2020-2021 | Aug | 7.86 | 7.86 | 7.86 | 7.86 | 8.03 | 7.86 | 7.86 | 7.86 | 7.86 | 7.86 |
| 2020-2021 | Sep | 7.91 | 7.91 | 7.91 | 7.91 | 8.09 | 7.91 | 7.91 | 7.91 | 7.91 | 7.91 |
| 2020-2021 | Oct | 8.04 | 8.04 | 8.04 | 8.04 | 8.22 | 8.04 | 8.04 | 8.04 | 8.04 | 8.04 |
| **Average 2020-2021** | | **$ 8.65** | **$ 8.59** | **$ 8.59** | **$ 8.66** | **$ 8.81** | **$ 8.59** | **$ 8.68** | **$ 8.69** | **$ 8.61** | **$ 8.62** |
| **Winter 2020-2021** | | **$ 9.57** | **$ 9.42** | **$ 9.42** | **$ 9.59** | **$ 9.53** | **$ 9.42** | **$ 9.63** | **$ 9.66** | **$ 9.48** | **$ 9.50** |
| 2021-2022 | Nov | 9.00 | 9.01 | 9.02 | 9.02 | 9.08 | 9.00 | 9.03 | 9.03 | 9.01 | 9.01 |
| 2021-2022 | Dec | 9.32 | 9.32 | 9.33 | 9.32 | 9.33 | 9.32 | 9.32 | 9.33 | 9.32 | 9.32 |
| 2021-2022 | Jan | 9.39 | 9.39 | 9.39 | 9.39 | 9.39 | 9.39 | 9.39 | 9.39 | 9.39 | 9.39 |
| 2021-2022 | Feb | 10.05 | 9.31 | 9.32 | 10.15 | 10.48 | 9.31 | 10.33 | 10.48 | 9.59 | 9.69 |
| 2021-2022 | Mar | 8.41 | 8.41 | 8.41 | 8.41 | 8.60 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 |
| 2021-2022 | Apr | 8.23 | 8.23 | 8.23 | 8.23 | 8.41 | 8.23 | 8.23 | 8.23 | 8.23 | 8.23 |
| 2021-2022 | May | 7.98 | 7.98 | 7.98 | 7.98 | 8.16 | 7.98 | 7.98 | 7.98 | 7.98 | 7.98 |
| 2021-2022 | Jun | 8.01 | 8.01 | 8.01 | 8.01 | 8.19 | 8.01 | 8.01 | 8.01 | 8.01 | 8.01 |
| 2021-2022 | Jul | 8.06 | 8.06 | 8.06 | 8.06 | 8.24 | 8.06 | 8.06 | 8.06 | 8.06 | 8.06 |
| 2021-2022 | Aug | 8.11 | 8.11 | 8.11 | 8.11 | 8.29 | 8.11 | 8.11 | 8.11 | 8.11 | 8.11 |
| 2021-2022 | Sep | 8.17 | 8.17 | 8.17 | 8.17 | 8.35 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| 2021-2022 | Oct | 8.28 | 8.28 | 8.28 | 8.28 | 8.47 | 8.28 | 8.28 | 8.28 | 8.28 | 8.28 |
| **Average 2021-2022** | | **$ 8.58** | **$ 8.52** | **$ 8.53** | **$ 8.59** | **$ 8.75** | **$ 8.52** | **$ 8.61** | **$ 8.62** | **$ 8.55** | **$ 8.56** |
| **Winter 2021-2022** | | **$ 9.23** | **$ 9.08** | **$ 9.09** | **$ 9.26** | **$ 9.22** | **$ 9.08** | **$ 9.30** | **$ 9.33** | **$ 9.14** | **$ 9.17** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-2023 | Nov | 9.29 | 9.29 | 9.31 | 9.31 | 9.37 | 9.29 | 9.31 | 9.32 | 9.30 | 9.30 |
| 2022-2023 | Dec | 9.61 | 9.61 | 9.63 | 9.62 | 9.63 | 9.61 | 9.62 | 9.63 | 9.62 | 9.62 |
| 2022-2023 | Jan | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 |
| 2022-2023 | Feb | 10.40 | 9.62 | 9.63 | 10.50 | 10.80 | 9.62 | 10.65 | 10.80 | 9.91 | 10.01 |
| 2022-2023 | Mar | 8.77 | 8.77 | 8.77 | 8.77 | 8.98 | 8.77 | 8.78 | 8.77 | 8.78 | 8.78 |
| 2022-2023 | Apr | 8.63 | 8.63 | 8.63 | 8.63 | 8.82 | 8.63 | 8.63 | 8.63 | 8.63 | 8.63 |
| 2022-2023 | May | 8.23 | 8.23 | 8.23 | 8.23 | 8.41 | 8.23 | 8.23 | 8.23 | 8.23 | 8.23 |
| 2022-2023 | Jun | 8.01 | 8.01 | 8.01 | 8.01 | 8.19 | 8.01 | 8.01 | 8.01 | 8.02 | 8.01 |
| 2022-2023 | Jul | 8.06 | 8.06 | 8.06 | 8.06 | 8.24 | 8.06 | 8.06 | 8.06 | 8.07 | 8.07 |
| 2022-2023 | Aug | 8.11 | 8.11 | 8.11 | 8.11 | 8.30 | 8.11 | 8.11 | 8.11 | 8.12 | 8.12 |
| 2022-2023 | Sep | 8.17 | 8.17 | 8.17 | 8.17 | 8.36 | 8.17 | 8.17 | 8.17 | 8.18 | 8.18 |
| 2022-2023 | Oct | 8.28 | 8.28 | 8.28 | 8.28 | 8.46 | 8.28 | 8.28 | 8.28 | 8.28 | 8.28 |
| **Average 2022-2023** | | **$ 8.77** | **$ 8.71** | **$ 8.71** | **$ 8.78** | **$ 8.94** | **$ 8.71** | **$ 8.79** | **$ 8.81** | **$ 8.73** | **$ 8.74** |
| **Winter 2022-2023** | | **$ 9.55** | **$ 9.40** | **$ 9.41** | **$ 9.58** | **$ 9.55** | **$ 9.40** | **$ 9.61** | **$ 9.64** | **$ 9.46** | **$ 9.48** |
| 2023-2024 | Nov | 10.03 | 10.03 | 10.05 | 10.05 | 10.13 | 10.03 | 10.06 | 10.13 | 10.04 | 10.05 |
| 2023-2024 | Dec | 10.54 | 10.54 | 10.56 | 10.55 | 10.58 | 10.54 | 10.56 | 10.58 | 10.55 | 10.55 |
| 2023-2024 | Jan | 10.62 | 10.62 | 10.63 | 10.62 | 10.64 | 10.62 | 10.63 | 10.64 | 10.63 | 10.63 |
| 2023-2024 | Feb | 10.44 | 10.38 | 10.40 | 10.51 | 11.50 | 10.38 | 11.35 | 11.50 | 10.56 | 10.67 |
| 2023-2024 | Mar | 8.74 | 8.74 | 8.74 | 8.74 | 8.95 | 8.74 | 8.75 | 8.75 | 8.75 | 8.75 |
| 2023-2024 | Apr | 8.53 | 8.53 | 8.53 | 8.53 | 8.73 | 8.53 | 8.53 | 8.53 | 8.54 | 8.54 |
| 2023-2024 | May | 8.25 | 8.25 | 8.25 | 8.25 | 8.41 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| 2023-2024 | Jun | 8.19 | 8.19 | 8.19 | 8.19 | 8.38 | 8.19 | 8.19 | 8.19 | 8.20 | 8.20 |
| 2023-2024 | Jul | 8.25 | 8.25 | 8.25 | 8.25 | 8.43 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| 2023-2024 | Aug | 8.30 | 8.30 | 8.30 | 8.30 | 8.49 | 8.30 | 8.30 | 8.30 | 8.31 | 8.30 |
| 2023-2024 | Sep | 8.36 | 8.36 | 8.36 | 8.36 | 8.54 | 8.36 | 8.36 | 8.36 | 8.36 | 8.36 |
| 2023-2024 | Oct | 8.47 | 8.47 | 8.47 | 8.47 | 8.66 | 8.47 | 8.47 | 8.47 | 8.47 | 8.47 |
| **Average 2023-2024** | | **$ 9.06** | **$ 9.06** | **$ 9.06** | **$ 9.07** | **$ 9.29** | **$ 9.06** | **$ 9.14** | **$ 9.16** | **$ 9.07** | **$ 9.08** |
| **Winter 2023-2024** | | **$ 10.08** | **$ 10.07** | **$ 10.07** | **$ 10.10** | **$ 10.09** | **$ 10.06** | **$ 10.27** | **$ 10.32** | **$ 10.10** | **$ 10.13** |
| 2024-2025 | Nov | 10.27 | 10.27 | 10.29 | 10.29 | 10.38 | 10.27 | 10.31 | 10.38 | 10.28 | 10.29 |
| 2024-2025 | Dec | 10.79 | 10.79 | 10.81 | 10.79 | 10.84 | 10.79 | 10.81 | 10.84 | 10.79 | 10.80 |
| 2024-2025 | Jan | 10.87 | 10.87 | 10.88 | 10.87 | 10.90 | 10.87 | 10.88 | 10.90 | 10.87 | 10.88 |
| 2024-2025 | Feb | 10.75 | 10.69 | 10.71 | 10.81 | 11.82 | 10.69 | 11.67 | 11.82 | 10.87 | 10.98 |
| 2024-2025 | Mar | 8.98 | 8.98 | 8.98 | 8.98 | 9.19 | 8.98 | 8.98 | 8.98 | 8.98 | 8.98 |
| 2024-2025 | Apr | 8.80 | 8.80 | 8.80 | 8.80 | 9.00 | 8.80 | 8.80 | 8.80 | 8.80 | 8.80 |
| 2024-2025 | May | 8.46 | 8.46 | 8.46 | 8.46 | 8.65 | 8.46 | 8.46 | 8.46 | 8.46 | 8.46 |
| 2024-2025 | Jun | 8.44 | 8.44 | 8.44 | 8.44 | 8.63 | 8.44 | 8.44 | 8.44 | 8.44 | 8.44 |
| 2024-2025 | Jul | 8.49 | 8.49 | 8.49 | 8.49 | 8.69 | 8.49 | 8.49 | 8.49 | 8.50 | 8.50 |
| 2024-2025 | Aug | 8.58 | 8.58 | 8.58 | 8.58 | 8.77 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| 2024-2025 | Sep | 8.63 | 8.63 | 8.63 | 8.63 | 8.83 | 8.63 | 8.63 | 8.63 | 8.64 | 8.63 |
