BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

In the Matter of	)
	)
NORTHWEST NATURAL GAS	)
COMPANY, dba NW Natural,	)
	)
Request for a General Rate Revision.	)

REDACTED OPENING TESTIMONY OF BRADLEY G. MULLINS

ON BEHALF OF THE

ALLIANCE OF WESTERN ENERGY CONSUMERS

April 18, 2024

TABLE OF CONTENTS

I. Introduction and Summary 1

II. Cost of Capital 5

a. Cost of Equity 5
b. Capital Structure 14

III. Revenue Requirement 16

a. Rate Base Valuation Period 18
b. Test Period Revenues and Expenses 22
c. Removal Forecast 25
d. RWIP Deferred Taxes 27
e. UM 1335 Tax Flow Through 28
f. ARAM Adjustment 30
g. Accrued Vacation 32
h. Lead-Lag Study: Revenues 33
i. Lead Lag Study: Taxes 35
j. Computer Software Retirements 36
k. Director's Fees and Expense 38
l. Directors' and Officers' Insurance 39
m. Water Company Insurance Expenses 40
n. Water Company Non-Labor O&M 40

IV. UM 2309 Amortization 41

V. Cost of Service Study 43

a. Interruptible Customer Allocation 44
b. Services Allocation 46

VI. Rate Spread 47

EXHIBIT LIST

AWEC/101 – Revenue Requirement Calculations
AWEC/102 – NW Natural Responses to AWEC Data Requests
AWEC/103 – Third-Party Risk Premium Estimates
AWEC/104 – Capital Asset Pricing Model Analysis

I. INTRODUCTION AND SUMMARY

Q. PLEASE STATE YOUR NAME AND OCCUPATION.

A. My name is Bradley G. Mullins. I am the Principal Consultant of MW Analytics, a consulting firm that represents utility customers before state public utility commissions in the Northwest and Intermountain West. My witness qualifications were provided in **Exhibit Stipulating Parties / 103**.

Q. PLEASE IDENTIFY THE PARTY ON WHOSE BEHALF YOU ARE TESTIFYING.

A. I am testifying on behalf of the Alliance of Western Energy Consumers ("AWEC"). AWEC is a non-profit trade association whose members are large energy users in the Western United States, including gas sales and transportation customers of Northwest Natural Gas Company, *dba* NW Natural ("NW Natural").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I discuss my initial review of NW Natural's request to increase its base rate, margin revenue requirement by $154,910,000.[1] In general, AWEC is concerned with the magnitude of this increase, which represents an increase to customer margin rates of approximately 29.3%.[2] This increase is also being requested on the heels of 14.0% margin increase approved in Docket No. UG 435.[3] Simply stated, this level of rate pressure is unsustainable for both ratepayers and NW Natural, particularly given the state of the natural gas system and the absence lack of major infrastructure developments. In this testimony, I evaluate NW Natural's revenue requirement, including its cost of capital recommendation, and I recommend a $74,206,263, or

[1] UG 490, NW Natural/1705, Walker / 1:1(d).

[2] UG 490, NW Natural/1801, Wyman / 1:25a

[3] *In the matter of NW Natural Request for a General Rate Revision,* Docket UG 435, Compliance Filing, Exhibit B at 12 (October 31, 2022)

14.1%, margin rate increase.[4] I also evaluate NW Natural's cost of service study and rate spread proposal. Based on that evaluation, I recommend following a traditional rate mitigation approach that caps the rate increase at 1.3 times the system average and applies a floor at 0%, so that no rate schedule receives a rate reduction even though the cost study shows that some customer rate schedules should be reduced.

Q. PLEASE SUMMARIZE YOUR COST OF CAPITAL RECOMMENDATION.

A. I reviewed the Capital Asset Pricing Model ("CAPM") results prepared by NW Natural, and specifically the equity risk premium used in that model. Based on my review, NW Natural's proposed equity risk premiums are not justified. Accordingly, I recommend using a third-party forecast of equity risk premiums, including Kroll of 5.5% and Damodaran from the New York University Stern Business School of 4.6%. Based on this, I estimate a cost of equity ranging from 6.35% to 9.55% and propose a return on equity ("ROE") that is towards the upper end of that range, or 9.2%. Finally, with respect to capital structure, I recommend adopting equity and debt percentages that align with NW Natural's actual capital structure expected at the beginning of the rate period. Specifically, I recommend a 52/48 debt to equity capital structure. AWEC's proposed cost of capital is detailed in **Table 1**, below.

Table 1
AWEC Recommended Cost of Capital

Cost of Capital Component	Capital Structure	Cost	Weighted Cost
Total Debt	52.00%	4.71%	2.4502%
Common	48.00%	9.20%	4.4160%
Total	100.00%		6.8662%

[4] This recommendation does not consider further revenue requirement adjustments based upon to NW Natural's contemporaneously filed depreciation study, which will be addressed in Docket No. UM 2312.

Q. WHAT IS YOUR RECOMMENDED REVENUE REQUIREMENT?

A. AWEC's proposed revenue requirement is detailed in **Table 2**, below. The revenue requirement calculations supporting this proposal, including those related to cost of capital, have been included in **Exhibit AWEC/101**. These adjustments are described sequentially in Section III of this testimony.

Table 2
AWEC Proposed Revenue Requirement ($000)

NW Natural Initial Proposal		**154,913**
% Margin		*29.2%*
Impact of Adjustments		
	Cost of Capital	(16,326)
a	Rate Base Valuation Period	(42,757)
b	Test Period Rev. and Exp.	(927)
c	RWIP Forecast	(720)
d	RWIP ADIT	(1,947)
e	Pre 1981 Flow Through	(2,087)
f	ARAM Adjustment	(301)
g	Accrued Vacation	(272)
h	Lead-Lag Study: Revenues	(11,389)
i	Lead-Lag Study: Taxes	(141)
j	Software Retirements	(4,558)
k	Directors' Fees & Expense	(2,149)
l	D&O Insurance	(387)
m	Water Company Insurance	(776)
n	Water Company Expense	(52)
	Interest Coordination	4,082
Total Adjustments		**(80,707)**
Adjusted Revenue Requirement		**74,206**
Adjusted % Margin		*14.1%*

Q. WHAT IS YOUR RECOMMENDATION RELATED TO COST OF SERVICE AND RATE SPREAD?

A. NW Natural has proposed a rate spread that would deviate significantly from the results of the Public Utility Commission of Oregon's ("Commission") longstanding use of the Long-Run

Incremental Cost ("LRIC") cost of service study method. While AWEC has some methodological disagreements with the use of the LRIC and some of the allocation factors used it in the study, AWEC believes that cost allocation and rate spread should not be done in an ad-hoc way, and should follow cost causation principles, balanced with the practical concerns of ratemaking. In this case, I recommend that the Commission follow the cost of service study for rate spread, with two uniformly applied rate mitigation adjustments: 1) a customer impact offset equal to 1.3 times the average rate increase to mitigate the increase to highly impacted rate schedules, and 2) a floor at zero. This is approach is consistent with the Commission's past practice, and the resulting rate increases by rate schedule under both the Company's revenue requirement and AWEC's proposed revenue requirement are detailed in **Table 3**, below.

