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October 24, 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 45 – Replacement Sheets to the 2008 IRP

Northwest Natural Gas Company, dba NW Natural ("NW Natural" or the "Company") files herewith revised sheets to its 2008 Integrated Resource Plan ("IRP"). The changes made herein are clarifying rather than substantive and they are made in accordance with conversations with Staff.

To insure that that pagination is correct, complete chapters and appendices are being filed. Below is a summary of all revisions made in this filing:

Executive Summary

- Sheets ES-1 and ES-16 - The word 'Draft' is removed from the title sheet of both these pages as this document is the final, filed version.
- Sheets ES-4 and ES-6 – The measurement of natural gas was stated in Bcf, but is revised so that it is stated in MDth.
- Sheet E-17 - The Multi Year Action plan for DSM is revised to better reflect the findings and the listed action items in Chapter 4.

Chapter 4

- Sheet 4-7 - The reference to Appendix 4-2 just above Figure 4-2 is corrected to state Appendix 4-1
- Sheet 4-9 – The majority of retrofit projects are presumed to be completed by 2021, not 2012. This typographical error is corrected.

- Sheet 4-11 - A table is added to show the 20 years of achievable DSM in Oregon.

- Sheet 4-12 – A typographical error is corrected: The Energy Trust has a 2008 goal of achieving 2.3 million therms, not 2.2.

- Sheet 4-13 – The Energy Trust is expected to have surplus funds into 2010 and the Company's rate moratorium ends in 2011. The initial filing misstated these years.

- Sheet 4-17 – The action items are revised to better reflect the findings in this chapter.

Chapter 6

- Sheet 6-9 - Figure 6-2 is corrected.

- Sheet 6-10 – Figure 6-3 is corrected.

Appendix 4

- Sheet 4A-2 – This table is revised to correct a typographical error. The value for potential Commercial Retrofit savings in year 2009 on the Incremental Annual Savings table was inadvertently left off.

Appendix 6

- An additional run is provided showing the Avoided Cost estimate for the Preferred Case

Copies of this letter and the filing made herewith are available in the Company's main office in Oregon and on its website at www.nwnatural.com.

Please address correspondence on this matter to me at Inara.Scott@nwnatural.com, with copies to the following:

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If you have questions, please call Jennifer Gross at (503) 226-4211 extension 3590.

Sincerely,

NW NATURAL

/s/ Inara K. Scott

Inara K. Scott, Manager
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attachments

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.

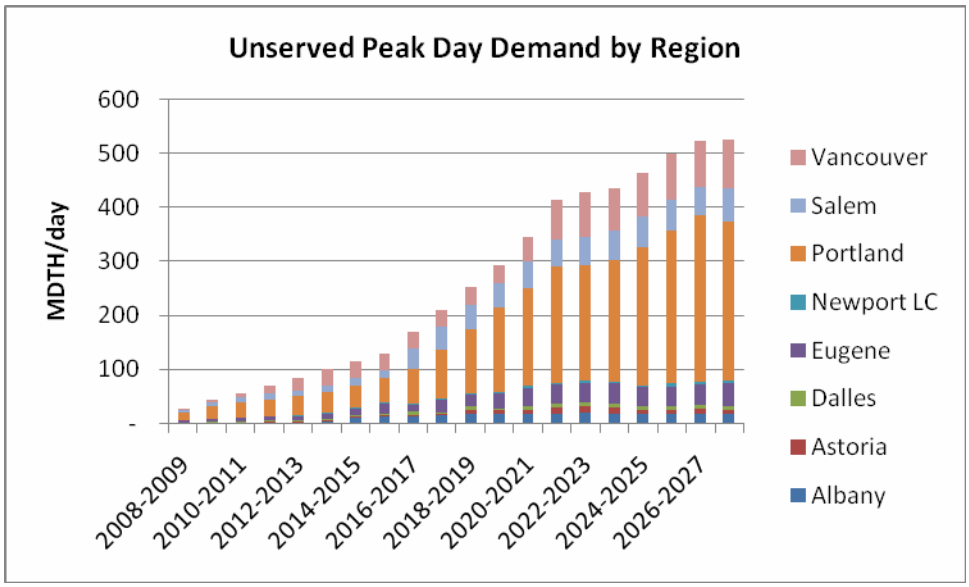
3. The use of *SENDOUT*® as a modeling tool provides NW Natural a more realistic look at demand levels and capacity requirements than was previously possible. One consequence of this approach is that a forecast design year with a strenuous peak episode is much harder to serve using *SENDOUT*®. As a result,

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

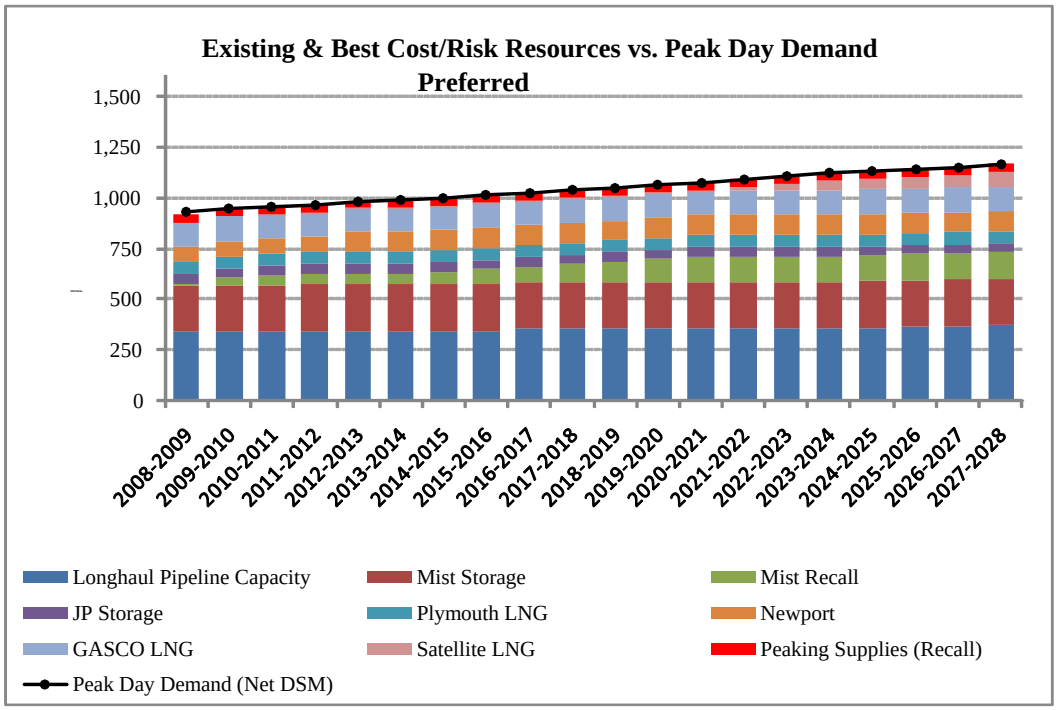


Annual unserved demand is forecast to increase from 28 MDth in the first year to 6,993 MDth by 2027/2028.

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 8,900 MDth. 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.

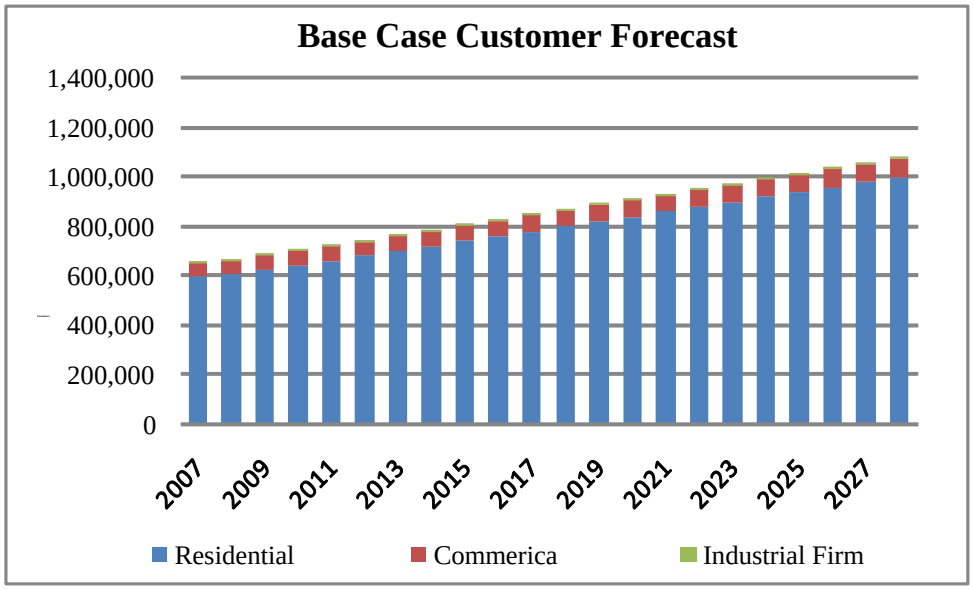
To forecast growth, NW Natural relies upon economic and population growth projections from the Oregon Office of Economic Analysis. NW Natural also projects the number of customers that the Company expects to convert to natural gas from other energy sources.

