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July 9, 2018

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE Suite 100
Post Office Box 1088
Salem, Oregon 97308-1088

Re: UG 344: Surrebuttal Testimony of NW Natural

Northwest Natural Gas Company, dba NW Natural ("NW Natural" or "Company"), files herewith its Surrebuttal Testimony and Exhibits to the Rebuttal and Cross-Answering Testimonies of the Public Utility Commission of Oregon ("Staff"), Oregon Citizens Utility Board (CUB), and Alliance of Western Energy Consumers (AWEC) in NW Natural's request for a General Rate Revision. Please note, NW Natural/2702, Friedman is confidential. Unredacted, hard copies on yellow paper will be mailed to parties who have signed the protective order.

Please address correspondence on this matter to me with copies to the following:

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Please call if you have any questions.

Sincerely,

NW NATURAL

/s/ Mark R. Thompson

Mark R. Thompson
Manager, Rates & Regulatory Affairs

enclosures

BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON

UG 344

NW Natural

Surrebuttal Testimony of Sean Borgerson

**FEDERAL INCOME TAX REFORM
Exhibit 2500**

July 9, 2018

EXHIBIT 2500 - SURREBUTTAL TESTIMONY – FEDERAL INCOME TAX REFORM

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1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name, address, and position with Northwest Natural Gas**
3 **Company (“NW Natural” or “Company”)**

4 A. My name is Sean Borgerson. My business address is 220 NW Second Avenue,
5 Portland, Oregon 97209. I am currently the Tax Director for NW Natural.

6 **Q. Please summarize your educational background and business experience.**

7 A. I graduated from Washington State University with a B.A. in Business
8 Administration. I am a licensed Certified Public Accountant in the State of
9 Oregon.

10 I have over twenty-two years of corporate tax and related financial
11 reporting experience. Prior to joining NW Natural in 2014, I worked with Deloitte
12 Tax LLP for seventeen years. While with Deloitte, I specialized in corporate and
13 partnership taxation, financial accounting for income taxes, and internal control
14 environments for income tax. I also represented clients before federal and state
15 taxing authorities, was a national tax technical training facilitator, and served as a
16 coach and mentor to other tax professionals. At NW Natural, I oversee the
17 accounting, compliance, planning, and analysis of direct and indirect taxes, as
18 well as the continued technical and professional development of the internal tax
19 function.

20 **Q. What is the purpose of your testimony?**

21 A. In this testimony, I discuss the current status of the recent federal income tax
22 reform changes with respect to NW Natural’s Oregon utility operations, provide

1 an overview of the tax reform changes, address the proposals and concerns of
2 the Staff of the Public Utility Commission of Oregon ("Staff"), the Oregon
3 Citizens' Utility Board ("CUB"), and the Alliance of Western Energy Consumers
4 ("AWECC"), and describe the Company's proposals to reflect the effects of the
5 federal tax reform in ratemaking.

6 II. THE TAX CUTS AND JOBS ACT

7 A. Overview of the Tax Cuts and Job Act

8 **Q. Please provide an overview of the TCJA and how it impacts NW Natural's**
9 **federal income taxes.**

10 **A.** On December 22, 2017, United States federal income tax reform, also known as
11 the Tax Cuts and Jobs Act, (the "TCJA" or alternatively referred to as "tax
12 reform") was enacted. The TCJA permanently lowers the U.S. federal corporate
13 income tax rate to 21 percent from the existing maximum rate of 35 percent,
14 effective as of January 1, 2018.

15 The reduction in the federal corporate income tax rate results in three
16 different matters for regulatory consideration:

- 17 1. Whether the income tax expense in NW Natural's general rate case
18 filing, for utility rates effective November 1, 2018, reflects the lower
19 federal income tax rate;
- 20 2. Whether NW Natural should defer any estimated net benefit from
21 the lower income tax rate, for the period January 1, 2018 through

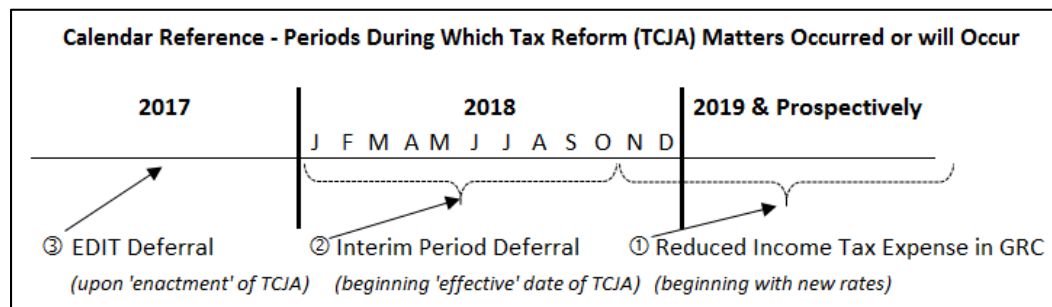
October 31, 2018 (the “Interim Period Deferral”), and if so, what is

an appropriate treatment for this deferral; and

3. Whether NW Natural deferred any benefit from the net decrease in its cumulative utility deferred income tax liability balances, recorded upon enactment in 2017 (“Excess Deferred Income Taxes” or “EDIT Deferral”), and if so, what is an appropriate treatment for this deferral.

These three regulatory matters are all a result of the TCJA, but they are distinctly separate issues which originally occurred, or will occur, during different calendar periods. Please see the timeline included as Figure 1 below for reference.

Figure 1.



B. Reduced Income Tax Expense in the General Rate Case

Q. Please describe the status of the adjustment to reflect the lower tax rate in the revenue requirement for the Company's rate case.

A. The reduction to income tax expense has been fully reflected in the general rate case (“GRC”) as currently filed and no further action is necessary. No parties are currently proposing alternative positions to this element of tax reform. The GRC

1 revenue requirement in the supplemental filing by NW Natural, dated March 20,
2 2018, was reduced to reflect the lower federal income tax rate made available by
3 the TCJA. The supplemental NW Natural testimony¹ stated that the revenue
4 requirement in the general rate case was updated to reflect the reduction of the
5 federal corporate income tax rate from 35 percent to 21 percent.

6 **Q. Do the other Parties to this general rate case agree that the lower tax rate**
7 **has been reflected in the revenue requirement?**

8 A. Yes. The reduced revenue requirement, and inclusion of the lower federal
9 income tax expense, was acknowledged by Staff. In Staff's initial² and rebuttal³
10 testimony, it is acknowledged that NW Natural filed an update to reflect the TCJA
11 as promised and that federal income tax expense decreased in the updated
12 revenue requirement filing. No changes were proposed by Staff with respect to
13 this element of tax reform.

14 In CUB's rebuttal testimony⁴, CUB states that this rate case must
15 incorporate the lower tax rate. It does not appear that CUB is proposing a
16 change to this element of tax reform.

17 In AWEC's rebuttal testimony⁵, it appears that no changes are currently
18 being proposed to this element of tax reform. However, AWEC reserved the right

¹ NW Natural/1200, McVay/Page 1 and 2

² Staff/100, Gardner/46

³ Staff/1400, Gardner/3

⁴ CUB/300, Jenks/6 and 7

⁵ AWEC/500, Mullins/1 and 2

4 – SURREBUTTAL TESTIMONY OF SEAN BORGERSON

1 to re-address issues, including perhaps this one, if the settlement in principle
2 reached on June 12, 2018 is not able to be finalized in writing.

3 **C. Interim Period Deferral**

4 **Q. Please describe the Interim Period and the Company's Interim Period**
5 **Deferral.**

6 **A.** NW Natural's rates have not yet been adjusted to reflect tax reform. Beginning
7 January 1, 2018, NW Natural's regulated utility income tax expense is lower as a
8 result of the decrease in the federal income tax rate. This situation will persist
9 until rates are reset from this proceeding on November 1, 2018. I refer to the
10 Interim Period as the time period beginning January 1, 2018, when the TCJA
11 took effect, and the date when NW Natural's rates will be reset from this
12 proceeding.

13 NW Natural filed a TCJA related deferral application⁶ with the Public Utility
14 Commission of Oregon ("OPUC" or "Commission") on December 29, 2017. In
15 addition, Staff filed a deferral application⁷ on December 29, 2017 with respect to
16 the TCJA implications for NW Natural. As a result, regulatory deferral accounting
17 is being utilized to defer the estimated net benefits associated with tax reform
18 during the Interim Period. The deferral began on January 1, 2018, the effective
19 date of the TCJA, and is expected to continue through October 31, 2018. The
20 deferral will no longer be needed following that date because new utility rates

⁶ UM 1919

⁷ UM 1924

1 that reflect the lower federal income tax rate will become effective in this GRC on
2 November 1, 2018.

3 Each month during the interim deferral period NW Natural is recording a
4 reduction to revenue for the estimated net benefit, which includes a gross up for
5 income taxes, and recording the offsetting balance to a regulatory liability
6 account. The regulatory liability balance also accrues interest to the benefit of
7 customers.

8 NW Natural filed an update to the original deferral application⁸ on April 16,
9 2018. To estimate the net reduction to income tax expense from the TCJA, NW
10 Natural is utilizing a 2018 results of operations report format to perform a “with”
11 and “without” TCJA calculation. This methodology is consistent with the
12 approach outlined by NW Natural at the tax workshop held on February 28, 2018,
13 and the follow up direction provided via email by Staff’s counsel at the Oregon
14 Department of Justice.

15 NW Natural is forecasting the anticipated net income tax benefit in
16 Oregon, from the lower federal income tax rate, for the full ten month deferral
17 period in 2018. This net income tax benefit is then grossed up for taxes which
18 converts it into an excess revenue collected amount. A portion of the ten month
19 excess revenue deferral is recorded each month based on the relative Oregon
20 utility revenues in that month compared to anticipated Oregon revenues for the
21 full ten months.

⁸ UM 1919

1 The amount recorded each month, using deferred accounting, is a portion
2 of a total ten month estimate. Until the full ten month deferral period has passed,
3 and the accounting for those ten months is complete, the deferral amount will not
4 be sufficiently settled. We anticipate that the accounting for the ten month
5 deferral period will be completed in November of 2018, and that the data for an
6 earnings test will be available after that.

7 **Q. Please describe Staff's position regarding the Interim Period Deferral.**

8 A. Staff has not recommended that the Interim Period Deferral be addressed as part
9 of this GRC. Staff has noted⁹ that it may be appropriate to capture the Interim
10 Period Deferral as part of the deferral dockets (UM 1919 and UM 1924).

11 **Q. How do you respond to Staff's position?**

12 A. NW Natural believes that the Interim Period Deferral should be addressed in the
13 deferral dockets. The TCJA is a complex issue and we support continued
14 discussion to ensure that the parties are fully informed on the issues. Additional
15 workshops and discussions will take time, and that is why we propose using the
16 active deferral docket, rather than this GRC, to address the Interim Period
17 Deferral. Additionally, as described above, more information is necessary before
18 the precise deferral and appropriate amortization can be calculated, and this
19 information will not be available at the time new rates are put into effect from this
20 proceeding.

21 **Q. Please describe AWEC's position regarding the Interim Period Deferral.**

⁹ Staff/1400, Gardner/10 and 11

1 **A.** AWEC argues¹⁰ that the amount of a deferral, and its amortization schedule, are
2 matters commonly reserved for general rate cases and not deferral dockets.
3 AWEC has recommended that the Commission amortize the Interim Period
4 Deferral in base rates, but AWEC would not object to addressing the Interim
5 Period Deferral through a supplemental schedule. In either event, AWEC
6 recommends that the Interim Period Deferral begin amortizing in utility rates at
7 the same time as the rate effective date for the GRC.

8 AWEC proposes¹¹ to use a formula to calculate the Interim Period Deferral
9 benefit, which, "...can be performed without considering the utility's results...."
10 AWEC calculates the Interim Period Deferral to be \$7,916,553.

11 AWEC outlines a list of proposals for the Interim Period Deferral that it
12 considers unchallenged as a result of the Company's proposed deference to the
13 deferral application dockets. For example:

- 14 • AWEC recommends using a two year amortization period for the
15 Interim Period Deferral in base rates.
- 16 • AWEC proposes that interest on the deferred interim period balance be
17 accrued at the Company's pre-tax cost of capital.
- 18 • AWEC proposes the use of a sinking fund method for amortizing tax
19 savings.

20 **Q. How do you respond to AWEC's positions?**

¹⁰ AWEC/500, Mullins/12

¹¹ AWEC/200, Mullins/12

1 **A.** The Company disagrees that the Interim Period Deferral should be addressed in
2 this GRC. As mentioned above, there are ongoing deferral dockets to address
3 this complex issue. The Commission has not yet approved NW Natural or Staff's
4 deferral applications, and there are several questions on this issue that are yet to
5 be resolved by the Commission. For example, the Commission has not had the
6 opportunity to resolve the final methodology for calculating the Interim Period
7 Deferral and how an earnings test under the deferral statute should be applied to
8 the Interim Period Deferral. Additionally, the Company will not be able to
9 calculate the amount of the deferral until sometime after rates go into effect after
10 this GRC.

11 Additionally, it is my understanding that it would be appropriate for the
12 Commission to address the Interim Period Deferral outside of a rate case based
13 on the Commission's directives on this topic. The Commission has previously
14 stated¹² that, "deferred accounting allows rates to be adjusted outside of a
15 general rate case when certain expenses or revenues arise that are deemed
16 exceptional." The TCJA is an exceptional event that would warrant separate
17 processing outside of this GRC. I address AWEC's other arguments below.

18 **Q.** **AWEC proposes to amortize the Interim Period Deferral through base rates.**

19 **Do you think this is fair treatment for ratemaking?**

20 **A.** No, I do not. The Interim Period Deferral is tracking a one-time event for the
21 reduction in income tax expense from January 1, 2018 through October 31,

¹² Order 09-316, Page 14

1 2018. At the end of the period, we will know exactly what those deferred
2 amounts are, and at that time we will no longer be deferring the net benefit.
3 AWEC's proposal to amortize this one-time event in base rates would result in an
4 ongoing annual reduction to rates, even after the full amount of the Interim Period
5 Deferral had been amortized. This does not appear to be a fair resolution. The
6 known deferred amounts for the Interim Period Deferral should begin amortizing
7 in utility rates on a schedule that captures the one-time event only. NW Natural
8 is open to discussing how this will happen in the deferral dockets or in relation to
9 reducing the balance in the Pension Balancing Account as suggested by CUB in
10 its Rebuttal Testimony.

11 **Q. Do you agree to AWEC's calculation of the Interim Period Deferral of**
12 **\$7,916,553?**

13 A. No. As mentioned above, we are currently deferring these amounts and they will
14 not be known until sometime after October 31, 2018. The Company does not
15 wish to delay the amortization of deferred amounts to ratepayers, but does find
16 AWEC's proposal problematic. The deferral period ends on the day prior to the
17 effective date of rates in the GRC, and as a result, the final actual amount
18 deferred will not be available on the effective date for the GRC.

19 AWEC's calculation of the proposed amount is also performed without
20 considering the utility's actual results. This approach is inconsistent with deferral
21 accounting and would be in conflict with direction provided to NW Natural
22 following the February tax workshop on the TCJA.

1 **Q. Does NW Natural object to using a two-year amortization for the Interim**
2 **Period Deferral?**

3 **A.** We object to a two-year amortization in base rates, but we are open to
4 discussing a two-year amortization of the Interim Period Deferral in a separate
5 schedule when we know the final deferred amounts for the Interim Period
6 Deferral, and after the earnings test is determined.

7 **Q. Does NW Natural object to accruing interest on the Interim Period Deferral?**

8 **A.** No, NW Natural is currently accruing interest on the Interim Period Deferral in the
9 customers' favor based on its authorized after-tax cost of capital, as is the usual
10 case with deferrals that are not yet subject to amortization.

11 **Q. Does the Company object to using the sinking fund method for amortizing**
12 **tax savings?**

13 **A.** The Company is unable to find a reference to sinking funds in the direct
14 testimony of AWEC, and as a result, does not take a position at this time.

15 **Q. Please describe CUB's position on this topic.**

16 **A.** CUB has not made a proposal for the ratemaking treatment of the Interim Period
17 Deferral, but noted that the Interim Period Deferral could be used to offset the
18 balance of the Pension Balancing Account.¹³

19 **Q. Would NW Natural consider offsetting the Pension Balancing Account with**
20 **the Interim Period Deferral?**

¹³ CUB/300, Jenks/5.

1 A. As more fully discussed in the Surrebuttal Testimony of Brody Wilson, NW
2 Natural is open to using the customer benefits resulting from the TCJA to lower
3 the balance of the Pension Balancing Account. We think this is a creative
4 solution to an issue that has a shared concern among the Parties.

5 **III. EXCESS DEFERRED INCOME TAXES DEFERRAL**

6 **Q. Please recap what deferred taxes are, and how they come about.**

7 A. Accumulated deferred income tax assets and liabilities (ADIT) generally
8 represent the cumulative difference between total income tax expense and
9 income taxes paid (total income tax expense = current income taxes + deferred
10 income taxes). ADIT primarily arises when accelerated and/or bonus
11 depreciation provides for a temporary delay of a portion of income taxes payable
12 until later in a new asset's operating life. In short, deferred taxes are created
13 when there is a timing difference between a utility's income tax expense for book
14 purposes, and its income taxes paid for the same period.

15 NW Natural avails itself of available methods to accelerate tax recovery of
16 plant assets as part of normal income tax planning. These benefits are passed
17 on to customers through a recognition that they provide the utility with interest-
18 free financing for a time, and therefore they warrant an offset to the utility's rate
19 base. For these reasons, Staff and other interested parties require utilities to
20 take advantage of these opportunities. For example, Staff recently argued that,
21 in the case of a different utility, failing to claim bonus depreciation would be,

1 “unreasonable, imprudent, and harms” customers.¹⁴

2 **Q. Please explain the remeasurement of deferred taxes that was required as a**
3 **result of the TCJA.**

4 A. Accounting Standards Codification (ASC) 740, issued by the Financial
5 Accounting Standards Board (FASB), requires remeasurement of deferred tax
6 liabilities and deferred tax assets for the effects of a change in tax laws or rates
7 in the period that includes the enactment date (December 22, 2017) of the TCJA.
8 An entity with a calendar fiscal year-end, like NW Natural, was required to
9 recognize the effects of the federal legislation in December 2017.

10 **Q. Did NW Natural remeasure its deferred tax liabilities and assets to take into**
11 **account the TJCA?**

12 A. Yes. Federal ADIT was remeasured in December of 2017, the enactment period
13 of the TCJA, using the newly lowered income tax rate. The change in ADIT was
14 determined by measuring the federal temporary differences using a 21 percent
15 federal statutory income tax rate and comparing this result to the federal ADIT
16 balance existing immediately prior to the remeasurement. The change in ADIT,
17 or excess deferred income tax (EDIT) amount, was recorded as a net reduction
18 in ADIT with an offsetting entry to a new regulatory liability account.

19 **Q. Has NW Natural taken actions to ensure that the appropriate benefit from**
20 **the remeasurement of deferred taxes can be provided to customers?**

¹⁴ UG 305 Staff/100, Gardner/17

1 A. Yes. NW Natural has accounted for these benefits to customers, and taken all of
2 the necessary steps to preserve them. The TCJA-related deferral applications¹⁵
3 filed by NW Natural and Staff in December addressed the deferral of the excess
4 deferred income taxes benefit, in addition to the interim period of reduced tax
5 expense. The deferral application update, filed by NW Natural in April of 2018,
6 also noted that the EDIT benefit recorded at the end of 2017 is being deferred.

7 NW Natural's books clearly reflect the EDIT benefit deferral to be used to
8 benefit customers. ASC 980, also issued by the FASB, indicates that if the
9 Company determines that, as a result of a regulatory action, it is probable that
10 the reduction in income tax expense, recorded in 2017 as a result of the deferred
11 tax remeasurement, will accrue to the benefit of customers, then the income tax
12 benefit should be reversed and a regulatory liability should be recorded. This
13 occurred in December 2017. The regulatory liability for excess deferred income
14 taxes was recorded in 2017 as a result of the Company's view of the probable
15 regulatory outcome, which is that customers will receive the benefits of excess
16 deferred taxes related to the utility. Federal Energy Regulatory Commission
17 (FERC) guidance in AI93-5-000 mirrors the guidance in ASC 980 on this topic.
18 NW Natural's books reflect adherence to both of these guidelines.

19 The new regulatory liability balance includes a gross up for income taxes
20 at the newly enacted tax rate, and represents the estimated EDIT anticipated to

¹⁵ UM 1919 and UM 1924

1 accrue to the future benefit of customers. The balances are comprised of both
2 plant and non-plant related EDIT.

3 **Q. Is there any uncertainty with respect to the amounts of EDIT that have been**
4 **recorded?**

5 A. Yes. In discovery between NW Natural and Staff during this GRC¹⁶, it was noted
6 that the system-wide estimated EDIT balance recorded for financial statement
7 purposes was \$156.8 million, as of December 31, 2017. As mentioned above,
8 an additional estimated liability of \$56.5 million, to reflect a gross up for income
9 taxes, was also recorded. Elements of the deferral, however, continue to be
10 estimates which are insufficiently settled. There are a number of unsettled items
11 which could result in a change to the deferral recorded at the end of 2017, but
12 two are responsible for the greatest potential change. The first is that the US
13 Treasury has announced their intention to issue clarifying guidance on certain
14 elements of the TCJA, including the availability of bonus depreciation for utilities
15 during the last quarter of 2017, and certain inputs from the federal corporate
16 income tax reform for 2017 will just not be available until the return is completed
17 and filed in October of 2018. As a result, a portion of the deferral recorded will
18 continue to be an estimate until late in 2018.

19 As noted in the tax workshop, held on February 28, 2018, there are also a
20 number of other uncertainties that may result in changes to the currently
21 recorded balance. These include, but are not limited to:

¹⁶ UG 344 OPUC DR 411 NWN Response

- NW Natural's federal income tax return is generally subject to examination by the Internal Revenue Service on an annual basis immediately after filing. The IRS may not agree with positions as reported on the return that could result in changes to these balances.
- State legislatures are currently reviewing the impact of tax reform on state tax revenues. The deliberations of state legislatures may result in new laws or tax rates that could result in changes to these balances.

Q. Do these uncertainties affect the ability to pass the benefits on to customers?

A. Because of the above uncertainties, the Company has not sought to implement a treatment of the EDIT ratemaking in the rate case, but considered the deferral application docket a better vehicle. The Commission could, in that docket, gain greater information and clarity about the amounts, and also consider in that separate docket the application of the earnings test, which applies to deferrals.

Q. What is the impact on customers if the benefits of the EDIT are not passed on to customers in this case, and instead determined in the separate deferral docket?

A. Customers will continue to receive a benefit in the interim time period. The calculation of rate base, as included in the GRC revenue requirement model, continues to include a reduction to rate base for the full amount of the EDIT recorded upon enactment of the TCJA at the end of 2017. As a result, customers will continue to benefit from the excess deferred income taxes in the

1 revenue requirement determination at the authorized rate of return until the
2 deferral process is concluded.

3 **Q. Through what methods could the benefit of the TCJA-related excess**
4 **deferred taxes be provided to customers?**

5 **A.** There are a number of ways that customers could receive the benefit of the
6 excess deferred income taxes. These options are not mutually exclusive and
7 they could be used in combination. One area of concern is the varying degrees
8 of impact on operating cash flows from the available options.¹⁷ The methods
9 include:

10 1) Bill Credits – Customer bill credits would result in a dollar for dollar
11 reduction of the excess deferred income tax balance. The reduction in the
12 excess deferred income tax balance would also result in an increase to
13 rate base and related revenue requirement.

14 2) Existing Regulatory Asset Offset – Applying excess deferred income
15 taxes as an offset to an outstanding regulatory asset, such as the pension
16 balancing account, would result in a reduction to the customer recovery
17 requirement of the regulatory asset balance and reduce the future interest
18 charge on that balance. The reduction in the excess deferred income tax

¹⁷ Moody's Investors Service, in January of 2018, issued a credit rating downgrade warning with respect to NW Natural and twenty three other rate regulated utilities. The credit downgrade watch is a direct outcome of federal income tax reform and includes forecasts of more challenging cash flows. Using a combination of options to benefit customers, which considers the relative cash flow impacts of each, would be appropriate in an effort to help reduce downgrade risk and the resulting potential for higher financing costs.

1 balance would also result in an increase to rate base and related revenue
2 requirement.

3 3) Capital Project Allocation - Applying excess deferred income taxes as
4 an offset to new or existing capital projects would reduce the cost basis of
5 the asset, its cost of recovery inclusion in depreciation, and its
6 corresponding influence on rate base. This would be a permanent
7 reduction to a plant account balance, and the reduction in the excess
8 deferred income tax balance would result in an increase to rate base and
9 related revenue requirement.