Table 3
AWEC Proposed Rate Spread

	NW Natural Rev Req.			AWEC Rev Req.	
	Filed LRIC	NWN Spread	AWEC Spread*	Adj. LRIC	AWEC Spread
02R	34.2%	30.5%	31.2%	19.5%	14.9%
03C	35.8%	30.8%	37.1%	21.4%	18.3%
03I	6.5%	20.3%	0.0%	-13.0%	0.0%
27R	57.0%	35.7%	38.0%	39.2%	18.3%
31CSF	-22.0%	20.3%	0.0%	-32.5%	0.0%
31CTF	-33.7%	14.6%	0.0%	-43.8%	0.0%
31ISF	-20.5%	20.3%	0.0%	-31.7%	0.0%
31ITF	-44.7%	14.6%	0.0%	-52.1%	0.0%
32CSF	-19.7%	20.3%	0.0%	-29.9%	0.0%
32ISF	-32.4%	14.6%	0.0%	-40.7%	0.0%
32CTF	-41.8%	14.6%	0.0%	-48.9%	0.0%
32ITF	-21.8%	14.6%	0.0%	-29.8%	0.0%
32CSI	-0.7%	20.3%	0.0%	-40.0%	0.0%
32ISI	-11.3%	20.3%	0.0%	-52.5%	0.0%
32CTI	-51.1%	14.6%	0.0%	-80.7%	0.0%
32ITI	3.5%	14.6%	0.0%	-62.2%	0.0%
Total	29.2%	29.2%	29.2%	14.1%	14.1%

**Based on AWEC LRIC at Filed Rev. Req.*

Q. HAVE YOU ATTACHED AN EXHIBIT WITH RELEVANT DISCOVERY RESPONSES CITED IN THIS TESTIMONY?

A. Yes. Responses to cited AWEC Data Requests have been attached sequentially in **Exhibit AWEC/102**.

II. COST OF CAPITAL

a. Cost of Equity

Q. PLEASE SUMMARIZE THE SCOPE OF YOUR REVIEW OF NW NATURAL'S COST OF CAPITAL.

A. NW Natural is proposing a 70 basis point increase to its ROE, from the 9.4% approved in Docket No. UG 435 to 10.1% proposed in this filing. While NW Natural believes that an increase to its ROE is justified based on changing market conditions, the models indicate the opposite is true. My analysis of NW Natural's cost of capital proposal focuses primarily on the CAPM results of its analysis, and in particular, the equity risk premium assumed in that model. I also review and discuss the other cost of capital analyses NW Natural presented, such as the Discounted Cash Flow ("DCF"), Expected Earnings and its proposed Risk Premium models.

Q. PLEASE PROVIDE AN OVERVIEW OF THE CAPM METHOD FOR ESTIMATING DISCOUNT RATES.

A. The CAPM is widely acknowledged as a method for estimating the discount rate or expected return for an investment. Its formula, comprising only three variables—the risk-free rate, a beta, and an equity risk premium—is straightforward. Given the simplicity of the formula, the disagreements regarding the assumptions are generally narrow in scope, although the disagreements can produce significantly different outcomes. For instance, the appropriate risk-free rate is a relatively straight forward assumption, but it can be viewed in a few different ways. On the other hand, the assumed beta (the risk variable), can be the subject of significant controversy, although in this case, the proxy group analysis NW Natural proposed results in

beta estimates that fall within a relatively predictable range of between 0.8 and 0.9. The equity risk premium, however, is a more subjective element of the CAPM and, as I will discuss, the use of an excessively high risk premium assumption is the key driver of NW Natural's proposed ROE estimate in this case. Therefore, the equity risk premium variable was my primary focus when evaluating NW Natural's ROE proposal.

Q. DO NW NATURAL'S OTHER COST OF EQUITY FORECASTS ALSO WARRANT CONSIDERATION?

A. Yes. Putting aside the Risk Premium analysis, which is really just an improperly designed variation of the CAPM, the DCF and expected earnings analysis of the gas proxy group produced much lower cost of equity estimates than the 10.1% ROE NW Natural proposed.[5] For example, using the Commission's preferred multi-stage DCF approach,[6] NW Natural calculated an ROE ranging from 8.67% to 8.95%,[7] which indicates that NW Natural's ROE should be reduced materially. Similarly, the expected earnings analysis, an approach which the Commission has historically not used, yielded a 9.58% ROE, which is within a range of NW Natural's current ROE. In fact, it is only by underweighting the Commission's preferred multi-stage DCF approach and overweighting its CAPM modeling results, that NW Natural was able to produce such a high ROE estimate.[8] In Figure 14 of NW Natural/400, it can be noted that NW Natural's averaging effectively triple weights its CAPM modeling results, including two alternations of the traditional CAPM and one Risk Premium analysis, which I discuss further below.

---

5 *See e.g.* UG 490, NW Natural/400, Coyne-Nelson/43, Figure 14.

6 *In the Matter of PacifiCorp, dba Pacific Power*, Request for a General Rate Revision, Docket No. UE 374, Order No. 20-473, at 30 (Dec. 18, 2020).

7 *See e.g.* UG 490, NW Natural/400, Coyne-Nelson/28, Figure 8.

8 *See e.g.* UG 490, NW Natural/400, Coyne-Nelson/43, Figure 14.

Q. WHAT PROXY GROUP DID NORTHWEST NATURAL USE TO ESTIMATE BETA?

A. NW Natural proposed two proxy groups. First it developed a proxy group based on a list of stand-alone gas companies, and second, it developed a proxy group based on a list of both gas and electric companies.

Q. WHICH PROXY GROUP WARRANTS GREATER CONSIDERATION?

A. In general, greater emphasis on the gas proxy group is warranted. The number of stand-alone gas service companies is relatively small, consisting of just six companies. As NW Natural states, however, the gas "proxy group is reasonably comparable to NW Natural and is an appropriate basis for the ROE estimation process."[9]

In contrast, the combined proxy group contains companies that are not comparable to NW Natural. Notably, electric service companies have a different risk profile than gas service companies and historically have had ROEs that are approximately 10 to 20 basis points higher than gas service companies. For this reason, it is not reasonable to use electric companies as a proxy for a gas company ROE. This was demonstrated in NW Natural's analysis, which clearly shows that the combined proxy group contains riskier companies than the gas proxy group. Accordingly, the combined proxy group does not necessarily produce an accurate ROE for NW Natural.