| 2024-2025 | Oct | 8.77 | 8.77 | 8.77 | 8.77 | 8.97 | 8.77 | 8.77 | 8.77 | 8.77 | 8.77 |
| **Average 2024-2025** | | **$ 9.32** | **$ 9.31** | **$ 9.32** | **$ 9.33** | **$ 9.55** | **$ 9.31** | **$ 9.40** | **$ 9.42** | **$ 9.33** | **$ 9.34** |
| **Winter 2024-2025** | | **$ 10.33** | **$ 10.32** | **$ 10.33** | **$ 10.35** | **$ 10.35** | **$ 10.32** | **$ 10.53** | **$ 10.58** | **$ 10.36** | **$ 10.39** |
| 2025-2026 | Nov | 10.85 | 10.85 | 10.87 | 10.88 | 10.95 | 10.85 | 10.88 | 10.95 | 10.86 | 10.87 |
| 2025-2026 | Dec | 11.44 | 11.44 | 11.46 | 11.45 | 11.48 | 11.44 | 11.46 | 11.48 | 11.44 | 11.45 |
| 2025-2026 | Jan | 11.52 | 11.52 | 11.54 | 11.53 | 11.54 | 11.52 | 11.53 | 11.54 | 11.53 | 11.53 |
| 2025-2026 | Feb | 11.44 | 11.33 | 11.35 | 11.44 | 12.46 | 11.33 | 12.33 | 12.46 | 11.51 | 11.63 |
| 2025-2026 | Mar | 9.53 | 9.53 | 9.53 | 9.53 | 9.75 | 9.53 | 9.53 | 9.53 | 9.53 | 9.53 |
| 2025-2026 | Apr | 9.30 | 9.30 | 9.30 | 9.30 | 9.52 | 9.30 | 9.30 | 9.30 | 9.31 | 9.31 |
| 2025-2026 | May | 9.05 | 9.05 | 9.05 | 9.05 | 9.26 | 9.05 | 9.05 | 9.05 | 9.06 | 9.06 |
| 2025-2026 | Jun | 9.08 | 9.08 | 9.08 | 9.08 | 9.29 | 9.08 | 9.08 | 9.08 | 9.09 | 9.09 |
| 2025-2026 | Jul | 9.13 | 9.13 | 9.13 | 9.13 | 9.34 | 9.13 | 9.13 | 9.13 | 9.14 | 9.14 |
| 2025-2026 | Aug | 9.20 | 9.20 | 9.20 | 9.20 | 9.41 | 9.20 | 9.20 | 9.20 | 9.20 | 9.20 |
| 2025-2026 | Sep | 9.25 | 9.25 | 9.25 | 9.25 | 9.46 | 9.25 | 9.25 | 9.25 | 9.26 | 9.26 |
| 2025-2026 | Oct | 9.42 | 9.42 | 9.42 | 9.42 | 9.63 | 9.42 | 9.42 | 9.42 | 9.42 | 9.42 |
| **Average 2025-2026** | | **$ 9.94** | **$ 9.93** | **$ 9.93** | **$ 9.94** | **$ 10.17** | **$ 9.93** | **$ 10.01** | **$ 10.03** | **$ 9.95** | **$ 9.96** |
| **Winter 2025-2026** | | **$ 10.96** | **$ 10.94** | **$ 10.95** | **$ 10.97** | **$ 10.95** | **$ 10.94** | **$ 11.15** | **$ 11.19** | **$ 10.98** | **$ 11.00** |
| 2026-2027 | Nov | 11.50 | 11.50 | 11.52 | 11.53 | 11.60 | 11.50 | 11.53 | 11.60 | 11.51 | 11.52 |
| 2026-2027 | Dec | 12.05 | 12.05 | 12.07 | 12.06 | 12.09 | 12.05 | 12.06 | 12.09 | 12.05 | 12.06 |
| 2026-2027 | Jan | 12.14 | 12.14 | 12.16 | 12.15 | 12.15 | 12.14 | 12.14 | 12.16 | 12.14 | 12.14 |
| 2026-2027 | Feb | 12.42 | 11.93 | 11.95 | 12.42 | 13.06 | 11.93 | 12.94 | 13.06 | 12.17 | 12.28 |
| 2026-2027 | Mar | 10.04 | 10.04 | 10.04 | 10.04 | 10.28 | 10.04 | 10.05 | 10.05 | 10.05 | 10.05 |
| 2026-2027 | Apr | 9.80 | 9.80 | 9.80 | 9.80 | 10.02 | 9.80 | 9.80 | 9.80 | 9.80 | 9.80 |
| 2026-2027 | May | 9.52 | 9.52 | 9.52 | 9.52 | 9.74 | 9.52 | 9.52 | 9.52 | 9.53 | 9.53 |
| 2026-2027 | Jun | 9.52 | 9.52 | 9.52 | 9.52 | 9.74 | 9.52 | 9.52 | 9.52 | 9.53 | 9.53 |
| 2026-2027 | Jul | 9.55 | 9.55 | 9.55 | 9.55 | 9.77 | 9.55 | 9.55 | 9.55 | 9.56 | 9.56 |
| 2026-2027 | Aug | 9.64 | 9.64 | 9.64 | 9.64 | 9.86 | 9.64 | 9.64 | 9.64 | 9.65 | 9.65 |
| 2026-2027 | Sep | 9.70 | 9.70 | 9.70 | 9.70 | 9.92 | 9.70 | 9.70 | 9.70 | 9.70 | 9.70 |
| 2026-2027 | Oct | 9.86 | 9.86 | 9.86 | 9.86 | 10.09 | 9.86 | 9.86 | 9.86 | 9.87 | 9.87 |
| **Average 2026-2027** | | **$ 10.48** | **$ 10.44** | **$ 10.45** | **$ 10.48** | **$ 10.69** | **$ 10.44** | **$ 10.53** | **$ 10.55** | **$ 10.46** | **$ 10.47** |
| **Winter 2026-2027** | | **$ 11.63** | **$ 11.53** | **$ 11.55** | **$ 11.64** | **$ 11.53** | **$ 11.53** | **$ 11.75** | **$ 11.79** | **$ 11.58** | **$ 11.61** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027-2028 | Nov | 12.00 | 12.00 | 12.01 | 12.03 | 12.09 | 12.00 | 12.02 | 12.09 | 12.00 | 12.01 |
| 2027-2028 | Dec | 12.56 | 12.56 | 12.58 | 12.57 | 12.58 | 12.56 | 12.56 | 12.58 | 12.56 | 12.56 |
| 2027-2028 | Jan | 12.65 | 12.65 | 12.67 | 12.66 | 12.65 | 12.65 | 12.65 | 12.67 | 12.65 | 12.65 |
| 2027-2028 | Feb | 12.88 | 12.37 | 12.39 | 12.88 | 13.50 | 12.37 | 13.37 | 13.50 | 12.61 | 12.72 |
| 2027-2028 | Mar | 10.52 | 10.52 | 10.52 | 10.52 | 10.76 | 10.52 | 10.52 | 10.52 | 10.52 | 10.52 |
| 2027-2028 | Apr | 10.13 | 10.13 | 10.13 | 10.13 | 10.36 | 10.13 | 10.13 | 10.13 | 10.13 | 10.13 |
| 2027-2028 | May | 9.97 | 9.97 | 9.97 | 9.97 | 10.20 | 9.97 | 9.97 | 9.97 | 9.98 | 9.98 |
| 2027-2028 | Jun | 9.96 | 9.96 | 9.96 | 9.96 | 10.19 | 9.96 | 9.96 | 9.96 | 9.97 | 9.97 |
| 2027-2028 | Jul | 10.00 | 10.00 | 10.00 | 10.00 | 10.23 | 10.00 | 10.00 | 10.00 | 10.01 | 10.01 |
| 2027-2028 | Aug | 10.06 | 10.06 | 10.06 | 10.06 | 10.30 | 10.06 | 10.06 | 10.06 | 10.07 | 10.07 |
| 2027-2028 | Sep | 10.14 | 10.14 | 10.14 | 10.14 | 10.37 | 10.14 | 10.14 | 10.14 | 10.15 | 10.15 |
| 2027-2028 | Oct | 10.30 | 10.30 | 10.30 | 10.30 | 10.53 | 10.30 | 10.30 | 10.30 | 10.30 | 10.30 |
| **Average 2027-2028** | | **$ 10.93** | **$ 10.89** | **$ 10.90** | **$ 10.94** | **$ 11.15** | **$ 10.89** | **$ 10.97** | **$ 10.99** | **$ 10.91** | **$ 10.92** |
| **Winter 2027-2028** | | **$ 12.12** | **$ 12.02** | **$ 12.03** | **$ 12.13** | **$ 11.99** | **$ 12.02** | **$ 12.22** | **$ 12.27** | **$ 12.07** | **$ 12.09** |

# Appendix 6-2: High Case - Avoided Cost Estimates

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2007-2008 | Nov | 9.33 | 9.33 | 9.33 | 9.33 | 9.39 | 9.33 | 9.35 | 9.34 | 9.34 | 9.34 |
| 2007-2008 | Dec | 9.55 | 9.55 | 9.55 | 9.55 | 9.57 | 9.55 | 9.57 | 9.57 | 9.55 | 9.56 |
| 2007-2008 | Jan | 9.36 | 9.57 | 9.55 | 9.36 | 9.59 | 9.57 | 9.56 | 9.57 | 9.54 | 9.54 |
| 2007-2008 | Feb | 9.49 | 9.49 | 9.49 | 9.49 | 9.49 | 9.49 | 9.49 | 9.49 | 9.49 | 9.49 |
| 2007-2008 | Mar | 8.26 | 8.26 | 8.26 | 8.26 | 8.69 | 8.26 | 8.49 | 8.26 | 8.30 | 8.29 |
| 2007-2008 | Apr | 7.94 | 7.97 | 7.94 | 7.94 | 8.12 | 7.99 | 7.94 | 7.95 | 7.98 | 7.98 |
| 2007-2008 | May | 7.83 | 7.85 | 7.83 | 7.83 | 8.01 | 7.84 | 7.83 | 7.83 | 7.84 | 7.84 |
| 2007-2008 | Jun | 8.05 | 8.07 | 8.05 | 8.05 | 8.24 | 8.05 | 8.05 | 8.05 | 8.06 | 8.06 |
| 2007-2008 | Jul | 8.07 | 8.09 | 8.07 | 8.07 | 8.26 | 8.07 | 8.07 | 8.07 | 8.08 | 8.08 |
| 2007-2008 | Aug | 8.09 | 8.11 | 8.09 | 8.09 | 8.27 | 8.09 | 8.09 | 8.09 | 8.10 | 8.10 |
| 2007-2008 | Sep | 8.11 | 8.13 | 8.11 | 8.11 | 8.29 | 8.11 | 8.11 | 8.11 | 8.12 | 8.12 |