10 NW Natural believes that it would be appropriate, in the separate deferral
11 docket, to explore at least the first two options for providing the benefits to
12 customers.

13 **Q. Please describe the proposals and concerns of the other Parties to this**
14 **general rate case with regards to Excess Deferred Income Taxes Deferral**
15 **as a result of the TCJA.**

16 A. The parties generally identified three areas where they made proposals or
17 expressed concern. These included 1) the Company's proposed utilization of the
18 active deferral docket UM 1919 to resolve the treatment of EDIT, 2) views about
19 what normalization requirements dictate with respect to the provision of EDIT-
20 related benefits to customers, and 3) calculations of the amounts that should be
21 provided each year under an amortization of EDIT benefits.

1 **IV. UTILIZATION OF THE ACTIVE DEFERRAL DOCKET UM 1919**

2 **Q. What did parties argue with respect to the Company's proposal to use UM**
3 **1919 in order to resolve the treatment of EDIT-related benefits?**

4 **A.**Staff noted in their rebuttal testimony¹⁸ that the deferral docket may be an
5 appropriate course of action for addressing the Interim Period Deferral. Staff
6 argues, however, that NW Natural should make provisions in this GRC for the
7 inclusion in utility rates of the excess deferred income taxes resulting from the
8 TCJA.

9 AWEC would prefer to address all of the tax deferral matters within this
10 general rate case even though the matters are specifically included in two
11 separate and active dockets, UM 1919 and UM 1924. In AWEC's rebuttal
12 testimony¹⁹ they assert that the active TCJA deferral dockets "were established
13 only to deal with the Interim Period" tax deferral. AWEC also argues²⁰ that the
14 amount of a deferral, and its amortization schedule, are matters commonly
15 reserved for general rate cases and not deferral dockets.

16 **Q. What is NW Natural's view of these positions?**

17 **A.**For the reasons stated above, NW Natural continues to believe that it would be
18 most efficient, and appropriate to resolve the treatment of EDIT-related benefits
19 in the separate deferral docket.

¹⁸ Staff/1400, Gardner/10 and 11

¹⁹ AWEC/500, Mullins/8

²⁰ AWEC/500, Mullins/12

1 of the regulatory decision making process, but the actual federal income tax
2 legislation does none of the things that AWEC claims.

3 **Q. Please explain further.**

4 A. First, it is important to note that the U.S. federal income tax legislation, or the
5 TCJA, has jurisdiction over one primary thing - NW Natural's federal income tax
6 return. It does not dictate the required ratemaking by state utility commissions.
7 In other words, the Commission's decisions are not subject to the jurisdiction of
8 the TCJA. NW Natural's financial accounting and reporting is governed by
9 accounting standards established by the Financial Accounting Standards Board
10 (FASB), the Federal Energy Regulatory Commission (FERC), and the
11 Commission's oversight. It also is not governed by the TCJA. Thus, although
12 the income tax normalization rules should be made a part of ratemaking
13 considerations, they do not govern or specify a particular outcome on their own.

14 The normalization language in the TCJA indicates that a taxpayer, in this
15 case NW Natural, would commit a normalization violation, "if the taxpayer, in
16 computing its cost of service for ratemaking purposes and reflecting operating
17 results in its regulated books of account, reduces the excess tax reserve more
18 rapidly or to a greater extent than such reserve would be reduced under the
19 average rate assumption method." The language can be broken down into
20 several pieces to be better appreciated:

- 21 • "in computing its cost of service for ratemaking purposes and reflecting
22 operating results in its regulated books of account": This indicates that

1 normalization only applies if the benefit of excess deferred taxes is
2 shared with customers. In NW Natural's case, this applies, because
3 the benefit will be shared with customers. The TJCA does not, in and
4 of itself, however, require this result.

- 5 • “reduces the excess reserve more rapidly or to a greater extent”: This
6 is simply the setting of an upper “speed limit.” It is not setting a
7 specific speed requirement. In other words, the language says that to
8 the extent the benefit is shared with customers, it cannot be done
9 faster than the limit provided for in the law, without other tax
10 consequences.
- 11 • “would be reduced under the average rate assumption method”: The
12 average rate assumption method (“ARAM”) is a specific formulaic
13 method for creating an amortization schedule. So the ARAM
14 amortization schedule is to be used as a benchmark for the speed limit
15 but it is in no way required to be used as the regulatory prescribed
16 result.

17 AWEC's rebuttal testimony includes an IRS publication as an exhibit²³

18 which states that normalization,

19 limits the rate at which the excess tax reserve may be reduced and flowed
20 through to the utility's customers in setting rates. It does not require the
21 utility to flow through the excess tax reserve to its customers, but permits
22 the utility to do so provided the reduction to cost of service is not more
23 rapidly than would be under the ARAM.
24

²³ AWEC/503, Mullins/5

1 This statement by the IRS is consistent with NW Natural's explanation and
2 interpretation of normalization.

3 In summary, the normalization rule for excess deferred income taxes
4 comes into play when the excess tax reserves are used to benefit customers and
5 the excess tax reserve is reduced more rapidly (or to a greater extent) than the
6 reserve would be reduced under a model amortization schedule (ARAM). There
7 is nothing in the normalization rule that dictates a specific accounting treatment,
8 a time limit for settlement of the excess tax reserves, or requires that the
9 Commission address excess tax reserves in a particular way.

10 **VI. AMOUNTS AMORTIZED FOR THE BENEFIT OF CUSTOMERS**

11 **Q. What do the parties propose with respect to the amortization of benefits to**
12 **customers?**

13 **A.** Staff and AVEC each argue for different amounts to be amortized to customers.

14 **Q. What is NW Natural's view of these proposed amounts?**

15 **A.** The Parties' proposals do not use an appropriate method for determining the
16 amortization. The Parties, in their proposals for amortization of excess deferred
17 income taxes, utilize a straight-line method similar to the "Reverse South Georgia
18 Method." The federal normalization rules indicate that the average rate
19 assumption method (ARAM) amortization method is the primary method to be
20 used to develop the annual "speed limit" test. However, the TCJA goes on to
21 provide that if the data to prepare the ARAM schedule is not available, then the
22 Reverse South Georgia Method (RSGM) can be used. A more thorough reading

1 of the legislation and history clarifies that the data availability test for ARAM vs.
2 RSGM is a vintage-by-vintage one. In other words, if the data exists to prepare
3 an ARAM schedule for every vintage except one, then RSGM can only be used
4 for the one vintage in which the required data to calculate ARAM is not available.

5 **Q. Please elaborate a bit on the ARAM method and the RSGM method.**

6 A. The ARAM method results in an amortization schedule that mimics the timing of
7 when the deferred tax reversal would have been payable to the taxing authorities
8 in the absence of a tax rate reduction. The RSGM method results in an
9 amortization schedule that is straight-line, or ratably, over the remaining
10 regulatory life of the property.

11 **Q. What did AWEC state with respect to the method it proposes that NW**
12 **Natural must use?**

13 A. AWEC indicates²⁴ that they have requested the underlying vintage data
14 necessary to use the ARAM methodology but NW Natural has been unable to
15 provide it. They surmise that NW Natural has been unable to provide the ARAM
16 data because the data does not exist. As a result, AWEC proposes to use a
17 variant of the RSGM method, for all vintages, as provided in their initial
18 testimony.

19 **Q. Is AWEC's argument correct?**

20 A. No. Using RSGM, when the data is available to use ARAM, would result in the
21 use of an incorrect speed limit to measure against the annual customer benefit

²⁴ AWEC/500, Mullins/8 and 9

1 from excess deferred income taxes and could result in a normalization violation.

2 Additionally, AWEC's assertions that NW Natural does not have the
3 necessary data to conduct the ARAM analysis is incorrect. Although AWEC
4 asserts in testimony that NW Natural has not provided the information necessary
5 to conduct that ARAM analysis, at no time during discovery did AWEC request
6 NW Natural's estimate of the annual amortization under ARAM or indicate that
7 they were requesting the underlying data necessary to independently calculate
8 ARAM.

9 During discovery²⁵ AWEC made a single request for book and income tax
10 accumulated depreciation, for the years 2017, 2018 and 2019. AWEC requested
11 that this information be provided by FERC account and by vintage, if available.
12 AWEC made no mention that they were attempting to use this information to
13 independently calculate ARAM, but NW Natural speculated they might be. In the
14 data response by NW Natural, which AWEC has attached as an exhibit²⁶ to their
15 rebuttal testimony, NW Natural provided both book and income tax accumulated
16 depreciation for 2017, 2018 and 2019. We provided the data in the exact same
17 format that NW Natural is using internally to prepare our ARAM schedule. In
18 case AWEC was planning to use this data to independently calculate ARAM, we
19 noted in the response that this information alone would be insufficient for that
20 purpose. AWEC made no further requests for data in this regard, nor did they

²⁵ UG 344 NWIGU DR 42, (f) and (g)

²⁶ AWEC/502, Mullins/4

1 communicate they wanted data to attempt to calculate ARAM.

2 **Q. Are there other issues with respect to Staff's and AWEC's proposed**
3 **amortizations of the Excess Deferred Income Tax Deferral Balance?**

4 A. Yes. In the Parties' efforts to include benefits from excess deferred income tax in
5 base rates, rather than as a deferred account amortization, they have proposed
6 annual base rate inclusions of excess deferred income taxes that are excessive,
7 use straight-line rather than ARAM amortization, and could result in a
8 normalization violation.

9 **Q. Please elaborate further on AWEC's calculations.**

10 A. During discovery, NW Natural provided AWEC²⁷ and Staff²⁸ with a copy of the
11 electronic workbook that NW Natural used to calculate excess deferred tax
12 balances at the end of 2017, with all detail fully intact. The workbook clearly
13 noted the remeasured balances to be included in the excess deferred tax
14 regulatory liability account. It is unclear why, but AWEC choose to include over
15 \$15 million of ineligible balances from the workbook which overstates their
16 beginning figure underlying their work in this matter. These ineligible balances
17 relate to other plant flow-through differences that were directly benefited to
18 customers in periods before 1981. They are now in the period of flow-back, or
19 collection. The flow-through matter was explained, and references to previous

²⁷ UG 344 NWIGU DR 38

²⁸ UG 344 OPUC DR 411

1 orders were provided, during discovery²⁹.

2 AVEC also used a straight-line amortization method, similar to RSGM, for
3 plant-related balances, and used a four year amortization period for non-plant
4 balances. They arrived at an annual amortization of \$7.435 million³⁰. In addition,
5 AVEC adjusted rate base by the amount of annual amortization³¹. NW Natural
6 agrees with AVEC that rate base must be adjusted, but it must be adjusted
7 *upward* when amortization occurs. This is because rate base is reduced for
8 deferred taxes when it represents a cost-free financing benefit to the utility, but
9 when the money is actually provided as a benefit to customers, that financing
10 benefit goes away, and rate base is increased. In this case, AVEC *decreased*
11 rate base by the amount of the annual amortization. In effect, AVEC almost
12 doubled the annual impact to rates that their approach should have yielded.

13 Also, as stated above, the base number included in the amortization
14 includes ineligible deferred tax balances. As a result, the proposed annual
15 amortization of \$13.498 million is excessive and the doubling effect from
16 reducing rate base (as opposed to increasing rate base) would lead to a
17 normalization violation.

18 AVEC's proposal to amortize non-plant excess deferred tax balances
19 over four years is also inconsistent with the regulatory life of the underlying

²⁹ UG 344 NWIGU DR 3 and 4

³⁰ AVEC/203, Mullins/2

³¹ AVEC/202, Mullins/1 (Line 6)

1 regulatory assets. The majority of the non-plant balance relates to a gas
2 reserves investment with scheduled recovery out to the year 2040. In addition,
3 the attempt to include a temporary (four year) amortization in permanent base
4 rates denies NW Natural the opportunity to earn a reasonable return
5 prospectively, and would be an unnecessary and inappropriate approach to
6 ratemaking.

7 **Q. Please elaborate further on Staff's calculations.**

8 A. Staff's approach to their proposed annual amortization figure is more thorough in
9 its use of the data provided. However, the suggested result of \$10.009³² million
10 of annual amortization is also excessive. The calculation uses straight-line
11 amortization, similar to RSGM, for plant related balances and uses a five-year
12 amortization period for non-plant related balances. Although Staff
13 acknowledges³³ that amortization of excess deferred taxes to the benefit of
14 customers would result in a corresponding increase to rate base, the annual
15 figure proposed did not include such an adjustment.

16 Similar to AWEC, Staff's proposal to amortize non-plant excess deferred
17 tax balances over five years is inconsistent with the regulatory life of the
18 underlying regulatory assets, the largest of which has a current regulatory life
19 that does not end until 2040.

³² Staff/1403, Gardner/1

³³ Staff/1400, Gardner/8

1 **Q. Please describe the Company's proposal to address the Excess Deferred**
2 **Income Taxes Deferral as a result of the TCJA.**

3 A. As stated above, and throughout NW Natural's testimony, NW Natural believes
4 that the details of the calculation of TCJA-related EDIT, and the provision of
5 these benefits to customers should be addressed within the separate deferral
6 docket. NW Natural also believes that Oregon Commission policy and precedent
7 supports this position.

8 **Q. If the Commission were inclined to incorporate a benefit to customers**
9 **related to EDIT in this rate case proceeding, what approach would you**
10 **recommend?**

11 A. I would recommend an approach that includes consideration of the ARAM
12 amortization speed limit, the regulatory life of the underlying non-plant assets, an
13 application of an earnings test, and the increase to test period rate base that
14 results from inclusion of this benefit in the GRC. This approach would result in
15 the following outcome:

16 1) An annual base rate inclusion (reduction) of \$4.5 million, reflecting
17 amortization of the excess deferred income tax balance allocable to
18 Oregon, beginning with new rates effective November 1, 2018. This figure
19 includes a full gross up for income taxes.

20 2) An annual base rate inclusion (increase) of \$419 thousand, reflecting
21 the additional revenue requirement of the rate base increase as a result of
22 benefiting customers through the amortization of the excess deferred

1 income tax deferral balance through October 31, 2019, the end of the
2 general rate case test year.

3 3) The application of an earnings test, using the 2017 calendar year
4 Oregon Results of Operations report outcome, to the excess deferred
5 income tax deferral recorded in 2017. The result is a reduction of \$2.9
6 million to the Oregon allocable portion of the \$156,836,030
7 remeasurement balance. This is reflected in the annual amortization
8 figure of \$4.5 million.

9 4) The application of an ARAM-based amortization schedule to plant
10 related balances, an amortization period of ten years to other non-plant
11 related balances, and an amortization period of twenty years to the gas
12 reserves-related balance.

13 5) A recognition that the Oregon-allocable portion of the plant and other
14 non-plant balances is 90 percent and the Oregon-allocable portion of the
15 gas reserves investment balance is 100 percent.

16 **Q. If the Commission determines that EDIT-related benefits should be**
17 **incorporated within utility rates in this case, are there other considerations**
18 **that they should be aware of?**

19 A. Yes, there are three other considerations. First, another method of amortization
20 that could be used would be to effect a more precise tracking of the amortization,
21 concurrent with the Company's Purchased Gas Adjustment each year. This
22 could be accomplished by amortizing an amount each year, net of the rate base

1 increase associated with the provision of EDIT-related benefits. This proposed
2 approach was discussed earlier in the testimony of Kevin McVay.³⁴

3 Second, there is an important connection between the provision of EDIT-
4 related benefits to customers and the pension balancing account at issue in this
5 proceeding. Staff³⁵ and CUB³⁶ have both indicated in their respective rebuttal
6 testimony that applying the annual excess deferred income tax deferral
7 amortization to the pension balancing regulatory asset is a viable option for
8 addressing some of their concerns about NW Natural's pension balancing
9 account. NW Natural would consider applying all or a portion of the \$4.5 million
10 annual amortization to the pension balancing account, rather than as a reduction
11 to base rates. This option could address the parties expressed concerns
12 regarding the longevity of the pension balancing account.

13 Third, around \$10.8 million of the Company's EDIT related to tax reform
14 comes about as a result of the Company's investment in gas reserves. These
15 benefits likely should be provided to the customers that have paid for gas
16 reserves in their rates, namely sales customers. In other words, there are rate
17 design considerations that also should be explored before the provision of
18 benefits to customers is specified.

³⁴ NW Natural/1500, McVay/Page 21

³⁵ Staff/1500, Fox/4

³⁶ CUB/300, Jenks/5

1 **Q. Have you prepared an exhibit regarding your proposal for including a**
2 **reduction of \$4.5 million in base rates to reflect EDIT-related benefits?**

3 A. Yes. It is included as NW Natural/2501, Borgerson.

4 **Q. What are the next steps you would propose for dealing with TJCA-related**
5 **EDIT benefits?**

6 A. As expressed in NW Natural's UM 1919 deferral application update, filed April
7 16, 2018, NW Natural looks forward to working with the parties to determine the
8 best course for customers to receive the benefit of the excess deferred income
9 tax deferral, and doing so through the deferral docket. Until such time that
10 customers receive that benefit, they will continue to benefit from the lower rate
11 base balance resulting from the excess deferred taxes.

12 **Q. Does this conclude your testimony?**

13 A. Yes it does.
14
15
16
17
18
19

BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON

UG 344

NW Natural
Exhibit of Sean Borgerson

FEDERAL INCOME TAX REFORM
EXHIBIT 2501

July 9, 2018

EXHIBIT 2501– FEDERAL INCOME TAX REFORM

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In 2017, NW Natural recorded a remeasurement of regulated utility deferred income taxes of \$156,836,030 on a system wide basis. The figure is comprised of balances related to plant, other non-plant, and the non-plant gas reserves investment, in the amounts of \$140,618,807, \$5,450,377, and \$10,766,846, respectively. The sum of these figures, grossed up for income taxes, equals \$213,306,163 and ties to Staff's total figure and NW Natural's 2017 financial statements. This total is the estimated excess deferred income tax deferral balance on a system wide basis.

		2018	2019	2020	2021	2022	2023	
C	Amortization Rates:							
	Plant	1.430%	1.653%	1.865%	2.139%	2.391%	2.682%	140,618,807
	Non-Plant - Other	10.000%	10.000%	10.000%	10.000%	10.000%	10.000%	5,450,377
	Non - Plant - Gas Reserves	5.000%	5.000%	5.000%	5.000%	5.000%	5.000%	10,766,846
								156,836,030 A
D	Annual Amortization:							
	Plant	2,011,335	2,324,564	2,622,580	3,007,454	3,361,668	3,772,038	
	Non-Plant - Other	545,038	545,038	545,038	545,038	545,038	545,038	
	Non - Plant - Gas Reserves	538,342	538,342	538,342	538,342	538,342	538,342	
E	Oregon Allocation:							
	Plant	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	
	Non-Plant - Other	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	
	Non - Plant - Gas Reserves	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
	Allocated Plant	1,810,202	2,092,108	2,360,322	2,706,709	3,025,502	3,394,834	
	Income Tax Gross Up	1.36	1.36	1.36	1.36	1.36	1.36	
F	Plant Amortization	2,461,875	2,845,267	3,210,038	3,681,124	4,114,682	4,616,974	
	Allocated Non-Plant - Other	490,534	490,534	490,534	490,534	490,534	490,534	
	Allocated Non-Plant - Gas Reserves	538,342	538,342	538,342	538,342	538,342	538,342	
	Allocated Non-Plant - Total	1,028,876	1,028,876	1,028,876	1,028,876	1,028,876	1,028,876	
	Income Tax Gross Up	1.36	1.36	1.36	1.36	1.36	1.36	
	Non-Plant Amortization	1,399,272	1,399,272	1,399,272	1,399,272	1,399,272	1,399,272	
G	Total Annual Amortization	3,861,146	4,244,538	4,609,310	5,080,396	5,513,954	6,016,246	
H	Spread of Earnings Test Offset	(2,855,684)	-	(109,310)	(580,396)	(398,610)	-	(3,944,000) B
I	Remainder Allocation	(255,462)	255,462	-	-	-	-	-
		750,000	4,500,000	4,500,000	4,500,000	5,115,344	6,016,246	
	Months in Year	2	12	12	12	12	12	
J	Monthly Amortization	375,000	375,000	375,000	375,000	426,279	501,354	

Monthly Amortization of \$375,000 Equates to \$4.5 million of Annual Amortization

- A – System wide deferred tax remeasurement recorded in calendar year 2017
- B – The application of the earnings test. \$2.9 million applied on an after tax gross up basis (1.36 gross up) for a total of \$3.944 million
- C – Amortization rates reflecting ARAM for plant and proposed ten and twenty year lives for non-plant
- D – Annual system wide amortization
- E – Oregon allocations of the respective annual amortization amounts
- F – Oregon allocated annual plant amortization, including income tax gross up
- G – Total Oregon allocated annual amortization of plant and non-plant balances
- H – The earnings test balance applied to years one through six in a fashion that supports amortization of \$4.5 of annual Oregon amortization (even in early years when the schedule would indicate less)
- I – An additional allocation between the first five years to arrive at an equal annual amortization of \$4.5 million (works in conjunction with the earnings test application to accelerate amortization)
- J – A test summation to indicate that the annual amortization of \$4.5 million begins with the new rates effective in this general rate case effective November 1, 2018 (2 months of 2018)

1 – EXHIBIT OF SEAN BORGERSON

BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON

UG 344

NW Natural

Surrebuttal Testimony of Brody Wilson

**PENSION BALANCING
Exhibit 2600**

July 9, 2018

EXHIBIT 2600 - SURREBUTTAL TESTIMONY – PENSION BALANCING

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I. Introduction and Summary1

II. NW Natural's Pension Balancing Account1

III. Specific Response to the Parties Rebuttal Testimony.....4

1 **I. INTRODUCTION AND SUMMARY**

2 **Q. Please state your name, address, and position.**

3 A. My name is Brody Wilson. My business address is 220 NW Second Avenue,
4 Portland, Oregon 97209. My current position is Vice President, Treasurer, Chief
5 Accounting Officer, and Controller at NW Natural.

6 **Q. Please summarize your educational background and business experience.**

7 A. I received a B.A. in Accounting from George Fox University in 2001. From 2001
8 through 2012, I worked at PricewaterhouseCoopers, LLP, in the Power and
9 Utilities Assurance practice. I joined NW Natural in 2012 as Accounting Director.
10 In 2013, I was appointed as Controller and Chief Accounting Officer of NW
11 Natural and its subsidiaries. In 2016, I also became Treasurer.

12 **Q. Have you previously provided testimony in this proceeding?**

13 A. No. This will be my first opportunity to provide testimony in UG 344.

14 **Q. Please summarize your surrebuttal testimony.**

15 A. My testimony responds to the Commission Staff (Staff), the Oregon Citizens'
16 Utility Board (CUB) and the Alliance of Western Energy Consumers (AWEC)
17 (collectively "the Parties") rebuttal testimony regarding NW Natural's Pension
18 Balancing Account.

19 **II. NW NATURAL'S PENSION BALANCING ACCOUNT**

20 **Q. Please describe the current status of the Pension Balancing Account and**
21 **the Company's view of the viability of the account.**

1 A. As described in the Opening Testimony¹ and Reply Testimony² of Kevin McVay,
2 the Pension Balancing Account mechanism is continuing to function as designed.
3 Since its inception, the balancing account has properly captured the difference
4 between the amount of FAS 87 pension expense the Company is recovering in
5 rates and the actual FAS 87 expense incurred by the company. However, the
6 balance in the account has grown to a level greater than originally forecasted and
7 is not currently expected to decrease to zero in the original time frame projected.
8 For that reason, we have been open to, and engaged in discussions with the
9 Parties about how this should be addressed.

10 **Q. Please explain why the forecasted balance is higher than anticipated at the**
11 **time the mechanism was adopted.**

12 A. The balance is higher than was expected because the Company's actual FAS 87
13 pension expense has exceeded the projections at the time it was established.
14 This was due to a number of factors, including lower interest rates than had been
15 assumed at the time the Pension Balancing Account was created, as well as
16 changing requirements around pension funding. As a result, the balance in the
17 Pension Balancing Account grew rapidly because the \$3.8 million collected
18 through rates did not provide enough recovery to mitigate the increase in pension
19 expense.

¹ NW Natural/200, McVay/Page 19.

² NW Natural/1500, McVay/Page 35.

1 **Q. Does NW Natural believe that there should be some adjustments with**
2 **respect to the Pension Balancing Account mechanism?**

3 A. Yes. NW Natural believes it would be appropriate to adjust the amount collected
4 in rates and/or utilize other available tools, such as applying NW Natural's excess
5 deferred income taxes to the balance, to bring down the balance in the Pension
6 Balancing Account. However, as noted in NW Natural/1500, McVay/Page 36,
7 the Stipulation approved in Order No. 11-051 in UM 1475 ("PBA Stipulation")
8 expressly prohibits any Party from requesting an increase to expense in rates.
9 This is why NW Natural approached the Parties to work together toward an
10 agreed-upon modification to the PBA Stipulation to resolve the shared concern of
11 the greater than expected balance in the Pension Balancing Account.