Q. HOW RISKY ARE STAND ALONE GAS COMPANIES RELATIVE TO THE OVERALL MARKET?

A. Beta is a risk variable in the CAPM that measures the riskiness of an asset relative to the overall market. In general, utility stocks historically have been less risky than the overall market. The beta variables for utility stocks tends to be less than 1.0, often ranging between

[9] UG 490, NW Natural/400, Coyne-Nelson/20:7-9.

0.6 and 0.9. This fact was confirmed in NW Natural's proposed proxy group which yielded average beta variables ranging from 0.84 to 0.89.

Q. HOW IS BETA CALCULATED?

A. Beta effectively measures the covariance between the returns of a security and the returns of a market portfolio relative to the variability of market returns. Importantly, a beta can be calculated innumerable ways. It can be calculated over different time periods—one year, five years, fifty years etc. Similarly, it can be calculated with different return horizons—daily returns, weekly returns, monthly returns, etc. It can also be calculated against different market portfolios—the S&P 500, Nasdaq Composite, Dow Jones, Russel 2000, etc. Each of these approaches can produce materially different beta values. A summary of some of the potential beta values for the gas proxy group are summarized in **Table 4,** below.

Table 4
Summary of Beta Parameters

		Value Line	**Bloomberg**	**Yahoo Finance**
	Market	NYSE	S&P 500	S&P 500
	Time period	5-year	5-year	5-year
	Return Measurement	Unknown	Weekly	Monthy
ATO	Atmos Energy Corporation	0.85	0.80	0.66
NJR	New Jersey Resources Corporati	0.95	0.84	0.65
NI	NiSource Inc.	0.90	0.86	0.49
OGS	ONE Gas, Inc.	0.80	0.82	0.65
SWX	Southwest Gas Holding	0.90	0.87	0.36
SR	Spire, Inc.	0.85	0.84	0.52
	Average	0.88	0.84	0.56

The Value Line and Bloomberg estimates in **Table 4** are from NW Natural's initial filing. An interesting factor that can be observed in **Table 4** is that measuring the returns over a longer period, as in the Yahoo Finance estimate, resulted in a material difference for the

above-referenced gas service companies. This means that these securities can be viewed as riskier if held over weekly periods, as opposed to monthly periods. This same situation is not necessarily present in other stocks. Accordingly, there is a wide range of potential beta values that can be assumed for NW Natural.

Q. WHAT BETA VALUES HAVE YOU USED IN YOUR ANALYSIS?

A. In my analysis, I calculated the CAPM results using a range of beta values, including those detailed in **Table 4**, above. In general, I was unable to verify the accuracy of the Yahoo Finance beta calculations, and accordingly, my overall analysis applies a lesser weight to those betas. Further, since I am using these values to derive a point estimate that I believe is reasonable, similar to NW Natural's approach, I did not apply a Hamada adjustment to these beta estimates.

Q. WHAT IS THE EQUITY RISK PREMIUM?

A. The equity risk premium is an estimate of the overall risk, and correspondingly, the anticipated returns, expected in equity markets relative to near-riskless investment opportunities. In the absence of a price for risk, all market equity products would receive the same expected return, equal to the risk free rate. Since investors are generally risk adverse, however, higher average returns are required for an investment resulting in more volatile portfolio returns, compared to one that reduces volatility. The equity risk premium is the average return in excess of the risk free rate expected for a market portfolio and is used in conjunction with a beta to estimate the required return of an individual security considered in the context of a portfolio of investments.

Q. WHAT EQUITY RISK PREMIUMS HAS NW NATURAL PROPOSED?

A. NW Natural presents two types of equity risk premium estimates. First, NW Natural attempts to perform its own calculations of equity risk premiums using stocks and growth estimates

provided by Value Line and Bloomberg. Second, NW Natural uses an arithmetic average of historical equity risk premiums over the period 1926 to 2022, as provided by the equity research company Kroll, to estimate the forward equity risk premium. Both methods, however, have shortcomings.

Q. WHY DO YOU DISAGREE WITH NW NATURAL'S ATTEMPT TO INDEPENDENTLY CALCULATE THE MARKET EQUITY RISK PREMIUM?

A. There are at least two shortcomings in NW Natural's calculations. First, in calculating the growth estimates, NW Natural ignored many stocks which were operating at a loss or had no growth estimate reported by Bloomberg or Value Line. In response to AWEC Data Request 44, NW Natural explained its reasoning for doing this. Some of these stocks for example, had a negative price to earnings ratio, and as such it was impossible to produce a meaningful growth figure from the data. But by selectively ignoring the poorly performing stocks, NW Natural's market return estimates are overstated. Second, NW Natural used a constant growth DCF analysis to estimate expected market returns. The Commission, however, has explicitly rejected the constant growth DCF analysis in the past, in favor of the multi-stage DCF analysis, which tends to produce lower return estimates. Considering these factors—and the fact, which I will discuss below, that there are independent third-party estimates of the equity risk premium—I recommend the Commission reject NW Natural's attempt to independently calculate an equity risk premium.

Q. IS IT ACCURATE TO USE HISTORICAL DATA TO ESTIMATE THE FORWARD EQUITY RISK PREMIUM?

A. No. NW Natural also cites the Kroll historical arithmetic average equity risk premium between 1926 and 2022 to support the use of historical data to estimate the forward looking equity risk

premium.[10] Use of the historical average for calculating an equity risk premium, however, is not an accepted method. The major drawback of using a historical average is that it assumes that equity risk premiums do not change over time and that the equity risk premium remained stable over the period examined. However, this is highly inaccurate, and not an academically sound assumption. Equity risk premiums rise and fall over time depending on conditions in equity, debt and other financial markets.[11] In fact, empirical studies suggests that, due to the effects of globalization of markets, the market returns in the United States have historically been overstated relative to current conditions.[12] Consider for example, that prior to 1971, the US dollar was tied to the cost of gold under the Bretton Woods system, which heavily influenced the dollar denominated returns of all asset classes prior to that date. Just as the cost of debt markets rise and fall over time, so do equity markets. Accordingly, it is not accurate to simply use the historical average market returns as the basis for a forward looking equity risk premium.

Q. IS IT VALID TO CONCLUDE THAT RISING INTEREST RATES LEAD TO HIGHER EQUITY COSTS?

A. No. While interest rates may change from period to period, equity risk premiums and equity costs are also changing. Accordingly, it is not valid to conclude, as NW Natural does, that rising interest rates will automatically lead to higher equity costs. Interest rates may have risen, but equity risk premiums are also changing, leading to equity costs that may be higher or lower than they were previously. For example, if interest rates increase, but equity premiums

---

10 UG 490, NW Natural/400, Coyne-Nelson/32:2-9.

11 *See Damodaran, Aswath, Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2019 Edition*, NYU Stern School of Business (May 29, 2019). Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3378246 (accessed 4/16/2024).