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:

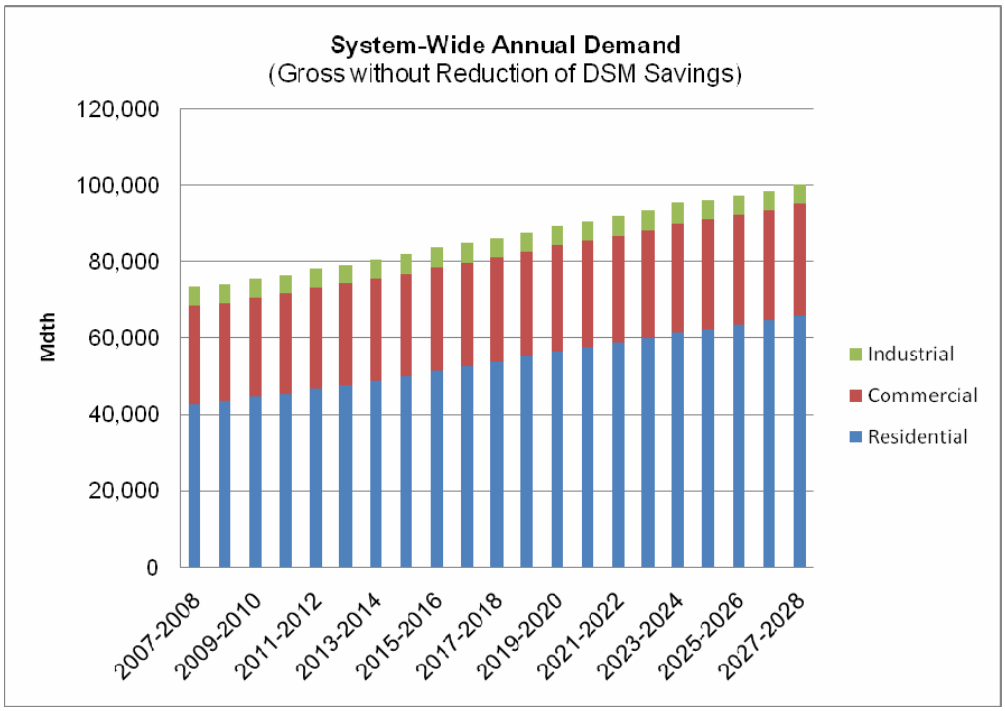
1. During the next 20 years, the Company forecasts a 2.4 percent annual growth in the number of system-wide core customers. The number of core-market customers is forecast to increase by over 60 percent between 2008 and 2028 (see Figure ES-4).

FIGURE ES-4



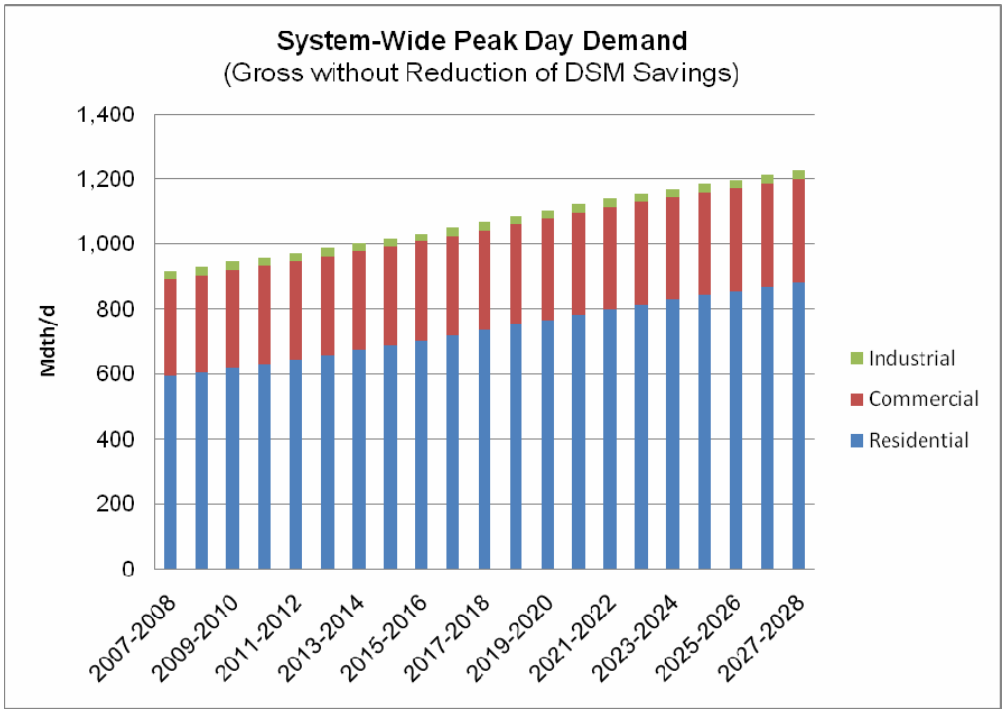
2. At the same time, the Company is forecasting average residential and commercial use per customer to decline by approximately -0.3 percent and -0.7 percent per year, respectively. This trend partially offsets load growth attributable to the forecast growth in customers. Overall, the Company is forecasting a 1.6 percent average growth rate in annual firm demand over the 20 year planning horizon, reaching approximately 100,000 MDth 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

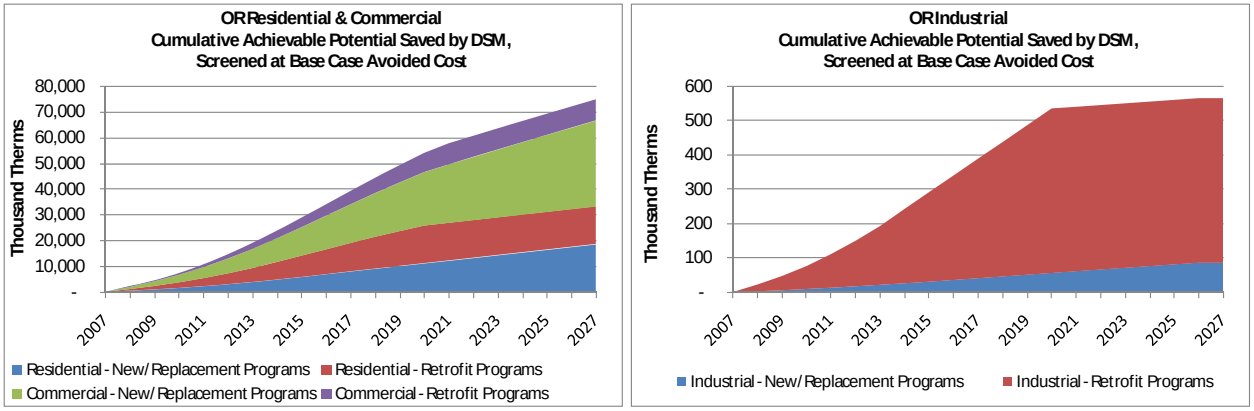
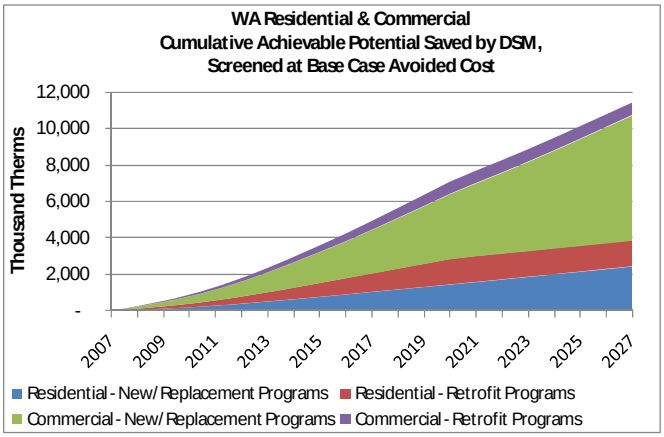


FIGURE ES-8



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.

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 NW Natural will work with the Energy Trust of Oregon in efforts to achieve savings projections of 2.3 million therms in 2008 and 2.5 million therms in 2009.

3.2 NW Natural will pursue revenue per customer decoupling in the state of Washington, establishing a revenue neutral environment for conservation. If this is accomplished, the Company will seek to mirror successful Energy Trust programs in the Company's Washington service area.

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

3.4 In Washington, the Company will provide periodic updates of its conservation resource assessments to determine any changes in what is technically achievable.

3.5 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.

3.6 In Oregon, NW Natural will work with interested parties to determine potential EE program funding mechanism for its Oregon firm industrial customers in order to 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 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:

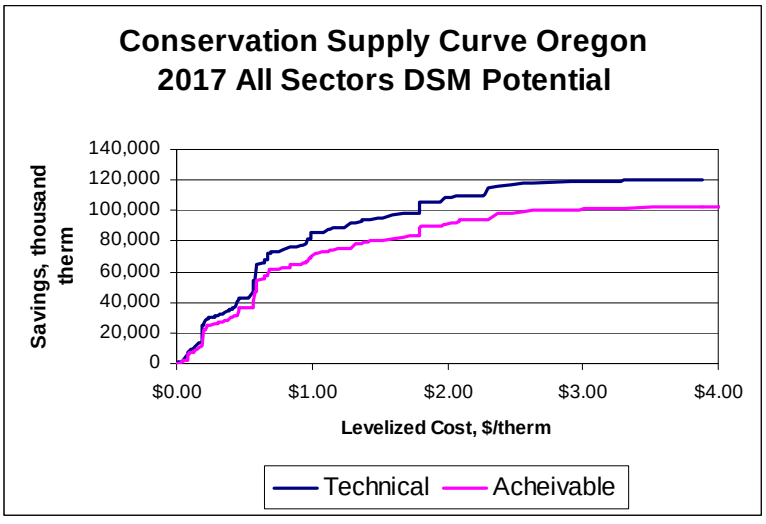
> *Guideline 4(e): Identification and estimated costs of all supply-side and demand-side resource options, taking into account anticipated advances in technology.*
>
> *Guideline 6(a): Each utility should ensure that a conservation potential study is conducted periodically for its entire service territory.*
>
> *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.