| 2007-2008 | Oct | 8.38 | 8.40 | 8.38 | 8.38 | 8.57 | 8.38 | 8.38 | 8.38 | 8.38 | 8.38 |
| **Average 2007-2008** | | **$ 8.54** | **$ 8.57** | **$ 8.56** | **$ 8.54** | **$ 8.71** | **$ 8.56** | **$ 8.58** | **$ 8.56** | **$ 8.56** | **$ 8.56** |
| **Winter 2007-2008** | | **$ 9.20** | **$ 9.24** | **$ 9.24** | **$ 9.20** | **$ 9.14** | **$ 9.24** | **$ 9.29** | **$ 9.25** | **$ 9.24** | **$ 9.24** |
| 2008-2009 | Nov | 8.78 | 8.79 | 8.78 | 8.78 | 8.83 | 8.79 | 8.79 | 8.80 | 8.79 | 8.79 |
| 2008-2009 | Dec | 8.95 | 8.97 | 8.97 | 8.95 | 8.97 | 8.97 | 8.95 | 8.99 | 8.96 | 8.97 |
| 2008-2009 | Jan | 9.02 | 9.02 | 9.02 | 9.02 | 9.02 | 9.02 | 9.02 | 9.04 | 9.02 | 9.03 |
| 2008-2009 | Feb | 8.94 | 8.94 | 8.94 | 8.94 | 8.94 | 8.94 | 8.94 | 8.94 | 8.94 | 8.94 |
| 2008-2009 | Mar | 8.52 | 8.52 | 8.52 | 8.52 | 8.72 | 8.52 | 8.52 | 8.52 | 8.52 | 8.52 |
| 2008-2009 | Apr | 8.29 | 8.29 | 8.29 | 8.29 | 8.47 | 8.29 | 8.29 | 8.29 | 8.29 | 8.29 |
| 2008-2009 | May | 8.14 | 8.16 | 8.14 | 8.14 | 8.32 | 8.14 | 8.14 | 8.14 | 8.14 | 8.14 |
| 2008-2009 | Jun | 8.09 | 8.11 | 8.09 | 8.09 | 8.27 | 8.09 | 8.09 | 8.09 | 8.09 | 8.09 |
| 2008-2009 | Jul | 8.14 | 8.16 | 8.14 | 8.14 | 8.32 | 8.14 | 8.14 | 8.14 | 8.15 | 8.14 |
| 2008-2009 | Aug | 8.19 | 8.21 | 8.19 | 8.19 | 8.38 | 8.19 | 8.19 | 8.19 | 8.20 | 8.20 |
| 2008-2009 | Sep | 8.21 | 8.23 | 8.21 | 8.21 | 8.40 | 8.21 | 8.21 | 8.21 | 8.22 | 8.22 |
| 2008-2009 | Oct | 8.25 | 8.27 | 8.25 | 8.25 | 8.44 | 8.29 | 8.25 | 8.25 | 8.28 | 8.28 |
| **Average 2008-2009** | | **$ 8.46** | **$ 8.47** | **$ 8.46** | **$ 8.46** | **$ 8.59** | **$ 8.47** | **$ 8.46** | **$ 8.47** | **$ 8.47** | **$ 8.47** |
| **Winter 2008-2009** | | **$ 8.84** | **$ 8.85** | **$ 8.85** | **$ 8.84** | **$ 8.83** | **$ 8.85** | **$ 8.85** | **$ 8.86** | **$ 8.85** | **$ 8.85** |
| 2009-2010 | Nov | 8.55 | 8.55 | 8.55 | 8.55 | 8.58 | 8.55 | 8.55 | 8.56 | 8.55 | 8.55 |
| 2009-2010 | Dec | 8.64 | 8.65 | 8.65 | 8.64 | 8.65 | 8.65 | 8.64 | 8.67 | 8.65 | 8.65 |
| 2009-2010 | Jan | 8.69 | 8.70 | 8.70 | 8.69 | 8.70 | 8.70 | 8.69 | 8.72 | 8.70 | 8.70 |
| 2009-2010 | Feb | 9.76 | 9.74 | 9.74 | 9.79 | 8.69 | 9.74 | 9.91 | 9.91 | 9.75 | 9.77 |
| 2009-2010 | Mar | 8.39 | 8.39 | 8.39 | 8.39 | 8.58 | 8.39 | 8.39 | 8.39 | 8.39 | 8.39 |
| 2009-2010 | Apr | 8.15 | 8.15 | 8.15 | 8.15 | 8.33 | 8.15 | 8.15 | 8.15 | 8.15 | 8.15 |
| 2009-2010 | May | 8.14 | 8.16 | 8.14 | 8.14 | 8.32 | 8.14 | 8.14 | 8.14 | 8.14 | 8.14 |
| 2009-2010 | Jun | 8.13 | 8.15 | 8.13 | 8.13 | 8.32 | 8.13 | 8.13 | 8.13 | 8.14 | 8.14 |
| 2009-2010 | Jul | 8.19 | 8.21 | 8.19 | 8.19 | 8.37 | 8.19 | 8.19 | 8.19 | 8.19 | 8.19 |
| 2009-2010 | Aug | 8.24 | 8.26 | 8.24 | 8.24 | 8.42 | 8.24 | 8.24 | 8.24 | 8.24 | 8.24 |
| 2009-2010 | Sep | 8.29 | 8.31 | 8.29 | 8.29 | 8.47 | 8.29 | 8.29 | 8.29 | 8.29 | 8.29 |
| 2009-2010 | Oct | 8.34 | 8.36 | 8.34 | 8.34 | 8.53 | 8.34 | 8.34 | 8.34 | 8.34 | 8.34 |
| **Average 2009-2010** | | **$ 8.46** | **$ 8.47** | **$ 8.46** | **$ 8.46** | **$ 8.50** | **$ 8.46** | **$ 8.47** | **$ 8.48** | **$ 8.46** | **$ 8.46** |
| **Winter 2009-2010** | | **$ 8.80** | **$ 8.81** | **$ 8.80** | **$ 8.81** | **$ 8.59** | **$ 8.81** | **$ 8.84** | **$ 8.85** | **$ 8.81** | **$ 8.81** |
| 2010-2011 | Nov | 8.62 | 8.62 | 8.63 | 8.62 | 8.66 | 8.62 | 8.62 | 8.64 | 8.62 | 8.62 |
| 2010-2011 | Dec | 8.70 | 8.72 | 8.73 | 8.70 | 8.71 | 8.72 | 8.71 | 8.75 | 8.71 | 8.72 |
| 2010-2011 | Jan | 8.75 | 8.77 | 8.78 | 8.75 | 8.77 | 8.77 | 8.76 | 8.80 | 8.76 | 8.77 |
| 2010-2011 | Feb | 9.96 | 9.94 | 9.95 | 11.82 | 8.71 | 9.94 | 9.99 | 11.82 | 10.07 | 10.25 |
| 2010-2011 | Mar | 8.53 | 8.53 | 8.53 | 8.53 | 8.73 | 8.53 | 8.53 | 8.53 | 8.54 | 8.54 |
| 2010-2011 | Apr | 8.29 | 8.29 | 8.29 | 8.29 | 8.47 | 8.29 | 8.29 | 8.29 | 8.29 | 8.29 |
| 2010-2011 | May | 8.33 | 8.35 | 8.33 | 8.33 | 8.52 | 8.33 | 8.33 | 8.33 | 8.34 | 8.34 |
| 2010-2011 | Jun | 8.36 | 8.38 | 8.36 | 8.36 | 8.55 | 8.36 | 8.36 | 8.36 | 8.36 | 8.36 |
| 2010-2011 | Jul | 8.41 | 8.43 | 8.41 | 8.41 | 8.60 | 8.41 | 8.41 | 8.41 | 8.42 | 8.42 |
| 2010-2011 | Aug | 8.46 | 8.48 | 8.46 | 8.46 | 8.65 | 8.46 | 8.46 | 8.46 | 8.46 | 8.46 |
| 2010-2011 | Sep | 8.52 | 8.54 | 8.52 | 8.52 | 8.71 | 8.52 | 8.52 | 8.52 | 8.52 | 8.52 |
| 2010-2011 | Oct | 8.57 | 8.59 | 8.57 | 8.57 | 8.77 | 8.57 | 8.57 | 8.57 | 8.58 | 8.58 |
| **Average 2010-2011** | | **$ 8.62** | **$ 8.64** | **$ 8.63** | **$ 8.78** | **$ 8.65** | **$ 8.63** | **$ 8.63** | **$ 8.79** | **$ 8.64** | **$ 8.65** |
| **Winter 2010-2011** | | **$ 8.91** | **$ 8.91** | **$ 8.92** | **$ 9.29** | **$ 8.67** | **$ 8.91** | **$ 8.92** | **$ 9.31** | **$ 8.94** | **$ 8.98** |
| 2011-2012 | Nov | 9.35 | 9.35 | 9.36 | 9.36 | 9.43 | 9.35 | 9.36 | 9.38 | 9.35 | 9.36 |
| 2011-2012 | Dec | 9.53 | 9.53 | 9.55 | 9.53 | 9.53 | 9.53 | 9.53 | 9.56 | 9.53 | 9.53 |
| 2011-2012 | Jan | 9.59 | 9.59 | 9.60 | 9.59 | 9.59 | 9.59 | 9.59 | 9.62 | 9.59 | 9.59 |
| 2011-2012 | Feb | 10.40 | 10.38 | 10.39 | 10.69 | 9.31 | 10.38 | 10.47 | 10.69 | 10.40 | 10.43 |
| 2011-2012 | Mar | 9.09 | 9.09 | 9.09 | 9.09 | 9.30 | 9.09 | 9.09 | 9.09 | 9.09 | 9.09 |
| 2011-2012 | Apr | 8.74 | 8.74 | 8.74 | 8.74 | 8.94 | 8.74 | 8.74 | 8.74 | 8.74 | 8.74 |
| 2011-2012 | May | 8.59 | 8.61 | 8.59 | 8.59 | 8.78 | 8.59 | 8.59 | 8.59 | 8.59 | 8.59 |
| 2011-2012 | Jun | 8.64 | 8.66 | 8.64 | 8.64 | 8.83 | 8.64 | 8.64 | 8.64 | 8.64 | 8.64 |
| 2011-2012 | Jul | 8.69 | 8.71 | 8.69 | 8.69 | 8.89 | 8.69 | 8.69 | 8.69 | 8.70 | 8.70 |
| 2011-2012 | Aug | 8.74 | 8.76 | 8.74 | 8.74 | 8.94 | 8.74 | 8.74 | 8.74 | 8.75 | 8.75 |
| 2011-2012 | Sep | 8.80 | 8.82 | 8.80 | 8.80 | 9.00 | 8.80 | 8.80 | 8.80 | 8.80 | 8.80 |
| 2011-2012 | Oct | 8.92 | 8.94 | 8.92 | 8.92 | 9.12 | 8.92 | 8.92 | 8.92 | 8.92 | 8.92 |
| **Average 2011-2012** | | **$ 9.09** | **$ 9.10** | **$ 9.09** | **$ 9.11** | **$ 9.14** | **$ 9.09** | **$ 9.10** | **$ 9.12** | **$ 9.09** | **$ 9.10** |