12 Jorion, Philippe and William N. Goetzmann, 1999, *Global Stock Markets in the Twentieth Century*, Journal of Finance, 54(3), 953-980.

decline by an equivalent amount, there would be no change in market equity costs. This is why it is necessary to perform a cost of equity analysis, as opposed to merely pegging a utility's ROE at a certain number of basis points above the risk free interest rate, which is what NW Natural proposes in its Risk Premium analysis.

Q. DOES THE RISK PREMIUM ANALYSIS HAVE MERIT?

A. No. NW Natural's risk premium analysis compares the historically approved ROEs of natural gas utility companies to historical risk free interest rates. This approach is conceptually the same as a CAPM analysis except that NW Natural used a sampling of approved gas utility company ROE's as the basis for the risk premium variable, with no adjustment for risk. NW Natural's approach is flawed for the same reasons as using a historical equity risk premium calculation. The approach assumes that a gas utility should earn a premium equal to 5.95% above the risk free rate, regardless of any other circumstances in equity or debt markets. This is an unreasonable and unrealistic assumption. The premiums earned by gas utilities above the risk free rate is expected to change over time, and if anything, the analysis shows just that.

Q. ARE THERE MORE ACCURATE WAYS TO MEASURE AN EQUITY RISK PREMIUM?

A. Yes. There are several unbiased publications that independently forecast equity risk premiums. One such provider is Kroll, the same entity from which NW Natural obtained historical equity risk premium data. Another source is a publication from the New York University, Stern Business School, published by Aswath Damodaran, a leading expert in the field, who calculates an annual estimate of the implied equity risk premium. Those equity risk premium estimates, as compared to NW Natural's, are provided in **Table 5**, below:

Table 5
Third-Party Equity Risk Premium Estimates

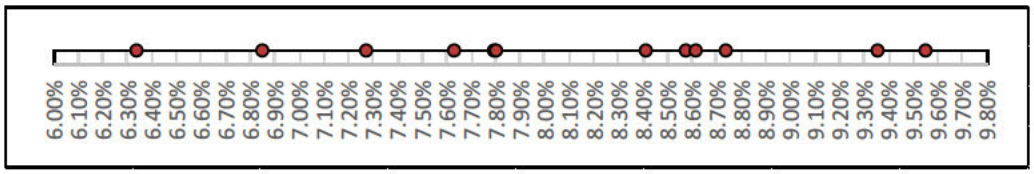
	Forecast Equity Risk Premium
NW Natural	8.89% - 9.20%
Kroll	5.50%
NYU (Damodaran)	4.57%

The reports behind the third-party estimates have been attached as **Exhibit AWEC/103**. These independent and unbiased, estimates clearly show the unreliability of NW Natural's estimates. Further, the fact that NW Natural uses the historical equity risk premium data from Kroll, but outright ignores the Kroll forecast equity risk premium, further demonstrates the unreasonableness of NW Natural's approach.

Q. BASED UPON THESE FORECASTS, WHAT CAPM MODEL RESULTS HAVE YOU CALCULATED?

A. **Exhibit AWEC/104** details the CAPM model results based upon the above referenced analysis. These results are summarized in **Figure 1**, below.

Figure 1
AWEC CAPM ROE Results Summary



Q. ARE THESE RESULTS IN LINE WITH NW NATURAL'S MULTI-STAGE DCF MODELING?

A. Yes. NW Natural's multi-stage DCF model produced ROE results that ranged from 8.67% to 8.95%, which fall generally within the central range of my analysis. This shows that while interest rates might have risen, the cost of equity for NW Natural has not. In fact, the models point to a lower ROE than the 9.4% approved in Docket No. UG 435.

Q. BASED ON THESE ANALYSES WHAT RETURN ON EQUITY DO YOU RECOMMEND?

A. I recommend a 9.2% ROE for NW Natural. I pick this value for two reasons. The first reason is gradualism. While the models point to a lower ROE, from a practical perspective it may be desirable to avoid large changes to ROE over a short period of time. I effectively limited the change in ROE to 10 basis points per year. Second, a 9.2% ROE falls within the upper range of my analysis, and is higher than the Commission's preferred, multi-stage DCF analysis performed by NW Natural. Accordingly, I view it to be a reasonable estimate of NW Natural's cost of equity, providing NW Natural with a reasonable return on its investment.

b. Capital Structure

Q. WHAT CAPITAL STRUCTURE HAS NW NATURAL PROPOSED?

A. NW Natural proposes a 50/50 debt to equity capital structure.[13]

Q. DID NW NATURAL PROVIDE SUFFICIENT INFORMATION TO SUPPORT ITS CAPITAL STRUCTURE?

A. In my opinion, NW Natural did not provide sufficient information to demonstrate the reasonableness of its proposed capital structure. Other than pointing to the capital structure of a proxy group of gas utilities, which NW Natural calculates to be 45.65/54.45 debt to equity, NW Natural provides little evidence to justify the reasonableness of its proposed hypothetical capital structure relative to its actual capital structure, which NW Natural acknowledges is more leveraged than both the proxy group and its proposed capital structure.

Q. HOW DOES NW NATURAL'S PROPOSED CAPITAL STRUCTURE COMPARE WITH ITS ACTUAL CAPITAL STRCUTURE?

A. In response to AWEC Data Request 35, NW Natural provided a forecast of its capital structure as of the rate effective date in this proceeding. The average capital structure over 12-months

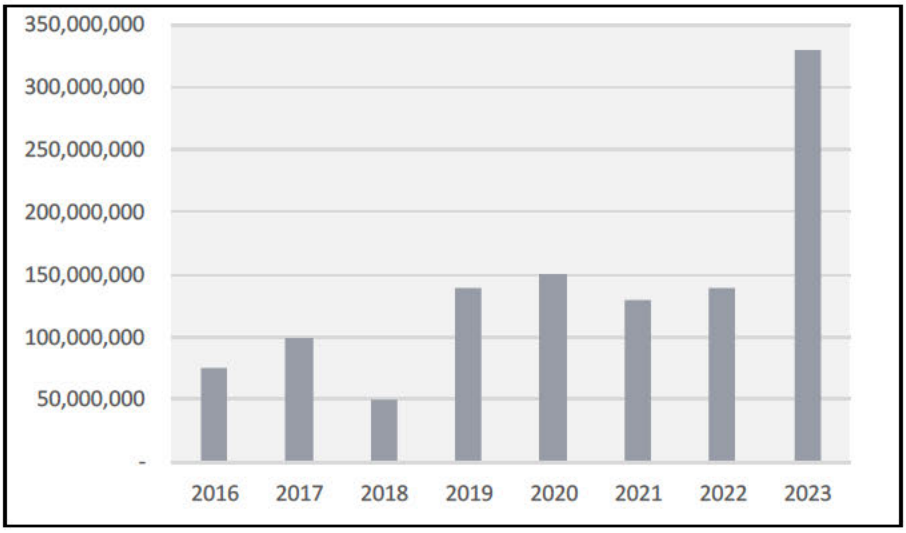
[13] *See* UG 490, NW Natural/400, Coyne-Nelson/60

ending October 31, 2025 was 51.0/49.0 debt to equity.[14] NW Natural also noted that the monthly values, as reported in response to AWEC Data Request 35, will "fluctuate throughout the year."[15] Specifically, it forecast a capital structure of [redacted] debt to equity as of the rate effective date.