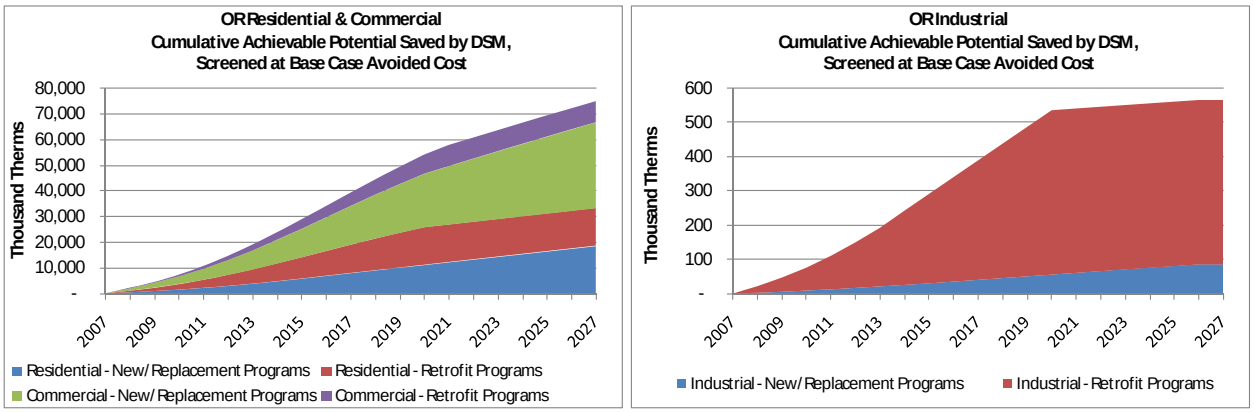
A. OREGON – BASE CASE

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 4-1.

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

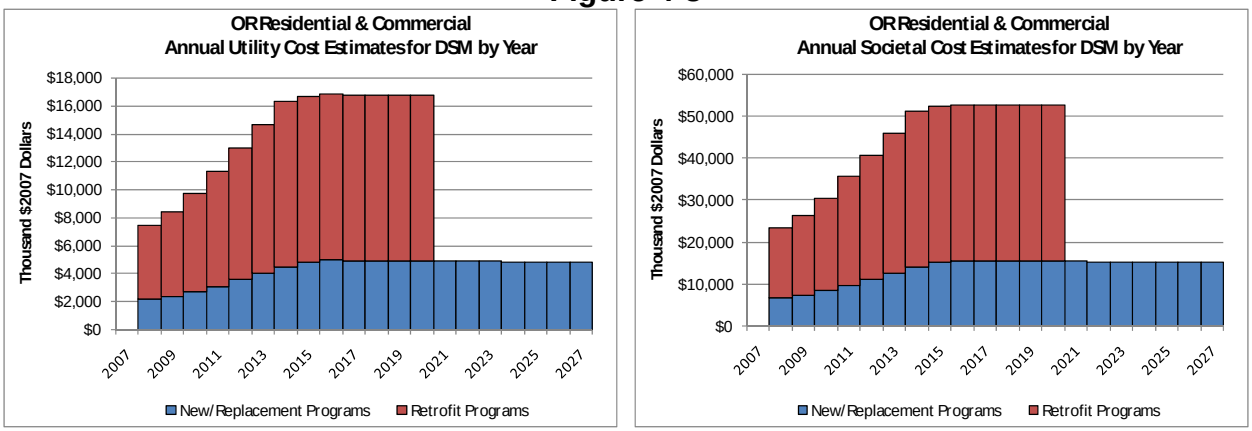
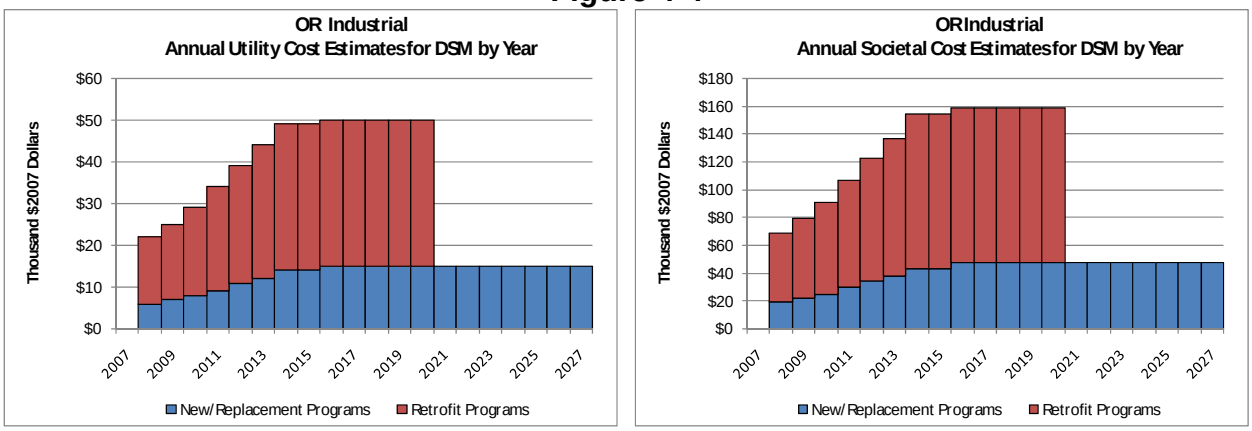


Figure 4-4



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.

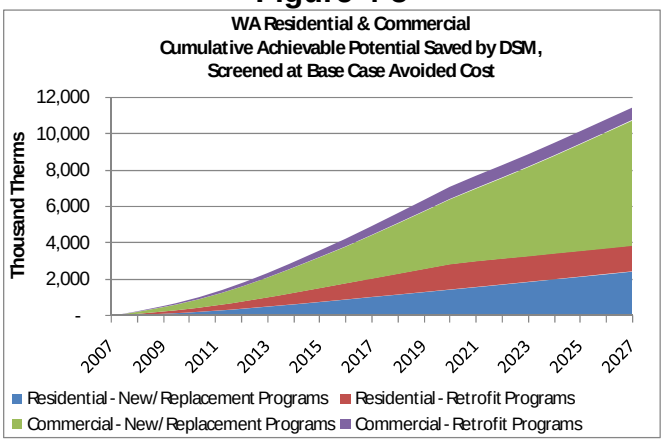
The Stellar Processes Base Case study identified the following:

- 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.

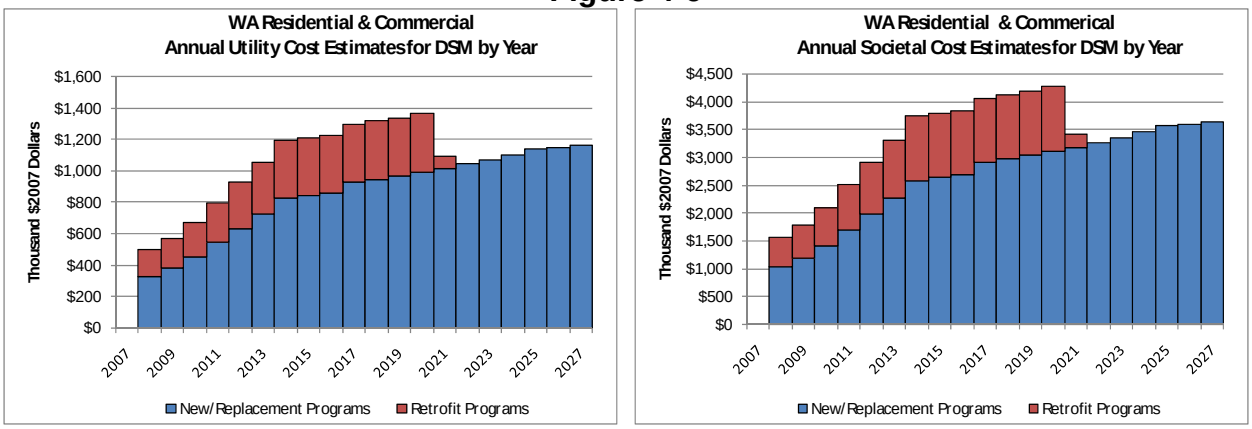
Figure 4-4 below illustrates the achievable potential DSM savings in Washington with cost-effective screening at Base Case avoided cost levels. More detail on the Washington DSM deployment scenario is presented in Appendix 4-2.

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 2021.