| **Winter 2011-2012** | | **$ 9.59** | **$ 9.59** | **$ 9.60** | **$ 9.65** | **$ 9.35** | **$ 9.59** | **$ 9.61** | **$ 9.67** | **$ 9.59** | **$ 9.60** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2012-2013 | Nov | 9.79 | 9.79 | 9.80 | 9.79 | 9.87 | 9.79 | 9.80 | 9.82 | 9.79 | 9.80 |
| 2012-2013 | Dec | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.02 | 10.00 | 10.00 |
| 2012-2013 | Jan | 10.06 | 10.06 | 10.06 | 10.06 | 10.06 | 10.06 | 10.06 | 10.08 | 10.06 | 10.06 |
| 2012-2013 | Feb | 10.05 | 10.04 | 10.06 | 10.36 | 9.68 | 10.04 | 10.14 | 10.36 | 10.08 | 10.11 |
| 2012-2013 | Mar | 9.36 | 9.36 | 9.36 | 9.36 | 9.57 | 9.36 | 9.36 | 9.36 | 9.36 | 9.36 |
| 2012-2013 | Apr | 9.01 | 9.01 | 9.01 | 9.01 | 9.22 | 9.01 | 9.01 | 9.01 | 9.01 | 9.01 |
| 2012-2013 | May | 8.87 | 8.89 | 8.87 | 8.87 | 9.07 | 8.87 | 8.87 | 8.87 | 8.87 | 8.87 |
| 2012-2013 | Jun | 8.92 | 8.94 | 8.92 | 8.92 | 9.12 | 8.92 | 8.92 | 8.92 | 8.93 | 8.93 |
| 2012-2013 | Jul | 8.98 | 9.00 | 8.98 | 8.98 | 9.18 | 8.98 | 8.98 | 8.98 | 8.98 | 8.98 |
| 2012-2013 | Aug | 9.03 | 9.05 | 9.03 | 9.03 | 9.24 | 9.03 | 9.03 | 9.03 | 9.04 | 9.04 |
| 2012-2013 | Sep | 9.09 | 9.11 | 9.09 | 9.09 | 9.29 | 9.09 | 9.09 | 9.09 | 9.09 | 9.09 |
| 2012-2013 | Oct | 9.21 | 9.23 | 9.21 | 9.21 | 9.42 | 9.21 | 9.21 | 9.21 | 9.21 | 9.21 |
| **Average 2012-2013** | | **$ 9.36** | **$ 9.37** | **$ 9.37** | **$ 9.39** | **$ 9.48** | **$ 9.36** | **$ 9.37** | **$ 9.40** | **$ 9.37** | **$ 9.37** |
| **Winter 2012-2013** | | **$ 9.85** | **$ 9.85** | **$ 9.86** | **$ 9.91** | **$ 9.73** | **$ 9.85** | **$ 9.87** | **$ 9.93** | **$ 9.86** | **$ 9.87** |
| 2013-2014 | Nov | 10.14 | 10.14 | 10.16 | 10.14 | 10.22 | 10.14 | 10.15 | 10.17 | 10.14 | 10.15 |
| 2013-2014 | Dec | 10.36 | 10.36 | 10.36 | 10.36 | 10.36 | 10.36 | 10.36 | 10.38 | 10.36 | 10.36 |
| 2013-2014 | Jan | 10.42 | 10.42 | 10.42 | 10.42 | 10.42 | 10.42 | 10.42 | 10.44 | 10.42 | 10.42 |
| 2013-2014 | Feb | 10.41 | 10.39 | 10.40 | 10.72 | 10.04 | 10.39 | 10.53 | 10.72 | 10.43 | 10.46 |
| 2013-2014 | Mar | 9.72 | 9.72 | 9.72 | 9.72 | 9.94 | 9.72 | 9.72 | 9.72 | 9.72 | 9.72 |
| 2013-2014 | Apr | 9.37 | 9.37 | 9.37 | 9.37 | 9.59 | 9.37 | 9.37 | 9.37 | 9.38 | 9.38 |
| 2013-2014 | May | 9.16 | 9.18 | 9.16 | 9.16 | 9.37 | 9.16 | 9.16 | 9.16 | 9.16 | 9.16 |
| 2013-2014 | Jun | 9.17 | 9.19 | 9.17 | 9.17 | 9.38 | 9.17 | 9.17 | 9.17 | 9.17 | 9.17 |
| 2013-2014 | Jul | 9.22 | 9.24 | 9.22 | 9.22 | 9.43 | 9.22 | 9.22 | 9.22 | 9.23 | 9.23 |
| 2013-2014 | Aug | 9.28 | 9.30 | 9.28 | 9.28 | 9.49 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 |
| 2013-2014 | Sep | 9.34 | 9.36 | 9.34 | 9.34 | 9.55 | 9.34 | 9.34 | 9.34 | 9.34 | 9.34 |
| 2013-2014 | Oct | 9.46 | 9.48 | 9.46 | 9.46 | 9.68 | 9.46 | 9.46 | 9.46 | 9.46 | 9.46 |
| **Average 2013-2014** | | **$ 9.67** | **$ 9.68** | **$ 9.67** | **$ 9.70** | **$ 9.79** | **$ 9.67** | **$ 9.68** | **$ 9.70** | **$ 9.67** | **$ 9.68** |
| **Winter 2013-2014** | | **$ 10.21** | **$ 10.20** | **$ 10.21** | **$ 10.27** | **$ 10.09** | **$ 10.20** | **$ 10.23** | **$ 10.28** | **$ 10.21** | **$ 10.22** |
| 2014-2015 | Nov | 10.38 | 10.38 | 10.39 | 10.38 | 10.46 | 10.38 | 10.39 | 10.41 | 10.38 | 10.38 |
| 2014-2015 | Dec | 10.60 | 10.60 | 10.61 | 10.60 | 10.61 | 10.60 | 10.60 | 10.63 | 10.60 | 10.61 |
| 2014-2015 | Jan | 10.67 | 10.67 | 10.67 | 10.67 | 10.67 | 10.67 | 10.67 | 10.69 | 10.67 | 10.67 |
| 2014-2015 | Feb | 10.88 | 10.86 | 10.87 | 11.19 | 10.30 | 10.86 | 11.03 | 11.19 | 10.90 | 10.93 |
| 2014-2015 | Mar | 9.95 | 9.95 | 9.95 | 9.95 | 10.18 | 9.95 | 9.95 | 9.96 | 9.96 | 9.96 |
| 2014-2015 | Apr | 9.60 | 9.60 | 9.60 | 9.60 | 9.81 | 9.60 | 9.60 | 9.60 | 9.60 | 9.60 |
| 2014-2015 | May | 9.49 | 9.51 | 9.49 | 9.49 | 9.71 | 9.49 | 9.49 | 9.49 | 9.50 | 9.50 |
| 2014-2015 | Jun | 9.55 | 9.57 | 9.55 | 9.55 | 9.77 | 9.55 | 9.55 | 9.55 | 9.55 | 9.55 |
| 2014-2015 | Jul | 9.60 | 9.62 | 9.60 | 9.60 | 9.82 | 9.60 | 9.60 | 9.60 | 9.61 | 9.61 |
| 2014-2015 | Aug | 9.66 | 9.68 | 9.66 | 9.66 | 9.88 | 9.66 | 9.66 | 9.66 | 9.67 | 9.67 |
| 2014-2015 | Sep | 9.72 | 9.74 | 9.72 | 9.72 | 9.94 | 9.72 | 9.72 | 9.72 | 9.73 | 9.73 |
| 2014-2015 | Oct | 9.86 | 9.88 | 9.86 | 9.86 | 10.08 | 9.86 | 9.86 | 9.86 | 9.86 | 9.86 |
| **Average 2014-2015** | | **$ 10.00** | **$ 10.00** | **$ 10.00** | **$ 10.02** | **$ 10.10** | **$ 9.99** | **$ 10.01** | **$ 10.03** | **$ 10.00** | **$ 10.00** |
| **Winter 2014-2015** | | **$ 10.50** | **$ 10.49** | **$ 10.50** | **$ 10.56** | **$ 10.34** | **$ 10.49** | **$ 10.53** | **$ 10.57** | **$ 10.50** | **$ 10.51** |
| 2015-2016 | Nov | 10.80 | 10.81 | 10.82 | 10.81 | 10.90 | 10.80 | 10.82 | 10.84 | 10.81 | 10.81 |
| 2015-2016 | Dec | 11.03 | 11.03 | 11.05 | 11.03 | 11.04 | 11.03 | 11.03 | 11.07 | 11.04 | 11.04 |
| 2015-2016 | Jan | 11.10 | 11.10 | 11.12 | 11.10 | 11.10 | 11.10 | 11.10 | 11.14 | 11.10 | 11.10 |
| 2015-2016 | Feb | 11.27 | 11.26 | 11.27 | 12.07 | 11.10 | 11.26 | 11.46 | 12.07 | 11.35 | 11.43 |
| 2015-2016 | Mar | 10.43 | 10.43 | 10.43 | 10.43 | 10.67 | 10.43 | 10.43 | 10.44 | 10.43 | 10.43 |
| 2015-2016 | Apr | 10.13 | 10.13 | 10.13 | 10.13 | 10.36 | 10.13 | 10.13 | 10.13 | 10.13 | 10.13 |
| 2015-2016 | May | 9.82 | 9.84 | 9.82 | 9.82 | 10.05 | 9.82 | 9.82 | 9.82 | 9.83 | 9.83 |
| 2015-2016 | Jun | 9.85 | 9.87 | 9.85 | 9.85 | 10.07 | 9.85 | 9.85 | 9.85 | 9.85 | 9.85 |
| 2015-2016 | Jul | 9.91 | 9.93 | 9.91 | 9.91 | 10.13 | 9.91 | 9.91 | 9.91 | 9.91 | 9.91 |
| 2015-2016 | Aug | 9.97 | 9.99 | 9.97 | 9.97 | 10.19 | 9.97 | 9.97 | 9.97 | 9.97 | 9.97 |
| 2015-2016 | Sep | 10.03 | 10.05 | 10.03 | 10.03 | 10.26 | 10.03 | 10.03 | 10.03 | 10.03 | 10.03 |
| 2015-2016 | Oct | 10.16 | 10.18 | 10.16 | 10.16 | 10.40 | 10.16 | 10.16 | 10.16 | 10.17 | 10.17 |
| **Average 2015-2016** | | **$ 10.38** | **$ 10.38** | **$ 10.38** | **$ 10.44** | **$ 10.52** | **$ 10.37** | **$ 10.39** | **$ 10.45** | **$ 10.39** | **$ 10.39** |
| **Winter 2015-2016** | | **$ 10.93** | **$ 10.92** | **$ 10.94** | **$ 11.09** | **$ 10.86** | **$ 10.92** | **$ 10.97** | **$ 11.11** | **$ 10.94** | **$ 10.96** |