Q. WHY HAS NW NATURAL'S EQUITY PERCENTAGE BEEN DECLINING?

A. In the past year, NW Natural has issued a significant amount of debt. The timing and amount of major debt issuances appears to correspond generally to certain water company acquisitions. Accordingly, it has the appearance that NW Natural is diluting its own capital structure in order to finance water company acquisitions at the holding company level. The pace of debt issuances can be seen in **Figure 2** below.

Figure 2
NW Natural Outstanding Debt Issuances by Year $



As shown above, NW Natural's debt issuances in 2023 more than doubled relative to prior year issuances.

14 *See* UG 490, NW Natural/300, Wilson/3:15.
15 *Id.* at 3:16.

Q. BASED ON THE FOREGOING, WHAT DO YOU RECOMMEND?

A. I recommend a capital structure of 52/48 debt to equity, [redacted] This, combined with the ROE estimate provided above, results in an overall rate of return of 6.8662%.

Q. WHAT IS THE OVERALL REVENUE REQUIREMENT IMPACT OF YOUR COST OF CAPITAL RECOMMENDATION?

A. My cost of capital recommendation results in a $16,325,592 reduction to revenue requirement. This calculation, however, does not consider the impact on the tax benefit of interest resulting from the change in capital structure. That impact is captured as a separate line item in my revenue requirement model. Net of the reduced tax benefit of interest, the impact of my ROE recommendation declines to approximately $15,782,230.

III. REVENUE REQUIREMENT

Q. PLEASE SUMMARIZE YOUR GENERAL CONCERNS WITH NW NATURAL'S REVENUE REQUIREMENT PROPOSAL.

A. NW Natural calculated revenue requirement in a way that pushes the boundaries of Oregon's concept of a test year. It includes forecasted capital additions beyond the rate effective date and assumptions regarding cost escalation through the rate effective period. By doing so, NW Natural effectively does away with the traditional ratemaking principles used in Oregon, such as the *used and useful* and *known and measurable* standards. These standards are important both in terms of fairness and equity between ratepayers and shareholders. The traditional concept of a test year is intended to protect customers, and the erosion of the test year and other traditional ratemaking principles has had negative impacts on ratepayers, evidenced by the repeated, major rate increases being proposed by nearly every utility in the state in recent years. While the boundaries have been pushed in the past, AWEC believes it is important to

reinstate these important ratemaking concepts more firmly. For example, FERC strictly relies on these principles and there is no reason why the Commission should depart from these well-established standards.

Q. DO THE USED AND USEFUL AND KNOWN AND MEASURABLE STANDARDS PREVENT A UTILITY FROM EARNING ITS RETURN?

A. No. These standards do not prevent a utility from earning its return. But setting rates based on known costs and actual plant does provide a utility with an incentive to control its costs and spending within historical levels. A utility, such as NW Natural, needs to manage its business to avoid an unsustainable cost trajectory. Correspondingly, setting utility rates based on budgets is problematic because there is no objective way to assess the reasonableness of a budget, other than questioning expertise or the intentions of those that developed it. Use of a budget puts the Commission and ratepayers in an impossible situation of having to accept what a utility says is reasonable, without a clear reconciliation to the actual costs that it has been incurring. A budget also provides a utility with little incentive to efficiently manage its business operations, as it may be inclined to allocate spending to achieve those results. Given NW Natural's current revenue increase request and the circumstances facing ratepayers, it is reasonable to hold NW Natural to traditional ratemaking standards. With that in mind, I have reviewed NW Natural's filing and have developed several revenue requirement recommendations, which I discuss below.

a. Rate Base Valuation Period

Q. WHAT RATE BASE VALUATION PERIOD DID NW NATURAL PROPOSE?

A. NW Natural proposes to use a rate base valuation period corresponding to the average-of monthly-averages ("AMA") value for the 12-months ending October 31, 2025.[16]

Q. IS THAT RATE BASE PERIOD CONSISTENT WITH ESTABLISHED OREGON POLICY?

A. No. The policy of the Commission is to only include plant in rates based on the capital additions in service at the time rates go into effect. This is founded on the used and useful standard, which is a required element of ratemaking in Oregon. Specifically, ORS 757.355(1) provides that a "public utility may not, directly or indirectly, by any device, charge, demand, collect or receive from any customer rates that include the costs of construction, building, installation or real or personal property not presently used for providing utility service to the customer." By including plant in rates beyond the rate effective date, NW Natural's filing is in conflict with this requirement.

Q. DOES THE COMMISSION ALLOW UTILITIES TO INCLUDE COSTS IN RATES THAT HAVE NOT BEEN FOUND TO BE PRUDENT?

A. Apart from the used and useful requirement, the Commission also generally has the obligation to evaluate whether the capital spent by a utility is prudent. The Commission has a longstanding policy not to include capital in rates until it has been determined to be prudent. This evaluation cannot occur in the abstract in the context of a budget or forecast. The Commission noted the following with respect to the Vansycle Ridge Project for PGE:

> The project is part of an effort which we have found important to the development of resource knowledge and assessment. We have indicated so, as PGE points out. However, the costs are not currently included in rates. As we noted in Order No. 98-353 (at 9), mitigation of transition costs is based upon prudence. Prudence is determined by the reasonableness of the actions "based on information that was

[16] *See e.g.*, UG 490, NW Natural/1700, Walker/28

> available (or could reasonably have been available) at the time." Our general approbation of the project was not a finding of prudence. We conclude that PGE will have to make a showing of prudence when it seeks to enter the cost of this project into rates through a transition cost charge or otherwise.[17]

Even though, in PGE's case, the Commission did not object necessarily to the reasonableness of the forecasted project, a prudence finding was still necessary before the plant could be included in rates (or, in this case included in a transition adjustment calculation). This practice was amplified in Pacific Power's 2012 general rate case, in Order No. 12-493, where the Commission performed a holistic review of its established prudence standard. While there were many aspects to that decision that could be quoted in this context, the most relevant passage came from a citation to Staff's testimony, which stated "while a utility's decision process is probative on whether the action itself is prudent, under the Commission's prudence standard, the primary focus is on the reasonableness of the action, not on the process leading up to it."[18] Thus, a finding that a budget or forecast is reasonable is not sufficient to establish prudence, it is the utility's actual spending and actual actions that must be reviewed.