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 *SENDOUT®* results forecasted 20 years of achievable DSM as stated incrementally in the following table:

Oregon DSM - Million of Annual Therms Saved per Year																			
2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
2.3	2.5	2.5	3.4	3.9	4.4	4.9	5.0	5.2	5.2	5.2	4.9	4.8	3.7	2.9	2.9	2.8	2.8	2.7	2.7
Washington DSM - Million of Annual Therms Saved per Year																			
2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
0.25	0.29	0.34	0.41	0.48	0.54	0.62	0.63	0.64	0.69	0.70	0.71	0.73	0.60	0.57	0.59	0.61	0.64	0.64	0.65

[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.

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 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 collections 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 2.3 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 2010, NW Natural anticipates a need to raise the public purpose funding levels in 2011 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 of Oregon in efforts to achieve savings projections of 2.3 million therms in 2008 and 2.5 million therms in 2009.

- NW Natural will pursue revenue per customer decoupling in the state of Washington, establishing a revenue neutral environment for conservation. If this is accomplished, the Company will seek to mirror successful Energy Trust programs in the Company's Washington service area.

- In Oregon, the Company will provide periodic updates of its conservation resource assessments to determine adequacy of public purpose funding.

- In Washington, the Company will provide periodic updates of its conservation resource assessments to determine any changes in what is technically achievable.

- 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.

- In Oregon, the Company will work with interested parties to determine potential EE program funding mechanism for its Oregon firm industrial customers in order to pursue energy efficiency for industrial sales customers consistent with the Company's independent assessment that indicated that savings can be cost effectively acquired for this customer class.

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.

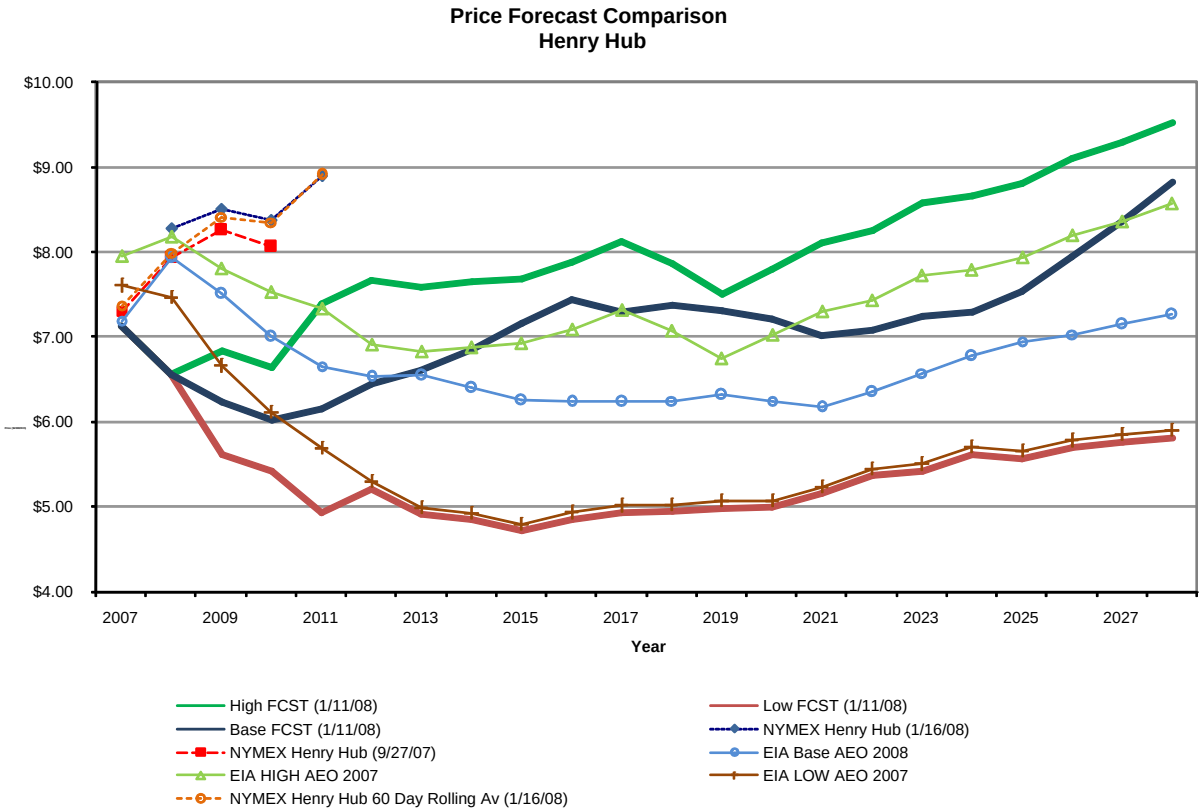
As an alternative to purchased pipeline capacity, the Company includes the option of building enhanced transmission capacity between the Portland area and Eugene. This involves new piping to move Mist gas or other incremental gas supplies delivered to Molalla south to Salem, Albany, and potentially even 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