| 2016-2017 | Nov | 11.26 | 11.26 | 11.28 | 11.26 | 11.35 | 11.26 | 11.28 | 11.29 | 11.26 | 11.27 |
| 2016-2017 | Dec | 11.51 | 11.51 | 11.51 | 11.51 | 11.51 | 11.51 | 11.51 | 11.53 | 11.51 | 11.51 |
| 2016-2017 | Jan | 11.58 | 11.58 | 11.58 | 11.58 | 11.58 | 11.58 | 11.58 | 11.59 | 11.58 | 11.58 |
| 2016-2017 | Feb | 11.57 | 11.53 | 11.54 | 12.44 | 11.97 | 11.53 | 11.79 | 12.44 | 11.65 | 11.74 |
| 2016-2017 | Mar | 10.69 | 10.69 | 10.69 | 10.69 | 10.94 | 10.69 | 10.69 | 10.69 | 10.70 | 10.70 |
| 2016-2017 | Apr | 10.39 | 10.39 | 10.39 | 10.39 | 10.63 | 10.39 | 10.39 | 10.39 | 10.39 | 10.39 |
| 2016-2017 | May | 9.54 | 9.54 | 9.54 | 9.54 | 9.75 | 9.54 | 9.54 | 9.54 | 9.54 | 9.54 |
| 2016-2017 | Jun | 9.47 | 9.47 | 9.47 | 9.47 | 9.68 | 9.47 | 9.47 | 9.47 | 9.47 | 9.47 |
| 2016-2017 | Jul | 9.52 | 9.52 | 9.52 | 9.52 | 9.74 | 9.52 | 9.52 | 9.52 | 9.53 | 9.53 |
| 2016-2017 | Aug | 9.58 | 9.58 | 9.58 | 9.58 | 9.80 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 |
| 2016-2017 | Sep | 9.64 | 9.64 | 9.64 | 9.64 | 9.86 | 9.64 | 9.64 | 9.64 | 9.64 | 9.64 |
| 2016-2017 | Oct | 9.78 | 9.78 | 9.78 | 9.78 | 10.00 | 9.78 | 9.78 | 9.78 | 9.78 | 9.78 |
| **Average 2016-2017** | | **$ 10.38** | **$ 10.37** | **$ 10.38** | **$ 10.45** | **$ 10.57** | **$ 10.37** | **$ 10.40** | **$ 10.45** | **$ 10.39** | **$ 10.39** |
| **Winter 2016-2017** | | **$ 11.32** | **$ 11.32** | **$ 11.32** | **$ 11.50** | **$ 11.33** | **$ 11.32** | **$ 11.37** | **$ 11.51** | **$ 11.34** | **$ 11.36** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-2018 | Nov | 10.91 | 10.91 | 10.92 | 10.92 | 11.01 | 10.91 | 10.93 | 10.94 | 10.92 | 10.92 |
| 2017-2018 | Dec | 11.16 | 11.16 | 11.16 | 11.16 | 11.16 | 11.16 | 11.16 | 11.17 | 11.16 | 11.16 |
| 2017-2018 | Jan | 11.23 | 11.23 | 11.23 | 11.23 | 11.23 | 11.23 | 11.23 | 11.23 | 11.23 | 11.23 |
| 2017-2018 | Feb | 11.22 | 11.19 | 11.20 | 12.16 | 11.66 | 11.19 | 11.48 | 12.16 | 11.32 | 11.41 |
| 2017-2018 | Mar | 10.44 | 10.44 | 10.44 | 10.44 | 10.69 | 10.44 | 10.45 | 10.44 | 10.45 | 10.45 |
| 2017-2018 | Apr | 10.13 | 10.13 | 10.13 | 10.13 | 10.36 | 10.13 | 10.13 | 10.13 | 10.13 | 10.13 |
| 2017-2018 | May | 9.83 | 9.83 | 9.83 | 9.83 | 10.05 | 9.83 | 9.83 | 9.83 | 9.83 | 9.83 |
| 2017-2018 | Jun | 9.82 | 9.82 | 9.82 | 9.82 | 10.05 | 9.82 | 9.82 | 9.82 | 9.83 | 9.83 |
| 2017-2018 | Jul | 9.88 | 9.88 | 9.88 | 9.88 | 10.10 | 9.88 | 9.88 | 9.88 | 9.88 | 9.88 |
| 2017-2018 | Aug | 9.94 | 9.94 | 9.94 | 9.94 | 10.16 | 9.94 | 9.94 | 9.94 | 9.94 | 9.94 |
| 2017-2018 | Sep | 10.00 | 10.00 | 10.00 | 10.00 | 10.23 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |
| 2017-2018 | Oct | 10.14 | 10.14 | 10.14 | 10.14 | 10.38 | 10.14 | 10.14 | 10.14 | 10.15 | 10.15 |
| **Average 2017-2018** | | **$ 10.39** | **$ 10.39** | **$ 10.39** | **$ 10.47** | **$ 10.59** | **$ 10.39** | **$ 10.41** | **$ 10.47** | **$ 10.40** | **$ 10.41** |
| **Winter 2017-2018** | | **$ 10.99** | **$ 10.99** | **$ 10.99** | **$ 11.18** | **$ 11.02** | **$ 10.99** | **$ 11.05** | **$ 11.19** | **$ 11.01** | **$ 11.03** |
| 2018-2019 | Nov | 11.17 | 11.17 | 11.18 | 11.18 | 11.26 | 11.17 | 11.20 | 11.20 | 11.18 | 11.18 |
| 2018-2019 | Dec | 11.39 | 11.39 | 11.39 | 11.39 | 11.39 | 11.39 | 11.39 | 11.41 | 11.39 | 11.39 |
| 2018-2019 | Jan | 11.46 | 11.46 | 11.46 | 11.46 | 11.46 | 11.46 | 11.46 | 11.47 | 11.46 | 11.46 |
| 2018-2019 | Feb | 11.42 | 11.41 | 11.41 | 12.17 | 12.10 | 11.41 | 11.92 | 12.17 | 11.55 | 11.62 |
| 2018-2019 | Mar | 10.35 | 10.35 | 10.35 | 10.35 | 10.60 | 10.35 | 10.36 | 10.35 | 10.36 | 10.36 |
| 2018-2019 | Apr | 9.89 | 9.89 | 9.89 | 9.89 | 10.12 | 9.89 | 9.89 | 9.89 | 9.89 | 9.89 |
| 2018-2019 | May | 9.90 | 9.90 | 9.90 | 9.90 | 10.12 | 9.90 | 9.90 | 9.90 | 9.91 | 9.91 |
| 2018-2019 | Jun | 9.52 | 9.52 | 9.52 | 9.52 | 9.73 | 9.52 | 9.52 | 9.52 | 9.52 | 9.52 |
| 2018-2019 | Jul | 9.57 | 9.57 | 9.57 | 9.57 | 9.79 | 9.57 | 9.57 | 9.57 | 9.58 | 9.58 |
| 2018-2019 | Aug | 9.63 | 9.63 | 9.63 | 9.63 | 9.85 | 9.63 | 9.63 | 9.63 | 9.63 | 9.63 |
| 2018-2019 | Sep | 9.69 | 9.69 | 9.69 | 9.69 | 9.91 | 9.69 | 9.69 | 9.69 | 9.69 | 9.69 |
| 2018-2019 | Oct | 9.84 | 9.84 | 9.84 | 9.84 | 10.07 | 9.84 | 9.84 | 9.84 | 9.84 | 9.84 |
| **Average 2018-2019** | | **$ 10.32** | **$ 10.32** | **$ 10.32** | **$ 10.38** | **$ 10.53** | **$ 10.32** | **$ 10.36** | **$ 10.39** | **$ 10.33** | **$ 10.34** |
| **Winter 2018-2019** | | **$ 11.16** | **$ 11.16** | **$ 11.16** | **$ 11.31** | **$ 11.16** | **$ 11.16** | **$ 11.27** | **$ 11.32** | **$ 11.19** | **$ 11.20** |
| 2019-2020 | Nov | 10.97 | 10.97 | 10.98 | 10.97 | 11.05 | 10.97 | 10.99 | 10.99 | 10.97 | 10.97 |
| 2019-2020 | Dec | 11.22 | 11.22 | 11.22 | 11.22 | 11.22 | 11.22 | 11.22 | 11.24 | 11.22 | 11.22 |
| 2019-2020 | Jan | 11.29 | 11.29 | 11.29 | 11.29 | 11.29 | 11.29 | 11.29 | 11.30 | 11.29 | 11.29 |
| 2019-2020 | Feb | 11.45 | 11.21 | 11.22 | 12.14 | 12.06 | 11.21 | 11.90 | 12.14 | 11.41 | 11.50 |
| 2019-2020 | Mar | 10.48 | 10.48 | 10.48 | 10.48 | 10.73 | 10.48 | 10.49 | 10.48 | 10.49 | 10.49 |
| 2019-2020 | Apr | 10.15 | 10.15 | 10.15 | 10.15 | 10.38 | 10.15 | 10.15 | 10.15 | 10.15 | 10.15 |
| 2019-2020 | May | 9.94 | 9.94 | 9.94 | 9.94 | 10.17 | 9.94 | 9.94 | 9.94 | 9.95 | 9.95 |
| 2019-2020 | Jun | 9.63 | 9.63 | 9.63 | 9.63 | 9.85 | 9.63 | 9.63 | 9.63 | 9.64 | 9.64 |
| 2019-2020 | Jul | 9.69 | 9.69 | 9.69 | 9.69 | 9.91 | 9.69 | 9.69 | 9.69 | 9.70 | 9.70 |
| 2019-2020 | Aug | 9.76 | 9.76 | 9.76 | 9.76 | 9.98 | 9.76 | 9.76 | 9.76 | 9.76 | 9.76 |
| 2019-2020 | Sep | 9.81 | 9.81 | 9.81 | 9.81 | 10.04 | 9.81 | 9.81 | 9.81 | 9.82 | 9.82 |
| 2019-2020 | Oct | 9.96 | 9.96 | 9.96 | 9.96 | 10.19 | 9.96 | 9.96 | 9.96 | 9.97 | 9.96 |
| **Average 2019-2020** | | **$ 10.36** | **$ 10.34** | **$ 10.35** | **$ 10.42** | **$ 10.57** | **$ 10.34** | **$ 10.40** | **$ 10.43** | **$ 10.36** | **$ 10.37** |
| **Winter 2019-2020** | | **$ 11.08** | **$ 11.03** | **$ 11.04** | **$ 11.22** | **$ 11.12** | **$ 11.03** | **$ 11.18** | **$ 11.23** | **$ 11.08** | **$ 11.09** |