12 **Q. CUB states in its rebuttal testimony "it is imperative for parties to reach a**
13 **creative solution leading to the termination of the Pension Balancing**
14 **Account." Does NW Natural agree?**

15 A. Generally, yes. The Company believes it is in all Parties' interest to reduce the
16 Pension Balancing Account to zero over time, as originally intended. However,
17 this goal must be achieved with an approach that is consistent with the originally-
18 approved PBA Stipulation and sound regulatory principles. This can be done by
19 preserving the balancing function while collecting additional amounts from
20 customers. It should not involve terminating the balancing account.

21 **Q. Does NW Natural agree with the Parties' suggestion that solving the**
22 **Pension Balancing Account requires a separate docket?**

1 A. No. In order to avoid multiple rate changes for customers, NW Natural would
2 prefer to find a solution with the Parties through separate settlement discussions,
3 and then bring that solution forward in this proceeding, so that the agreed-upon
4 solution can be made effective November 1, 2018, concurrent with the outcome
5 of this case. In addition, NW Natural believes that it may be appropriate to utilize
6 available approaches, such as applying excess deferred income taxes to bring
7 down the balance, and increasing the amount recovered in rates (an incremental
8 amount above the \$3.8 million currently embedded in rates), which are items that
9 could affect the required levels of rate changes determined in this docket.

10 **Q. If the Parties and NW Natural are unable to agree upon a solution, is NW**
11 **Natural willing to discuss a solution in a separate proceeding?**

12 A. Yes.

13 **III. SPECIFIC RESPONSE TO THE PARTIES' REBUTTAL TESTIMONY**

14 **Q. Please summarize Staff's position in its Rebuttal Testimony.**

15 A. Staff reiterated its concerns about the Pension Balancing Account initially stated
16 in Staff/300, Fox/28-32. Staff believes that ratepayers are being harmed by the
17 accumulation of interest in the Pension Balancing Account because the account's
18 growth has outpaced the \$3.8 million of annual FAS 87 expense recovered from
19 ratepayers that was designed to bring the balance to zero in the timeframe
20 originally projected. In its rebuttal and cross-answering testimony, Staff agrees
21 with the Company's Reply Testimony that the amount of pension expense
22 recovered through rates should be increased, but believes that leaving the

balancing account mechanism in place “masks the portion of the increase that would be applied to interest.” Staff has not at this time proposed a change to the Pension Balancing Account, but much like NW Natural, Staff has identified concerns with the account and expressed optimism that the Parties can resolve the issue by agreeing to modify the PBA Stipulation.

Q. Does NW Natural agree that increasing the amount collected in rates while leaving the mechanism in place masks the portion of the increases that would be applied to interest?

A. No, NW Natural believes that the mechanism is transparent, and that Staff and others could easily obtain any information about the balance in the account, and the interest associated with it. The PBA Stipulation expressly provides for the accrual of interest on the Pension Balancing Account. This was necessary to account for the carrying costs associated with the extended time period for recovery of pension expenses, which was at the very core of the agreement.

NW Natural also notes that it has been very open about utilizing different approaches to significantly decrease the balance in the account, which would in turn significantly reduce the absolute level of interest that is accrued over time. If certain approaches are utilized to pay down the account quickly, the increased amount collected from customers will largely be going toward the principle balance and not interest.

Q. Please describe CUB’s position on this issue.

1 A. CUB states that it is “imperative for the parties to reach a creative solution
2 leading to the termination of the Pension Balancing Account.” CUB believes that
3 the Pension Balancing Account must be terminated and pension expense should
4 be increased. According to CUB, the interest accrued on the Pension Balancing
5 Account incentivizes NW Natural to make minimum cash contributions to its
6 pension fund, which would maintain a balance in the Pension Balancing Account
7 longer, rather than bringing the balance to zero. CUB proposes three changes to
8 Pension Balancing Account as part of this docket. CUB proposes to terminate
9 the Pension Balancing Account, reduce the balance by applying NW Natural’s
10 deferred tax expense for the 2018 tax period, and change the interest rate from
11 the Company’s weighted average cost of capital to the Company’s weighed
12 average discount rate for pensions. CUB then proposes to open a new docket to
13 address how the remaining balance in the account should be treated.

14 **Q. Do you agree that the Pension Balancing Account should be terminated in**
15 **this docket?**

16 **A.** No. As stated above, there is no need to terminate the mechanism because we
17 are currently looking for solutions about how to address the higher than
18 forecasted balance in it, and we believe there are straight-forward ways to do
19 that, which can be brought to the Commission for review. Summarily terminating
20 the balancing account will not resolve this issue, and in fact, could limit our ability
21 to develop creative solutions to address this issue as CUB suggests.

1 **Q. Do you agree with CUB that NW Natural is incentivized to contribute**
2 **minimum cash contributions allowable to the pension fund because of the**
3 **Pension Balancing Account?**

4 A. No, I do not. CUB is correct that NW Natural generally does contribute the
5 minimum cash contribution allowed, but this is not related to the existence or
6 functioning of the Pension Balancing Account. The minimum cash contribution
7 that CUB is referring to is the funding that NW Natural is required to make to its
8 "pension fund," from which benefits to retired pension plan participants are paid.
9 The minimum funding ensures there are no penalties incurred that would
10 increase FAS 87 expense, and we believe the minimum funding can often
11 represent a reasonable contribution level for the pension fund.³

12 I would also note that any proposal that NW Natural accelerate its
13 payments to the pension fund in order to try to bring down FAS 87 expense could
14 have other unanticipated and negative consequences. First, as we have noted
15 throughout this case, NW Natural's credit ratings are currently significantly
16 strained by delayed recovery or under recovery of costs.⁴ Any additional cash
17 out-flows in addition to the minimum would significantly hurt the Company's
18 overall credit position. Additionally, NW Natural wants to avoid a situation where
19 the pension fund itself is over-funded, which has significant tax consequences.

³ The topic of minimum contributions has come up in past dockets, where CUB actually expressed concerns about utilities contributing above the minimum contribution for pension funds. See UM 1633, CUB/300 Jenks-McGovern/15, pp. 15-17.

⁴ Credit Rating Agency Reports - UG 344 OPUC DR 282 Attachment 1

1 This could occur if NW Natural funded the pension plan at levels intended to
2 bring down FAS 87 based on a goal of using this as a way to manage the
3 Pension Balancing Account.

4 NW Natural does not believe it is in anyone's interest for the pension fund
5 to become overfunded, or to put itself in a position where it is unnecessarily
6 putting a strain on cash flows.

7 **Q. On lines 14-16 in UG 344/CUB/300, Jenks/4, CUB states it is unfair for**
8 **customers to continue to pay interest on this account for the benefit of**
9 **Company Shareholders, when the customers themselves do not realize a**
10 **benefit. Does NW Natural agree with this statement?**

11 A. No. NW Natural disagrees that the interest rate is benefitting shareholders, or
12 that the customers do not benefit from the pension balancing account. First, the
13 Company incurs significantly greater borrowing costs to fund the pension plan
14 than it realizes in interest income from the Pension Balancing Account, because
15 the interest is not grossed up for taxes that the Company ultimately has to pay.
16 As such, the Company's current inability to recover pension expense is harmful
17 to shareholders. The significant continued financing also puts a cash flow strain
18 on the utility, which is not ideal from the Company's perspective. Second, from
19 the customers' perspective, customers do benefit by deferring costs which would
20 have been paid under the standard FAS 87 collection in rates. This customer
21 benefit was very much the basis for the original PBA Stipulation, which allowed
22 for interest in recognition of the financing obligation that it created.

1 **Q. Please summarize AWEC's position on the Pension Balancing Account.**

2 A. AWEC believes that the Pension Balancing Account is not functioning as it was
3 originally intended. AWEC recommends that the Commission eliminate the
4 Pension Balancing Account and transition to including FAS 87 expense in rates.
5 AWEC then asserts that NW Natural may not necessarily recover the balance of
6 the Pension Balancing Account if the Commission eliminates the mechanism
7 before the account reaches zero. AWEC would have the Parties perform a year
8 by year analysis of the prudence of NW Natural's pension accounting during the
9 period that the Pension Balancing Account was active, and then apply an
10 earnings test derived from the PBA Stipulation.

11 **Q. Does NW Natural agree with AWEC's recommendations?**

12 A. No. For the reasons stated above, NW Natural does not believe it is appropriate
13 to terminate the Pension Balancing Account in this docket. NW Natural also
14 does not agree with AWEC's proposed method for reviewing the recovery of the
15 Pension Balancing Account as explained further below.

16 **Q. AWEC suggests that reserving the ability to fully recover a long-term**
17 **mechanism such as the Pension Balancing Account after unwinding half-**
18 **way through is not appropriate. Does NW Natural agree?**

19 A. No. The basic concept of a balancing account is to allow full recovery over time.
20 The Parties agreed to this mechanism in UM 1475 and NW Natural hopes the
21 Parties will continue supporting full recovery. NW Natural is open to accelerating
22 the period over which the account is now expected to balance to zero. NW

1 Natural is not open, however, to a solution that – contrary to the terms of the
2 Stipulation – denies the Company full recovery. NW Natural is also not open to
3 reducing the interest rate that was agreed to by the Parties, and the Commission,
4 which would put NW Natural in the position of being financially harmed by its
5 reliance on the balancing account approach.

6 **Q. AWEC states “...under the stipulation the balances must be subject to an**
7 **earnings test.” Does NW Natural agree?**

8 A. No. AWEC misstates the provisions of the PBA Stipulation, which clearly state
9 that an earnings test applies after the balance in the account becomes negative.

10 **Q. AWEC states in rebuttal testimony that it will not support a settlement**
11 **where excess deferred federal income taxes are used to pay down the**
12 **Pension Balancing Account. Does NW Natural foresee an ability to**
13 **reconcile a solution with AWEC’s position?**

14 A. Yes. NW Natural sees many options and tools available to pay down the
15 Pension Balancing Account, some of which do not include excess deferred
16 federal income taxes. Similar to the FAS 87 amount agreed to in our last rate
17 case, the Parties could agree on a reasonable amount to be embedded in rates
18 without the use of other tools. NW Natural also notes that the parties have not
19 had much chance to discuss all of the tools available, and hopes that those
20 conversations could be beneficial.

21 **Q. Does this conclude your testimony?**

A. Yes.

BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON

UG 344

NW Natural

Surrebuttal Testimony of Randolph S. Friedman

**ISS/OPTIMIZATION
EXHIBIT 2700**

July 9, 2018

EXHIBIT 2700 – SURREBUTTAL TESTIMONY – ISS/OPTIMIZATION

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I. INTRODUCTION AND SUMMARY

Q. Please state your name, business address, and present occupation.

A. My name is Randolph S. Friedman and my business address is 220 NW Second Avenue, Portland, Oregon 97209. I am employed by NW Natural Gas Company (NW Natural or Company) as the Senior Director, Gas Supply.

Q. Are you the same Randolph S. Friedman that previously provided Direct and Reply Testimony in this docket?

A. Yes, I presented Exhibits NW Natural/1300 and NW Natural/2400.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my Surrebuttal Testimony is to present NW Natural's response to rebuttal testimony filed on June 22, 2018, by the Public Utility Commission of Oregon (Commission) Staff (Staff) and the Citizens' Utility Board (CUB) in response to my June 4, 2018 Reply Testimony regarding the recommendations made by the Liberty Consulting Group's (Liberty) Final Report on NW Natural's optimization activities (the Liberty Report).¹

Q. How is your testimony organized?

A. I have organized my testimony to provide the Company's response to the arguments raised by Staff and CUB. The Company's position regarding the Liberty Report, in general, is contained in my Initial and Reply Testimony.

¹ The Alliance for Western Energy Consumers (AWEC) filed a letter in lieu of rebuttal testimony stating that the positions of the parties had already been placed in the record and that AWEC would present any additional arguments on brief.

1 **II. The Liberty Report**

2 **Q. Please describe the basis for the Liberty Report and the information**
3 **contained in the Liberty Report.**

4 A. As set forth in greater detail in my prior testimony, Commission Order No. 15-066
5 issued in Docket No. 1654 directed the parties to that proceeding to form a steering
6 committee to hire a third-party to conduct a study that would examine the risks,
7 costs and benefits of NW Natural's optimization activities, the assets being utilized
8 for these activities, the allocation between regulated and non-regulated services,
9 and the components of the Company's system that drive the costs and revenues
10 associated with interstate storage.² Consistent with the Commission's Order,
11 Liberty was retained and issued the Liberty Report which includes
12 recommendations regarding the Company's revenue sharing arrangements for its
13 storage services and optimization activities.³

14 In this general rate proceeding, the parties have provided testimony in
15 response to the Liberty Report and the recommendations contained therein. This
16 surrebuttal testimony addresses the two issues raised on rebuttal by Staff and
17 CUB: (1) the appropriate revenue sharing allocation for optimization activities; and
18 (2) whether the Company should be required to include optimization revenues in
19 its results of operation (ROO) report.

² NW Natural/1300, Friedman/31 *citing In the Matter of Northwest Natural Gas Company, Investigation of Storage and Optimization Sharing*, Docket No. UM 1654, Order No. 15-066 at 5 (Mar. 5, 2015).

³ NW Natural/1300, Friedman/31; *see also* NW Natural/1301.

1 **III. Revenue Sharing of Optimization Activities**

2 **Q. Please describe the Company's optimization activities.**

3 A. As set forth in greater detail in my Initial and Reply Testimony, the Company's
4 optimization activities fall into five general categories: (1) Mist Storage
5 optimization; (2) liquids extraction; (3) commodity contract (portfolio) optimization;
6 (4) pipeline capacity optimization; and (5) off-system storage optimization.⁴ The
7 Company has engaged a third-party to manage these optimization activities
8 pursuant to an asset management agreement (AMA).

9 **Q. Please explain how the Company works with the third-party asset manager
10 to perform the optimization activities?**

11 A. The Company's Gas Supply Department is responsible for negotiating the terms
12 of the AMA arrangement and developing strategies with the third-party optimization
13 partner to maximize value while maintaining reliability standards for core utility and
14 storage service customers.⁵ At least one individual in the Gas Supply Department
15 is involved on a daily basis in consultation with the third-party optimization
16 manager to review current positions, assess available resources, and determine
17 new opportunities for optimization. This close working relationship with its
18 optimization partner allows the Company to adapt as needed to changing market
19 conditions and customer requirements, and to undertake long-term strategies that
20 result in higher values for customers.⁶

21 **Q. Did the Liberty Report include a specific recommendation regarding these
22 optimization activities.**

⁴ NW Natural/1300, Friedman/13.

⁵ NW Natural/1300, Friedman/13.

⁶ NW Natural/1300, Friedman/13.

1 A. No. The Liberty Report stated that there is room to reduce NW Natural's share of
2 optimization margins, asserting that this reduction would bring the Company closer
3 in line with sharing arrangements that exist in other jurisdictions.⁷ However, the
4 Liberty Report stopped short of providing a specific recommendation.

5 **Q. What recommendations have Staff and CUB made with respect to revenue**
6 **sharing of proceeds from the Company's optimization activities?**

7 A. In their respective opening testimonies, Staff and CUB recommended a 90/10 split,
8 with customers receiving 90 percent and the Company receiving 10 percent. On
9 rebuttal, Staff and CUB reiterate this recommendation.⁸

10 **Q. Does the Company agree with the recommendation of Staff and CUB that**
11 **revenues from optimization activities should be allocated on a 90/10 basis?**

12 A. No. Such a drastic reduction in NW Natural's share of optimization benefits could
13 negatively affect the Company's incentive to achieve optimization savings. As
14 described in my Reply Testimony, the Company believes that it has gone, and
15 continues to go, beyond the efforts typically expended by local distribution
16 companies in the optimization of customer assets. The Company has actively
17 engaged with its third-party asset manager on a daily basis and through a close
18 working relationship to ensure that it achieves the best results (*i.e.*, value) for
19 customers. NW Natural's experience and information suggests that this level of
20 involvement is unusual. Furthermore, NW Natural's efforts have actually resulted
21 in very significant value to its customer in the amount of \$133.5 million in credits
22 since 2000.⁹ If a significant modification to NW Natural's sharing percentage is

⁷ NW Natural/1300, Friedman/32; see also NW Natural/1301, Friedman/65.

⁸ Staff/1600, Glosser/5; CUB/400, Jenks/3.

⁹ NW Natural/1300, Friedman/29.

1 made, the Company's incentive to achieve these consistently favorable results will
2 also be substantially altered.

3 **Q. Did the Company raise any other concerns about the parties'**
4 **recommendations to make significant adjustments to the revenue sharing**
5 **allocation for optimization activities?**

6 A. Yes. In my Reply Testimony the Company asserted that while the parties are
7 correct that the Liberty Report states that there is room to reduce NW Natural's
8 share of revenues, the Liberty Report falls short of providing detailed information
9 regarding the results of the peer utility companies it has used as the comparison
10 group. As a result, the Liberty Report provides an overview of the revenue sharing
11 arrangements for NW Natural's peer utilities but does not go so far as to provide a
12 comparison of the *results* of each arrangement. Therefore, it is entirely possible
13 that while NW Natural's sharing may provide customers with a relatively smaller
14 sharing percentage, NW Natural's customers may well be receiving significantly
15 larger revenues. Given this lack of detailed information, the Commission should
16 be hesitant to impose a significant change to the Company's current revenue
17 sharing framework because it *is* certain that the Company has provided significant
18 benefits to customers through its optimization activities.

1 **Q. Did any party respond to this argument?**

2 A. Yes. Staff responded to the Company's concerns regarding the lack of detailed
3 information the utilities used for comparison in the Liberty Report.¹⁰ However, Staff
4 dismissed this concern stating that the Liberty Report relies on as much
5 information as is available and that the Company had ample time to request more
6 detailed information during the stakeholder process (*i.e.*, the stakeholder process
7 that resulted in the Liberty Report) but failed to do so.¹¹

8 **Q. Does the Company agree with Staff's conclusions regarding the underlying**
9 **data?**

10 A. No. As an initial matter, the Company has identified specific data that would be
11 necessary for a comprehensive comparison: actual revenues received by
12 customers. Staff does not rebut the Company's claim that this information would
13 enhance the comparison or provide valuable information for evaluating the
14 Company's optimization revenues. Nor does Staff allege that this information is
15 unobtainable. The Company therefore remains convinced that this data is
16 necessary and that without this information, any significant modification to the
17 current adjustment is unwarranted and unsupported.

18 In addition, the Company does not agree that it failed to address this lack of
19 data during the stakeholder process. The Company specifically raised concerns
20 regarding its ability to verify Liberty's conclusions during the discovery process and
21 reiterated these concerns in its comments submitted in response to the final draft

¹⁰ Staff/1600, Glosser/6.

¹¹ Staff/1600, Glosser/7.

1 of the Liberty Report.¹² It is therefore incorrect to state that the Company failed to
2 raise any issues with the Liberty Report during the stakeholder process. The
3 Company did raise these issues and continues to express its concern that
4 incomplete data could be relied upon to impose a significant change to the
5 Company's optimization revenue sharing allocation. As discussed more fully in
6 my Reply Testimony, the value provided to customers through these activities is
7 significant and any change should be made only if a complete and robust analysis
8 shows that it is warranted, and will not cause unintended effects or harm.

9 **IV. Results of Operations Report**

10 **Q. Does the Company report its earnings related to optimization activities?**

11 A. Yes. The Company currently reports its optimization revenues annually to the
12 Commission, as part of a confidential report.

13 **Q. Does the Liberty Report make any recommendation regarding the**
14 **Company's reporting practice?**

15 A. No. The Liberty Report is silent on this issue.

16 **Q. Please explain CUB's recommendation regarding reporting of the**
17 **Company's optimization activities earnings.**

18 A. In its Opening Testimony, CUB recommended that the Company be required to
19 include all optimization revenues associated with rate-based, regulated activities
20 in its Results of Operations Report (ROO) but to exclude optimization revenues
21 associated with interstate storage.¹³

¹² Copies of the Company's response to Data Request No. Liberty Consulting-DR 42 submitted in Docket No. UM 1654 and the Company's edits to the final draft of the Liberty Report are provided as Exhibits NW Natural/2701 and NW Natural/2702 (Confidential).

¹³ CUB/200, Jenks/25. AWECC also made this recommendation in its opening Liberty Report testimony. See AWECC/400, Finklea/8.

1 **Q. What was the Company's response to CUB's recommendation?**

2 A. In my Reply Testimony, I explained that CUB's recommendation is premature
3 because it appeared to be largely supported by an argument that the information
4 will be needed to evaluate the impacts of incentive regulation and Oregon has not
5 yet adopted incentive regulation. The Company also raised concerns that
6 including this information in the ROO would incorrectly imply that these revenues
7 should be considered in the application of earnings reviews.

8 **Q. Did the Company present any recommendation to address CUB's concerns**
9 **regarding transparency?**

10 A. Yes. Although the Company does not agree that it is appropriate to include this
11 information in the ROO (for the reasons stated above and in my Reply Testimony),
12 the Company has proposed to include this additional data for informational
13 purposes in its annual Optimization Report. This proposal would increase
14 transparency without creating any appearance that this revenue should be
15 considered as part of the Company's earnings.

16 **Q. What is CUB's response to the Company's recommendation to include this**
17 **data in the annual Optimization Report?**

18 A. CUB does not specifically address the Company's recommendation to include this
19 data in its annual Optimization Report.¹⁴ Instead, CUB continues to argue that the
20 Company's optimization revenues should be reported in the ROO to allegedly
21 make the ROO more transparent and accurate.¹⁵
22

¹⁴ See CUB/400, Jenks/3.

¹⁵ CUB/400, Jenks/3.

1 **Q. Does the Company agree that reporting its optimization revenues in the ROO**
2 **is necessary to increase transparency?**

3 A. No. The Company has proposed a reporting mechanism for this data, through its
4 annual Optimization Report, that will increase transparency and thus meet CUB's
5 stated objective. The Company's Optimization Report is the appropriate reporting
6 tool because it meets the objective of transparency while also eliminating any
7 suggestion that this revenue should be considered as part of the Company's
8 earnings.

9 **Q. Does Staff also make a recommendation regarding reporting of the**
10 **Company's optimization revenues?**

11 A. Yes. Staff did not address this issue in its Opening Testimony; however, on
12 rebuttal Staff has joined CUB (and AWECC) in recommending that the Company
13 provide information regarding its optimization activities and associated earnings
14 impact in its annual ROO.¹⁶

15 **Q. Does Staff address the Company's recommendation to include this**
16 **information in its optimization report?**

17 A. No. Staff states that it agrees with CUB that transparency is the ultimate goal but
18 is silent regarding the Company's assertion that this transparency can be achieved
19 through reporting in the Optimization Report.

20 **Q. Does the Company agree with Staff's recommendation?**

21 A. No. For all of the reasons set forth in my Reply Testimony and above in response
22 to CUB, the appropriate reporting mechanism for this data is through the
23 Company's annual Optimization Report.

¹⁶ Staff/1600, Glosser/10.

1 **V. Conclusion**

2 **Q. Does this conclude your testimony?**

3 **A. Yes, it does.**

BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON

UG 344

NW Natural

Exhibits of Randolph S. Friedman

**SURREBUTTAL – ISS/OPTIMIZATION
EXHIBITS 2701-2702**

July 9, 2018

EXHIBITS 2701-2702 – ISS/OPTIMIZATION

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Rates & Regulatory Affairs

Data Request Response

Request No. Liberty Data Requests-Liberty Consulting-DR 42:

42. Please review the attached spreadsheet titled “Sharing Percentages”. Please provide any additions, corrections, deletions, perspectives, or other comments in order to make the data presented as accurate and robust as possible.

Response:

NW Natural has not been able to perform a robust enough review to state that all information available from every jurisdiction on this topic is presented in the spreadsheet. However, we have sought to verify Liberty’s determinations, and have performed some additional research that is described below, and reflected in the attached version of the spreadsheet, Liberty DR 42 Sharing Percentages_REVIEWED.

Assumptions regarding sharing “tiers”

Where sharing tiers are used, Liberty made an assumption that 20% of total revenues from optimization flow through the highest tier. NW Natural believes that a higher percent of total revenues likely flow through the upper tiers. For example, in the case of Washington Gas Light, NW Natural understands that in its D.C. jurisdiction, all revenues are shared 50/50 between customers and the company. Additionally, NW Natural understands that across its system (i.e. across jurisdictions), Washington Gas Light retains a much higher proportion of optimization revenues than indicated by Liberty. From Washington Gas Light’s filed SEC reporting, NW Natural believes that WGL retains more in the range of 43% of overall revenues achieved.