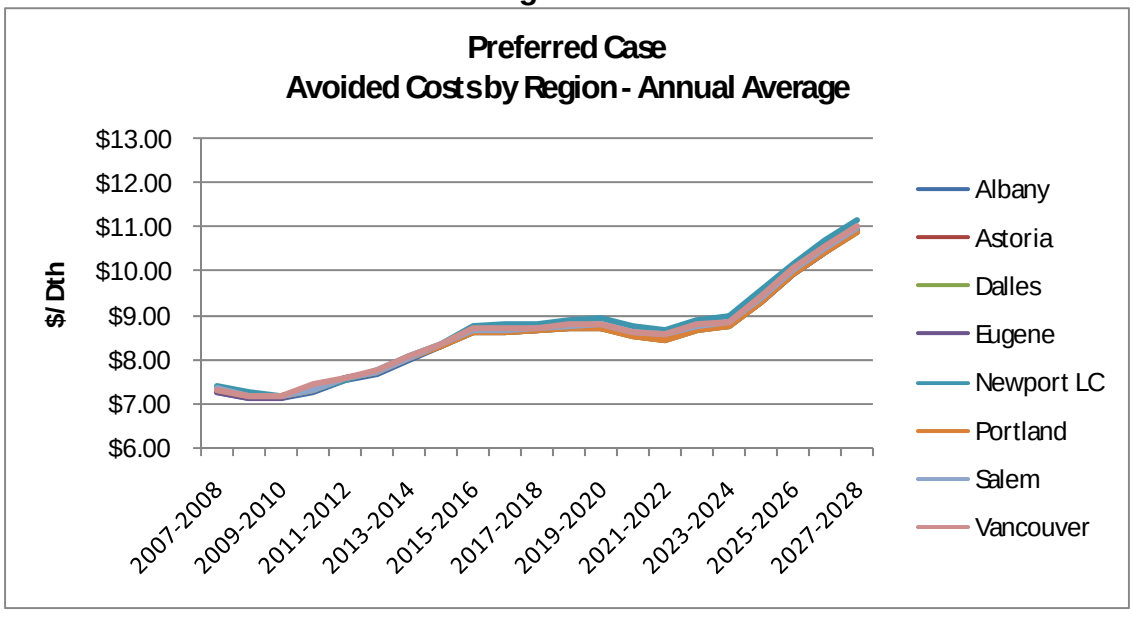


Figure 6-3

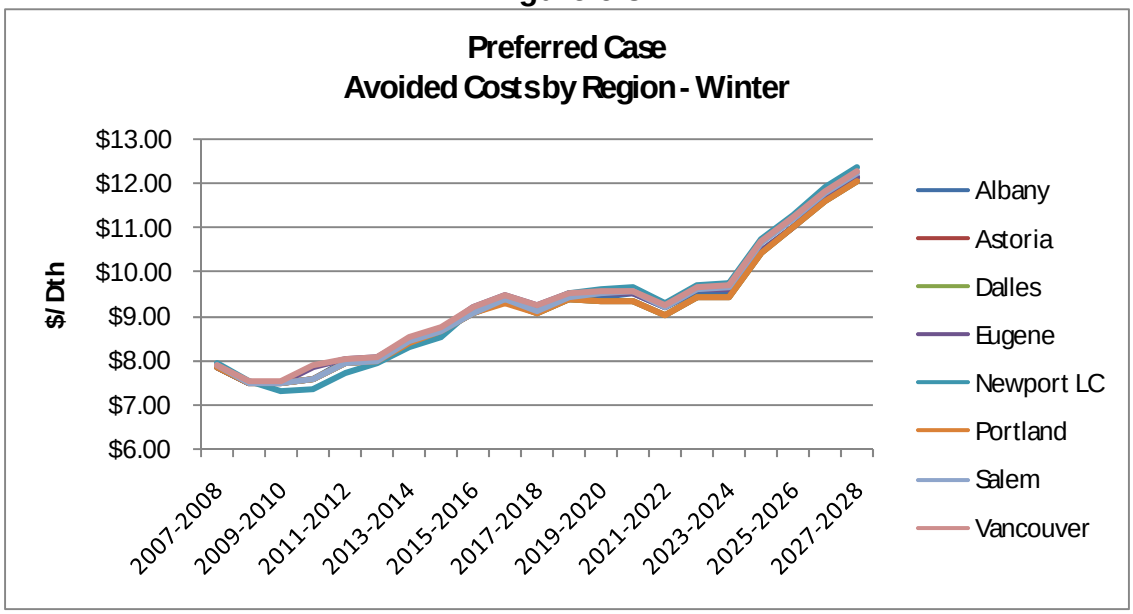


Figure 6-4

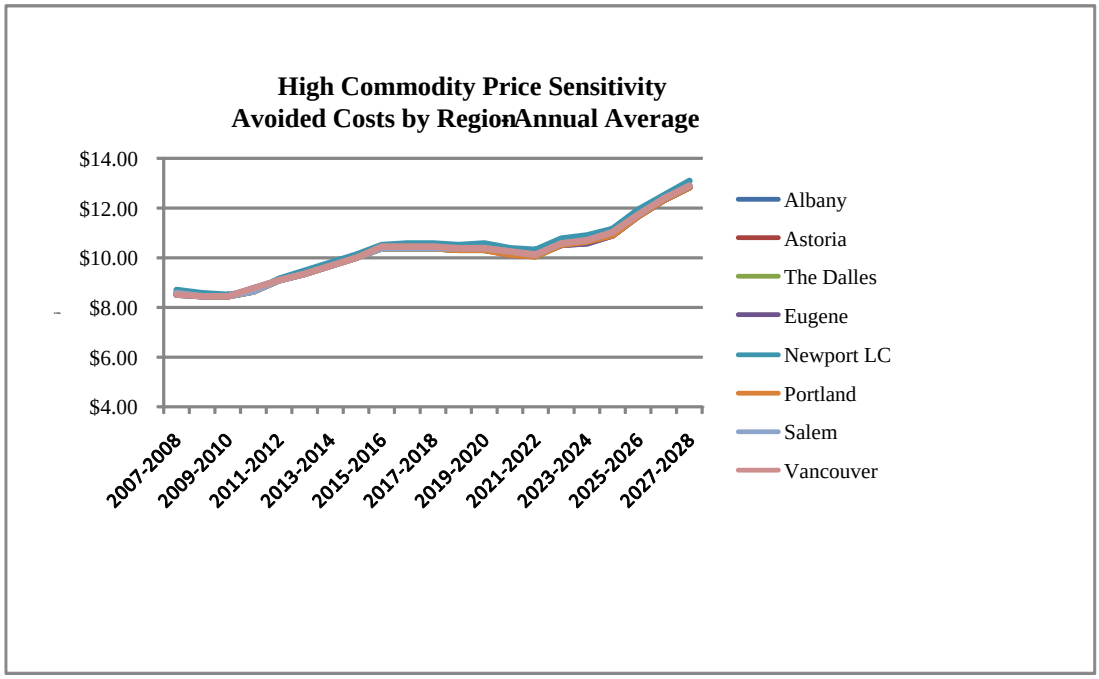
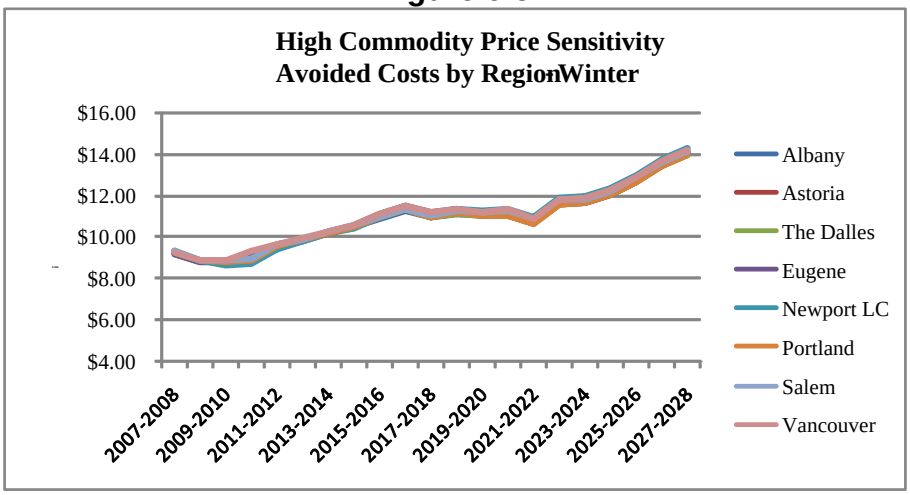


Figure 6-5



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).

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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	674	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	2,498	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	4,799	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	4,846	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	337	46	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	1,304	1,171	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	2,521	2,570	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	2,546	2,599	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 /	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*	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 /	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*	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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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

Appendix 6 – 4: Preferred 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	9.89	7.34	8.57	8.63	9.89	8.66	8.79
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	7.16	7.04	7.04	7.04	7.04	7.04
2010-2011	Jun	7.04	7.06	7.04	7.04	7.20	7.04	7.04	7.04	7.05	7.05
2010-2011	Jul	7.09	7.11	7.09	7.09	7.25	7.09	7.09	7.09	7.09	7.09
2010-2011	Aug	7.09	7.11	7.09	7.09	7.25	7.09	7.09	7.09	7.10	7.10
2010-2011	Sep	7.14	7.16	7.14	7.14	7.30	7.14	7.14	7.14	7.15	7.15
2010-2011	Oct	7.23	7.25	7.23	7.23	7.40	7.23	7.23	7.23	7.24	7.24
Average 2010-2011		**$ 7.29**	**$ 7.31**	**$ 7.30**	**$ 7.39**	**$ 7.30**	**$ 7.30**	**$ 7.29**	**$ 7.41**	**$ 7.31**	**$ 7.32**
Winter 2010-2011		**$ 7.56**	**$ 7.59**	**$ 7.59**	**$ 7.82**	**$ 7.34**	**$ 7.59**	**$ 7.58**	**$ 7.87**	**$ 7.60**	**$ 7.63**
2011-2012	Nov	7.64	7.64	7.65	7.64	7.68	7.64	7.64	7.67	7.64	7.64
2011-2012	Dec	7.77	7.77	7.79	7.77	7.77	7.77	7.77	7.81	7.77	7.77
2011-2012	Jan	7.82	7.82	7.83	7.82	7.82	7.82	7.82	7.85	7.82	7.82
2011-2012	Feb	9.05	9.02	9.03	9.34	7.68	9.02	9.12	9.34	9.04	9.08
2011-2012	Mar	7.48	7.48	7.48	7.48	7.64	7.48	7.48	7.48	7.48	7.48
2011-2012	Apr	7.23	7.23	7.23	7.23	7.40	7.23	7.23	7.23	7.24	7.24
2011-2012	May	7.20	7.22	7.20	7.20	7.32	7.20	7.20	7.20	7.21	7.21
2011-2012	Jun	7.20	7.22	7.20	7.20	7.36	7.20	7.20	7.20	7.20	7.20
2011-2012	Jul	7.24	7.26	7.24	7.24	7.41	7.24	7.24	7.24	7.25	7.25
2011-2012	Aug	7.28	7.30	7.28	7.28	7.45	7.28	7.28	7.28	7.29	7.29
2011-2012	Sep	7.33	7.35	7.33	7.33	7.50	7.33	7.33	7.33	7.34	7.34
2011-2012	Oct	7.40	7.42	7.40	7.40	7.56	7.40	7.40	7.40	7.40	7.40
Average 2011-2012		**$ 7.55**	**$ 7.56**	**$ 7.56**	**$ 7.58**	**$ 7.55**	**$ 7.55**	**$ 7.56**	**$ 7.59**	**$ 7.56**	**$ 7.56**
Winter 2011-2012		**$ 7.95**	**$ 7.95**	**$ 7.96**	**$ 8.01**	**$ 7.66**	**$ 7.95**	**$ 7.96**	**$ 8.03**	**$ 7.95**	**$ 7.96**