| 2020-2021 | Nov | 11.02 | 11.02 | 11.03 | 11.04 | 11.11 | 11.02 | 11.04 | 11.05 | 11.03 | 11.03 |
| 2020-2021 | Dec | 11.28 | 11.28 | 11.29 | 11.28 | 11.29 | 11.28 | 11.28 | 11.29 | 11.28 | 11.28 |
| 2020-2021 | Jan | 11.35 | 11.35 | 11.35 | 11.35 | 11.35 | 11.35 | 11.35 | 11.35 | 11.35 | 11.35 |
| 2020-2021 | Feb | 12.05 | 11.30 | 11.31 | 12.18 | 12.51 | 11.30 | 12.33 | 12.51 | 11.58 | 11.69 |
| 2020-2021 | Mar | 10.38 | 10.38 | 10.38 | 10.38 | 10.62 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 |
| 2020-2021 | Apr | 10.04 | 10.04 | 10.04 | 10.04 | 10.27 | 10.04 | 10.04 | 10.04 | 10.04 | 10.04 |
| 2020-2021 | May | 9.70 | 9.70 | 9.70 | 9.70 | 9.92 | 9.70 | 9.70 | 9.70 | 9.70 | 9.70 |
| 2020-2021 | Jun | 9.23 | 9.23 | 9.23 | 9.23 | 9.44 | 9.23 | 9.23 | 9.23 | 9.24 | 9.24 |
| 2020-2021 | Jul | 9.29 | 9.29 | 9.29 | 9.29 | 9.50 | 9.29 | 9.29 | 9.29 | 9.29 | 9.29 |
| 2020-2021 | Aug | 9.35 | 9.35 | 9.35 | 9.35 | 9.56 | 9.35 | 9.35 | 9.35 | 9.35 | 9.35 |
| 2020-2021 | Sep | 9.41 | 9.41 | 9.41 | 9.41 | 9.62 | 9.41 | 9.41 | 9.41 | 9.41 | 9.41 |
| 2020-2021 | Oct | 9.54 | 9.54 | 9.54 | 9.54 | 9.76 | 9.54 | 9.54 | 9.54 | 9.55 | 9.55 |
| **Average 2020-2021** | | **$ 10.22** | **$ 10.16** | **$ 10.16** | **$ 10.23** | **$ 10.41** | **$ 10.16** | **$ 10.24** | **$ 10.26** | **$ 10.18** | **$ 10.19** |
| **Winter 2020-2021** | | **$ 11.22** | **$ 11.06** | **$ 11.07** | **$ 11.24** | **$ 11.19** | **$ 11.06** | **$ 11.28** | **$ 11.31** | **$ 11.12** | **$ 11.15** |
| 2021-2022 | Nov | 10.59 | 10.59 | 10.61 | 10.61 | 10.69 | 10.59 | 10.62 | 10.62 | 10.60 | 10.60 |
| 2021-2022 | Dec | 10.86 | 10.86 | 10.87 | 10.86 | 10.87 | 10.86 | 10.87 | 10.87 | 10.86 | 10.86 |
| 2021-2022 | Jan | 10.94 | 10.94 | 10.94 | 10.94 | 10.94 | 10.94 | 10.94 | 10.94 | 10.94 | 10.94 |
| 2021-2022 | Feb | 11.60 | 10.87 | 10.88 | 11.73 | 12.07 | 10.87 | 11.90 | 12.07 | 11.15 | 11.26 |
| 2021-2022 | Mar | 9.95 | 9.95 | 9.95 | 9.95 | 10.18 | 9.95 | 9.95 | 9.95 | 9.95 | 9.95 |
| 2021-2022 | Apr | 9.72 | 9.72 | 9.72 | 9.72 | 9.94 | 9.72 | 9.72 | 9.72 | 9.73 | 9.73 |
| 2021-2022 | May | 9.48 | 9.48 | 9.48 | 9.48 | 9.70 | 9.48 | 9.48 | 9.48 | 9.48 | 9.48 |
| 2021-2022 | Jun | 9.52 | 9.52 | 9.52 | 9.52 | 9.74 | 9.52 | 9.52 | 9.52 | 9.52 | 9.52 |
| 2021-2022 | Jul | 9.58 | 9.58 | 9.58 | 9.58 | 9.79 | 9.58 | 9.58 | 9.58 | 9.58 | 9.58 |
| 2021-2022 | Aug | 9.63 | 9.63 | 9.63 | 9.63 | 9.85 | 9.63 | 9.63 | 9.63 | 9.64 | 9.64 |
| 2021-2022 | Sep | 9.70 | 9.70 | 9.70 | 9.70 | 9.92 | 9.70 | 9.70 | 9.70 | 9.70 | 9.70 |
| 2021-2022 | Oct | 9.84 | 9.84 | 9.84 | 9.84 | 10.06 | 9.84 | 9.84 | 9.84 | 9.84 | 9.84 |
| **Average 2021-2022** | | **$ 10.12** | **$ 10.06** | **$ 10.06** | **$ 10.13** | **$ 10.31** | **$ 10.06** | **$ 10.14** | **$ 10.16** | **$ 10.08** | **$ 10.09** |
| **Winter 2021-2022** | | **$ 10.79** | **$ 10.64** | **$ 10.65** | **$ 10.82** | **$ 10.78** | **$ 10.64** | **$ 10.86** | **$ 10.89** | **$ 10.70** | **$ 10.72** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022-2023 | Nov | 11.55 | 11.55 | 11.57 | 11.57 | 11.65 | 11.55 | 11.58 | 11.58 | 11.56 | 11.56 |
| 2022-2023 | Dec | 11.99 | 11.99 | 12.00 | 11.99 | 12.01 | 11.99 | 12.00 | 12.01 | 11.99 | 11.99 |
| 2022-2023 | Jan | 12.07 | 12.07 | 12.07 | 12.07 | 12.07 | 12.07 | 12.07 | 12.07 | 12.07 | 12.07 |
| 2022-2023 | Feb | 12.14 | 11.92 | 11.93 | 12.22 | 13.10 | 11.92 | 12.93 | 13.10 | 12.13 | 12.24 |
| 2022-2023 | Mar | 10.42 | 10.42 | 10.42 | 10.42 | 10.66 | 10.42 | 10.42 | 10.42 | 10.42 | 10.42 |
| 2022-2023 | Apr | 10.34 | 10.34 | 10.34 | 10.34 | 10.58 | 10.34 | 10.34 | 10.34 | 10.35 | 10.35 |
| 2022-2023 | May | 9.77 | 9.77 | 9.77 | 9.77 | 10.00 | 9.77 | 9.77 | 9.77 | 9.78 | 9.78 |
| 2022-2023 | Jun | 9.49 | 9.49 | 9.49 | 9.49 | 9.71 | 9.49 | 9.49 | 9.49 | 9.50 | 9.50 |
| 2022-2023 | Jul | 9.55 | 9.55 | 9.55 | 9.55 | 9.77 | 9.55 | 9.55 | 9.55 | 9.56 | 9.55 |
| 2022-2023 | Aug | 9.61 | 9.61 | 9.61 | 9.61 | 9.83 | 9.61 | 9.61 | 9.61 | 9.62 | 9.61 |
| 2022-2023 | Sep | 9.67 | 9.67 | 9.67 | 9.67 | 9.89 | 9.67 | 9.67 | 9.67 | 9.68 | 9.68 |
| 2022-2023 | Oct | 9.82 | 9.82 | 9.82 | 9.82 | 10.04 | 9.82 | 9.82 | 9.82 | 9.82 | 9.82 |
| **Average 2022-2023** | | **$ 10.54** | **$ 10.52** | **$ 10.52** | **$ 10.54** | **$ 10.78** | **$ 10.52** | **$ 10.60** | **$ 10.62** | **$ 10.54** | **$ 10.55** |
| **Winter 2022-2023** | | **$ 11.63** | **$ 11.59** | **$ 11.60** | **$ 11.65** | **$ 11.68** | **$ 11.59** | **$ 11.80** | **$ 11.84** | **$ 11.63** | **$ 11.66** |
| 2023-2024 | Nov | 11.64 | 11.64 | 11.65 | 11.66 | 11.75 | 11.64 | 11.68 | 11.75 | 11.65 | 11.66 |
| 2023-2024 | Dec | 12.09 | 12.09 | 12.10 | 12.09 | 12.12 | 12.09 | 12.10 | 12.12 | 12.09 | 12.09 |
| 2023-2024 | Jan | 12.17 | 12.17 | 12.17 | 12.17 | 12.19 | 12.17 | 12.18 | 12.19 | 12.17 | 12.17 |
| 2023-2024 | Feb | 12.00 | 11.94 | 11.96 | 12.08 | 13.10 | 11.94 | 12.90 | 13.10 | 12.12 | 12.23 |
| 2023-2024 | Mar | 10.31 | 10.31 | 10.31 | 10.31 | 10.55 | 10.31 | 10.31 | 10.31 | 10.31 | 10.31 |
| 2023-2024 | Apr | 10.09 | 10.09 | 10.09 | 10.09 | 10.32 | 10.09 | 10.09 | 10.09 | 10.09 | 10.09 |
| 2023-2024 | May | 9.80 | 9.80 | 9.80 | 9.80 | 10.02 | 9.80 | 9.80 | 9.80 | 9.80 | 9.80 |
| 2023-2024 | Jun | 9.73 | 9.73 | 9.73 | 9.73 | 9.96 | 9.73 | 9.73 | 9.73 | 9.74 | 9.74 |
| 2023-2024 | Jul | 9.79 | 9.79 | 9.79 | 9.79 | 10.02 | 9.79 | 9.79 | 9.79 | 9.80 | 9.80 |
| 2023-2024 | Aug | 9.86 | 9.86 | 9.86 | 9.86 | 10.09 | 9.86 | 9.86 | 9.86 | 9.87 | 9.87 |
| 2023-2024 | Sep | 9.92 | 9.92 | 9.92 | 9.92 | 10.15 | 9.92 | 9.92 | 9.92 | 9.92 | 9.92 |
| 2023-2024 | Oct | 10.06 | 10.06 | 10.06 | 10.06 | 10.29 | 10.06 | 10.06 | 10.06 | 10.07 | 10.07 |
| **Average 2023-2024** | | **$ 10.62** | **$ 10.62** | **$ 10.62** | **$ 10.63** | **$ 10.88** | **$ 10.62** | **$ 10.70** | **$ 10.73** | **$ 10.64** | **$ 10.65** |
| **Winter 2023-2024** | | **$ 11.64** | **$ 11.63** | **$ 11.64** | **$ 11.66** | **$ 11.67** | **$ 11.63** | **$ 11.83** | **$ 11.89** | **$ 11.67** | **$ 11.70** |