For Laclede, NW Natural understands that Laclede assumes \$4 million of revenues to customers when they determine annual gas costs. Under Laclede’s sharing structure, customers retain the first \$2 million of revenues achieved. Therefore, it appears that Laclede assumes that much of the revenues shared with customers are achieved under the higher sharing tiers.

Distinction about nature of activities across utilities and jurisdictions

NW Natural believes it would be important to determine what sharing percentages apply in other jurisdictions where the complexities involved in the optimization program are similar to those under the NW Natural program. NW Natural is concerned, for example, that many instances of sharing identified by Liberty may relate to simple capacity release arrangements. NW Natural’s tariff also provides for a sharing of revenues from

capacity release arrangements, which is a lower sharing than those applied to more complex optimization activities that NW Natural pursues with its optimization partner. Instances where a sharing percentage identified by Liberty may apply only to a capacity release arrangement include the percentages of 85/15 shown for some of the New York companies. NW Natural is not able to tell through online research for sure, but it seems from some of the companies' 10-Ks that this revenue sharing may apply to pipeline capacity releases where unused capacity would otherwise be paid for by customers. It is unclear whether this includes activities such as those that exist under NW Natural's optimization program.

Lack of source data for 100/0 arrangements

We have not, at this time, confirmed the utilities with 100% sharing because source data for those utilities was not provided and we had difficulty finding supporting information. NW Natural requests that Liberty provide source data for the 100/0 arrangements identified in the spreadsheet.

WGL VA	Dollars^	Customer	Company
First	\$ 3.2	100	0
Next	\$ 3.3	75	25
Over	\$ 6.5	50	50

^ - Dollars in millions.

**Draft Report on
The Liberty Consulting Group's Evaluation of
NW Natural's Optimization Activities**

CONFIDENTIAL INFORMATION MARKED IN HIGHLIGHTING



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October 13, 2017

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I. Introduction

A. Background

This study addresses forward-looking alternative methods and shares for apportioning NW Natural margins (net revenues) produced by offering contract gas storage services into interstate and intrastate markets and by optimizing the use of the assets employed to provide service to customers for utility sales service ("core utility customers"). These optimization activities include the capture of opportunities presented by the Mist underground storage facility. They also include very substantial opportunities inhering in the capacity provided by other utility assets. Mist may generate the greatest visibility on optimization, but the economic benefits produced by these other assets have proven far greater.

NW Natural Gas Company ("NW Natural") serves more than 700,000 customers in Oregon and Southwest Washington. NW Natural owns and operates the Mist underground gas storage facility, which:

- Supports deliverability to core customers at times of peak demand
- Enables withdrawal of lower-priced seasonal purchases stored when prices are high
- Provides capability to offer interstate and intrastate storage services
- Provides capability to support a variety of other transactions whose positive margins enhance the facility's economic value.

Mist storage employs depleted gas reservoirs located near Mist, Oregon. NW Natural faced significant forecasted expansion in demands for utility service in the late 1990s. Original storage and related pipeline development at Mist entered utility service in 1989, with subsequent expansions adding to capability in 1991, 1997, and 1999. Management undertook development and expansions through this time to serve core customers, leading to the inclusion of their capital costs in utility rate base. Thus, expected increases in core-customer needs provided the driver for capacity expansion.

Expansion since 2000 has continued, but under a change that introduced the concept of utility-service "recall." This transition introduced a novel approach to rate treatment for utility capital assets. Pending recall for serving core customers, expanded capacity has remained outside rate base until recalled. Moreover, recall has occurred in discrete portions of Mist capability, with those amounts established by current needs to support core-utility use. Pending such recall, management has retained the ability to use that capacity to serve the broader Pacific Northwest regional market, for the principal benefit of NW Natural's "ownership" (a term we use in this report to distinguish the general economic interests of shareowners in corporate economic results from the special interests created by margin sharing here). Revenues from these non-core operations relying on unrecalled capacity have had to support investment carrying and operations costs assigned to that capacity. NW Natural's ownership, as opposed to its customers, have thus borne the risks and captured the opportunities associated with unrecalled Mist capacity. Margin sharing with customers has produced a moderate exception to this general assignment of risks and opportunities.

NW Natural began making these subject-to-recall investments to add to Mist capability in 2000, following them with similarly-treated investments for additional expansions in 2001 through 2008. As of year-end 2016, these investments totaled approximately \$67 million.

Management also optimizes the value of the non-Mist, utility-owned or contracted supply assets, with the gains produced shared in different proportions (contrasted with Mist sharing) between customers and ownership.

An arrangement approved by the Oregon Public Utility Commission (OPUC, or the Commission) has since 2001 determined the sharing of net revenues between core utility customers and ownership. Services offered to customers outside of Oregon, subject to the jurisdiction of the U. S. Federal Energy Regulatory Commission (FERC) rely in part on assets that meet core-customer needs. The Commission's review of the sharing arrangement in Docket No. UM 1654 produced a directive (Order No. 15-066) to conduct an independent, outside cost allocation study and evaluation.

B. Study Scope

Our work provides an independent evaluation and cost allocation study of optimization activities, addressing:

- The assets being optimized
- The investment and other "contributions" made on behalf of core customers and those made otherwise
- The changes in the capabilities of assets used to optimize
- The sources of their funding
- The marketplace opportunities created by those changes
- The operational and financial risks that those changes and marketplace opportunities created
- Current and historical allocation of costs and benefits between Oregon-jurisdictional and FERC-jurisdictional services
- The benefits (absolute and relative) accruing on the Oregon-jurisdictional and FERC-jurisdictional sides from those allocations
- Comparison of allocations with those in other, similar situations.

The study's scope addresses three sources of shared margins produced by NW Natural management:

- Contract gas storage services for on-system and off-system customers: Intrastate Storage (NW Natural Rate [Schedule 80](#)) and Interstate Storage Service (FERC 284.224)
- Mist optimization
- Other asset optimization.

Our scope excluded one other form of sharing - incentives for securing the natural gas commodity at prices better than targeted levels. The Purchased Gas Adjustment mechanism governs that sharing.

Commented [NWN1]: We recommend adding a brief section describing the process that Liberty undertook to perform the study: Reviewed UM 1654 docket, multiday kick-off meeting with steering committee, data requests, phone interviews, interviews with Steering Committee members, on-site visit for report findings, weekly check-in calls with Steering Committee, etc.

The current sharing arrangements have been vetted with and transparent to the Commission and stakeholders throughout this period. This report seeks to provide a foundation for stakeholder discussion and Commission determination of whether current margin sharing remains optimum looking to the future. We did not consider realigning past sharing percentages or dollar amounts with historic costs and benefits. We did, however, find historical results useful in understanding how stakeholders and ownership “got here,” but, in the final analysis, the only questions we addressed concern “where things are going.”

C. Sources and Amounts of Sharing

1. Sharing Structure

The first source of sharing is associated with the portion of Mist capability not yet recalled for core-service utility use, and falls under the category of *Interstate Storage Services (ISS)*. Calculations for determining and sharing ISS margins operate as follows:

- Begin with total ISS revenues
- Deduct costs for O&M (*e.g.*, allocating payroll for the utility employees supporting storage transactions), leases, depreciation, interest, and property taxes
- The result equals “net revenues”
- Apply 20 percent of net revenues to offset costs to core utility customers
- Leave 80 percent of net revenues available to ownership.

The second source of sharing arises from exploiting the ability to optimize Mist capability that frequently proves excess to the needs of core and storage customers. The calculations for determining and sharing margins in this *Mist Optimization* category operate as follows:

- Begin with Total Mist Optimization revenues
- Set margin shares according to the apportionment of Mist deliverability (recall of Mist capability produced an allocation of 59 percent to core utility service for 2016)
- Apply 67 percent of the 59 percent of deliverability allocated to core-utility service to offset costs to core utility customers
- Leave 33 percent of the 59 percent of deliverability allocated to core-utility service available to ownership
- Apply 20 percent of the remaining 41 percent of deliverability to offset costs to core utility customers
- Leave 80 percent of the remaining 41 percent deliverability allocation available to ownership.

The third source of sharing, *Other Asset Optimization*, arises from non-Mist opportunities associated with assets such as upstream pipeline use, other storage, portfolio optimization, and the extraction of valuable natural gas liquids remaining in gas sourced from some regions in Canada. The calculations for determining and sharing those margins operate as follows:

- Begin with Other Optimization revenues
- Deduct compensation paid to the third-party asset manager

Evaluation of NW Natural's Optimization Activities

- The remaining amount equals margins subject to sharing
- Apply 67 percent of margins subject to sharing to offset costs to core utility customers
- Leave 33 percent of margins subject to sharing available to ownership.

2. Historical Margin Amounts

The next chart summarizes the margins produced for sharing since 2000. They have amounted to a very substantial [REDACTED] over this period.

Sources of Margins (2000-2016)

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The next chart shows customer shares of those margins, which have amounted to \$137 million.

Customer Shares of Margins (2000-2016)

Commented [NWN3]: Chart is confidential

D. Our Approach to Cost Analysis

1. The Commission's Order

Oregon Commission Order No 15-066 (Docket No. UM 1654) addressed the question of cost analysis for purposes of our study:

We determine that a neutral third party should conduct an evaluation and cost allocation study of NW Natural's optimization activities. The study will more robustly examine the risks, costs, and benefits of NW Natural's optimization activities, the assets being utilized for those activities, the allocation between regulated and unregulated services, and the various components of NW Natural's system that drive the costs and revenues associated with interstate storage services.

This Commission determination treats cost evaluation and allocation in a holistic fashion (*i.e.*, in the context of the risks and benefits associated with those costs). Examining costs under this broad framework reflects a “marketplace” view, which we consider an integral element of the relationship between NW Natural’s customers and Company ownership as it involves optimization. That view accommodates the reality that has existed since optimization began - - transactions take place, not in a regulated utility market, but in competitive ones.

2. A Useful Context for Examining Optimization Costs

Customers and ownership have had a symbiotic relationship under optimization. The term “dynamic” gives more precision than “relationship” to the circumstances created by splitting costs, benefits, risks, and ultimately the margins such factors have combined to produce. “Relationship” implies multiple parties; here NW Natural acts as a single entity for purposes of asset ownership and providing for the transactions with third parties on which optimization depends. The dynamic created by sharing, however, gives NW Natural two identities in a practical sense - - one seeking

to optimize costs for core utility customers and one seeking to recover investment and operating costs through uncertain market revenues.

This dynamic supports an approach that conceptually views these two identities as “transacting parties.” This “transaction” perspective reflects that customer and ownership interests have distinct characteristics. Certainly, the sharing arrangement has the essential characteristics of a bargain, which aligns costs, risks and opportunities with benefits. Equally certainly, the interests of the two, while reconcilable, are not identical when it comes to sharing the optimization *risks, costs, and benefits* that frame the issues relevant here. For example, a gain in one party’s percentage share comes from the share of the other. For another example, risk tolerances when customers take them are different from those that ownership is likely to be willing to take for its own account when operating in competitive markets.

Addressing the issues that surround optimization margin-sharing requires resolution of significant baseline questions that this report examines:

- What revenues and *costs* require allocation?
- By what methods should revenue and *cost allocation* occur?
- By what methods should *asset cost allocation* occur?

Applying a “cost” perspective traditionally used in the regulated-utility regulatory construct ultimately does not inform meaningful answers to the overarching questions about optimization margin-sharing. Optimization must employ prices competitive with those of market choices available to customers who have alternatives (often robust) to those that NW Natural can offer. With respect to assets not yet included in utility rate base (or, at NW Natural ownership’s risk, as this report explains), no backstop has existed for the return of and on investment where market prices prove insufficiently compensatory. No regulatory method has existed to cover the costs of any inefficient portion or stranded costs of such investments.

Separating Mist versus Non-Mist optimization activities highlights key differences among the three sharing mechanisms we examined. All have similarity in that each must operate under the risks and opportunities (and resulting benefits) resulting from the market pricing. However, responsibility for the costs of the asset portions enabling optimization can vary significantly between the two. For the revenues produced for Interstate Storage, for example, customers gain benefit without the inclusion of any investment costs in their rates for utility service. Ownership, by contrast, bears risks of recovering substantial carrying costs for investments. The same is true for optimization revenues from the unrecalled portion of Mist.

For non-Mist optimization, and for the portion of Mist optimization relying on rate-based costs, ownership gains benefit for no investment costs for which they have responsibility, while customer rates include substantial investment costs. An attempt to sort through these divisions in a logical manner would prove complex, even should one find a traditional utility regulatory construct appealing, despite what we view as the overriding need to consider the market in which optimization occurs. There is one notable exception, which has informative value in two respects

- - one quantitative and one illustrative of the effective customer/ownership business relationship created by the dynamic existing here.

The first source of illumination results from examining value gained or foregone in deciding not to place the entirety of Mist investment in rate base at the outset. This alternative would have left to customers all the risks and opportunities of optimizing the substantial capacity in excess of core customer requirements. Management and stakeholders both expected that excess to remain in existence for a fairly short time. However, as we explain in this report, that excess has lasted at least a decade longer than originally forecasted some 16 years ago. This hypothetical alternative (which assumes without asserting that such risk would have been considered tolerable for a regulated utility at that time) provides one benchmark for looking at how risks and benefits have sorted themselves out over time.

The second, conceptual source of illumination provided by this hypothetical alternative comes from the clarity that the customer/ownership dynamic brings to a useful notion. When it comes to sharing use of assets planned for utility use, one should expect an internal sorting of *risks, costs, and benefits* to reflect reasonable consistency with what one might expect of a relationship hammered out between a utility and a third-party. In other words, if one can objectively determine that the sorting of *risks, costs, and benefits* existing here would be reasonable if agreed to with a third party, then that determination provides a substantial indicator of the reasonableness of a similar sorting between customers and ownership.

3. How We Analyzed Costs

Thus, we believe that the Order calls for an evaluation and study broader than that encompassed by a traditional revenue-requirements or cost-of-service analysis for utility investments. The Commission's addition of risks, benefits, and utilization of assets to "costs" reflects how the relationship here differs from the situation typical in examining long-lived utility assets solely dedicated to utility use with an assured opportunity to earn (not a guarantee of) a regulated return:

- The relationship here did not involve a certain-to-be-long opportunity for returns, because of the ability of a high-growth utility operation to recall capacity at depreciated cost and at times of its choosing.
- There was no assured opportunity to earn any, let alone a pre-identified, return on the investments remaining outside rate base (*i.e.*, not yet recalled by utility operations).
- Given the lack of a regulatory ratemaking construct to provide utility-typical assurances of return on a long-term investment, it would not have been realistic to secure a non-utility party with whom to engage in a manner that would have provided the timing and cost benefits produced by the power to recall possessed by utility operations.

More than 15 years have passed since the initiation of Mist expansion activities designed to meet utility requirements, while providing to investors market opportunities to compensate them for investment amounts not yet recalled for inclusion in utility rate base. We do consider it pertinent to examine Mist expansion beginning around 2000 for shedding light on "how we got here," but our purpose for doing so involves forward-looking alternative sharing mechanisms.

There is one partial exception to this limitation, which corresponds to a possible alternative approach, recognized by management when planning Mist expansion. That approach consisted of building capabilities out fully at customer expense, providing customers with the opportunity to benefit from revenues gained from market opportunities.

Our evaluation compared actual results with historical expectations. We did not do so to re-evaluate what we believe to have been transparent and accepted sharing methods. Rather, we sought to provide a basis for determining to what degree realistic expectations for customers and ownership have been met across the period from 2000 to 2016. That balance or imbalance may exist, considering just two examples:

- Provide some support for an alternative that would continue current sharing arrangements for some period to permit better alignment between of expectations and actualities
- Suggest alternatives for change, should the numbers show that a rough balance has not existed, or that Mist has changed operating characteristics or operates in a different market environment.

Particularly given the lack of a need for incenting (as the sharing mechanisms have done) further Mist development for utility purposes, it may well prove appropriate to consider adjustments to future sharing mechanisms to lessen or eliminate compensation for development risk.

A central aspect that our analysis considered recognizes that, in and around 2000, an opportunity available to a non-utility partner (ownership or third party) existed to:

- Invest in storage assets above current utility needs in return for securing net storage revenue after a 20-percent sharing of that revenue with customers
- Bear the risks of storage markets and pricing, and construction
- Remain subject to recall by the utility as and when determined by the utility, causing a transfer of the recalled capacity's depreciated investment, and loss of the associated storage market revenue.

To summarize, we examined and evaluated what we observed as the key aspects of the Mist storage business. That analysis includes costs, risks, benefits, and asset contributions. Those aspects comprise:

- The apportionment of storage assets, capabilities and operations
- Allocations of capital and operating costs
- Storage opportunities, risks, and revenues
- Margin-sharing arrangements and their impact on shareholders and customers
- Cash flows to shareholders from the storage assets
- Actual shareholder rates of return and returns on investment
- The degree to which customers and ownership have obtained the "benefit of their bargain" through 2016
- Forward-looking changes in margin-sharing arrangements and their likely impacts.

Commented [NWN4]: We would propose removing this sentence. It would seem to unnecessarily preclude the notion that there could be, under some future circumstances, a benefit to customers of incenting further investment by NW Natural in Mist, ahead of core customer need. In other words, the construct used to date has provided benefits, and it could be that it does again in the future, with respect to some future build out of the remaining capabilities at Mist.

E. Overall Summary

We have examined sharing arrangements, their foundations, their history, expectations under them, and alternative structures that may make sense to apply in the future. Our discussions with Steering Committee members produced several elements of the framework under which we structured our work:

- The production of a range of alternatives, rather than a single Liberty view
- The ability to gauge results under those alternatives on a forward-looking, not retrospective, basis.

We considered a period of five years to be appropriate for “look-aheads” in what have been very dynamic markets in the industry. This report provides a range of alternate approaches in the two main categories of sharing within our scope - - Mist and asset optimization. For each of those alternatives, we have also provided variations. We calculated expected ownership and customer results for each variation. We did so using a simplified model that permits calculations of expected results for the variations we have presented.

As our description of the variations we tested demonstrates, one can postulate a very large number of permutations and combinations for each variable. We did not calculate results for each, but the availability of our model and its ease of use permit each Steering Committee member to do so for any variation or combination of variations of interest. Some overlap exists between the Mist and the Non-Mist results we have modeled. Small timing variances also exist between these two types of expected results modeled. Management’s methods of accounting for the two forms led us to calculate expected Mist optimization results on a calendar-year basis, and to calculate other optimization using the “contract” years that management uses for other optimization results. One can rationalize the small overlap and timing differences, but it makes sense to perform that rationalization only for a final, select set (as opposed to all) of variations.

Our overall views, expressed here not to imply criticism of other solutions, take two principal forms:

- The original design, the historical results, the expected results, the continuation of similar risks and opportunities, and the comparatively smaller dollar amounts at stake provide significant support for continuing the current sharing arrangements for interstate and intrastate Mist storage.
- Substantial room exists to reduce ownership’s share of optimization margins to bring them closer into line with those established in other jurisdictions, while still leaving management with a sufficiently strong incentive to perform optimization in complex and dynamic markets.

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II. Mist Margin Sharing

A. Background

1. The Inception of Mist Interstate, "At-Risk" Storage

NW Natural began in 2000 offering storage services into the interstate market. This offering relied on expanded Mist capacity not yet required to meet the needs of its on-system customers. Management developed the service following analysis of markets in the Pacific Northwest and regular interaction with other storage operators. NW Natural made a September 1999 presentation to the Oregon Commission Staff, proposing that shareholders: (a) make what we have termed "At Risk" investments needed for the interstate storage markets, and (b) provide "pre-built capacity," including reservoirs and station compression, for eventual use by the utility system. The proposal would identify the net costs of interstate storage as the: (a) "incremental investment-related costs" (depreciation, interest, property taxes), and (b) "incremental O&M and administrative costs" for Mist storage expansions required to garner revenue from interstate storage services and facility optimization activities.ⁱ

Commented [NWN5]: This service actually began in 2001. We filed for FERC certificate in 2000, but didn't receive until 2001.

Significant discussions of the proposal preceded a Staff analysis and recommendation memo dated April 18, 2000. The memo noted:

"... NW Natural discussed its desire to begin offering storage services into the interstate market using storage capacity that is temporarily excess to the Company's core customer needs. ... the Company's proposal to provide such service would involve the expansion of storage reservoir capacity at Mist at shareholder expense and in advance of its core customer's needs. However, because some use of existing utility facilities (such as the North Coast Feeder and Miller Station) would be required, NW Natural has proposed a sharing mechanism to compensate the core customers before such use. Any incremental expansion costs associated with this service would be borne by the company's shareholders and such costs would not be included in utility rates until such time as the capacity is recalled for the core's use, and rate making treatment is approved by the Commission."

Staff recommended that the Commission approve a mechanism (incorporated into Rate Schedule 185) for sharing net revenues between the company and its core customers on a 20 percent customer, 80 percent ownership basis.ⁱⁱ

Management has conducted Interstate Storage Service (ISS) business pursuant to rules promulgated by the Federal Energy Regulatory Commission (FERC). Those rules prescribe a cost-allocation method that results in maximum permissible rates for services. Management has consistently found these "maximum rates" far in excess of "what the market will bear" in the Pacific Northwest. Discounting the rate to a market level, as allowed by FERC rules, has permitted management to market available capacity to the market with notable success from 2000 to the present, with expectations that the market will continue to find the services attractive.

2. The Basic Mist Bargain between Customers and Ownership

The progression of storage development at Mist centers around storage assets developed and held for future use by the utility. Storage developed at Mist resulted from future core-customer needs

identified through an integrated resource planning process that has had broad stakeholder visibility and participation. Even after 2000, Mist storage developed considered core utility needs and remained subject to the ability to capture capability as it became needed for utility use. Meeting core utility needs has thus provided “critical mass” and central justification for expanding storage and deliverability. Moreover, utility rate base assets have provided Mist with the “connectivity” needed to inject and withdraw gas in economically useful ways. Utility personnel also provided experience and market intelligence useful in developing and executing plans for the expansion of storage at Mist.

Consequently, three principal factors - - the core needs provided by utility demand, the existence of a transportation and delivery system connecting Mist to markets, and utility knowledge and effort - - have made customer needs and contributions a key element in Mist development.

While development at Mist has anticipated, and sought to accommodate eventual utility use, development has proven to lead growth in utility needs by a large factor. Mist development beginning in 2000 came on the basis of widely shared expectations for a high rate of growth in utility needs as NW Natural made the investments that produced expansion. In retrospect, that growth has proven very much slower than the assumptions driving the pace of investment in Mist expansion. The differential between deliverability increases and utility needs has had a profound effect on the stake that ownership has had and continues to have in Mist. They have financially supported expansion in return for taking the lion's share of the margins that expanded deliverability in storage markets has produced. Ownership's opportunity for uncapped margins came, however, with the risks of producing substantial revenues in dynamic markets and under operating risk. Moreover, the duration of those risks has become long extended, as the pace of utility recall has been very much slower than expected. The extension of risk, however, has also been accompanied by a concomitant extension of opportunities to make economically beneficial use of the portion of Mist capability not yet recalled for core utility use.

Customers have shared on a minority basis in the market opportunities, but their principal benefit has come in ways not available under traditional utility capital expansion approaches:

- No need to pay upon expansion for storage capabilities not immediately needed
- No need to take market risk for recouping the costs of temporarily excess capacity
- No need to carry full installation costs in rates, because recall comes at costs depreciated through the time of each recall of incremental Mist capability.

NW Natural ownership's undertaking of pre-recall market opportunities and risks generated these benefits.

3. A Mutually Failed Expectation - - Not Necessarily “Bad News”

Differences between expectations and realities since the year 2000 have proven substantial. Original expectations called for expanded storage at Mist to become “used and useful” in providing core utility services within a few years. Expected annual utility recalls of 20,000 dekatherms per day (Dth/day) would produce full recall of the capability added through developments involving the Reichhold field (discussed below) in less than six years. Now more than 15 years down the road, a portion of that capability remains unrecalled. Much slower than expected utility recall has had a significant ameliorating effect on the storage costs include in rates for core utility services. Equally important, it has materially extended the duration of both the opportunities and the risks

that ownership expected to be taking at the time of key expansion activities across the period since the year 2000.

Our analysis has focused on addressing sharing mechanisms currently and for the future. The scope of our study did not include a retrospective analysis of the merits of arrangements to date, although, as we will describe, those arrangements have produced significant benefits for both customers and ownership.

Nevertheless, as we explain further below, certain aspects of the historical structure and results do have some bearing on the breadth of the perspective appropriate to the circumstances. For example, the historical record makes clear that no permanent division of assets on either an ownership or operating basis was contemplated as part of the Mist operating and sharing structure created and sustained for the past decade and a half. The approach and the mechanisms adopted anticipated a short-term arrangement, following which Mist capability added after 2000 would be owned and operated like that existing in 2000. Specifically, it would be operating as part of utility rate base at depreciated cost to serve core utility needs.