Gas Year	Month	Albany	Astoria	Dalles	Eugene	Newport LC	Portland	Salem	Vancouver	Oregon	System
2012-2013	Nov	7.89	7.89	7.90	7.89	7.92	7.89	7.89	7.92	7.89	7.89
2012-2013	Dec	8.03	8.03	8.05	8.03	8.03	8.03	8.03	8.07	8.03	8.03
2012-2013	Jan	8.08	8.08	8.10	8.08	8.08	8.08	8.08	8.12	8.08	8.08
2012-2013	Feb	8.27	8.25	8.26	8.58	7.92	8.25	8.32	8.58	8.28	8.32
2012-2013	Mar	7.69	7.69	7.69	7.69	7.87	7.69	7.69	7.70	7.70	7.70
2012-2013	Apr	7.44	7.44	7.44	7.44	7.61	7.44	7.44	7.44	7.44	7.44
2012-2013	May	7.43	7.45	7.43	7.43	7.56	7.43	7.43	7.43	7.43	7.43
2012-2013	Jun	7.41	7.43	7.41	7.41	7.58	7.41	7.41	7.41	7.41	7.41
2012-2013	Jul	7.46	7.48	7.46	7.46	7.63	7.46	7.46	7.46	7.46	7.46
2012-2013	Aug	7.50	7.52	7.50	7.50	7.67	7.50	7.50	7.50	7.50	7.50
2012-2013	Sep	7.55	7.57	7.55	7.55	7.72	7.55	7.55	7.55	7.56	7.56
2012-2013	Oct	7.63	7.65	7.63	7.63	7.80	7.63	7.63	7.63	7.63	7.63
Average 2012-2013		**$ 7.70**	**$ 7.71**	**$ 7.70**	**$ 7.72**	**$ 7.78**	**$ 7.70**	**$ 7.70**	**$ 7.73**	**$ 7.70**	**$ 7.71**
Winter 2012-2013		**$ 7.99**	**$ 7.99**	**$ 8.00**	**$ 8.06**	**$ 7.90**	**$ 7.99**	**$ 8.00**	**$ 8.08**	**$ 8.00**	**$ 8.01**
2013-2014	Nov	8.22	8.22	8.23	8.22	8.25	8.22	8.22	8.25	8.22	8.23
2013-2014	Dec	8.39	8.39	8.41	8.39	8.39	8.39	8.39	8.43	8.39	8.39
2013-2014	Jan	8.44	8.44	8.46	8.44	8.44	8.44	8.44	8.48	8.44	8.44
2013-2014	Feb	9.05	9.03	9.05	9.36	8.25	9.03	9.14	9.36	9.06	9.10
2013-2014	Mar	7.99	7.99	7.99	7.99	8.17	7.99	7.99	8.00	8.00	8.00
2013-2014	Apr	7.77	7.77	7.77	7.77	7.94	7.77	7.77	7.77	7.77	7.77
2013-2014	May	7.71	7.73	7.71	7.71	7.86	7.71	7.71	7.71	7.72	7.72
2013-2014	Jun	7.61	7.63	7.61	7.61	7.79	7.61	7.61	7.61	7.62	7.62
2013-2014	Jul	7.66	7.68	7.66	7.66	7.84	7.66	7.66	7.66	7.67	7.67
2013-2014	Aug	7.71	7.73	7.71	7.71	7.88	7.71	7.71	7.71	7.71	7.71
2013-2014	Sep	7.76	7.78	7.76	7.76	7.94	7.76	7.76	7.76	7.77	7.77
2013-2014	Oct	7.85	7.87	7.85	7.85	8.03	7.85	7.85	7.85	7.85	7.85
Average 2013-2014		**$ 8.01**	**$ 8.02**	**$ 8.02**	**$ 8.04**	**$ 8.06**	**$ 8.01**	**$ 8.02**	**$ 8.05**	**$ 8.02**	**$ 8.02**
Winter 2013-2014		**$ 8.42**	**$ 8.41**	**$ 8.43**	**$ 8.48**	**$ 8.24**	**$ 8.41**	**$ 8.44**	**$ 8.50**	**$ 8.42**	**$ 8.43**
2014-2015	Nov	8.46	8.46	8.48	8.46	8.49	8.46	8.46	8.49	8.46	8.47
2014-2015	Dec	8.62	8.62	8.64	8.62	8.62	8.62	8.62	8.66	8.62	8.63
2014-2015	Jan	8.68	8.68	8.70	8.68	8.68	8.68	8.68	8.72	8.68	8.68
2014-2015	Feb	9.26	9.24	9.26	9.58	8.53	9.23	9.41	9.58	9.28	9.31
2014-2015	Mar	8.21	8.21	8.21	8.21	8.39	8.21	8.21	8.21	8.21	8.21
2014-2015	Apr	7.95	7.95	7.95	7.95	8.13	7.95	7.95	7.95	7.95	7.95
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	8.00	8.02	8.00	8.00	8.18	8.00	8.00	8.00	8.00	8.00
2014-2015	Jul	8.04	8.06	8.04	8.04	8.22	8.04	8.04	8.04	8.05	8.05
2014-2015	Aug	8.09	8.11	8.09	8.09	8.28	8.09	8.09	8.09	8.10	8.10
2014-2015	Sep	8.15	8.17	8.15	8.15	8.34	8.15	8.15	8.15	8.16	8.16
2014-2015	Oct	8.26	8.28	8.26	8.26	8.45	8.26	8.26	8.26	8.26	8.26
Average 2014-2015		**$ 8.31**	**$ 8.32**	**$ 8.31**	**$ 8.34**	**$ 8.37**	**$ 8.31**	**$ 8.32**	**$ 8.35**	**$ 8.31**	**$ 8.32**
Winter 2014-2015		**$ 8.65**	**$ 8.64**	**$ 8.66**	**$ 8.71**	**$ 8.47**	**$ 8.64**	**$ 8.68**	**$ 8.73**	**$ 8.65**	**$ 8.66**
2015-2016	Nov	8.87	8.88	8.89	8.88	8.91	8.87	8.88	8.91	8.88	8.88
2015-2016	Dec	9.05	9.05	9.07	9.05	9.05	9.05	9.05	9.09	9.05	9.05
2015-2016	Jan	9.10	9.10	9.12	9.10	9.10	9.10	9.10	9.14	9.10	9.11
2015-2016	Feb	9.63	9.61	9.63	10.27	9.84	9.61	9.82	10.27	9.70	9.76
2015-2016	Mar	8.63	8.63	8.63	8.63	8.83	8.63	8.63	8.64	8.64	8.64
2015-2016	Apr	8.37	8.37	8.37	8.37	8.56	8.37	8.37	8.37	8.37	8.37
2015-2016	May	8.27	8.29	8.27	8.27	8.42	8.27	8.27	8.27	8.27	8.27
2015-2016	Jun	8.23	8.25	8.23	8.23	8.41	8.23	8.23	8.23	8.23	8.23
2015-2016	Jul	8.26	8.28	8.26	8.26	8.44	8.26	8.26	8.26	8.26	8.26
2015-2016	Aug	8.31	8.33	8.31	8.31	8.50	8.31	8.31	8.31	8.31	8.31
2015-2016	Sep	8.38	8.40	8.38	8.38	8.57	8.38	8.38	8.38	8.38	8.38
2015-2016	Oct	8.51	8.53	8.51	8.51	8.70	8.51	8.51	8.51	8.51	8.51
Average 2015-2016		**$ 8.63**	**$ 8.64**	**$ 8.64**	**$ 8.69**	**$ 8.78**	**$ 8.63**	**$ 8.65**	**$ 8.70**	**$ 8.64**	**$ 8.65**
Winter 2015-2016		**$ 9.06**	**$ 9.05**	**$ 9.07**	**$ 9.19**	**$ 9.05**	**$ 9.05**	**$ 9.09**	**$ 9.21**	**$ 9.07**	**$ 9.09**
2016-2017	Nov	9.14	9.14	9.16	9.15	9.20	9.14	9.16	9.18	9.15	9.15
2016-2017	Dec	9.34	9.34	9.35	9.34	9.34	9.34	9.34	9.37	9.34	9.34
2016-2017	Jan	9.39	9.39	9.40	9.39	9.39	9.39	9.39	9.41	9.39	9.39
2016-2017	Feb	9.90	9.88	9.89	10.55	10.28	9.88	10.13	10.55	9.97	10.04
2016-2017	Mar	8.83	8.83	8.83	8.83	9.05	8.83	8.85	8.83	8.84	8.84
2016-2017	Apr	8.60	8.60	8.60	8.60	8.80	8.60	8.60	8.60	8.61	8.61
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	7.96	7.96	7.96	7.96	8.14	7.96	7.96	7.96	7.96	7.96
2016-2017	Jul	8.01	8.01	8.01	8.01	8.19	8.01	8.01	8.01	8.02	8.01
2016-2017	Aug	8.05	8.05	8.05	8.05	8.24	8.05	8.05	8.05	8.06	8.06
2016-2017	Sep	8.11	8.11	8.11	8.11	8.29	8.11	8.11	8.11	8.12	8.12
2016-2017	Oct	8.23	8.23	8.23	8.23	8.42	8.23	8.23	8.23	8.24	8.24
Average 2016-2017		**$ 8.64**	**$ 8.63**	**$ 8.64**	**$ 8.69**	**$ 8.80**	**$ 8.63**	**$ 8.66**	**$ 8.70**	**$ 8.64**	**$ 8.65**
Winter 2016-2017		**$ 9.32**	**$ 9.32**	**$ 9.33**	**$ 9.45**	**$ 9.34**	**$ 9.32**	**$ 9.37**	**$ 9.47**	**$ 9.34**	**$ 9.35**