| 2024-2025 | Nov | 12.03 | 12.03 | 12.05 | 12.06 | 12.15 | 12.03 | 12.07 | 12.15 | 12.04 | 12.05 |
| 2024-2025 | Dec | 12.51 | 12.51 | 12.53 | 12.52 | 12.55 | 12.51 | 12.53 | 12.55 | 12.51 | 12.52 |
| 2024-2025 | Jan | 12.60 | 12.60 | 12.62 | 12.60 | 12.62 | 12.60 | 12.61 | 12.62 | 12.60 | 12.60 |
| 2024-2025 | Feb | 12.47 | 12.41 | 12.43 | 12.55 | 13.60 | 12.41 | 13.40 | 13.60 | 12.59 | 12.71 |
| 2024-2025 | Mar | 10.59 | 10.59 | 10.59 | 10.59 | 10.84 | 10.59 | 10.59 | 10.59 | 10.59 | 10.59 |
| 2024-2025 | Apr | 10.33 | 10.33 | 10.33 | 10.33 | 10.56 | 10.33 | 10.33 | 10.33 | 10.33 | 10.33 |
| 2024-2025 | May | 10.06 | 10.06 | 10.06 | 10.06 | 10.29 | 10.06 | 10.06 | 10.06 | 10.06 | 10.06 |
| 2024-2025 | Jun | 9.97 | 9.97 | 9.97 | 9.97 | 10.20 | 9.97 | 9.97 | 9.97 | 9.98 | 9.97 |
| 2024-2025 | Jul | 10.03 | 10.03 | 10.03 | 10.03 | 10.26 | 10.03 | 10.03 | 10.03 | 10.04 | 10.04 |
| 2024-2025 | Aug | 10.10 | 10.10 | 10.10 | 10.10 | 10.33 | 10.10 | 10.10 | 10.10 | 10.10 | 10.10 |
| 2024-2025 | Sep | 10.16 | 10.16 | 10.16 | 10.16 | 10.39 | 10.16 | 10.16 | 10.16 | 10.16 | 10.16 |
| 2024-2025 | Oct | 10.32 | 10.32 | 10.32 | 10.32 | 10.56 | 10.32 | 10.32 | 10.32 | 10.33 | 10.32 |
| **Average 2024-2025** | | **$ 10.93** | **$ 10.92** | **$ 10.93** | **$ 10.94** | **$ 11.19** | **$ 10.92** | **$ 11.01** | **$ 11.04** | **$ 10.94** | **$ 10.96** |
| **Winter 2024-2025** | | **$ 12.04** | **$ 12.03** | **$ 12.04** | **$ 12.06** | **$ 12.05** | **$ 12.03** | **$ 12.24** | **$ 12.30** | **$ 12.07** | **$ 12.10** |
| 2025-2026 | Nov | 12.63 | 12.63 | 12.64 | 12.65 | 12.74 | 12.63 | 12.66 | 12.74 | 12.64 | 12.65 |
| 2025-2026 | Dec | 13.16 | 13.16 | 13.18 | 13.17 | 13.20 | 13.16 | 13.18 | 13.20 | 13.16 | 13.17 |
| 2025-2026 | Jan | 13.25 | 13.25 | 13.27 | 13.26 | 13.27 | 13.25 | 13.26 | 13.27 | 13.25 | 13.26 |
| 2025-2026 | Feb | 13.21 | 13.08 | 13.10 | 13.21 | 14.22 | 13.08 | 14.07 | 14.22 | 13.26 | 13.38 |
| 2025-2026 | Mar | 11.32 | 11.32 | 11.32 | 11.32 | 11.58 | 11.32 | 11.32 | 11.32 | 11.32 | 11.32 |
| 2025-2026 | Apr | 10.99 | 10.99 | 10.99 | 10.99 | 11.24 | 10.99 | 10.99 | 10.99 | 10.99 | 10.99 |
| 2025-2026 | May | 10.77 | 10.77 | 10.77 | 10.77 | 11.01 | 10.77 | 10.77 | 10.77 | 10.77 | 10.77 |
| 2025-2026 | Jun | 10.80 | 10.80 | 10.80 | 10.80 | 11.05 | 10.80 | 10.80 | 10.80 | 10.81 | 10.81 |
| 2025-2026 | Jul | 10.85 | 10.85 | 10.85 | 10.85 | 11.10 | 10.85 | 10.85 | 10.85 | 10.86 | 10.86 |
| 2025-2026 | Aug | 10.92 | 10.92 | 10.92 | 10.92 | 11.17 | 10.92 | 10.92 | 10.92 | 10.93 | 10.93 |
| 2025-2026 | Sep | 10.99 | 10.99 | 10.99 | 10.99 | 11.25 | 10.99 | 10.99 | 10.99 | 11.00 | 11.00 |
| 2025-2026 | Oct | 11.17 | 11.17 | 11.17 | 11.17 | 11.42 | 11.17 | 11.17 | 11.17 | 11.17 | 11.17 |
| **Average 2025-2026** | | **$ 11.67** | **$ 11.66** | **$ 11.67** | **$ 11.67** | **$ 11.94** | **$ 11.66** | **$ 11.75** | **$ 11.77** | **$ 11.68** | **$ 11.69** |
| **Winter 2025-2026** | | **$ 12.71** | **$ 12.69** | **$ 12.70** | **$ 12.72** | **$ 12.71** | **$ 12.69** | **$ 12.90** | **$ 12.95** | **$ 12.73** | **$ 12.75** |
| 2026-2027 | Nov | 13.42 | 13.42 | 13.43 | 13.45 | 13.54 | 13.42 | 13.45 | 13.54 | 13.43 | 13.44 |
| 2026-2027 | Dec | 13.91 | 13.91 | 13.93 | 13.91 | 13.94 | 13.91 | 13.92 | 13.94 | 13.91 | 13.91 |
| 2026-2027 | Jan | 14.01 | 14.01 | 14.02 | 14.02 | 14.02 | 14.01 | 14.01 | 14.02 | 14.01 | 14.01 |
| 2026-2027 | Feb | 14.37 | 13.82 | 13.83 | 14.37 | 14.96 | 13.82 | 14.82 | 14.96 | 14.06 | 14.17 |
| 2026-2027 | Mar | 11.94 | 11.94 | 11.94 | 11.94 | 12.21 | 11.94 | 11.94 | 11.94 | 11.94 | 11.94 |
| 2026-2027 | Apr | 11.53 | 11.53 | 11.53 | 11.53 | 11.80 | 11.53 | 11.53 | 11.53 | 11.53 | 11.53 |
| 2026-2027 | May | 11.33 | 11.33 | 11.33 | 11.33 | 11.59 | 11.33 | 11.33 | 11.33 | 11.34 | 11.34 |
| 2026-2027 | Jun | 11.33 | 11.33 | 11.33 | 11.33 | 11.59 | 11.33 | 11.33 | 11.33 | 11.34 | 11.34 |
| 2026-2027 | Jul | 11.37 | 11.37 | 11.37 | 11.37 | 11.63 | 11.37 | 11.37 | 11.37 | 11.38 | 11.37 |
| 2026-2027 | Aug | 11.44 | 11.44 | 11.44 | 11.44 | 11.70 | 11.44 | 11.44 | 11.44 | 11.44 | 11.44 |
| 2026-2027 | Sep | 11.53 | 11.53 | 11.53 | 11.53 | 11.79 | 11.53 | 11.53 | 11.53 | 11.53 | 11.53 |
| 2026-2027 | Oct | 11.69 | 11.69 | 11.69 | 11.69 | 11.96 | 11.69 | 11.69 | 11.69 | 11.69 | 11.69 |
| **Average 2026-2027** | | **$ 12.32** | **$ 12.28** | **$ 12.28** | **$ 12.33** | **$ 12.56** | **$ 12.28** | **$ 12.36** | **$ 12.39** | **$ 12.30** | **$ 12.31** |
| **Winter 2026-2027** | | **$ 13.53** | **$ 13.42** | **$ 13.43** | **$ 13.54** | **$ 13.41** | **$ 13.42** | **$ 13.63** | **$ 13.68** | **$ 13.47** | **$ 13.50** |

| Gas Year | Month | Albany | Astoria | Dalles | Eugene | Newport LC | Portland | Salem | Vancouver | Oregon | System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027-2028 | Nov | 13.97 | 13.97 | 13.98 | 14.01 | 14.08 | 13.97 | 13.98 | 14.08 | 13.97 | 13.99 |
| 2027-2028 | Dec | 14.46 | 14.46 | 14.49 | 14.47 | 14.49 | 14.46 | 14.47 | 14.49 | 14.46 | 14.47 |
| 2027-2028 | Jan | 14.57 | 14.57 | 14.59 | 14.58 | 14.57 | 14.57 | 14.57 | 14.59 | 14.57 | 14.57 |
| 2027-2028 | Feb | 14.94 | 14.31 | 14.33 | 14.94 | 15.53 | 14.31 | 15.31 | 15.53 | 14.57 | 14.69 |
| 2027-2028 | Mar | 12.50 | 12.50 | 12.50 | 12.50 | 12.79 | 12.50 | 12.50 | 12.51 | 12.51 | 12.51 |
| 2027-2028 | Apr | 12.09 | 12.09 | 12.09 | 12.09 | 12.37 | 12.09 | 12.09 | 12.09 | 12.09 | 12.09 |
| 2027-2028 | May | 11.87 | 11.87 | 11.87 | 11.87 | 12.15 | 11.87 | 11.87 | 11.87 | 11.88 | 11.88 |
| 2027-2028 | Jun | 11.86 | 11.86 | 11.86 | 11.86 | 12.13 | 11.86 | 11.86 | 11.86 | 11.87 | 11.87 |
| 2027-2028 | Jul | 11.91 | 11.91 | 11.91 | 11.91 | 12.18 | 11.91 | 11.91 | 11.91 | 11.92 | 11.92 |
| 2027-2028 | Aug | 11.98 | 11.98 | 11.98 | 11.98 | 12.25 | 11.98 | 11.98 | 11.98 | 11.99 | 11.98 |
| 2027-2028 | Sep | 12.06 | 12.06 | 12.06 | 12.06 | 12.34 | 12.06 | 12.06 | 12.06 | 12.07 | 12.07 |
| 2027-2028 | Oct | 12.22 | 12.22 | 12.22 | 12.22 | 12.51 | 12.22 | 12.22 | 12.22 | 12.23 | 12.23 |