Had utility growth accorded with earlier expectations, the question of sharing the benefits of Mist storage capability added at Reichhold would now be moot for a decade. The high growth rates at the start of this century gave particular significance to the Mist expansion incentives of the sharing arrangements put in place at that time. The low growth now expected over the coming years minimizes the short- and intermediate-term importance of that incentive. Factors like these raise several questions that could have relevance in looking at the continuing merits of current sharing arrangements:

- Has the failed expectation about the fast pace of recall left either customers or ownership substantially disadvantaged?
- If so, does that disadvantage argue for future arrangements that will give the disadvantaged "side" an opportunity for redress?
- Does the lack of a need for an expansion incentive suggest reapportionment of margins?

We examined historical results for two reasons:

- To provide a basis for assessing the first two of the three questions posed above
- To assess how likely continuing the current arrangements into the future may prove in generating benefit levels absolutely and proportionately in line with past results.

B. Summary of Key Conclusions

1. *Resource planning to meet core-customer needs has driven development of storage and delivery capability at Mist.*
2. *All Mist capability developed before 2000 underwent traditional rate base inclusion, with costs entering rate base as development occurred.*
3. *Significant expansions have ensued since (after 2000), with Integrated Resource Planning for core-customer needs still identifying large demand and usage growth in the early years.*
4. *Core customers and the facilities whose costs those customers have borne have played a necessary and central role in Mist development; they have provided:*

Evaluation of NW Natural's Optimization Activities

- a) **Critical Mass** - - levels of demand and usage needed to justify initial and continuing development of Mist
 - b) **Connectivity** - - pipeline and other facilities necessary to connect Mist with markets
 - c) **Personnel** - - to provide planning, development, and market experience.
5. The support that core customers have provided for Mist operations in competitive markets has been substantial, and compensation for that support has taken forms best measured by the opportunities that support has helped to create - - not by allocating the costs of the rate-based facilities involved in traditional utility rate-making.
6. There has never been, nor was there planned a permanent division of formal or equitable "ownership" of Mist assets or capabilities
7. Mist expansion after 2000 introduced the concept of "recall," under which portions of Mist capacity would become assignable to core-customer use, in amounts determined pursuant to regular Integrated Resource Plan examinations by the Oregon Public Utility Commission.
8. Margin sharing has provided customers with direct benefits from storage of about \$54 million from 2000-2016.
9. Recall has also provided core customers with additional and unusual economic benefits, when compared with traditional utility regulatory means for introducing the costs of "lumpy" capital investments.
10. In particular, those additional economic benefits (valued at an additional \$54 million for customers) provided core customers with:
- a) **Just-in-Time Delivery** – Keeping the costs of storage capacity out of rate base until needed by the utility.
 - b) **Favorable Unit Prices** - - The general "first-in-first out" approach to recall (first recalling the oldest producers of unrecalled capacity) and the use of depreciated original cost for recalled capacity.
11. Pending recall, NW Natural ownership has remained responsible for the carrying costs of as-yet unrecalled capacity, and has taken the market risks of finding market sources of revenue sufficient to recover those costs.
12. Therefore, ownership also made valuable contributions to Mist development:
- a) **Mist Development Efficiency** - - Optimizing sizing and timing of development
 - b) **Absorbing Carrying Costs** - - Pending recall for core utility use
 - c) **Warehousing Capacity** - - Taking risks of recovering carrying costs pending recall.
13. In return, ownership took, subject to sharing, opportunities for returns potentially beyond its costs.
14. Ownership expected (but was not guaranteed) a short duration of exposure to risks and opportunities, with Integrated Resource Plan estimates indicating a period of less than six years for exhaustion of the development at Reichhold, the first reservoir developed in 2000/2001.

15. Ownership thus focused not on hurdle rates expected by storage market developers, but on incremental earnings per share generated.
16. Revenues associated with the portion of Mist not yet recalled have supported ownership's economic expectations, but fell below what one would expect a storage market developer to realize.
17. Ownership's period of risk and opportunity has extended to the present, some 16 years after recall-based expansions began.
18. Over that period, ownership returns measured against the portion of Mist assigned to unrecalled capacity have lately come into line with storage developer expectations.
19. Over that period, the timing, sizing, and pricing of recall provisions have produced sizeable economic benefits for core customers.
20. Both customers and ownership have been well served by the recall arrangement, with the unexpectedly long period for recall to exhaust Mist capability proving positive economically for both.
21. With unrecalled capacity expected to remain through the next five years at least, core customers will continue to derive substantial benefits from the timing, sizing, and pricing of recall.
22. Over that period, market risk will remain for ownership, along with opportunity.
23. We view five years as appropriate for a "look ahead" into natural gas markets for sharing purposes, given the volatility of the industry historically.
24. The balance of risk and opportunity in fundamentally changed gas markets supports NW Natural management's belief that storage pricing will drop from historical levels - reducing margins from those produced in recent years.
25. On the whole, therefore, it is reasonable to expect that continuation of the current sharing mechanism will provide customers with substantial benefits, without generating for ownership overly "rich" returns from the storage markets in which Mist will continue to operate.
26. Moreover, the revenues produced from storage market operations at Mist do not (and cannot reasonably be forecasted to) amount to enough to make any but the largest adjustments to sharing economically meaningful.

C. Useful Take-Aways from Historical Sharing Structure and Results

As we will show through following discussions of the analyses we have performed, the failure of the recall duration expectation has substantially benefitted both customers and NW Natural ownership. Certainly, shareowners benefit from successful utility operations as well. The benefits we intend when referring to them here, however, refer to those specifically associated with interests in Mist. Customers have benefitted through significant reductions in rate base that have resulted from later recall and lower depreciated investment costs at times of recall. Ownership has benefitted significantly as well.

We examined ownership results from a traditional investment recovery perspective, as we show below. Our analysis made clear that financial results proved weak in early years, but rebounded in

the years that came after the period during which ownership expected to have a continuing stake in Mist capacity. Only in the past year have results from this perspective have come into line with realistic expectations about investments in competitive energy markets. It took those results much longer to come into line with representative hurdle rates, measured by how investors typically assess such investments. Market risk, while it did not prove debilitating in hindsight, did in fact continue to exist through the past decade and a half. While that risk remained material, it is also notable that management did mitigate much of it by lining up reasonably firm “opportunities” contemporaneously with expansion activities. One should not overestimate the degree of risk undertaken, just as one should not discount it.

On the whole, as the discussions of the following analyses show, customers can be said to have done somewhat better to date than ownership relative to expectations, but neither has been shortchanged from an economic perspective. Accordingly, the lack of any “permanent” operational or ownership arrangement allows for consideration of a broad array of future alternatives. In other words, no past disproportion argues for any “catch-up” period to bring customer and ownership interests into an equitable balance.

There no longer remains a present justification for a mechanism that strongly incents further At Risk investment in the near-term, because: (a) there is no identified need in at least the intermediate future for further storage expansion, and (b) maintaining current delivery should require only modest sustaining capital according to management forecasts. Current projections of market revenues continue at a level that will support ownership recovery of remaining investment in unrecalled capacity. Nevertheless, risks continue to apply in the securing of those revenues, particularly because of persistent low gas prices that have transformed the storage market

D. At-Risk Investments in Mist Storage

1. Base, Pre-2000 Core-Utility Investments

Prior to 2000, NW Natural made capital investments at Mist to provide storage capability for core utility operations. The original Mist utility storage and related pipeline development went into service in 1989, with subsequent expansions for utility customers in 1991, 1997 and 1999. Management intended these early expansions to serve core customers, and their capital costs became part of the NW Natural utility rate base.

2. Post-2000 Mist Investments Anticipating Core-Utility Needs

In 2000 and 2001, NW Natural expanded storage capabilities at Mist through the development of the Reichhold reservoir, with a planned deliverability of 110,000 Dth/day. Reichhold differed from its Mist reservoir predecessors in first establishing market use of capacity for direct ownership (as we use the term in this report) benefit. As evidenced by integrated resource plans, the period of market use in that form was expected to be short in duration, as expected use for core-customers would consume the capability component dedicated to market opportunities. Management marketed the capabilities it had available to potential interstate customers, pending utility recalls of those capabilities. We have termed the investments that produced these market opportunities “At-Risk” investments.

The following illustration shows the original Mist reservoirs of Flora, Bruer and Al's Pool, each developed for NW Natural core customers prior to 2000. The illustration also shows the Reichhold, Busch, Schlicker, and Meyer reservoirs, developed sequentially from 2000 through 2008 and available to the interstate storage markets, subject to recall to serve core utility customers. The graphic also shows the Adams reservoir (currently being developed for Portland General Electric in accordance with a special tariff) and other potential storage reservoirs at Mist.ⁱⁱⁱ

Mist Reservoirs

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Management made Reichhold reservoir capital expenditures in 2000 and 2001, followed in 2001 and 2002 with the "317 Project." This second post-2000 project expanded Miller Station capability by adding a second compressor (7,500 BHP), increasing compression deliverability by 180,000 Dth/day.

The investments in Reichhold and the 317 Project totaled about \$17 million dollars in 2000 through 2002. They represented the first set of At-Risk investments pending recall for core utility use. Management made additional major investments in the interstate storage business in 2004. The "Sapphire Project" developed two new storage reservoirs - - Busch and Schlicker. Subsequently, the Pearl Phase 1 project in 2005 added two additional injection/withdrawal wells at the Bruer Pool, increasing its deliverability. Pearl Phase 2 (2007) included development of the Meyer Pool and the drilling of two additional injection/withdrawal wells into the Flora Pool. The Molalla Gate Station project, installed in 2007/2008, involved the installation of two compressors permitting physical re-delivery of gas into the interstate pipeline system.^{iv}

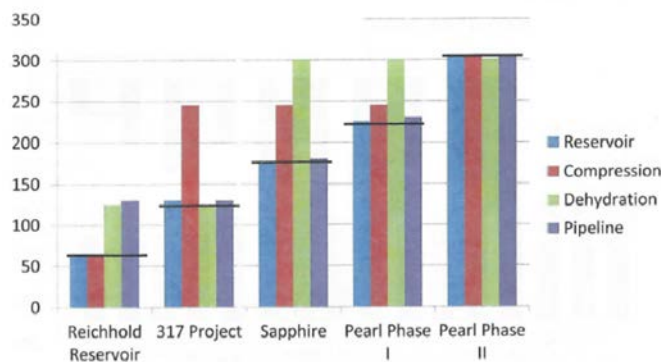
4. Sources and Costs of Mist At-Risk Expansions

The next table and chart show the increases in Mist storage capabilities and the dollars spent on five At-Risk Mist expansion projects through 2009. These projects had the effect of increasing storage deliverability from 210,000 (core utility storage) to 515,000 Dth/day. The net increase of 305,000 Dth/day came at investment costs, shown in the table below, of about \$54 million.

Mist At-Risk Additions and Costs (2000 – 2009)

	Reichhold	317 Project	Sapphire	Pearl Phase I	Pearl Phase II	Total
Deliverability (Dth/day)						
Reservoir	45	65	65	50	80	305
Compression	0	180	0	0	0	180
Dehydration	0	0	195	0	0	195
Pipeline	130	0	0	0	75	205
Incremental Working Gas Capacity (Bcf)	2.00	0.00	2.35	0.23	2.71	7.28
Plant Additions						
Wells	\$ 1,723,231	\$ -	\$ 1,999,699	\$ 4,571,676	\$ 8,957,955	\$17,252,560
Storage Leasehold & Rights	332	-	207	-	541	1,081
Reservoirs	3,515,437	-	2,191,143	2,061,311	(14,020)	7,753,870
Lines	-	366,144	152,724	498,368	579,406	1,596,641
Compressor Station Equipment	-	9,106,333	3,798,383	729,455	-	13,634,171
Measuring / Regulating Equipment	1,681,220	-	618,828	1,776,018	5,124,333	9,200,398
Other Equipment					63,256	63,256
Cushion Gas	704,273	-	1	-	3,800,190	4,504,464
Total Mist Non-Utility Capital Additions	\$ 7,624,493	\$ 9,472,477	\$ 8,760,983	\$ 9,636,827	\$18,511,661	\$54,006,442

At-Risk Cumulative Development^v



In addition to the Mist capital investments shown in the preceding table, NW Natural also spent about \$7.7 million on the Molalla Gate Station transmission compressors in 2008. Installing Molalla Gate increased compression, which enhanced deliverability by 75,000 Dth/day. Management also spent about \$1.3 million in capital dollars on compressor station equipment at the Deer Island Gate Station in 2003, and about \$0.9 million on Port Westward distribution mains in 2007.^{vi} The major period of At-Risk investments stopped in 2008, but NW Natural made smaller

capital investments annually through 2016. These later additions added an additional \$4.4 million in capital, bringing total At Risk investment to about \$67.0 million.^{vii}

Management also considered other, larger at-risk investments in the 2002-2003 period. These larger investments would have expanded Mist's deliverability capability well beyond the 515,000 Dth/day total that exists today.^{viii} However, several considerations led management to deem additional expansion economically unattractive, and to decide not to pursue those other expansions. Reasons cited included: (a) the higher cost of developing additional reservoir capacity, and (b) the accompanying need for additional Miller Station compression and additional pipeline capacity.^{ix}

E. The Importance of Recall in Mist Development

1. Connection to the IRP Process

"Utility recall" forms a core element of Mist development strategy and of the allocation of costs and revenues arising from Mist expansion. Through a long-standing integrated resource planning (IRP) process, management forecasts NW Natural's core utility needs, and presents and analyzes means for meeting them. Facing a period of high growth in core customer needs at the beginning of this century, the utility faced projected needs for and value from significant expansion of Mist storage capability for an extended period. Expansion at Mist over this period (whether or not At-Risk) was justified by the integrated resource planning process, recognizing that development would temporarily put some portion of the resulting capacity additions temporarily beyond utility needs. The following central elements have existed for these At-Risk portions since their creation and through today:

- Their investment and operating costs remain excluded from rate base prior to recall
- Ownership bears the risk of recovery of those costs from margins (revenues net of costs) that management succeeds in securing from the storage markets in which Mist operates
- Customers receive a 20 percent share of those margins
- As needed, and in the amounts required currently, portions of the At-Risk Mist capability can be recalled for use in serving core NW Natural customers
- Rate base expanded upon recall by the depreciated original costs of the assets.
- Ownership opportunity for market gains or losses remain, limited to the amount of yet-to-be-recalled At-Risk capability.

In effect, utility recall provides two benefits generally absent when a utility invests in gas supply assets:

- "Just-in-time" capacity additions through the ability to recall just the amounts needed presently and from a pool of resources designed to exist "in advance" of core utility needs.
- Reduced costs through the ability to bring the assets into rate base at their depreciated original costs at the time of recall.

2. The Significantly Lower than Expected Pace of Recall

The integrated resource plans in existence at the time of original capital investments in At-Risk storage capacity showed high utility gas-supply growth rates. Management's expectations in 1999/2000 called for utility recall each year of Mist storage capability of about 20,000 Dth/day.

Evaluation of NW Natural's Optimization Activities

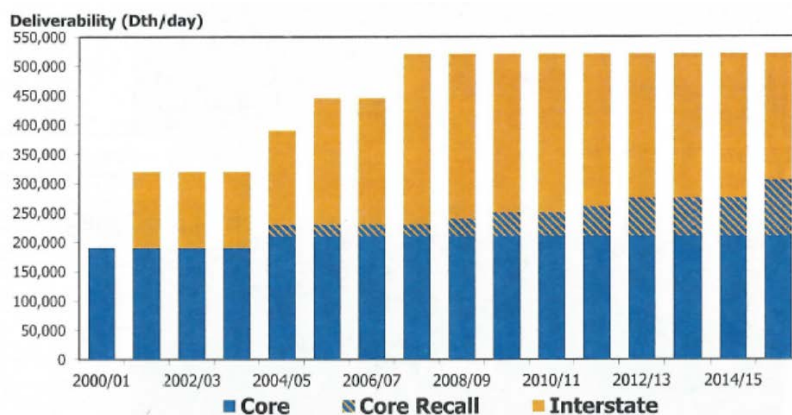
Capacity developed at the Reichhold reservoir would provide 110,000 Dth/day of deliverability from storage. Consequently, management expected recall of the full 110,000 Dth in At-Risk Reichhold capability in about 5.5 years. The next major Mist expansion in 2003/2004 came at a time of an appreciably lower rate of recall, given reduced expectations about growth in utility supply needs. By 2007/2008, the annual pace of expected recall had fallen to about 10,000 Dth/day per year. Even that halved rate of recall did not occur. Expected to be fully recalled in 5.5 years, 15,000 Dth/day of Reichhold storage deliverability remains unrecalled (some 16 years later).^x

Utility recalls of Mist capability occurred throughout the past 16 years, specifically, in 2004, 2008, 2009, 2011, 2012 and 2015. The next table shows that NW Natural had 210,000 Dth/day in storage deliverability for core customers when At-Risk storage expansion commenced. Utility recall of 95,000 Dth/day of reservoir and compression deliverability has brought "total available core capacity" to 305,000 of the 515,000 Dth/day in Mist total deliverability. Thus, about 210,000 Dth /day remains in At-Risk capability in 2017. Utility recalls have added about \$6.0 million to utility rate base (of the \$67 million total invested by NW Natural) since 2000.^{xi}

Mist Recall

Source	Capacity (Dth/day)							
	Core 2002 Availability	2004	2008	2009	2011	2012	2015	Core 2017 Availability
Reservoir	210,000	20,000	10,000	10,000	10,000	15,000	30,000	305,000
Compression	245,000			5,000	10,000	15,000	30,000	305,000
Dehydration	315,000							315,000
Rate Base Transfers		2004	2008	2009	2011	2012	2015	Total
		\$1,180,274	\$601,064	\$648,541	\$725,361	\$1,024,492	\$1,801,429	\$5,981,161

Mist Storage Development and Recall^{xii}



F. Margin Sharing Mechanisms

1. Mist Interstate Storage Margins

NW Natural's report "Annual Report of Interstate/Intrastate Gas Storage and Optimization Activities to the Commission sets forth the financial and "net revenue" results of: (a) Interstate Storage Service (ISS); (b) Mist Optimization; and (c) Other Optimization. This annual report calculates the customer margin sharing for each of these categories following its submission.

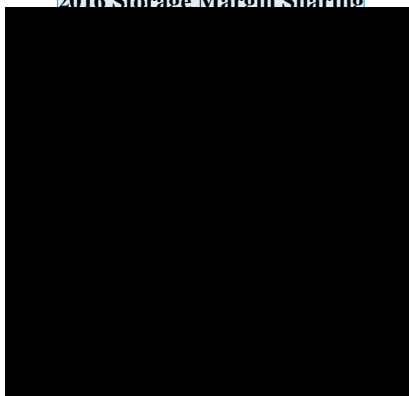
The process of sharing the margins produced by providing Interstate Storage Service (ISS) from the At-Risk portion of Mist requires the assignment of the capital installation costs of storage "incremental" facilities and equipment to the interstate storage business. Ownership bears the incremental costs pending utility recall. Moreover, Net ISS revenue calculations subtract the capital, O&M and administrative costs of the Mist expansion facilities funded by NW Natural shareholders (*i.e.*, not yet recalled) from gross revenues. The resulting net revenues then get shared between utility customers (20 percent) and shareholders (80 percent).

Management records the interstate storage business capital investments in separate accounts from those of the utility business. Management calculates annual depreciation, property taxes and interest on the incremental, At-Risk investments. Management also calculates incremental payroll, legal and other operating costs related to the storage business. For 2016, personnel-related costs so assigned included:

- One full-time employee at the Miller Station
- One full-time scheduling employee in NW Natural Gas Supply
- One half of the time of the NW Natural Director – Gas Supply.^{xiii}

Management allocates incremental capital and incremental operating costs to the storage business, using these costs to calculate the "net revenue" to which it applies customer margin sharing percentages. The next table summarizes the capital and expense assignment and margin sharing calculations for the 2016 storage business.^{xiv}

2016 Storage Margin Sharing



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2. Optimization of Mist Storage

In 2002, NW Natural began realizing significant net revenue from the optimization of Mist storage by a third-party asset manager retained by management. The next chapter details the services and costs of this asset manager. Optimization activities included both portions of Mist capability - - "rate-based" and "At-Risk." At the time, sharing mechanisms in place provided customers with only 20 percent of the margins from such optimization, even insofar as they involved "rate-based" (i.e., not At-Risk) portions of Mist capability. Management recommended a change in the sharing formula. The Commission Staff reported as follows in 2003:^{xv}

... the company has added new language to Rate Schedules 185 and (Schedule) D that adds a credit to customers for their share of the net margin revenues received by the company for core storage optimization activities. These margin revenues are shared on a 67/33 basis; 33 percent will be retained by NW Natural, and 67 percent will be shared with customers through the credit provided for in these schedules. Beginning in 2003, the net margin from storage optimization will be determined by the marketing/trading company that has the ability to accurately allocate the optimization activities between storage and pipeline capacity activities.

Management has therefore applied a layered method for calculating margin sharing on Mist optimization net revenues, in accordance with the Rate Schedule 185 changes:

- For the rate-based portion of Mist deliverability capability, sharing percentages are 67/33 (customer/ ownership)
- For the At-Risk portion, sharing percentages are 20/80 (customer/ ownership).

3. Mist Optimization Sharing Example

The following table, using 2016 data as an example, illustrates the layered approach to margin sharing at Mist for optimization.^{xvi}

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Mist Optimization Example – 2016

	Mist Optimization	
1		
2		
3		
4		
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6		
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10		

NW Natural also calculates Washington margin sharing separately in the Annual Reports. The 2016 Washington share totaled about \$744,000 for the ISS and Mist Optimization categories, producing combined Oregon/Washington total margin sharing of \$3,822,000.

G. Benefits Produced by the At-Risk Mist Sharing Mechanism

1. Purpose in Examining Results to Date

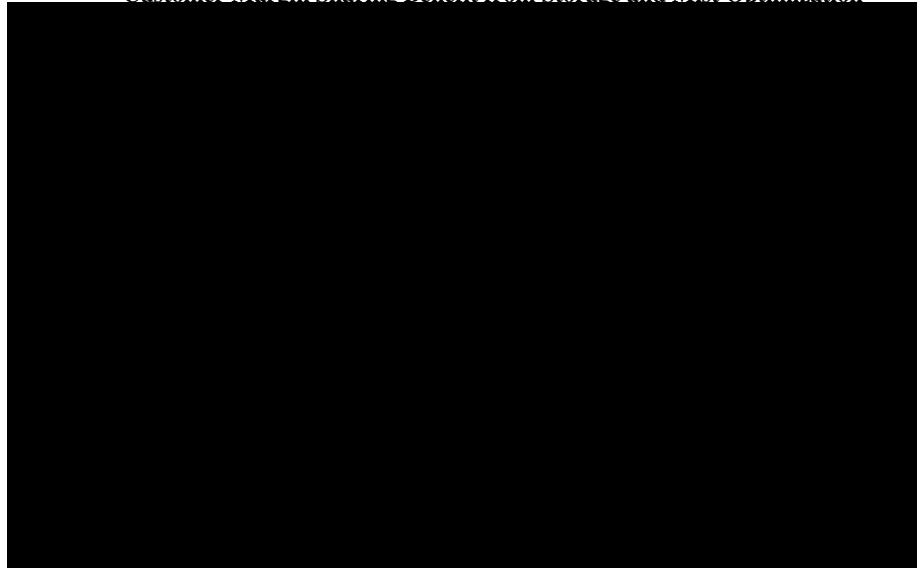
More than 15 years have passed since the initiation of Mist expansion activities designed to meet utility requirements, while providing to investors market opportunities to compensate them for investment amounts not yet recalled and then included in utility rate base. We found it appropriate to examine Mist expansion beginning around 2000 in addressing “how we got here,” recognizing that our purpose for doing so involves forward-looking alternative sharing mechanisms.

Our evaluation compares actual results with historical and contemporary market expectations. We did not make the comparison to re-evaluate what we believe to have been transparent, accepted, and mutually beneficial sharing methods. Rather, we did so to provide a basis for determining to what degree realistic expectations for customers and ownership have been met across the period from 2000 to 2016 (*e.g.*, do large imbalances exist?). An historical perspective can shed light on whether balances or imbalance may exist, providing impetus (or not) to changing long-standing margin sharing. Other considerations include whether Mist has changed operating characteristics, operates in a different market environment, or faces changed investment requirements or conditions.