Gas Year	Month	Albany	Astoria	Dalles	Eugene	Newport LC	Portland	Salem	Vancouver	Oregon	System
2017-2018	Nov	8.89	8.89	8.90	8.89	8.95	8.89	8.91	8.91	8.89	8.90
2017-2018	Dec	9.10	9.10	9.10	9.10	9.10	9.10	9.10	9.12	9.10	9.10
2017-2018	Jan	9.15	9.15	9.16	9.15	9.15	9.15	9.15	9.17	9.15	9.16
2017-2018	Feb	9.64	9.63	9.64	10.32	10.04	9.63	9.89	10.32	9.72	9.79
2017-2018	Mar	8.63	8.63	8.63	8.63	8.84	8.63	8.64	8.63	8.63	8.63
2017-2018	Apr	8.39	8.39	8.39	8.39	8.58	8.39	8.39	8.39	8.39	8.39
2017-2018	May	8.28	8.28	8.28	8.28	8.43	8.28	8.28	8.28	8.28	8.28
2017-2018	Jun	8.26	8.26	8.26	8.26	8.44	8.26	8.26	8.26	8.26	8.26
2017-2018	Jul	8.28	8.28	8.28	8.28	8.46	8.28	8.28	8.28	8.28	8.28
2017-2018	Aug	8.33	8.33	8.33	8.33	8.52	8.33	8.33	8.33	8.33	8.33
2017-2018	Sep	8.41	8.41	8.41	8.41	8.60	8.41	8.41	8.41	8.42	8.42
2017-2018	Oct	8.52	8.52	8.52	8.52	8.72	8.52	8.52	8.52	8.52	8.52
Average 2017-2018		**$ 8.66**	**$ 8.65**	**$ 8.66**	**$ 8.71**	**$ 8.82**	**$ 8.65**	**$ 8.68**	**$ 8.72**	**$ 8.67**	**$ 8.67**
Winter 2017-2018		**$ 9.08**	**$ 9.08**	**$ 9.08**	**$ 9.22**	**$ 9.11**	**$ 9.08**	**$ 9.14**	**$ 9.23**	**$ 9.10**	**$ 9.12**
2018-2019	Nov	9.19	9.19	9.20	9.20	9.25	9.19	9.21	9.21	9.19	9.20
2018-2019	Dec	9.40	9.40	9.41	9.40	9.40	9.40	9.40	9.42	9.40	9.41
2018-2019	Jan	9.46	9.46	9.46	9.46	9.46	9.46	9.46	9.48	9.46	9.46
2018-2019	Feb	9.94	9.92	9.94	10.62	10.40	9.92	10.26	10.62	10.03	10.10
2018-2019	Mar	8.92	8.92	8.92	8.92	9.16	8.92	8.95	8.92	8.93	8.93
2018-2019	Apr	8.64	8.64	8.64	8.64	8.84	8.64	8.64	8.64	8.65	8.65
2018-2019	May	8.46	8.46	8.46	8.46	8.66	8.46	8.46	8.46	8.47	8.47
2018-2019	Jun	8.01	8.01	8.01	8.01	8.19	8.01	8.01	8.01	8.01	8.01
2018-2019	Jul	8.03	8.03	8.03	8.03	8.21	8.03	8.03	8.03	8.04	8.04
2018-2019	Aug	8.08	8.08	8.08	8.08	8.27	8.08	8.08	8.08	8.09	8.09
2018-2019	Sep	8.16	8.16	8.16	8.16	8.35	8.16	8.16	8.16	8.17	8.17
2018-2019	Oct	8.28	8.28	8.28	8.28	8.46	8.28	8.28	8.28	8.28	8.28
Average 2018-2019		**$ 8.72**	**$ 8.71**	**$ 8.72**	**$ 8.77**	**$ 8.89**	**$ 8.71**	**$ 8.75**	**$ 8.78**	**$ 8.73**	**$ 8.73**
Winter 2018-2019		**$ 9.38**	**$ 9.38**	**$ 9.39**	**$ 9.52**	**$ 9.42**	**$ 9.38**	**$ 9.46**	**$ 9.53**	**$ 9.40**	**$ 9.42**
2019-2020	Nov	9.26	9.26	9.27	9.27	9.34	9.26	9.28	9.29	9.26	9.27
2019-2020	Dec	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.58	9.56	9.56
2019-2020	Jan	9.62	9.62	9.62	9.62	9.62	9.62	9.62	9.64	9.62	9.62
2019-2020	Feb	9.96	9.52	9.53	10.36	10.64	9.52	10.50	10.64	9.77	9.87
2019-2020	Mar	8.68	8.68	8.68	8.68	8.89	8.68	8.70	8.68	8.68	8.68
2019-2020	Apr	8.38	8.38	8.38	8.38	8.57	8.38	8.38	8.38	8.38	8.38
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	8.10	8.10	8.10	8.10	8.29	8.10	8.10	8.10	8.11	8.11
2019-2020	Aug	8.15	8.15	8.15	8.15	8.34	8.15	8.15	8.15	8.16	8.16
2019-2020	Sep	8.23	8.23	8.23	8.23	8.42	8.23	8.23	8.23	8.24	8.24
2019-2020	Oct	8.35	8.35	8.35	8.35	8.54	8.35	8.35	8.35	8.36	8.36
Average 2019-2020		**$ 8.73**	**$ 8.69**	**$ 8.70**	**$ 8.76**	**$ 8.92**	**$ 8.69**	**$ 8.78**	**$ 8.79**	**$ 8.72**	**$ 8.73**
Winter 2019-2020		**$ 9.41**	**$ 9.33**	**$ 9.33**	**$ 9.50**	**$ 9.44**	**$ 9.33**	**$ 9.53**	**$ 9.56**	**$ 9.38**	**$ 9.40**
2020-2021	Nov	9.30	9.30	9.32	9.31	9.37	9.30	9.32	9.33	9.31	9.31
2020-2021	Dec	9.59	9.59	9.60	9.60	9.60	9.59	9.60	9.60	9.60	9.60
2020-2021	Jan	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66
2020-2021	Feb	10.28	9.59	9.60	10.38	10.76	9.59	10.61	10.76	9.86	9.97
2020-2021	Mar	8.60	8.60	8.60	8.60	8.80	8.60	8.61	8.60	8.60	8.60
2020-2021	Apr	8.29	8.29	8.29	8.29	8.47	8.29	8.29	8.29	8.29	8.29
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	7.69	7.69	7.69	7.69	7.87	7.69	7.69	7.69	7.70	7.70
2020-2021	Jul	7.74	7.74	7.74	7.74	7.91	7.74	7.74	7.74	7.74	7.74
2020-2021	Aug	7.79	7.79	7.79	7.79	7.97	7.79	7.79	7.79	7.79	7.79
2020-2021	Sep	7.84	7.84	7.84	7.84	8.02	7.84	7.84	7.84	7.85	7.85
2020-2021	Oct	7.98	7.98	7.98	7.98	8.16	7.98	7.98	7.98	7.99	7.99
Average 2020-2021		**$ 8.58**	**$ 8.52**	**$ 8.52**	**$ 8.59**	**$ 8.75**	**$ 8.52**	**$ 8.61**	**$ 8.62**	**$ 8.55**	**$ 8.55**
Winter 2020-2021		**$ 9.49**	**$ 9.35**	**$ 9.35**	**$ 9.51**	**$ 9.45**	**$ 9.35**	**$ 9.56**	**$ 9.59**	**$ 9.40**	**$ 9.43**
2021-2022	Nov	8.95	8.95	8.97	8.96	9.02	8.95	8.97	8.98	8.96	8.96
2021-2022	Dec	9.25	9.25	9.26	9.25	9.26	9.25	9.25	9.26	9.25	9.25
2021-2022	Jan	9.31	9.31	9.31	9.31	9.31	9.31	9.31	9.31	9.31	9.31
2021-2022	Feb	9.99	9.24	9.25	10.10	10.43	9.24	10.28	10.43	9.52	9.63
2021-2022	Mar	8.35	8.35	8.35	8.35	8.55	8.35	8.36	8.35	8.35	8.35
2021-2022	Apr	8.12	8.12	8.12	8.12	8.31	8.12	8.12	8.12	8.12	8.12
2021-2022	May	7.98	7.98	7.98	7.98	8.13	7.98	7.98	7.98	7.98	7.98
2021-2022	Jun	7.93	7.93	7.93	7.93	8.11	7.93	7.93	7.93	7.93	7.93
2021-2022	Jul	7.98	7.98	7.98	7.98	8.16	7.98	7.98	7.98	7.98	7.98
2021-2022	Aug	8.03	8.03	8.03	8.03	8.21	8.03	8.03	8.03	8.03	8.03
2021-2022	Sep	8.08	8.08	8.08	8.08	8.26	8.08	8.08	8.08	8.08	8.08
2021-2022	Oct	8.23	8.23	8.23	8.23	8.41	8.23	8.23	8.23	8.23	8.23
Average 2021-2022		**$ 8.52**	**$ 8.45**	**$ 8.46**	**$ 8.53**	**$ 8.68**	**$ 8.45**	**$ 8.54**	**$ 8.56**	**$ 8.48**	**$ 8.49**
Winter 2021-2022		**$ 9.17**	**$ 9.02**	**$ 9.03**	**$ 9.20**	**$ 9.15**	**$ 9.02**	**$ 9.24**	**$ 9.27**	**$ 9.08**	**$ 9.10**