Q. BASED ON THESE STANDARDS WHAT RATE BASE VALUATION DO YOU PROPOSE?

A. In order to ensure that: 1) only used and useful investments are included in rate base; and 2) that the projects included in rates can be evaluated for prudence; I recommend that rate base be valued on an AMA basis over the 12-months ending October 31, 2024, with an attestation process in place to address the prudence for major projects exceeding $1,000,000.

---

17 *See In The Matter Of The Application Of Portland General Electric Company For Approval Of The Customer Choice Plan,* Docket UE 102, Order 99-033 (Jan. 27, 1999).

18 *In the Matter of PACIFICORP, dba PACIFIC POWER's Request for a General Rate Revision*, Docket No. UE 246, Order 12-493 at 26 (Dec. 20, 2012), citing Staff/1150, Colville/2 (Aug 13, 2012).

Q. WHAT RATE BASE VALUATION CONVENTION DO YOU PROPOSE?

A. I recommend that an AMA method be used for rate base. The AMA method is the most reasonable way to measure rate base because it results in a consistent set of assumptions between rate base versus revenues and expenses, which occur ratably over the course of a test period. The AMA approach considers the changing level of plant balances over the test period but also recognizes that rate base is being reduced from accumulated depreciation expenses incurred over the same period. While there have been recent settled cases that have used an end of period rate base to calculate revenue requirement, the AMA method is consistent with the Commission's policy and practice. For example, in an early rate case with Cascade Natural Gas Company, the Commission concluded:

> Staff's method has long been approved for use in utility rate making in Oregon because an average rate base more closely relates to the operating results during the test year. The use of average rate base tends to preserve the significance of the test period as a basic regulatory tool. The average rate base is adopted.[19]

The reasoning for this was further articulated in a telecom case around the same time:

> An average-of-monthly averages rate base is adopted. It protects the interest of the ratepayers by preserving the relationship of known revenues and expenses to rate base. As applied in this case, it does not deny the company the opportunity to enjoy a reasonable return on its investment.[20]

Of note, the timing of these cases corresponds to a period in the mid-1970's with heightened inflation. Thus, the circumstances today, at least in terms of inflationary pressures, are not materially different from what they were when these orders were issued, nor reason to depart from this long established practice.

---

[19] *In the matter of Cascade Natural Gas Company*, Dockets UF 3094, UF 3129, Order No. 74–898 (Nov. 21, 1974) (1974 WL 391913). *See also*, *In the matter of Northwest Natural Gas Company*, Docket UF 3222, Order No. 76-954 (Aug. 30, 1976) (1976 WL 421881) (Rate base computed on a monthly average basis).

[20] *In the matter of Continental Telephone Co. of the Northwest*, *Inc*., Docket UF 3162, Order No. 76-061 (Jan. 24, 1976) (1976 WL 419228).

Q. WHY IS END OF PERIOD RATE BASE PROBLEMATIC?

A. End of period rate base is problematic because it results in inconsistencies between the various assumptions in the revenue requirement calculation. A principal concern is the effect on accumulated depreciation. Under a strict end of period rate base method, both the plant balances and accumulated depreciation reserves are fixed at a set point in time. The plant balances included in rate base establish the test period depreciation expenses. Since the accumulated depreciation value is fixed at the end of period level, however, ratepayers are required to pay for depreciation expense on plant in service, without receiving the corresponding benefit of the increasing accumulated depreciation balance resulting from that depreciation. These assumptions can be difficult to reconcile in an end of period calculation, and may, for example, result in a normalization violation due to inconsistencies between tax expenses, depreciation, and accumulated deferred taxes.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDED RATE BASE VALUATION PERIOD?

A. Including the impact on gross plant, accumulated depreciation, accumulated deferred taxes and depreciation expenses, my recommendation to use an AMA rate base over the 12-months ending October 31, 2024, results in a revenue requirement reduction of $42,757,394. In performing this adjustment, I considered the new depreciation study rates in the AMA period, even though the rates will not be in effect until the rate effective date in this case.

Q. WHAT ATTESTATION PROCESS DO YOU RECOMMEND?

A. Using plant through October 31, 2024, as the basis for rate base in this proceeding still requires a forecast of plant in service between the base period and the rate effective date. Since that forecast is the basis for determining that the rate base investments are prudent, I recommend an attestation process in which the final costs of the projects are presented with a potential rate

adjustment if the costs for any given project exceed the prudently determined amount. I recommend that an attestation occur for projects in excess of $1,000,000 and that the filing occur at least 15 days before the rate effective date. If any project is not in service, or has a capital cost less than NW Natural had forecast, NW Natural would be required to reduce the ultimate rate increase approved in the Commission's final order. NW Natural provided the specific funding projects included in revenue requirement in the confidential attachment provided in response to AWEC Data Request 39.

b. <u>Test Period Revenues and Expenses</u>

Q. HOW DOES NW NATURAL FORECAST NON-LABOR O&M EXPENSES?

A. NW Natural's forecast of non-labor O&M expenses can be found in its workpaper titled "UG 490 - Exh. 1400 -OM Model Workpaper_Non-Confidential," Tab "Dept Non-Payroll Forecast." In that workpaper, NW Natural details its historical non-labor O&M expenditures by FERC account and month. The historical data is based on data over the twelve months ending December 31, 2023, although the fourth quarter of 2023 is based on estimated costs. Using the historical data, NW Natural performs two sets of adjustments. First, it escalated the costs using generally applicable escalation rates, and second, it applies discrete adjustments to account for known and measurable cost items.

Q. HOW DOES NW NATURAL FORECAST LABOR O&M EXPENSES?

A. Labor O&M expense are calculated in a Full Time Equivalent ("FTE") model, in which the number of filled positions in the rate period are forecast and compared against expected wages, including wage increases forecast for the rate period.

Q. HOW ARE NW NATURAL'S SALES CALCULATED?

A. NW Natural's sales are calculated using a forward looking use per customer model. Basically, NW Natural performed a forecast of the number of customers expected in the rate period and multiplied that by the expected billing determinants from those customers for each rate class.

Q. IS IT IMPORTANT THAT THESE ASSUMPTIONS ALL BE MEASURED OVER THE SAME PERIOD?

A. Yes. Because both sales revenues and expenses are changing over time, it is important for them to be measured using a consistent set of assumptions. Increases in expenses that occur over time, for example, may be offset by increased sales. Lacking consistency between the two, ratepayers may be required to pay for increased costs, without recognizing the offsetting benefit from increased sales revenues.