2. Customer Margins Produced by Mist through 2016

The margin sharing calculations shown above have resulted in cash benefits through 2016 to NW Natural customers through 2016 in the amounts we calculated. The next chart shows those amounts. The total cash margin sharing benefit for Oregon and Washington customers from storage and Mist Optimization has amounted to about \$54 million over 16 years, which has come in the form of credits to gas-supply costs billed to customers.^{xvii}

Customer Margin Sharing Benefit from Storage and Mist Optimization



3. Indirect Savings from Recall

Deferring recall of capacity until needed has avoided the “lumpiness” typically categorizing large capital investments made to serve customers across multiple decades. Large, expensive investments like those associated with Mist frequently require customers to pay from the start for resources into which their utility supplier will only “grow” over time. The sharing arrangements that have supported ownership “participation” in Mist have produced two sources of economic benefit associated with what is akin to something not generally available in introducing such resources - - “just-in time delivery.” The two benefits comprise:

- Keeping the costs of storage capacity out of rate base until needed
- Using depreciated original costs at the time of recall and placement of investment costs in rate base.

The rate-based customer costs of recalled capacity (\$6.0 million) represent marginally less than 10 percent of total Mist storage investments of about \$67 million. Management made investments in anticipation of eventual core-utility needs. Support exists for an argument that the absence of a sharing agreement benefitting ownership would have produced less rapid Mist expansion. However, had that been the case, customers may well also have lost benefits gained by continuing depreciation pending recall, and perhaps even economics of scale in storage development.

In any event, growth in customer needs much slower than those underlying the pace of Mist expansion substantially increased both sources of recall-based benefits. Investments stayed entirely out of rate base longer. Moreover, when they came into rate base, they did so at significantly more depreciated costs. We calculated the revenue requirements offset produced by these benefits. Our calculation compared actual recall dates and cost amounts with those associated with an assumed inclusion in rate base of the At-Risk investments. We calculated that differential

as a \$54 million revenue requirement benefit to customers from 2000-2016, resulting in a total customer benefit from storage of about \$108 million.

4. 2000-2016 Financial Results for Ownership

In the 1999 to 2000 period when considering At Risk Mist expansion, management estimated that an initial capital investment of about \$11 million would generate about [REDACTED] in annual net storage revenues, with storage customers lined up for the first three years.^{xviii} Rather than employing the industry's more typical investment hurdle rates, senior NW Natural leadership and the Board of Directors evaluated short-term (pending recall) storage investments on the basis of whether they would generate positive incremental earnings per share (EPS) for NW Natural in the first five years (roughly commensurate with the time then expected for full recall to occur).

Management beneath the senior executive level also analyzed expected storage business returns on an annual, return-on-equity basis. That method comprises a standard one for utility rate base investments and was familiar to the NW Natural decision-makers. The minimum annual ROE "hurdle rate" for the storage investments was [REDACTED] percent, with a heavy emphasis on the first three to five years, given recall expectations at that time.^{xix}

United States and Canadian markets witnessed development of other, independent, unregulated storage projects in the same general time frame. A 2004 FERC Staff report, among other sources, observed that developers tended to evaluate such projects using net present value, internal rate of return and other discounted cash flow measures. Common expectations for unregulated storage projects at the time set returns on equity exceeding 20 percent (on a discounted cash flow basis), reflecting perceived market, geologic, and development risks.^{xx}

Management originally envisioned interstate storage contracts as the only source of revenue supporting storage investments. At that time, management reports identified a second source, Mist optimization revenues, as "possible." Analysis of Mist expansion, however, gave no quantified consideration of this source. No such revenue had yet been realized, and management considered it too uncertain to quantify in analyzing storage investments.^{xxi}

We analyzed the financial results of the NW Natural interstate storage investments using the "utility rate base method" (return on equity, or ROE) on an annual basis. This method, similar to one used by NW Natural, reflects a utility method for examining a fully "customer-funded" investment from the outset as an alternative financial means for Mist expansion. The net revenues we used to model this alternative use the net revenues, after margin sharing, from interstate storage and Mist Optimization actually produced, and described above. The results this alternative generated varied widely over the 16 years from 2000-2016. Annual ROEs ranged from the [REDACTED], and produced an overall weighted average ROE of about [REDACTED] percent over the full period. Had we limited revenues to those only from interstate/intrastate storage revenues (as originally analyzed by NW Natural), the weighted average annual ROE returns fall to [REDACTED] percent. Modeled either way, these results met or exceeded the "minimum hurdle rate" criteria of NW Natural, and provided returns in line with the expectations and risks that NW Natural perceived.

However, those considering investments in storage relying on markets more typically would be expected to evaluate results under discounted cash flow techniques, as noted in the FERC Staff

Evaluation of NW Natural's Optimization Activities

report. The utility annual ROE method places reliance on a regulatory recovery mechanism to provide an opportunity for a reasonable return on depreciated rate base for the life of the asset - - in this case 30 to 40 years. This utility return measure does not consider the substantial risks of a shorter, temporary interstate storage investment period expected in NW Natural's case. It also does not consider storage market risks that lead investors to seek quicker paybacks than come following utility investments.

Liberty performed various discounted cash flow (DCF) analyses that addressed the full 16-year investment period from 2000-2016.

[REDACTED]

xxii

The negative DCF returns of the early years eventually gave way to offsetting returns for the much longer time period enabled by the slower-than-expected pace of utility recall of Mist capability.

[REDACTED]

Storage IRR 2000 to 2016: Varies by Time Periods

[REDACTED]

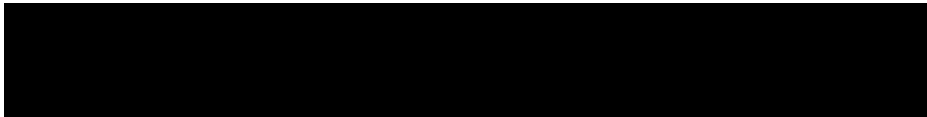
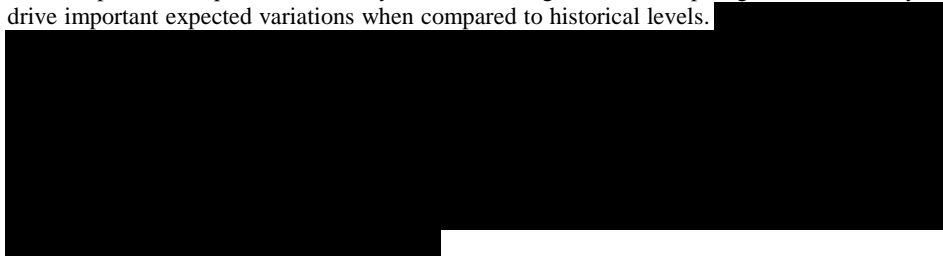
NPV and Discounted Payback for 2000 to 2016: at 20% ROE

[REDACTED]

H. Expected Future Results Under the Current Sharing Mechanism

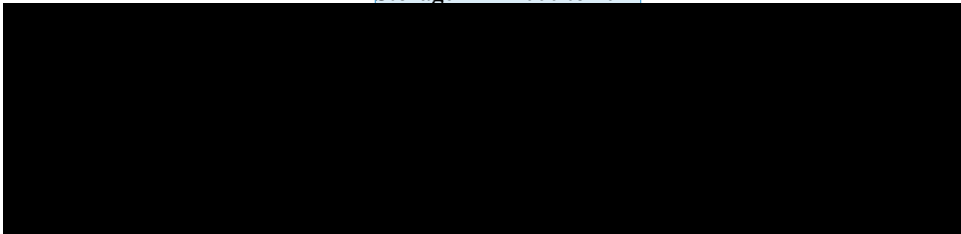
1. Management's Storage Forecasts for 2017-2021

Management provided five-year forecasts for 2017-2021 for the storage and optimization business segment, which includes interstate storage, Mist optimization and other NW Natural optimization. Prices expected to replace those set by interstate storage contracts expiring in 2017 and beyond drive important expected variations when compared to historical levels.



We examined what overall effect on historical results would result from the application of management's forecasts for the coming five years. The graphics below illustrate the 21-year review that results from this addition of the five forecast years.^{xxiv}

Storage IRR 2000 to 2021



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NPV and Discounted Payback for 2000 to 2021: at 20% ROE

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2. Lower Recall Forecast

Management's forecast shows recall of interstate storage deliverability increasing dramatically - - producing 90,000Dth/day of recall over the three-year period from 2019 through 2021. Intuitively, such a large amount of deliverability recall would seem to produce a detrimental financial impact. Management also prepared five-year forecasts reducing the 90,000Dth/day to 50,000 Dth/day from 2019 through 2021.

3. ISS Revenue Ranges

Liberty also prepared a range of revised forecasts that varied the interstate storage revenue significantly in 2019-2021.

ISS Revenue Ranges: Five- Year Impacts

A capital investment of \$14.7 million in 2017 would require increased revenues from customers of about \$9.8 million over the following five years. This investment and increased revenue requirements would entitle customers to margin sharing on ISS and Mist Optimization net revenues at 42.86 percent (also 90/210 of remaining interstate storage investments), and increase the percentage of Mist storage allocated to core customers to 76.7 percent. [REDACTED]

[REDACTED] This result indicates that such an accelerated recall would be a net detriment to future customer benefits, using NW Natural's forecasts. More favorable interstate storage pricing in the future could make "accelerated recall" a somewhat better investment for core customers, but would require interstate storage markets significantly more favorable than forecast by management.

5. Comparison of Alternatives

The amounts available for storage sharing in the future are smaller, especially as compared to other (*i.e.*, non-Mist optimization). Changing margin sharing percentages or establishing a \$1 million floor does little to shift dollars significantly. A \$2 million margin sharing floor "moves the needle," but comes with a significant penalty to NW Natural's future net income. For the accelerated recall alternative, rate base investment costs may be greater than increased margin sharing for customers, as shown above. It also transfers market risk from ownership to customers.

Overall, the data shows that continuation of the status quo will continue benefits for customers and ownership of the nature and at levels that have produced roughly balanced results to date. A large increase in the market value of storage would be required to alter these relationships significantly, and warrant a material change from the status quo.

III. Asset Management and Other Optimization

A. Background

The previous chapter addressed revenues associated with operation of Mist storage, focusing primarily on interstate and intrastate storage services. Those services rely on the portions of Mist not yet recalled for core utility service. That chapter also addressed revenues and margins produced from optimizing the use of Mist. That optimization, performed by third-party asset manager Tenaska Marketing Ventures (TMV) contracted by management, exploits both “sides” of Mist’s capabilities - - the recalled portions included in rate base and the remainder, which can be measured financially by the portion of depreciated investment costs associated with Mist capability yet-to-be recalled for use in providing core service (and thus remaining outside rate base).

Asset management and margin sharing have become common among local gas distribution utilities across the country. The “split” nature of Mist, however, presents an unusual feature in that context. The assets “managed” and the margins “shared” in the industry generally involve rate base assets, which, applies only to a portion of Mist, from a financial separation perspective.

This chapter addresses optimization generally, which means that it focuses operationally on activities performed by TMV, the third-party asset manager NW management has retained for many years. A robust treatment of the financial and ratemaking consequences of asset management requires consideration of the activities for which an asset manager earns compensation. The compensation structure under which TMV has operated involves optimization of non-Mist assets, which account for by far the largest share of margins produced from optimizing the entirety of NW Natural’s asset portfolio, including Mist. TMV services, however, also include optimizing frequently available capacity from two portions of Mist:

- Rate-Based Portion: capability excess to core customer needs in periods of lower than peak core-customer demand
- At-Risk Portion: capability excess to storage-service customers served from the non-rate-based, yet-to-be-recalled portions of Mist capability.

Optimization of storage assets (where they exist) would ordinarily form, as it does here, part of utility asset optimization, whether performed internally or by a third-party asset manager. Deconstructing the Mist and non-Mist portions of asset management at NW Natural would complicate the treatment of optimization, TMV’s role in it, and how the asset manager’s compensation affects margins available for sharing. For simplicity, therefore, this chapter includes a discussion of storage optimization - - producing some overlap with the content of the preceding chapter. An important distinction to bear in mind lies in the purposes of the resulting repetition:

- The Mist chapter addresses optimization primarily to give a perspective on its role in producing revenues and returns associated with the financial ownership “stake” in Mist pending recall for core utility service
- This chapter addresses optimization primarily to compare sharing percentages with the broad range of other sharing arrangements our work has identified.

This chapter thus examines optimization activity risks, costs, benefits, and comparisons of customer/ ownership sharing percentages with an extensive group of local gas distribution utilities across the country.

B. Summary of Key Conclusions

1. *Asset management agreements have evolved, expanding the scope of activities involved over the several decades during which gas distribution utilities have commonly employed them.*
2. *NW Natural's relationships and agreements with asset managers have developed in line with industry experience.*
3. *Management has worked diligently to negotiate and improve the conditions of its asset management relationships and agreements, but best practice suggests more frequent opening of the relationship to competition.*
4. *Management engages substantially and effectively in day-to-day and longer term activities that promote robust optimization of its portfolio of assets.*
5. *The relationship with TMV has clearly produced substantial value for customers.*
6. *TMV has taken a generally industry-competitive share of the total value it produces - - value that it must produce to earn material compensation for the optimization services it provides.*
7. *TMV optimizes a comparatively robust range of assets, but not one characteristically different from what we would expect, given the size and configuration of NW Natural's portfolio of supply and transportation assets.*
8. *TMV has proven particularly effective in optimizing activities associated with extracting and marketing natural gas liquids (NGLs) from Canadian-sourced gas; those activities are less common, not because it is exceptional to optimize for NGLs where they are found in purchased gas, but because NGLs are not commonly found in gas at utility purchase locations.*
9. *NW Natural management remains well-engaged in overseeing the TMV relationship and the asset manager's activities, but again not to a degree outside our experience with the industry.*
10. *NW Natural management does not bear unusual risk associated with the optimization activities that TMV undertakes and that management oversees.*
11. *Optimization comprises a core responsibility of prudent management by gas distribution companies who, like NW Natural, have significant supply and transportation portfolios.*
12. *The core nature of optimization as a management responsibility presumably lies behind the decisions by a significant number of states to apply all margins produced by optimization to reducing core-service revenue requirements; i.e., not to share those margins with ownership.*
13. *That view has theoretical merit, but we observe that optimization takes active management, constant attention, effective risk management, a willingness to explore and pursue as many alternatives as market conditions permit, and a dynamic approach to identifying and responding to inconstant market opportunities and threats.*
14. *This view, which emphasizes the complexity of optimization presumably underlies the more common approach of sharing margins from optimization between customers and ownership.*

15. *Our scope did not include another important form of optimization, which involves measuring purchased-gas costs against some form of market benchmarks; all gas distribution companies in Oregon engage in this activity, pursuant to processes and procedures determined in OPUC Docket No. UM 1286.*
16. *We have examined optimization sharing arrangements across the country - - some from our direct experience and others through an extensive set of contacts with knowledgeable public service commission staff members*
17. *We conducted a very broad, nationwide survey of margin-sharing arrangements, against which we could perform robust comparisons of NW Natural's optimization sharing methods and proportions.*
18. *Those comparisons demonstrated that the percentage share available to offset NW Natural core-customer rates falls at the lowest end (least remunerative for customers) of the observed range for jurisdictions that provide for sharing.*
19. *While many of the comparators do not operate significant storage assets subject to optimization, the data do not demonstrate that those having such assets operate under a sharing structure substantially more compensatory to ownership.*
20. *Moreover, we do not find clear how the existence of owned storage, with optimization managed by an outside firm, would serve to increase internal management's level of effort or risk or ownership contribution of assets whose costs core customers do not bear.*
21. *A small number of jurisdictions allow sharing under a sliding scale of percentages, through which the ownership share increases as total dollar margins produced increase. NW Natural has such a sharing arrangement for its service territory in Washington, but not in Oregon.*
22. *Those mechanisms complicate the ability to measure the percentages that final, actual customer and ownership shares produced at the companies for which we secured meaningful data, but we are confident that the information we succeeded in securing and the assumptions we made in applying sliding scales we found support confidence in the shares we present in this report.*
23. *Reducing ownership's share of margins to a level that would substantially diminish its incentive to maximize optimization benefits would appear inconsistent with experience in Oregon across a period approaching two decades.*
24. *Ownership has received from [REDACTED] for its share of optimization benefits over the five years from 2012 through 2016, leaving, in our judgment, a fair degree of room for reducing ownership's share without substantially diminishing the incentive to maximize optimization benefits.*
25. *Accordingly, meaningful opportunity exists for bringing NW Natural ownership's share of optimization benefits into significantly closer alignment with national experience.*
26. *Such opportunity exists even should stakeholders and the Commission determine that the importance of maintaining a successful optimization track record merits a share above the norm.*

C. The Use of Third-Party Asset Managers

Some gas utilities use subsidiaries of their holding companies, particularly where the parent holds multiple operating utilities. Companies operating in this type of structure often use their affiliates' gas-supply assets to serve their respective requirements, but also as a base portfolio of assets for engaging in broader market activities. Some third-party asset managers operate as affiliates of gas-producing companies, which offers the ability to use their optimization activities for local gas distribution utilities to sell more of their own gas. A third group of outside asset managers operates independently of both local gas distribution utilities and producers. They specialize in gas marketing and trading. TMV, NW Natural's third-party optimization provider partner, exemplifies this third category.

Outside firms specializing in gas markets can bring knowledge, resources, and contacts superior to those available to a local gas distribution utility - particularly one that operates outside a holding company structure that includes a significant number of operating utilities. These comparative strengths can enhance flexibility, produce economies of scale, and widen the geographic and market reach of optimization, serving to generate additional revenues, while moderating the risks of engaging in dynamic gas markets.

As a 2008 study for the Colorado Public Utilities Commission^{xxv} noted:

Both the Federal Energy Regulatory Commission and natural gas utilities recognize the benefits from outsourcing, especially in the form of what is called asset management. Late in 2007, FERC proposed rules ... that would facilitate asset management arrangements, recognizing their benefits in improving the efficiency of capacity markets and transactions tailored to customer needs. The American Gas Association (AGA), in comments before FERC, expressed the view that asset management arrangements provide benefits by increasing the load-responsive use of gas supply, increasing liquidity in the capacity markets, and more efficiently utilizing capacity. (Pages 4-5)

The management of NW Natural has taken a similar view of the benefits of using a third-party asset manager - a view whose soundness our experience in the industry confirms.^{xxvi}

As a Local Distribution Company ("LDC"), our focus and expertise was and still is dedicated to acquiring gas and meeting the more direct needs of our customers. While these typical gas utility activities require very significant knowledge and skill, they are qualitatively different from the much more complicated and speculative Optimization Activities ... For this reason, the Company decided to contract with a third-party wholesale natural gas trading company to partner with on these new Optimization Activities. ... The Company has found it important to work with a national marketing/trading company because they have the capability and expertise required to maximize the value of these Optimization Activities, as well as the regulatory understanding to avoid potential pitfalls.

D. Optimization Structure at NW Natural

Optimization of natural gas supply assets includes those activities that seek means to adjust delivery routes and methods for gas supplies in ways designed to reduce costs without adding price or reliability risks. Natural gas storage facilities comprise part of the supply portfolio of many gas utilities. Optimization of such assets commonly involves injecting gas into them, and withdrawing gas from them, in ways that offer advantage from differences in the value of natural gas at different times and places. Storage managers can enhance the margins produced and mitigate risks involved by buying and selling financial instruments related to the value of gas at different times.

Management describes^{xxvii} NW Natural's optimization activities as taking two forms, both of which lower costs for customers, at the same time providing an incentive form of compensation (*i.e.*, above base-rate recovery) for the benefit of ownership:

- “Base” utility optimization
- “Enhanced” optimization.

Management performs base optimization internally, receiving compensation in the form of a share of savings measured against an annually-established purchased-gas-cost target. TMV acting under contract as management's third-party asset manager performs the activities associated with the second (enhanced) form of optimization. Direct ownership economic benefits from enhanced optimization come in the form of a share of margins that those activities generate. The agreement provides for compensation to TMV in the form of shares of those margins. After determining those shares first, the remainder of the margins benefit customers and ownership in pre-set percentages.

The Oregon Commission settled many years ago¹ the nature of, and ownership's compensation for, base utility optimization. Ownership compensation for enhanced optimization comprises the focus of our work scope, as guided by OPUC Docket No. UM 1654. We present a brief description of base utility optimization activities in this chapter to distinguish them from enhanced optimization ones, and we report some aspects and results of NW Natural's purchased-gas-adjustment (PGA) mechanism as context for considering the overall economic structure created by all sharing mechanisms associated with natural gas and means for getting it reliably to customers.

1. Base Utility Optimization

Management applies the term “little o” or “first level” to the four basic types of base optimization activities that it performs internally (*i.e.*, not through TMV):

- Mix of purchases among the supply basins (and from trading hubs within each basin) from which NW Natural buys gas (Alberta and British Columbia in western Canada, and the Rocky Mountains in the U.S.)
- Mix of contract terms: spot versus monthly term purchases, base-load versus “swing” supplies.
- Storage injection timing: daily, monthly and seasonal decisions, including possible winter refill
- Storage utilization: decisions whether to withdraw from storage in lieu of making spot-market purchases.^{xxviii}

¹ See, *e.g.*, OPUC Order No. 08-504, issued in Docket No. UM 1286 on October 21, 2008.

Management has also described its use on some occasions of a fifth “little o” category - - pipeline capacity releases. These releases occur when management contracts NW Natural’s unused capacity to third parties, subject to recall when needed to serve core utility customers.^{xxix} Only one of that type of arrangement exists presently. A long-term release entered in 1993 serves to share a portion of NW Natural’s legacy capacity on Northwest Pipeline with Portland General Electric (PGE). NW Natural has the power to recall that capacity for limited periods during the heating season. Arrangements that create such a long-term division of capability do not constitute “optimization” as we have seen the term used generally in the industry.

NW Natural’s PGA mechanism contains a provision addressing capacity-release revenues, but management has not used it, preferring to place unused portions of pipeline capacity into the enhanced optimization category, which falls under the responsibility of TMV.

2. Enhanced Optimization

Enhanced optimization activities rely upon the use of gas-supply assets assembled to ensure core-service reliability at all times. Variability in customer usage makes portions of those assets unneeded at certain times - - sometimes comprising major portions of the year. These portions underlie the ability to make physical and financial transactions that generate margins (revenues in excess of transaction costs). These margins benefit customers by offsetting the costs of carrying the assets.

NW Natural’s experience has paralleled that of the industry generally, in expanding the scope of activities that seek to optimize the value of the portfolio of assets required to serve core customers under peak conditions. In the Company’s Direct Testimony in UM 1654, a NW Natural witness stated that:

In the early years, these Optimization Activities included the sale and trading of excess gas, existing Mist storage, and excess capacity on upstream pipeline contracts on the Northwest Pipeline and other upstream pipeline systems. Later, as opportunities arose, we added new wholesale trading activities such as the exchange of gas commodity contract purchases at different trading locations (“portfolio” optimization), the use of off-system underground storage contracts at Jackson Prairie and in Alberta, and the extraction of natural gas liquids.^{xxx}

Peak-day demands for gas distribution companies like NW Natural far exceed those that management must serve on most days of the year. Meeting conditions expected on those “design days” requires substantial gas-supply resources that include:

- Pipeline capacity to transport gas from production sites to local distribution company city gates
- Storage capacity to allow gas purchases at comparatively low prices and withdrawal for customer consumption at periods of high prices (which generally correspond to periods of high customer usage)
- Peaking capacity from on-system facilities or from specialized supply services designed for use on peak days.

The ability to secure value from supply resources when they have capacity available has driven the industry widely to develop programs and structures for supply portfolio optimization. Such optimization began in the industry with off-system sales (often *ad hoc*) and simple capacity-release arrangements. Expanding greatly, optimization by NW Natural and others has come to employ sophisticated schemes that employ:

- Networks of pipelines to minimize the variable costs of gas transportation
- Physical exchanges that reduce costs
- Time swaps that take advantage of differences in the value of gas at different times
- Financial instruments to hedge risks in all types of transactions.

The enhanced optimization activities we encountered in our examination here conform to those described in NW Natural testimony from about four years ago:^{xxx1}

- Mist Storage Optimization: Using some of the ability to inject into and withdraw from storage to buy from and sell to customers outside the utility's system, when those abilities exceed requirements for serving core customers. Storage optimization also frequently includes the purchase and sale of financial instruments backed by the parts of the storage system that TMV uses for optimization.
- Natural Gas Liquids (NGLs) Extraction: With gas purchased in Alberta typically containing more NGLs than typical for pipeline-quality gas, management has had the opportunity to extract and sell those NGLs for more than the costs required to make those sales.
- Commodity Contract (Portfolio) Optimization: TMV uses exchanges to move NW Natural's gas to a location where has higher value, replacing it with gas bought at a lower price. The sale and purchase locations for such transactions may include ones to which TMV, but not NW Natural, has access.
- Pipeline Capacity Optimization: Through optimization services for other clients and some of its own contracts, TMV has access to a network of pipeline capacity. TMV finds occasions when it can use that network to reduce costs to all of its clients by aggregating purchases, and then moving gas to them in manners that minimize transportation costs. TMV sometimes can also use any remaining capacity to move gas for others, or to release capacity (through short-term transactions) with parties that can make effective use of it for their own purposes temporarily.
- Off-System Storage Optimization: In addition to Mist, NW Natural holds capacity in Washington's Jackson Prairie Storage Field. NW Natural also contracts for storage in production areas (such as Alberta) when market conditions prove favorable. Those additional storage resources permit the same kinds of optimization activities that exist for Mist; *e.g.*:
 - Inject into and withdraw from storage, to buy from and sell to off-system customers
 - Buy and sell financial instruments backed by available storage capacities.