Gas Year	Month	Albany	Astoria	Dalles	Eugene	Newport LC	Portland	Salem	Vancouver	Oregon	System
2022-2023	Nov	9.33	9.34	9.35	9.35	9.41	9.33	9.36	9.36	9.34	9.34
2022-2023	Dec	9.67	9.67	9.68	9.67	9.68	9.67	9.68	9.68	9.67	9.67
2022-2023	Jan	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74	9.74
2022-2023	Feb	10.34	9.66	9.67	10.43	10.81	9.66	10.66	10.81	9.93	10.03
2022-2023	Mar	8.72	8.72	8.72	8.72	8.93	8.72	8.73	8.73	8.73	8.73
2022-2023	Apr	8.48	8.48	8.48	8.48	8.67	8.48	8.48	8.48	8.48	8.48
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	7.93	7.93	7.93	7.93	8.11	7.93	7.93	7.93	7.93	7.93
2022-2023	Jul	7.96	7.96	7.96	7.96	8.14	7.96	7.96	7.96	7.96	7.96
2022-2023	Aug	8.01	8.01	8.01	8.01	8.19	8.01	8.01	8.01	8.02	8.01
2022-2023	Sep	8.08	8.08	8.08	8.08	8.26	8.08	8.08	8.08	8.08	8.08
2022-2023	Oct	8.21	8.21	8.21	8.21	8.39	8.21	8.21	8.21	8.21	8.21
Average 2022-2023		**$ 8.72**	**$ 8.67**	**$ 8.67**	**$ 8.73**	**$ 8.90**	**$ 8.67**	**$ 8.75**	**$ 8.77**	**$ 8.69**	**$ 8.70**
Winter 2022-2023		**$ 9.56**	**$ 9.42**	**$ 9.43**	**$ 9.58**	**$ 9.54**	**$ 9.42**	**$ 9.63**	**$ 9.67**	**$ 9.48**	**$ 9.50**
2023-2024	Nov	9.38	9.38	9.39	9.39	9.46	9.38	9.40	9.46	9.38	9.39
2023-2024	Dec	9.72	9.72	9.74	9.73	9.74	9.72	9.73	9.74	9.72	9.73
2023-2024	Jan	9.79	9.79	9.80	9.79	9.80	9.79	9.80	9.80	9.79	9.79
2023-2024	Feb	10.24	9.66	9.67	10.33	10.79	9.66	10.64	10.79	9.91	10.01
2023-2024	Mar	8.66	8.66	8.66	8.66	8.87	8.66	8.67	8.66	8.67	8.67
2023-2024	Apr	8.30	8.30	8.30	8.30	8.49	8.30	8.30	8.30	8.30	8.30
2023-2024	May	8.25	8.25	8.25	8.25	8.42	8.25	8.25	8.25	8.25	8.25
2023-2024	Jun	8.11	8.11	8.11	8.11	8.30	8.11	8.11	8.11	8.12	8.12
2023-2024	Jul	8.14	8.14	8.14	8.14	8.33	8.14	8.14	8.14	8.15	8.15
2023-2024	Aug	8.20	8.20	8.20	8.20	8.38	8.20	8.20	8.20	8.20	8.20
2023-2024	Sep	8.27	8.27	8.27	8.27	8.45	8.27	8.27	8.27	8.27	8.27
2023-2024	Oct	8.40	8.40	8.40	8.40	8.59	8.40	8.40	8.40	8.40	8.40
Average 2023-2024		**$ 8.79**	**$ 8.74**	**$ 8.74**	**$ 8.80**	**$ 8.97**	**$ 8.74**	**$ 8.82**	**$ 8.84**	**$ 8.76**	**$ 8.77**
Winter 2023-2024		**$ 9.56**	**$ 9.44**	**$ 9.45**	**$ 9.58**	**$ 9.52**	**$ 9.44**	**$ 9.65**	**$ 9.69**	**$ 9.49**	**$ 9.52**
2024-2025	Nov	10.42	10.42	10.43	10.44	10.51	10.42	10.45	10.51	10.43	10.44
2024-2025	Dec	10.98	10.98	11.00	10.98	11.00	10.98	10.99	11.00	10.98	10.98
2024-2025	Jan	11.05	11.05	11.07	11.05	11.07	11.05	11.06	11.07	11.05	11.05
2024-2025	Feb	10.90	10.83	10.85	10.96	12.00	10.83	11.83	12.00	11.01	11.13
2024-2025	Mar	8.90	8.90	8.90	8.90	9.11	8.90	8.90	8.90	8.90	8.90
2024-2025	Apr	8.65	8.65	8.65	8.65	8.85	8.65	8.65	8.65	8.65	8.65
2024-2025	May	8.46	8.46	8.46	8.46	8.64	8.46	8.46	8.46	8.46	8.46
2024-2025	Jun	8.39	8.39	8.39	8.39	8.58	8.39	8.39	8.39	8.39	8.39
2024-2025	Jul	8.41	8.41	8.41	8.41	8.60	8.41	8.41	8.41	8.41	8.41
2024-2025	Aug	8.46	8.46	8.46	8.46	8.65	8.46	8.46	8.46	8.47	8.47
2024-2025	Sep	8.55	8.55	8.55	8.55	8.74	8.55	8.55	8.55	8.55	8.55
2024-2025	Oct	8.67	8.67	8.67	8.67	8.87	8.67	8.67	8.67	8.67	8.67
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		**$ 10.45**	**$ 10.43**	**$ 10.45**	**$ 10.46**	**$ 10.42**	**$ 10.43**	**$ 10.65**	**$ 10.70**	**$ 10.47**	**$ 10.50**
2025-2026	Nov	10.91	10.92	10.93	10.93	11.01	10.91	10.94	11.01	10.92	10.93
2025-2026	Dec	11.52	11.52	11.54	11.52	11.54	11.52	11.53	11.54	11.52	11.52
2025-2026	Jan	11.59	11.59	11.61	11.60	11.61	11.59	11.60	11.61	11.59	11.60
2025-2026	Feb	11.51	11.40	11.41	11.51	12.53	11.40	12.39	12.53	11.58	11.70
2025-2026	Mar	9.52	9.52	9.52	9.52	9.74	9.52	9.53	9.52	9.52	9.52
2025-2026	Apr	9.08	9.08	9.08	9.08	9.29	9.08	9.08	9.08	9.09	9.09
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	9.33	9.13	9.13	9.13	9.13	9.13
2025-2026	Aug	9.18	9.18	9.18	9.18	9.39	9.18	9.18	9.18	9.19	9.19
2025-2026	Sep	9.25	9.25	9.25	9.25	9.46	9.25	9.25	9.25	9.26	9.25
2025-2026	Oct	9.40	9.40	9.40	9.40	9.61	9.40	9.40	9.40	9.40	9.40
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		**$ 11.01**	**$ 10.99**	**$ 11.00**	**$ 11.02**	**$ 10.95**	**$ 10.99**	**$ 11.20**	**$ 11.24**	**$ 11.03**	**$ 11.05**
2026-2027	Nov	11.54	11.54	11.56	11.57	11.65	11.54	11.58	11.65	11.55	11.57
2026-2027	Dec	12.14	12.14	12.16	12.14	12.19	12.14	12.16	12.19	12.14	12.15
2026-2027	Jan	12.22	12.22	12.24	12.23	12.25	12.22	12.23	12.25	12.22	12.23
2026-2027	Feb	12.15	12.01	12.04	12.15	13.13	12.01	12.99	13.13	12.20	12.31
2026-2027	Mar	10.00	10.00	10.00	10.00	10.24	10.00	10.01	10.00	10.00	10.00
2026-2027	Apr	9.62	9.62	9.62	9.62	9.84	9.62	9.62	9.62	9.62	9.62
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	9.61	9.61	9.61	9.61	9.83	9.61	9.61	9.61	9.62	9.62
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	9.83	9.83	9.83	9.83	10.05	9.83	9.83	9.83	9.83	9.83
Average 2026-2027		**$ 10.45**	**$ 10.44**	**$ 10.45**	**$ 10.45**	**$ 10.70**	**$ 10.44**	**$ 10.53**	**$ 10.55**	**$ 10.46**	**$ 10.47**
Winter 2026-2027		**$ 11.61**	**$ 11.58**	**$ 11.60**	**$ 11.62**	**$ 11.55**	**$ 11.58**	**$ 11.79**	**$ 11.84**	**$ 11.62**	**$ 11.65**

Gas Year	Month	Albany	Astoria	Dalles	Eugene	Newport LC	Portland	Salem	Vancouver	Oregon	System
2027-2028	Nov	12.00	12.00	12.02	12.03	12.12	12.00	12.03	12.12	12.01	12.02
2027-2028	Dec	12.62	12.62	12.64	12.63	12.65	12.62	12.63	12.65	12.62	12.62
2027-2028	Jan	12.71	12.71	12.73	12.72	12.72	12.71	12.71	12.73	12.71	12.71
2027-2028	Feb	12.83	12.42	12.45	12.83	13.53	12.42	13.39	13.53	12.64	12.75
2027-2028	Mar	10.45	10.45	10.45	10.45	10.69	10.45	10.45	10.45	10.45	10.45
2027-2028	Apr	10.09	10.09	10.09	10.09	10.32	10.09	10.09	10.09	10.09	10.09
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	10.05	10.05	10.05	10.05	10.28	10.05	10.05	10.05	10.06	10.06
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	10.25	10.25	10.25	10.25	10.49	10.25	10.25	10.25	10.26	10.25
Average 2027-2028		**$ 10.92**	**$ 10.89**	**$ 10.90**	**$ 10.93**	**$ 11.15**	**$ 10.89**	**$ 10.97**	**$ 11.00**	**$ 10.91**	**$ 10.92**
Winter 2027-2028		**$ 12.12**	**$ 12.04**	**$ 12.06**	**$ 12.13**	**$ 12.01**	**$ 12.04**	**$ 12.24**	**$ 12.30**	**$ 12.09**	**$ 12.11**

NW Natural

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing 2008 IRP REPLACEMENT SHEETS in Docket LC 45 upon all parties or attorneys' of parties by email:

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DATED this 24th day of October 2008.

Respectfully submitted,

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