Q. IS IT ALSO IMPORTANT THAT SALES AND REVENUES BE MEASURED OVER THE SAME TIME FRAME AS RATE BASE?

A. Generally, yes. While it is theoretically possible to decouple operating results and rate base, measuring them over different periods can be problematic and it is generally preferable for the two to be aligned, such that the test period, viewed as a whole, is consistent.

Q. IS THE KNOWN AND MEASURABLE STANDARD ALSO IMPORTANT WHEN EVALUATING OPERATING EXPENSES?

A. The known and measurable standard requires that a cost item be known with relative certainty and be quantifiable before being included in revenue requirement. That is, a utility cannot include speculative costs or costs that cannot be discretely measured or quantified. This is in contrast to NW Natural's forecast, which applied known and measurable adjustments, but then also escalated the forecast expenses based on generic inflationary factors. While application of generic escalation factors in establishing O&M has been used in Oregon utility rate cases in the past, I recommend that the Commission revisit the appropriateness of that practice. Applying

generic escalation on top of known and measurable adjustments adds a buffer to the utility's known costs for unknown cost increases, which are not appropriate for consideration in revenue requirement. This approach does not fairly balance the interest between ratepayers and NW Natural's shareholders. The known and measurable standard also has important evidentiary implications. A utility generally has the burden of proof to demonstrate that a rate increase is just and reasonable. The known and measurable standard requires the utility to prove that costs included in revenue requirement are legitimate and real costs. Focusing on a generic escalation factor, as opposed to known and measurable adjustments, flips the burden of proof on its head. It requires ratepayers to prove the unreasonableness of the budgeted escalation, without any evidence as to the specific costs items that will arise from the escalation.

Q. WHAT GENERIC ESCALATION RATES DOES NW NATURAL APPLY?

A. NW Natural applies a generic escalation rate based on its estimate of a west area consumer price index, with inflationary rates ranging from 4.4% to 2.9% per year.

Q. HOW DO YOU RECOMMEND HANDLING TEST PERIOD REVENUES AND EXPENSES IN THIS PROCEEDING?

A. I recommend that revenues and expenses be measured over the same period, regardless of any other assumption in the model. For this proceeding, I specifically recommend that revenues and expenses be calculated for the 12 months ending October 31, 2024, to be consistent with the rate base assumptions proposed in revenue requirement. In doing this, I retained all known and measurable adjustments that NW Natural forecast for the test period, such as those related to software expenses and insurance expenses. I also kept the assumed wage increases for calendar year 2024, along with NW Natural's proposed FTE levels for 2025.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. Removing the incremental expense resulted in a reduction of approximately $4,261,495. With respect to sales revenues, this adjustment reduces revenues by $3,364,673. Thus, the net effect of the assumed escalation in NW Natural's O&M model, relative to the incremental revenues in the rate effective period, is a $896,822 reduction to net operating income. This corresponds to a $926,810 reduction to revenue requirement. This is evidence that revenues and expenses, apart from known and measurable changes, are growing at a comparable rate, reinforcing the notion that the two need to be measured over a consistent period.

c. Removal Forecast

Q. HOW DOES NW NATURAL ACCOUNT FOR THE COST OF REMOVALS IN REVENUE REQUIREMENT?

A. The assumptions made for removal costs may be found in NW Natural's rate base forecasting workpapers supporting Exhibit NW Natural/1713. In that workpaper, the cost of removals is addressed in NW Natural's rate base in two different ways. First, in the Tab "Removals", NW Natural performs a discrete forecast of removal costs by FERC account. Second, in the Tab "Accum Deprec", NW Natural includes a trending analysis of its Removal Work in Progress ("RWIP") balance to forecast accretion to the balance in the rate effective period.

Q. WHAT IS REMOVAL WORK IN PROGRESS?

A. RWIP is an account that NW Natural uses to record the expenditures from removing mains and services. My understanding is that, for mains and services, NW Natural records the cost of removal by account, and then closes the removal costs as a credit to the RWIP account. While the RWIP balances have been incorporated into the depreciation study, based on my review, NW Natural does not appear to be depreciating the balances.

Q. HOW MUCH DISCRETE REMOVAL EXPENDITURES DOES NW NATURAL INCLUDE IN ITS FORECAST?

A. In its rate base workpapers, NW Natural forecasts discrete removal expenditures of $[redacted]. through November 1, 2025. This consists of removals expenditures of $[redacted] through the rate effective date, and an additional $[redacted] of removals expenditures through November 1, 2025. These amounts appear to be based on historical removal expenditures. NW Natural then applied these amounts directly as a reduction to the accumulated depreciation balances for respective accounts.

Q. HOW MUCH INCREMENTAL RWIP DOES NW NATURAL FORECAST?

A. As of September 2023, NW Natural had recorded an RWIP balance of $[redacted] representing the accumulated cost of prior removal expenditures. In addition to the removals forecast for the discrete accounts, NW Natural also forecast an increase to this RWIP balance based on a historical trending analysis. Through November 1, 2025, the increases amounted to $[redacted], an amount which includes $[redacted] of incremental RWIP through the rate effective date and an additional $[redacted] through November 1, 2025.

Q. IS IT NECESSARY TO MAKE AN ADJUSTMENT TO ACCUMULATED DEPRECIATION FOR BOTH REMOVALS AND INCREMENTAL RWIP?

A. No. In practice, the cost of removals is not applied against accumulated depreciation, but rather, is applied to RWIP. Therefore, by including both discrete removals and incremental RWIP in its capital forecast, NW Natural is overestimating the impact of removal expenditures.

Q. WHAT DO YOU RECOMMEND?

A. I recommend that the cost of removals identified in the rate base forecast, tab "Removals" be applied as the sole reduction to accumulated depreciation for removals expenditures, with no separate adjustment for incremental RWIP over the forecast period. This treatment will ensure that the removal costs are not being counted twice in the rate base modeling.

Q. WHAT IS THE IMPACT OF THIS RECOMMENDATION?

A. Based on my rate base valuation period, the impact of this recommendation is an approximate $719,580 reduction to revenue requirement. Based on NW Natural's rate base valuation period, which extended beyond the rate effective date, the impact is larger at approximately $2.5 million.

d. <u>RWIP Deferred Taxes</u>

A. DID NW NATURAL INCLUDE ACCUMULATED DEFERRED TAXES ASSOCIATED WITH RWIP IN RATE BASE?

A. No. RWIP creates a deferred tax liability because the funds expended on removal activities can be deducted for tax purposes, whereas for book purposes, they are posted to the RWIP account. The RWIP account does not appear to be amortized and the balances will continue to grow absent a change in the regulatory accounting for those funds. The balances in the RWIP account have grown rapidly. Notwithstanding, the deferred tax benefits of the RWIP account have not been considered in rate base.