We find such activities commonly performed among the range of gas industry participants whose operations we have examined. Provisions of the contracts between a utility and its asset manager protect the reliability of service to on-system customers, most often by restricting the asset manager's access to the client's gas-supply resources to the portions of resources not likely to be needed under load conditions when optimization occurs. NW Natural's agreement with TMV, for example, restricts TMV to three billion cubic feet (Bcf) of Mist storage capacity in any year.^{xxxii}

Mist has a total capacity of 16 Bcf. The design basis for that capacity and its associated injection and withdrawal capabilities seeks to meet NW Natural's "core" customer² peak-day and peak annual requirements, and those of its on-system and off-system customers for storage services. Management has found that, in a typical year, the 3 Bcf TMV capacity limit and the attendant injection and withdrawal capabilities will not prove required for meeting those customers' requirements. Accordingly, it makes that quantity available to TMV for optimization.

NW Natural's Gas Supply Department negotiates the terms of the asset-management agreement with TMV, which then seeks to maximize value to NW Natural without threatening reliability standards that management seeks to maintain for the benefit of core-utility and Storage Service customers. The arrangement with TMV combines with NW Natural tariff provisions to produce entitlements by three main parties - - customers, ownership, and TMV - - to share in the margins produced by those optimization activities that the asset manager conducts. Moreover, these provisions combine to induce both TMV and management to increase the margins achieved, increasing benefits for customers as margins grow.

3. TMV's Role and Responsibilities

NW Natural works closely with TMV to maximize the resources available for optimization while protecting the reliability of service to its customers. Continuing with the storage example, NW Natural will "tune" the storage capabilities that it makes available to TMV as the heating season proceeds. When weather proves warmer than normal, NW Natural will make slightly more of Mist's capabilities available to TMV; conversely, colder-than-normal weather will require TMV to work with slightly lower levels of Mist capability.^{xxxiii}

TMV works with NW Natural to plan and conduct day to day activities. NW Natural's Gas Supply Department makes daily estimates of its customers' requirements, and selects sources of supply to meet those requirements. TMV then may make sourcing adjustments to capture any available operating-cost reductions. TMV works within the limits set by NW Natural customer requirements to use available resources to serve other markets economically. TMV assumes the risks of operating performance requirements, such as pipeline penalty provisions, title transfer, liability, and *force majeure*.

TMV also works closely with management outside the day-to-day context, seeking to identify longer-term options for supply-resource acquisition, and negotiating arrangements for ancillary services (such as NGLs extraction). TMV also works with NW Natural to identify and exploit additional opportunities to generate margins. TMV optimization activities for NW Natural include the following specific areas, and include the trading of related financial instruments to enhance margins and moderate risk:

- Mist Storage Optimization
- Natural Gas Liquids (NGLs) Extraction
- Commodity Contract Optimization
- Pipeline Capacity Optimization
- Off-System Storage Optimization.

² NW Natural's "core" customers are its customers for utility sales service.

Evaluation of NW Natural's Optimization Activities

TMV conducts these activities in coordination with, but separately from, management's performance of its utility gas-supply function. NW Natural's Gas Supply Department carries out those supply functions pursuant to its own reliability criteria, and under a PGA mechanism that incents efficient and effective management.

TMV operates as a significant market participant in its own right, owning or controlling its own gas-supply resources. TMV also has other asset-management clients in the Pacific Northwest and in other gas-producing and consuming regions in the U. S. and Canada. TMV uses a broad array of gas-supply resource networks to serve its customers and its asset-management clients reliably. TMV's business depends upon its ability to use those networks and customer resources at lower costs (or with higher revenues) than its customers could achieve on their own.

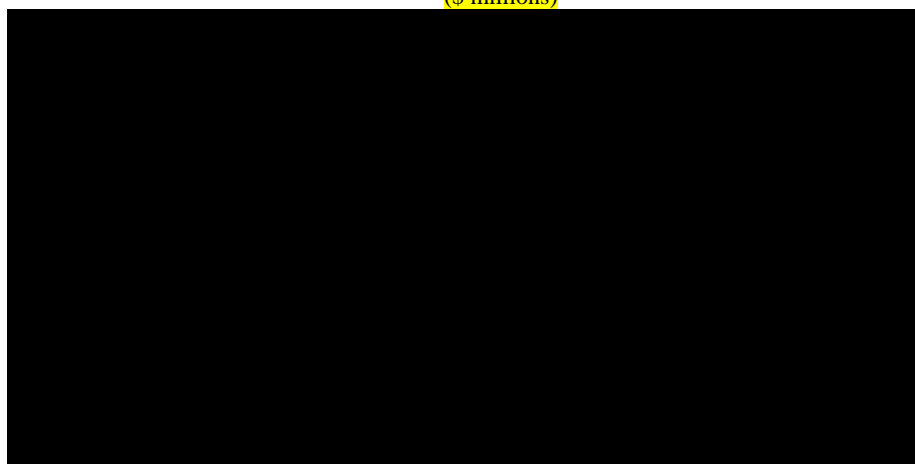
Keeping in mind that our scope did not include an assessment of the effectiveness of the agreement with TMV, but rather an analysis of sharing methods, we believe it is nevertheless clear that management has created an effective relationship with TMV at a cost that produces benefits commensurate with its costs.

E. Optimization Revenues and Margins

TMV's reports to NW Natural detail the shareable margins generated by each activity performed by the asset manager. The next table summarizes margins produced by activity for the last five TMV contract years (April 1 – March 31). The table shows that margins from other sources have far outrun those from Mist - - making any potential changes in sharing arrangements between customers and ownership for those other sources far more significant economically for customers. The total margins from storage optimization have comprised less than ■ percent of total margins produced by TMV optimization activities.

Storage and Other Optimization Revenues^{xxxiv}

(\$ millions)



[REDACTED]

F. TMV Compensation

TMV receives compensation commensurate with the margins its optimization activities have produced for NW Natural and its customers.

[REDACTED]

Management began its relationship with TMV in 2005, based on a competitive solicitation. A later, 2009 competitive solicitation process retained TMV. Since that time, management has extended TMV's contract on a year-by-year basis until 2016, when the parties executed a three-year agreement for contract years 2016-17, 2017-18 and 2018-19.

[REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

[REDACTED]

³ April 1 through the following March 31.

G. Optimization Margin Sharing

Two separate mechanisms govern the sharing of optimization savings or margins. First, the PGA mechanism flows through gas-cost savings. Second, revenues obtained under Rate Schedules 185 and 186 get credited against customer bills.^{xxxvii} Different margin-sharing between customers and ownership apply to each of these two mechanisms:

- PGA sharing of gas costs below targeted levels
 - 90 percent to customers and 10 percent to ownership, or
 - 80 percent to customers and 20 percent to ownership, at management's election in each year's PGA proceeding
 - This election determines the width of a "deadband" in the NW Natural's Spring Earnings Test.⁴
- Sharing of margins produced by enhanced optimization:
 - 67 percent to customers and 33 percent to ownership for margins produced from the use of Mist assets in rate base
 - 67 percent to customers and 33 percent to ownership for optimization of all non-Mist optimization
 - 20 percent to customers and 80 percent to ownership for margins produced from optimization of Mist assets not in rate base.

The preceding chapter explained the ownership financial stake in the portion of Mist capability not yet recalled for utility use. This ownership contribution drives the significantly reversed contribution ratio when compared with the rate-based portion of Mist investment.

A legacy (1993) long-term capacity release pre-dates development of the current PGA mechanism. All margins produced by that release offset core-customer rates. NW Natural credits 100 percent of revenues from this release against capacity costs when it develops the gas-cost target in the PGA. Schedule P of NW Natural's tariff provides for 80/20 sharing for other capacity-release revenue, but such transactions have produced little revenue. Instead, NW Natural places all available pipeline capacity into its asset-management arrangement.^{xxxviii}

The Oregon Commission established the sharing regime for PGA savings in proceedings that involved a broad range of stakeholders. The sharing regime for optimization began in 2000, as part of the early arrangements to address accelerated investment in the Mist Storage facility. Management revisions made in 2002 matched the PGA sharing percentage in effect at that time.^{xxxix}

1. PGA Sharing

The PGA mechanism allows NW Natural to retain (*i.e.*, not flow through to customers) a share (10 to 20 percent) of the amount by which actual gas commodity costs fall beneath a cost target

⁴ The deadband creates a range around the authorized return on equity (ROE). If realized ROE falls within the deadband when extra revenues from PGA sharing are included, the extra revenues go to ownership. If not, ownership must share the excess with customers. For companies electing 80 percent/20 percent sharing, the deadband is plus or minus 150 basis points; for 90 percent/10 percent sharing, it is 100 basis points.

Evaluation of NW Natural's Optimization Activities

established annually. Demand cost reductions are not shared. Management must credit 100 percent of the revenues generated by the legacy capacity release against supply-capacity costs in setting the target. Therefore, the PGA effectively requires that all these release margins flow through to customers.

The Oregon PGA mechanism reflects an “incentive” PGA that has found significant use in the U.S. Studies of such mechanisms show some common features:⁵

- Target total gas cost (“benchmark”) set annually, occasionally every two years
- Fixed-cost portions based on contracts, commodity portions based on market prices
- Careful specification of calculations.⁶

The current Oregon PGA mechanism arose originally from a generic proceeding conducted in 1998 and 1999, with revisions in 2008, 2009 and 2010. NW Natural proposes its target by August 31 of each year. The target undergoes review over the next two months, and the finally approved amount becomes effective for November 1. All parties have a full opportunity to participate in those proceedings.

The following table summarizes results under the PGA sharing mechanism for the last five PGA periods. Positive amounts represent savings; the negative amount indicates a year in which realized commodity costs exceeded target. Ownership and customers shared the excess.^{xl}

PGA Mechanism Sharing

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Customer Share	\$40.65	\$2.48	\$(21.58)	\$21.11	\$19.55
Company Share	\$4.51	\$0.28	\$(2.40)	\$2.35	\$4.89
Total	\$45.16	\$2.76	\$(23.98)	\$23.46	\$24.44

Millions of dollars

Management reported that it elected to share 90 percent of the savings with customers in the first four PGA years, including the one (2013-2014) in which savings were negative, but changed to 80 percent for the 2015-2016 year.

2. Rate Schedules 185 and 186

TMV calculates optimization revenues under Rate Schedules 185 and 186, using its transaction-tracking systems to identify the transactions executed for NW Natural’s account and to calculate the margins produced by each transaction. Summing the margins generated by all transactions for NW Natural’s account produces the sharable revenues amount. The terms of the asset-management agreement (AMA) with TMV allows NW Natural to audit the asset manager’s accounting. NW

⁵ We have found studies on this subject by the National Regulatory Research Institute as far back as 1991. A somewhat more recent article is at <https://www.fortnightly.com/fortnightly/2006/02/natural-gas-procurement-hard-look-incentive-mechanisms>.

⁶ The Washington Utilities and Transportation Commission web site includes “Guiding Principles for the Development and Implementation of Purchased Gas Adjustment Incentive Mechanisms” and a link to its PGA Policy Statement. See <https://www.utc.wa.gov/regulateIndustries/utilities/energy/Pages/PGAIncentivePolicy.aspx>. The Oregon Public Utility Commission web site has a similar but shorter description. See www.puc.state.or.us/Pages/whatispga.aspx

Natural's Internal Audit Department conducts the audits, completing one in 2011 and a second one recently.

The first step in dividing the margins involves reducing them by the share to which the asset management agreement entitles TMV as compensation for serving NW Natural. The agreement provides a formula for calculating this compensation. The formula has changed over time; for contract years 2016-17 and 2017-18 it provides that:

- [REDACTED]
- [REDACTED]
- [REDACTED]

3. Mist Optimization Margins

After deducting the compensation to TMV (if any) the amounts assigned to NW Natural first get divided between margins generated through: (a) optimization of the Mist Storage facility, and (b) those generated by all other optimization activities. The Mist Storage margins then become divided further between: (a) those generated using rate-based assets, and (b) those generated with the portion of Mist assets not yet recalled (*i.e.*, provisionally funded by ownership).

There exists no means for physically separating margins produced by these two sets of Mist investments (rate-base versus not-yet-rate-base). Consequently, separation requires a calculation, which occurs on the basis of the proportion of the storage field's deliverability considered dedicated to NW Natural's "core" customers (*i.e.*, customers for utility sales service) and rate-based, versus that dedicated to interstate and intrastate storage-service customers (the not-yet-recalled portion). The total margins produced get divided into two portions strictly on the basis of deliverability. Recall drives that proportion, meaning that the share assigned to core customers changes in those years where some amount of recall occurs or when deliverability might for some reason change. For the most recent calculation year, the core customer share was 305,000 Dth/day of deliverability (58.637 percent of total), leaving 215,000 Dth/day (41.363 percent) to storage-service customers.

Customer/ ownership margin sharing occurs for each of these two Mist deliverability portions, but in different ratios:

- Rate-based portion (58.637 percent) - - customers receive 67 percent of the margins and ownership 33 percent
- Not-yet-recalled portion (41.363 percent) - - customers receive 20 percent of the margins and ownership 80 percent.

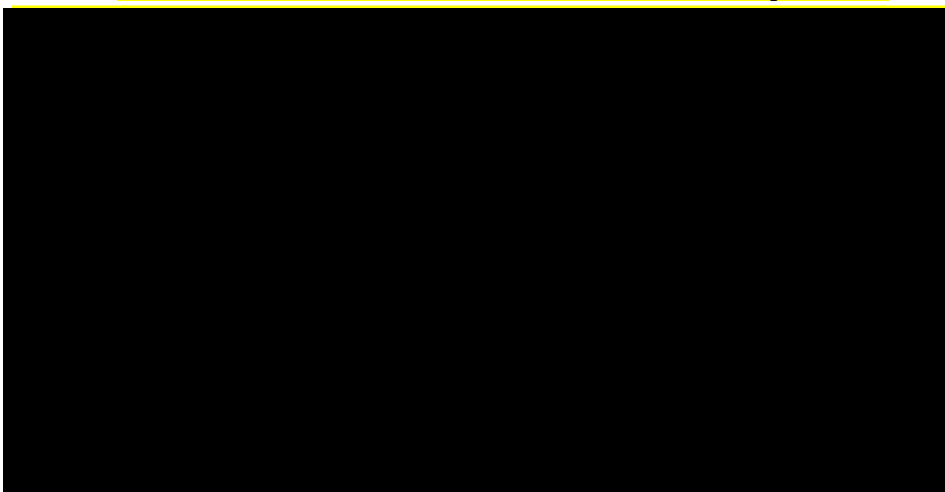
This method means that customers receive 67 percent of 58.637 percent of Mist optimization margins, plus 20 percent of the remaining 41.363 percent. Summing these two components means

that customers receive 47.6 percent of Mist optimization margins net of TMV compensation. Rate Schedule 185 governs this element of sharing.

4. Margins from Other Optimization

Non-Mist storage, portfolio⁷ and transportation⁸ optimization also produce margins shared between customers and ownership. Customers receive 67 percent of these margins and ownership 33 percent, both net of TMV compensation. NW Natural's Rate Schedule 186 governs this element of sharing. The following diagram illustrates this process, using optimization revenues from the 2016-2017 contract year:

Demonstration of Net Customer Share of Mist and Non-Mist Optimization



5. Results of Sharing Calculations

The next two tables show the results of NW Natural's optimization margin-sharing for the past five TMV contract years, listing TMV compensation, customer shares and ownership shares.^{xii}

Mist and Other Optimization Sharing Results in Dollars

⁷ Primarily gas-for-gas exchanges, to take advantage of location differentials in gas prices. This category also includes margins earned from natural-gas-liquids extraction.

⁸ TMV uses this category for off-system sales, using pipeline capacity under contract to NW Natural, and for short-term capacity releases.

Mist and Other Optimization Sharing Results in Percentages

H. Benchmarking NW Natural's Sharing Percentages

NW Natural has provided testimony referring to “the incentives available to gas-only LDCs for similar forms of optimization” as providing “reference points” for assessing the reasonableness of NW Natural’s sharing proportions.⁹ Liberty collected margin-sharing information from a broad range of local gas distribution companies covering a broad U.S. geographic range. The information sources include company tariffs, rate filings, filings with the U. S. Securities and Exchange Commission (SEC), and, in some instances, discussions with company personnel and utility regulatory body staff. The next chart summarizes the results of Liberty’s review of margin-sharing experience.

Our review disclosed a variety of sharing mechanisms, including incentives for reducing the weighted-average-cost-of-gas (WACOG) and mechanisms for sharing capacity-release revenues and optimization margins. Some utilities employ only PGA-type mechanisms that focus on WACOG. Others, like NW Natural, have such PGA mechanisms, but also broader sharing that includes margins generated by optimization. A third group applies one mechanism that addresses the sharing of both purchased-gas-cost savings and optimization margins.

Not all companies employ asset managers. Some perform optimization activities internally; others employ an affiliate. In such cases, no asset manager compensation comes “off the top.” We have observed instances where the use of an affiliate produces a single non-customer share, unifying ownership and asset-manager rewards into a single, combined factor. When compared with NW Natural, the absence of a third-party asset manager increases the effective shares going to customers above the nominally-stated customer percentages reported. This factor does not indicate a foregone opportunity at NW Natural. The commonality of asset-manager use supports a conclusion that they bring added value commensurate with their added costs. We certainly observed no failing in the performance of TMV or excessiveness in the compensation earned for work for NW Natural.

Our comparisons sought to recognize factors complicating direct comparisons. First, we removed any company with PGA-only mechanisms from the data. The local distribution companies reflected in our data points include optimization-only mechanisms, like NW Natural’s. We also included joint PGA savings and optimization margins that peg sharing percentages at the same level for both benefits. Second, the data presented shows the customer/company split of

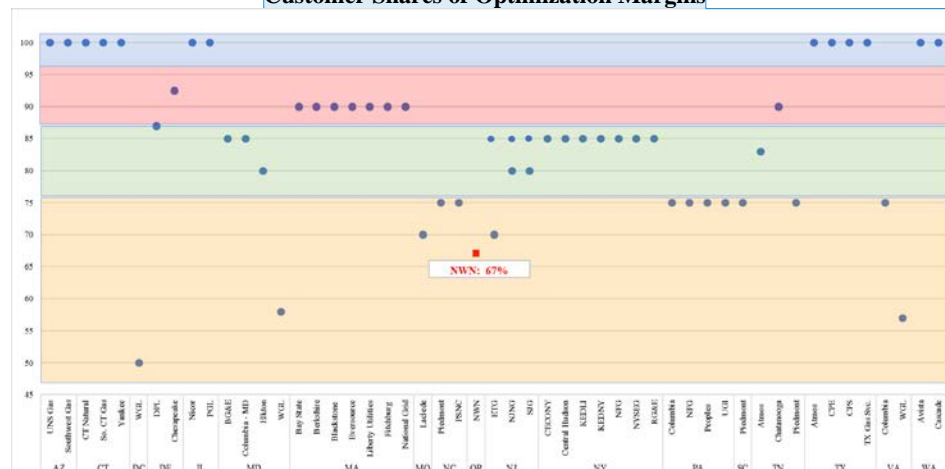
⁹ See pages 19-20, and Exhibit 103, Docket No. UM 1654, Witness Keith White.

Evaluation of NW Natural's Optimization Activities

optimization revenues net of any asset-manager share. Thus, our comparisons come as close to comparing the same things as the available data allows.

A third complication arises from the fact that some utilities operate under tiered sharing structures. NW Natural's sharing formula for Washington customers, for example, employs this structure. In those cases, the levels of net optimization margins produced drive the ultimate customer/company percentage splits of those margins. We also found cases where differing sharing percentages applied to different optimization activity types. When we found such arrangements, we used company reports to estimate the composite sharing percentages for all optimization activities considered together, for the latest year that we could find. Most of the data reports 2016 conditions.

Customer Shares of Optimization Margins



Commented [NWN10]: We recommend that any utility on the chart be removed where source data was not provided.

Each dot shows the customer share for the utilities for which we succeeded in securing reliable data. A blue dot indicates the customer share of optimization revenues after removing any external asset-manager share. The red square highlights NW Natural's Oregon customer share. The different colors in the bands in the diagram divide the data set into roughly equal "quartiles". For example, tan shading shows the 25-percent band encompassing the lowest post-asset-manager customer shares we observed; green highlights the next-lowest 25 percent. Only one company provides customers a lower share than does NW Natural in Oregon.

In considering the results of comparisons like the one at issue here, one needs to consider how truly comparable the data points are; *e.g.*, whether additional details might change relationships among them. We considered it appropriate to assume that each company's optimization activities are those appropriate to its market circumstances. For example, companies that buy gas in U.S. producing areas do not have NGLs extraction as an optimization activity because the gas they buy has already been stripped of marketable NGLs. Other companies have pipeline-capacity optimization arrangements that differ from those of NW Natural, due to the characteristics of their

particular loads and service obligations.¹⁰ Whatever each company's optimization activities include, the data plotted represents the public-utility-commission-approved sharing arrangement for those activities.

Significant investment and market risk have characterized and continue to characterize the position of ownership in unrecalled Mist capability. The same cannot be said for the optimization at issue here. Core-customer rates provide for recovery of the capital and operating costs of the assets whose value management optimizes. As do others, management here takes strong action to ensure that optimization does not involve taking a market position. While some individual transactions can produce negative results, there is not material risk that optimization on the whole will produce losses. Moreover, customers share in losses from the small number of "losing" transactions to the same degree they share in the many more that produce "wins." The prevalence of optimization in the industry shows that whatever risks it entails, commissions have found them to be within the scope of normal utility operations.

We have examined the scope of asset optimization at many gas utilities. Comparing them with what management does here, we have not identified any material sources of risk here that do not exist elsewhere in our experience. We also did not find anything in the asset management agreement with TMV or in our discussions with management and TMV about activities here that suggest particularly extraordinary efforts to optimize. We certainly have no reason to question the commitment of management to optimization or to doing so with due regard for risk. Neither do we have any reason to criticize the performance of either management or TMV, although we do note that our work scope did not include a management audit of performance.

We also note that the FERC has standardized asset management to a considerable degree. In its Order No. 712, issued June 19, 2008, the FERC revised its regulations governing natural gas pipelines to facilitate asset-management arrangements, among other things.¹¹ Those regulations were further clarified in 2015.^{xlii} As a result, the terms and conditions governing asset-management agreements (AMAs) are generally similar.^{xliii}

I. The Goal of Sharing - - The Customer Perspective

The purpose for rewarding management for optimization performance has substantial bearing on determining its magnitude. Incentive mechanisms are common, but not universal. Many utility regulatory commissions appear not to consider shareowner incentives a necessary element of securing strong performance in optimizing utility assets. The data points from our benchmarking activities show five of the 17 states plus the District of Columbia for which we have information direct all margins from optimization to the benefit of customers. Presumably, they rely upon the obligation to act prudently, leaving after-the-fact reviews of performance, where they even exist, as the principal oversight mechanism.

¹⁰ Example: The New Jersey LDCs typically have a combination of in-house and externally-managed optimization arrangements due to adjustments in their service obligations to industrial customers made as part of that state's Conservation Incentive Program.

¹¹ Exhibit NWN/306, attached to the Reply Testimony and Exhibits of Keith White and Randolph Friedman in Docket No. UM 1654, shows that the number of FERC enforcement cases related to asset-management-type transactions declined dramatically soon after the issuance of the order.

Therefore, one cannot consider a change that would flow all margins through to customers outside the range of normal experience. After-the-fact reviews (particularly when accompanied by periodic forward-looking examinations of supply procurement and management) can be effective tools. Nevertheless, we place substantial weight on how the dynamic nature of natural gas markets affects optimization. Finding and exploiting opportunities in such markets requires special diligence, flexibility, sophistication, risk mitigation, and adaptability. It takes a multi-pronged strategy and many transactions to optimize effectively in such circumstances.

Consequently, a positive inducement to do so has, in our view, substantial logic. It also reflects the majority view among those for whom we collected meaningful data. Moreover, the significant margins that NW Natural has produced under a long-standing sharing approach underscores its value to Oregon customers. Whether a smaller sharing percentage for shareowners would produce similar net customer benefit levels comprises a fair question, but our experience supports the use of at least some meaningful level of sharing - - defining meaningful as a level that gives management a clear incentive to perform at a high level.