| **Average 2027-2028** | | **$ 12.87** | **$ 12.82** | **$ 12.82** | **$ 12.87** | **$ 13.12** | **$ 12.82** | **$ 12.90** | **$ 12.93** | **$ 12.84** | **$ 12.85** |
| **Winter 2027-2028** | | **$ 14.09** | **$ 13.96** | **$ 13.98** | **$ 14.10** | **$ 13.97** | **$ 13.96** | **$ 14.17** | **$ 14.24** | **$ 14.02** | **$ 14.05** |

# Appendix 6-3: Development of the Real After-Tax Discount Rate

**NORTHWEST NATURAL**
**INVESTMENT CARRYING CHARGE**

**30 YEAR INVESTMENT**

**CARRYING COST ASSUMPTIONS**

| DESCRIPTION | AMOUNT | | YEAR | EARNINGS BASE | RETURN | BOOK DEPR | TAX BASE | TAX DEPR | INTEREST | DEFERRED TAXES | CURRENT TAXES | TOTAL TAXES | PROP TAX | REV REQT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **FINANCING** | | | 1 | 98.333 | 8.499 | 3.333 | 100.000 | 1.667 | 3.462 | 0.000 | 4.308 | 4.308 | 1.534 | 17.674 |
| **COMPOSITION** | | | 2 | 95.000 | 8.211 | 3.333 | 98.333 | 3.333 | 3.344 | 0.000 | 3.127 | 3.127 | 1.482 | 16.153 |
| **DEBT** | 49.82 | | 3 | 91.667 | 7.922 | 3.333 | 95.000 | 3.333 | 3.227 | 0.000 | 3.017 | 3.017 | 1.430 | 15.703 |
| **PREFERRED** | 0.68 | | 4 | 88.333 | 7.634 | 3.333 | 91.667 | 3.333 | 3.110 | 0.000 | 2.908 | 2.908 | 1.378 | 15.253 |
| **COMMON** | 49.5 | | 5 | 85.000 | 7.346 | 3.333 | 88.333 | 3.333 | 2.992 | 0.000 | 2.798 | 2.798 | 1.326 | 14.803 |
| | 100 | | 6 | 81.667 | 7.058 | 3.333 | 85.000 | 3.333 | 2.875 | 0.000 | 2.688 | 2.688 | 1.274 | 14.354 |
| **COST** | | | 7 | 78.333 | 6.770 | 3.333 | 81.667 | 3.333 | 2.758 | 0.000 | 2.578 | 2.578 | 1.222 | 13.904 |
| **DEBT** | 7.07 | | 8 | 75.000 | 6.482 | 3.333 | 78.333 | 3.333 | 2.640 | 0.000 | 2.469 | 2.469 | 1.170 | 13.454 |
| **PREFERRED** | 7.16 | | 9 | 71.667 | 6.194 | 3.333 | 75.000 | 3.333 | 2.523 | 0.000 | 2.359 | 2.359 | 1.118 | 13.004 |
| **COMMON** | 10.25 | | 10 | 68.333 | 5.906 | 3.333 | 71.667 | 3.333 | 2.406 | 0.000 | 2.249 | 2.249 | 1.066 | 12.554 |
| **TOTAL** | 8.64 | | 11 | 65.000 | 5.618 | 3.333 | 68.333 | 3.333 | 2.288 | 0.000 | 2.140 | 2.140 | 1.014 | 12.105 |
| | | | 12 | 61.667 | 5.330 | 3.333 | 65.000 | 3.333 | 2.171 | 0.000 | 2.030 | 2.030 | 0.962 | 11.655 |
| **TAXES** | | | 13 | 58.333 | 5.042 | 3.333 | 61.667 | 3.333 | 2.053 | 0.000 | 1.920 | 1.920 | 0.910 | 11.205 |
| **TAX LIFE** | 30 | | 14 | 55.000 | 4.753 | 3.333 | 58.333 | 3.333 | 1.936 | 0.000 | 1.810 | 1.810 | 0.858 | 10.755 |
| **MONTH(REAL PROP)** | 6 | | 15 | 51.667 | 4.465 | 3.333 | 55.000 | 3.333 | 1.819 | 0.000 | 1.701 | 1.701 | 0.806 | 10.305 |
| **DRDB RATE** | 100 | | 16 | 48.333 | 4.177 | 3.333 | 51.667 | 3.333 | 1.701 | 0.000 | 1.591 | 1.591 | 0.754 | 9.856 |
| **COMPOSITE RATE** | 39.12 | | 17 | 45.000 | 3.889 | 3.333 | 48.333 | 3.333 | 1.584 | 0.000 | 1.481 | 1.481 | 0.702 | 9.406 |
| **DEFERRED RATE** | 0 | | 18 | 41.667 | 3.601 | 3.333 | 45.000 | 3.333 | 1.467 | 0.000 | 1.371 | 1.371 | 0.650 | 8.956 |
| **PROPERTY TAX RATE** | 1.56 | | 19 | 38.333 | 3.313 | 3.333 | 41.667 | 3.333 | 1.349 | 0.000 | 1.262 | 1.262 | 0.598 | 8.506 |
| **FACILITY** | | | 20 | 35.000 | 3.025 | 3.333 | 38.333 | 3.333 | 1.232 | 0.000 | 1.152 | 1.152 | 0.546 | 8.056 |
| **BOOK LIFE** | 30 | | 21 | 31.667 | 2.737 | 3.333 | 35.000 | 3.333 | 1.115 | 0.000 | 1.042 | 1.042 | 0.494 | 7.607 |
| **INVESTMENT** | 100 | | 22 | 28.333 | 2.449 | 3.333 | 31.667 | 3.333 | 0.997 | 0.000 | 0.933 | 0.933 | 0.442 | 7.157 |
| | | | 23 | 25.000 | 2.161 | 3.333 | 28.333 | 3.333 | 0.880 | 0.000 | 0.823 | 0.823 | 0.390 | 6.707 |
| | | | 24 | 21.667 | 1.873 | 3.333 | 25.000 | 3.333 | 0.763 | 0.000 | 0.713 | 0.713 | 0.338 | 6.257 |
| | | | 25 | 18.333 | 1.584 | 3.333 | 21.667 | 3.333 | 0.645 | 0.000 | 0.603 | 0.603 | 0.286 | 5.807 |
| **SUMMARY OF RESULTS** | | | 26 | 15.000 | 1.296 | 3.333 | 18.333 | 3.333 | 0.528 | 0.000 | 0.494 | 0.494 | 0.234 | 5.357 |
| **RETURN** | 5.949 | | 27 | 11.667 | 1.008 | 3.333 | 15.000 | 3.333 | 0.411 | 0.000 | 0.384 | 0.384 | 0.182 | 4.908 |
| **DEPRECIATION** | 3.333 | | 28 | 8.333 | 0.720 | 3.333 | 11.667 | 3.333 | 0.293 | 0.000 | 0.274 | 0.274 | 0.130 | 4.458 |
| **INCOME TAX** | 2.351 | | 29 | 5.000 | 0.432 | 3.333 | 8.333 | 3.333 | 0.176 | 0.000 | 0.165 | 0.165 | 0.078 | 4.008 |
| **PROP TAX** | 1.074 | | 30 | 1.667 | 0.144 | 3.333 | 5.000 | 3.333 | 0.059 | 0.000 | 0.055 | 0.055 | 0.026 | 3.558 |
| **A & G** | 0.000 | | 31 | 0.000 | 0.000 | 0.000 | 1.667 | 1.667 | 0.000 | 0.000 | -1.071 | -1.071 | 0.000 | -1.071 |
| **GEN PLT @** | 0.000 | | 32 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | ----- | | 33 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **NOMINAL CARRYING CHARGE** | 12.71 | % | 34 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 35 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **INFLATION** | 2.00 | % | 36 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 37 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **REAL CARRYING CHARGE** | 10.54 | % | 38 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 39 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **AFTER TAX DISCOUNT RATE** | 7.27 | % | 40 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 41 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **REAL AFTER-TAX DISC RATE** | 5.16 | % | 42 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 43 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 44 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Gross Up Factor** | 1.405 | | 45 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 46 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 47 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 48 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 49 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 50 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | 51 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | NET PRESENT VALUE | | | 761.131 | 65.782 | 36.857 | 796.522 | 35.391 | 26.794 | 0.000 | 25.995 | 25.995 | 11.874 | 140.508 |