J. Magnitude of the Incentive

The percentage that NW Natural ownership receives stands as a clear outlier among the population for which we have been able to secure information. We examined the existence of any:

- Exceptional market uncertainties or dynamics (risks)
- Unusual optimization scope or activities (benefits)
- Asset or operating expense contributions by ownership (costs).

The existence of such distinctions could justify variances from the sharing norms our work has disclosed.

Our discussions with management disclosed no exceptional risks. Management has in the past offered testimony confirming this view.^{xliv} We found no exceptional risks produced by the asset-management agreement with TMV. We queried management about risk through data requests addressing the division of risks and responsibilities,^{xlv} and we followed up responses to those requests with interviews addressing the risk environment associated with optimizing under the asset-management agreement.^{xlvi} We did not find any risk exposure that, in our judgment, would justify an unusually large share of optimization margins.

With respect to the question of optimization scope and activities, management directly observed that it does not undertake activities that are unusual. Our review confirms this view. Management does, however, believe that it pursues a range of optimization activities that, while typical, it seeks out more vigorously. That belief is necessarily subjective. Without criticizing in any respect the aggressiveness (with accompanying care) of management's optimization efforts, we find it difficult to separate in a tangible way the quality or intensity of its efforts from what we have observed elsewhere. Moreover, even with the recognizably strong and commendable efforts that management has undertaken consistently over a long period, there remains the question of whether moving sharing mechanisms in the direction of more common industry experience would materially diminish the strength of those efforts.

With respect to costs, the assets at issue here all fall into rate base. Ownership contributes no assets whose costs rate base fails to include. Investments in as-yet unrecalled Mist capability present a different case, but one not relevant to the sharing under discussion here. TMV compensation is effectively a shared cost already. We reviewed management's operating responsibilities under the asset-management agreement. Management remains directly responsible for operating the gas-supply function for its customers, and in informing TMV about those operations. Management stays in continuous contact with TMV regarding gas market conditions on and outside its system, and about possibilities for current and future optimization activities. Compensation for management's activities in these areas comes primarily through recognition of the personnel and related costs in its rates, and through sharing of gas-cost savings under its purchased-gas-adjustment (PGA) mechanism. We did not find any operational responsibilities or costs that would justify an unusually large share of optimization margins.

K. Alternative Sharing Mechanisms

We identified three main alternatives to the current sharing structure for stakeholder consideration:

- Increase the customer share from the current 67 percent to a more-typical 75 to 85 percent
- Take the asset-manager's share from both Mist and Non-Mist Optimization margins, rather than only from Non-Mist Optimization, as is done currently
- Introduce a declining-block structure into determination of NW Natural's customers' share, analogous to the declining-block structure in NW Natural's AMA with TMV.

We developed a simple spreadsheet model to test these (and other) alternatives for their effect on optimization margin-sharing at NW Natural. The next part of this section describes the model, and presents results that it produced in tests designed to illustrate the effects of changing the sharing structure pursuant to the variations identified above. While we present a limited number of variations within each of the three alternatives, our model permits stakeholders to adjust them to consider the likely effects of more variations.

We also note that the work shown below is quantitative in nature, and does not address any effects that may occur related to a diminishment of effort or investment that could attend the reduction of any revenues kept by NW Natural. Economic theory would suggest that a lower incentive could result in less effort or investment by NW Natural in these activities. The Commission should likely consider this aspect as it makes any determination to modify sharing percentages.

We explain below that estimating results of alternative sharing schemes is complicated. We selected the three alternative structures listed above for testing. A large range of values for key assumptions can be postulated. We have not done so, but we have constructed a simple model that will permit Steering Committee members to do so, based on variations whose results they may wish to consider. We first tested the three alternative sharing structures for a historical period: actual results for the 2016-17 contract year. Going forward, two key input parameters will change:

- Total optimization revenues, and
- The Tier 1 tranche in the AMA with TMV.

Our tests used the following range of assumptions about total optimization revenues:

- A “base case” using a management-provided forecast showing significant declines in optimization revenues over the next five years
- A “moderated decline case using another management-provided forecast showing less pronounced optimization-revenue declines
- A “constant case” using actual 2016-2017 optimization revenues.

The next sections of this chapter describes our tests and their results. They include:

- Tests 1-3: Examine sharing alternatives with 2016-17 optimization revenues and [REDACTED]
- Tests 4-5: Examine sharing alternatives with forecast optimization revenues and [REDACTED]
 - Test 4: No change in sharing; sub-Tests A and B examine alternative optimization revenue forecasts
 - Test 5: Declining-block sharing: sub-Tests A and B examine alternative optimization revenue forecasts
- Test 6: 2016-17 optimization revenues, [REDACTED]
 - Sub-test 6A: No change in sharing
 - Sub-test 6B: Declining-block sharing.

1. Designing a Model for Alternatives Testing

Our spreadsheet model simulates the workings of NW Natural’s sharing of optimization revenues. Four features complicate that modeling.

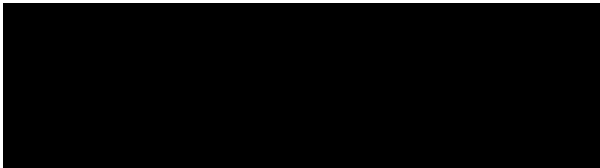
a. Computing the TMV Share of Margins

The asset-management agreement governs the asset manager’s share. TMV’s compensation, calculated as a share of total optimization revenues, changes as those total revenues change. TMV’s share does not result from applying a simple, fixed percentage of the total. Thus, changing total revenues for purposes of modeling potential future results must recognize that the percentage going to TMV will change. However, if total modeled optimization revenues do not change, but one distributes shares differently between among customers and ownership, the asset manager’s share does not change. If, on the other hand, changing the Tier 1 tranche (as the TMV contract provides for contract years following 2017-18), then TMV’s share will change.

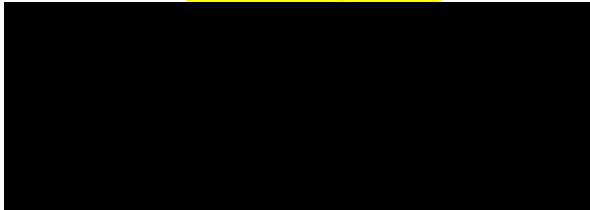
b. The Washington Share

Computing Washington customers’ share uses revenues after removal of the asset manager’s share. That calculation operates as follows:

- Take the sum of
 - 100 percent of the first \$1.5 million, plus



Test 1 Results (\$ million)



4. Test 2: Take Asset Manager's Share from Mist and Non-Mist Revenues

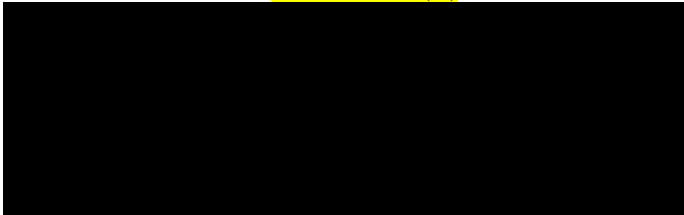
When calculating the Oregon customers' share, NW Natural takes the asset-manager's share only from Non-Mist optimization revenues. Mist optimization revenues get shared by the different sharing percentages afforded rate-base assets and non-rate-base assets, but NW Natural takes no portion of the asset-manager's share from those revenues. This test took portions of the asset manager's share from both Mist and Non-Mist optimization revenues when calculating the Oregon customers' share. Sharing for Washington customers does not differentiate between Mist and Non-Mist optimization revenues. We tested the following alternatives:

- Split the asset manager's share evenly (50/50) between Oregon customers and the Company
- Split the asset manager's share between customers and the Company in proportion to the amounts of those revenues before the asset manager's share is taken.

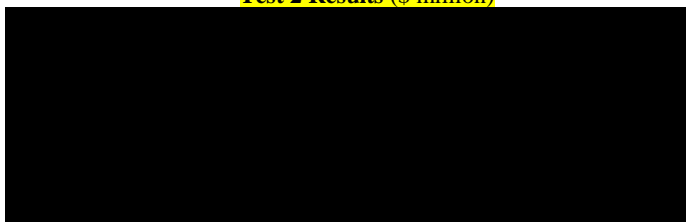
We again used actual optimization revenues for the 2016-2017 contract year.

This test required changing the order of the sharing calculation somewhat. The current method of Oregon sharing takes the asset manager's share out before calculating the customer share of Non-Mist optimization revenues (67 percent). For this test, we reversed that calculation order, calculating the customer share before extracting the asset manager's share. We then split the asset manager's share as indicated: 50/50 for the first case, and proportionately to revenues for the second. The following table shows the results.

Test 2 Results (%)



Test 2 Results (\$ million)



5. Test 3: Declining Block for Customer Share

The current Oregon structure does not vary the customer share of Mist and Non-Mist optimization revenues as the level of revenues changes. A method used in other places (including Washington) guarantees customers a base level of revenue, with sharing between customers and ownership of revenues above the guaranteed level. We tested a declining-block approach using a guaranteed level of \$8 million to Oregon customers, then split revenues above that level 60 percent to customers and 40 percent to ownership. The 60/40 split applied to instances where the 67/33 split exists under the current structure. We tested this alternative at various levels of total optimization revenue:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

We needed to make several assumptions to apply this test:

- The current AMA remains, causing TMV's share to change with changes in total revenue
- The current structure for Washington customers' share continues. TMV's share would change with the change in total revenues, which would affect the amount of Washington customers' share, but not the method for calculating that share.
- Mist and Non-Mist optimization revenues each increase proportionately with total revenues; *i.e.*, if total revenues go up by 10 percent, then both Mist and Non-Mist revenues increase by 10 percent, using their relationship in 2016-2017 as a base.

- [Redacted]
- [Redacted]
- [Redacted]

Our calculations proceeded as follows:


- We first calculated the Oregon share of adjusted Mist and Non-Mist revenues (multiply by 0.89069).
- Next, we extracted the Mist share (16.9 percent) of the \$8 million guarantee.
- We then split remaining Mist revenues

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- 60 percent to customers and 40 percent to ownership for the rate-base-generated share of those revenues¹²
- 20 percent to customers and 80 percent to ownership for the non-rate-base-generated share.¹³
- We continued to take the asset manager's share from Non-Mist revenues. Accordingly, Oregon customers' share of those revenues equaled the Oregon share (0.89069), minus the Non-Mist share of the base guarantee (83.1 percent of \$8 million), minus the asset manager's share, times 60 percent.

The following table shows the results of this test. Each alternative used a base guarantee to Oregon customers of \$8 million. The difference among the alternatives thus lies in the amount of total optimization revenue.

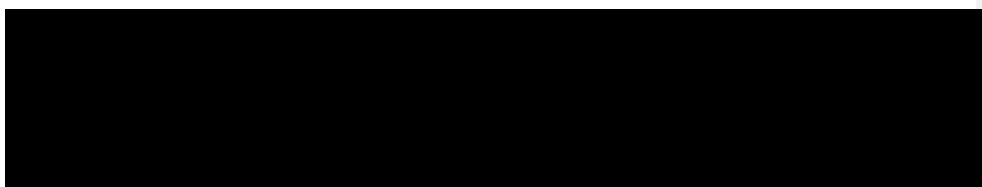
Test 3 Results (%)



Test 3 Results (\$ million)



6. Test 4: Sharing Under Alternative Revenue Forecasts



¹² 305/520ths in 2016

¹³ 215/520ths in 2016.

¹⁴ Previously in this chapter, optimization-revenue information has been presented as TMV presents it to NW Natural: by contract year (April 1 through March 31). NW Natural's forecasts are presented by calendar year, however. For the calculations in this section of this chapter, we show actual results for the most recent contract year (2016-17), but calculate test results by calendar year, in order to match NW Natural's forecasts.

• [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

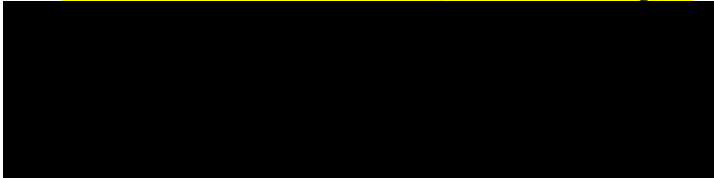
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

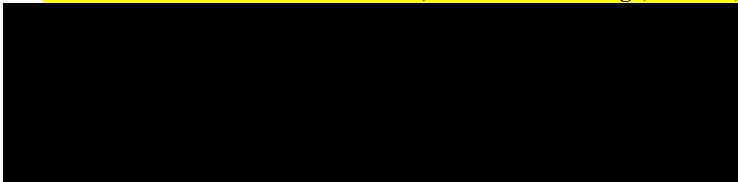
[REDACTED]

15 [REDACTED]

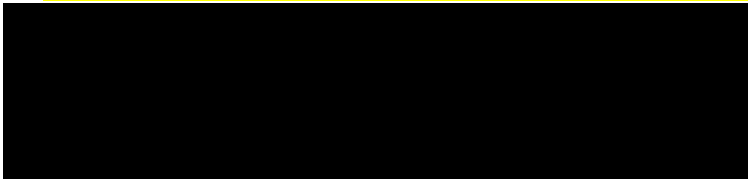
Test 4A: NW Natural Base Forecast, New AMA Sharing (%)



Test 4A: NW Natural Base Forecast, New AMA Sharing (\$ million)



Test 4B: NW Natural Lower Recall Forecast, New AMA Sharing (%)



Test 4B: NW Natural Lower Recall Forecast, New AMA Sharing (\$ million)



7. Test 5: Alternative Forecasts with Declining Block Customers' Share

For comparison, we applied the declining-block sharing mechanism tested for 2016-17 actual results in the previous section of this chapter, assuming:

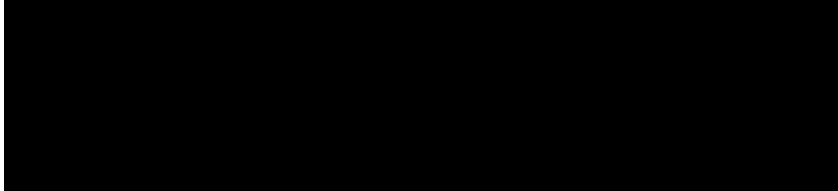
- No change in sharing for Washington customers
- Oregon customers get a guaranteed \$8 million of optimization revenues

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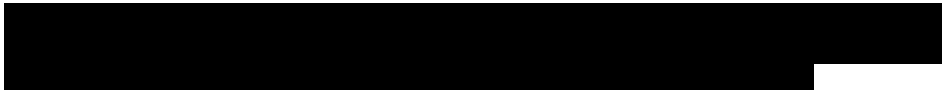
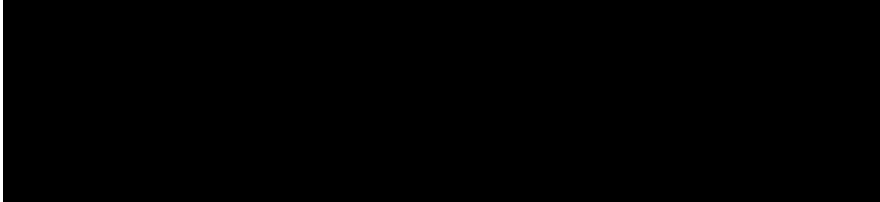
- If Oregon's share of Mist and Non-Mist optimization revenues exceeds \$8 million, then split the excess:
 - 60 percent to customers and 40 percent to ownership for Mist rate-base-generated revenues and Non-Mist revenues
 - 20 percent to customers and 80 percent to ownership for Mist non-rate-base-generated revenues.

First, we used management's base forecast for optimization revenues. We put the forecast through our calculation model for shares of optimization revenues, using the declining-block structure for Oregon customers' share. The following table shows the results.

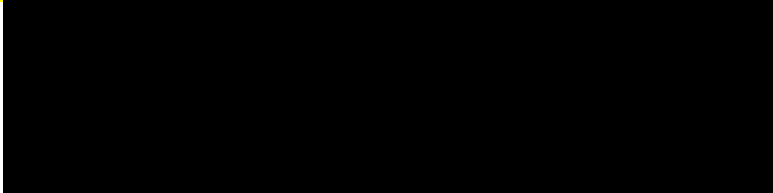
Test 5A: NW Natural Base Forecast, New AMA, Declining-Block Sharing (%)



Test 5A: NW Natural Base Forecast New AMA, Declining-Block Sharing (\$ million)



Test 5B: NW Natural Lower Recall Forecast, New AMA, Declining-Block Sharing (%)



Test 5B: NW Natural Lower Recall Forecast, New AMA, Declining-Block Sharing
(\$ million)

8. Test 6: Sharing under Constant Revenues but Different Core/ISS Split

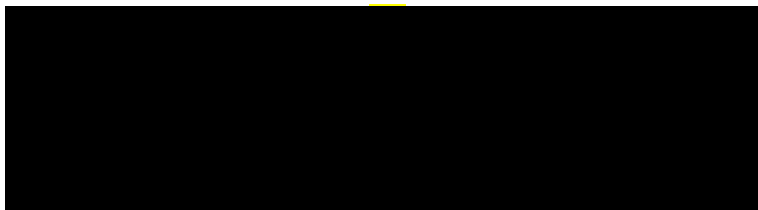
Our two final tests examined results in cases where total optimization revenues stay the same, but forecasted Mist recalls occur. The recalls would serve to dedicate a larger share of Mist deliverability to customers for utility sales service. Thus, the share of Mist optimization revenues generated with rate-base assets would increase. The customer sharing percentage for the share generated with rate-base assets amounts to 67 percent of optimization revenues; the share generated with non-rate-base assets at 20 percent.

The table below shows the results under that case, which holds total optimization revenues the same, but assumes Mist recalls of 30,000 Dth/day in 2019, 2020 and 2021. The Oregon/Washington allocation comes from management's base forecast, and the asset-manager's share is calculated pursuant to the latest agreement.

Test 6A: 2016-17 Optimization Revenues, Mist Recalls in 2019, 2020, 2021, New AMA
(%)

Test 6A: 2016-17 Optimization Revenues, Mist Recalls in 2019, 2020, 2021, New AMA
(\$ million)

**Test 6B: 2016-17 Optimization Revenues, Mist Recalls in 2019, 2020, 2021, New AMA,
Declining-Block Sharing**



**Test 6B: 2016-17 Optimization Revenues, Mist Recalls in 2019, 2020, 2021, New AMA,
Declining-Block Sharing**



L. Analysis of Optimization Benefits Sharing

Our examination of the nature of optimization activities performed by TMV for NW Natural found them to be of a nature and extent similar to what others would be expected to do given the portfolio of assets assembled for serving core customers, and given the circumstances in which that portfolio operates. The arrangements with TMV give reasonably typical roles to management and to TMV. Where experience at NW Natural differs is in the comparatively low percentage share of margins produced from optimization available to offset costs that core customers bear in rates for service. The gap between what customers have available here is very large in magnitude and in the percentile into which that percentage falls.

We determined that percentile based upon what we knew or learned about a very robust range of U.S. natural gas distribution utilities. Not all of the details about their arrangements are knowable, but the consistency of the data we assembled about sharing percentages mitigates the possibility that further details would likely change NW Natural's position much with respect to the rest of the industry.

Given the lack of large risk involved in optimization and given the lack of factors that make optimization materially more complex or challenging at NW Natural, we can postulate no reason justifying a large gap between NW Natural and the rest of the industry. If the goal in Oregon remains to provide a sufficient incentive for management to commit fully to asset optimization, then the experience of our large sample group compels a conclusion that the prevailing view is that a lower share for ownership will nevertheless provide strong incentives to maximize performance without incurring undue risk.

Evaluation of NW Natural's Optimization Activities

If significant additional in-house efforts or expertise were a requirement for the successful optimization of NWN's assets, greater justification for the share available to ownership would exist. However, TMV provides that expertise and those efforts, and takes a share of the margins generated as compensation.

We therefore believe it is appropriate for the stakeholders to look at changes that will retain a strong performance incentive, but at lower costs to customers. Management and TMV have determined the asset manager's share of gross optimization margins through negotiations, preceded in earlier years by competitive solicitations. We consider that share to have been competitively determined. TMV's management of the optimization of NW Natural's assets produces considerable margins. TMV's share of gross optimization revenues did not appear out of line with those for other asset managers in our experience.

We have presented three alternative sharing alternatives, and modeled their performance under alternative forecasts of optimization revenues. We conducted our testing with a simple spreadsheet model available to members of the Steering Committee. That model will support analysis of other sharing alternatives and other assumptions that drive results under the [m](#).

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End Notes

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- ⁱ Liberty Chronology 3, Attachment 3, page 25
ⁱⁱ OPUC Staff Report dated April 18, 2000
ⁱⁱⁱ NW Natural presentation on June 5, 2017
^{iv} NW Natural Financial Overview, 1c
^v NW Natural presentation on June 5, 2017
^{vi} DR #46, Attachment 1, "Reconciliation of 2f and 6e"
^{vii} DR #46, Attachment 1, "Revised 2f" Non-utility CAPEX
^{viii} DR #12, Attachment 3, page 15
^{ix} DR #52, Telephone interview with NW Natural personnel, August 16, 2017
^x DR#51 and telephone interview with NW Natural personnel on August 16, 2017.
^{xi} DRs #20 and #49
^{xii} NW Natural presentation on June 5, 2017
^{xiii} NW Natural meeting #6, June 6, 2017
^{xiv} NWN Financial 4 Attachment 1
^{xv} Liberty Chronology 2, Attachment 2
^{xvi} NWN Financial 4, Attachment 1
^{xvii} Financial information from NWN Financial 4, Attachment 1
^{xviii} NW Natural meeting #6 on June 6, 2017
^{xix} DR #12, Attachment 2, page 10, Telephone interview #5 on August 16, 2017
^{xx} "Underground Natural Gas Storage", FERC Staff Report dated September 30, 2004
^{xxi} Telephone interview #5 on August 16, 2017
^{xxii} NW Natural Meeting #6 on June 6, 2017
^{xxiii} Data Request #41 and revisions
^{xxiv} Data Request #41 and revisions
^{xxv} National Regulatory Research Institute, "Outsourcing of Gas Procurement and Related Functions, a Report to the Colorado Public Utilities Commission", June 2008.
^{xxvi} NW Natural Gas Company, Direct Testimony and Exhibits of Keith White, OPUC Docket No. UM 1654, July 15, 2013. See pages 6, 7.
^{xxvii} R. Friedman presentation to Liberty, June 5, 2017. Much of this material was drawn from his testimony in UM 1654, summer 2013.
^{xxviii} Reply Testimony of Randolph Friedman in UM 1654, September 23, 2013, at pages 2-4.
^{xxix} *Ibid.*
^{xxx} Direct Testimony and Exhibits of Keith White, OPUC Docket No. UM 1654, July 15, 2013, at page 6.
^{xxxi} Direct Testimony and Exhibits of Randolph S. Friedman, OPUC Docket No. UM 1654, July 15, 2013, at pages 9-15.
^{xxxii} Adger interview of R. Friedman, August 30, 2017.
^{xxxiii} *Ibid.*
^{xxxiv} Response to DR No. 68
^{xxxv} See, e.g., National Regulatory Research Institute, "The Outsourcing Option: Are There Some Gas Utility Functions That Others Can Do Better?", NRRRI Research Report No. 09-03, February 2009, at pages 11, 15 and 29.
^{xxxvi} *Ibid.*, at page 15, and Liberty experience
^{xxxvii} Response to DR No. 56a
^{xxxviii} Direct Testimony in Docket No. UM 1654, NW Natural Witness Keith White. See Exhibit NWN/100, filed July 15, 2013, at page 19.
^{xxxix} White Direct Testimony, at page 9
^{xl} Response to DR No. 65
^{xli} Response to DR No. 73
^{xlii} U. S. Federal Energy Regulatory Commission, Order on Petition for Declaratory Order, issued in Docket No. RP15-1089-000 on October 15, 2015.
^{xliii} Liberty Team interview of Tenaska representatives, June 8, 2017. Also, Adger interview of R. Friedman, August 30, 2017.

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^{xliv} See, *e.g.*, OPUC Docket No. UM 1654, Direct Testimony of Keith White, filed July 15, 2013, at page 12. See also Reply Testimony of Keith White, filed September 23, 2013, at pp. 13-16, 19; Reply Testimony of Randolph Friedman, filed the same date, at page 2; and the Supplemental Reply Testimony of Keith White, filed January 10, 2014, at page 3.

^{xliv} See, *e.g.*, DR Nos. 54, 70.

^{xlvi} Especially Adger interview of R. Friedman, August 30, 2017.

^{xlvi} Updated DR No. 41, Attachment 6