Q. DID NW NATURAL CONSIDER THE DEFERRED TAX LIABILITY OF RWIP IN ITS FERC FORM 2?

A. Yes. NW Natural included a $17,660,190 book tax difference item for removals in its 2022 FERC Form 2.[21] Based on NW Natural's response to AWEC Data Request 34, the workpapers supporting the ADIT proposed in this docket, no such book tax difference item was included in revenue requirement.

Q. WHAT DO YOU RECOMMEND?

A. I recommend that accumulated deferred taxes associated with RWIP be considered in revenue requirement. To estimate the impact of this recommendation, I used the average RWIP

[21] *See* NW Natural 2022 FERC Form 2 at 261 (Provided in response to OPUC Standard Data Request 88).

balance over the 12-months ending October 31, 2024, including the incremental removal costs discussed above, as the basis for my calculation. From on this balance, I calculated an ADIT value of $20,031,138, which is generally in line with the FERC Form 2 amount. I recommend this amount be considered as a deferred tax liability in revenue requirement. This adjustment results in an approximate $1,947,079 reduction to revenue requirement.

e. <u>UM 1335 Tax Flow Through</u>

Q. PLEASE DESCRIBE THE ACCOUNTING TREATMENT APPROVED IN UM 1335 FOR PRE-1981 FLOW-THROUGH TAXES?

A. In response to AWEC Data Request 51, NW Natural described the accounting treatment for pre-1981 flow-through taxes as approved in UM 1335. In the response to AWEC Data Request 51, NW Natural stated that prior to 1981 it had flowed-through certain tax benefits to ratepayers, and in connection with transitioning to a normalization method of accounting, it reversed and amortized those previously flowed-through benefits as an increase to income tax expenses to ratepayers over time. Prior to November 1, 2009, the amortization period for reversing these flow-through benefits was relatively long, estimated at the time to be more than 100 years.[22] In conjunction with changing its depreciation rates in UM 1335, however, NW Natural and parties stipulated to accelerating the amortization period associated with the flow-through reversals.

Q. WHAT DID NW NATURAL PROPOSE IN UM 1335?

A. In that docket, NW Natural had proposed an amortization period of 20-years.[23] This 20-year amortization proposal resulted in "increase[ing] the federal flow-through (book in excess of tax) amount for depreciation of pre-1981 assets from the [then] current amount of $635,000 to

[22] *See In the matter of NW Natural Application for an Accounting Order Regarding Depreciation Rates and Flow-Through Amounts*, Docket UM 1335, Application at 5:1.

[23] *Id.*

$5,021,000, on a system basis."[24] In addition, NW Natural proposed to eliminate the removal cost component of the amortization, which was a favorable offset to the amortization, reducing it from $2,322,000 to zero.[25]

Q. HOW WAS THE DOCKET RESOLVED?

A. In the Joint Parties' Stipulation, the parties agreed to accelerate the impact of the pre-1981 flowthrough amortization even more rapidly than NW Natural had proposed. The Joint Parties' Stipulation stated "NW Natural will increase the level of pre-81 regulatory asset amortization, from the level reflected in the Petition of $5,021,000 to the new level of $7,350,000."[26] Correspondingly, the Joint Parties agreed that "NW Natural will retain the level of removal cost at $2,322,000," as opposed to NW Natural's proposal to zero out that offsetting portion of the amortization. Removal costs are not subject to normalization, and therefore, it was not necessary for ratepayers to refund the portion of flowed through tax benefits related to removal costs. In addition, the Joint Parties agreed to delay amortization of the increased amounts by ten months from January 1, 2019, through November 1, 2019.

Q. WHAT AMORTIZATION PERIOD RESULTED FROM THE STIPULATION?

A. The Joint Parties' Stipulation did not specify the amortization period, and unfortunately, the record in the docket is unclear as to what amortization period was being proposed. The Joint Parties Testimony supporting the stipulation, for example, states "[t]he new amortization schedule is approximately 25 years." This, however, may have been an error, because NW Natural had originally proposed a 20-year amortization period, and the Joint Parties Stipulation resulted in acceleration of the amortization over a shorter period, not a longer period. If NW

---

24 *Id*. at 4:17-18.
25 *Id.* at 6:1-12.
26 *Id*. Order No. 08-578 (Dec. 8, 2008) Stipulation at 2:15-16.

Natural's proposal had been approved, the amortization would be completed on December 31, 2028. Assuming the same amount of funds are amortized under either proposal, the acceleration of the amortization in the stipulation would have resulted in a 13 year, 7 month amortization beginning on November 1, 2019. This means that the amortization would have otherwise been completed on June 1, 2023, although this was not clear in the record in the docket.

Q. WHAT HAS NW NATURAL PROPOSED IN THIS CASE?

A. In this case, NW Natural has proposed to include the pre-1981 flow-through amortization in tax expense. Specifically, it has included a permanent addition to taxable income of $7,350,000 and a permanent reduction to taxable income of $1,175,000 for removal costs.[27] NW Natural also represented that this amortization would cease some-time around July 2027.

Q. DO YOU AGREE WITH NW NATURAL'S PROPOSAL?

A. No. Two aspects of the proposal are problematic. First, NW Natural included only $1,175,000 for removal costs, which is inconsistent with the stipulated level of $2,322,000. Second, based on my rough calculations, above, the amortization should have already concluded in mid-2023. Thus, absent a clearer explanation from NW Natural, I recommend eliminating the pre-1981 flow through amortization altogether, resulting in an approximate $1,474,567 reduction to tax expense and a corresponding $2,087,499 reduction to revenue requirement.

f. <u>ARAM Adjustment</u>

Q. PLEASE DESCRIBE NW NATURAL'S TREATMENT OF EXCESS DEFERRED TAXES?

A. Excess deferred income taxes represent the Accumulated Deferred Income Tax ("ADIT") benefit associated with tax reform in the Tax Cuts and Jobs Act of 2017. Excess Deferred

[27] *See* response to AWEC Data Request 51.

Income Tax ("EDIT") is amortized as a permanent reduction to tax expenses. Correspondingly, the balance of EDIT is adjusted down as the amounts are amortized.

Q. WHERE DID NW NATURAL PROVIDE THE CALCULATION OF THE AMORTIZATION?

A. The amortization follows the schedule that is not to exceed the amortization permitted by the Average Rate Assumption Method ("ARAM"). NW Natural provided the calculations supporting its ARAM proposal in response to Staff Data Request 215.

Q. HOW DOES NW NATURAL ADJUST THE EDIT BALANCE FOR THE EXPECTED ARAM AMORTIZATION?

A. NW Natural's ADIT workpapers were provided in response to AWEC Data Request 34. In those workpapers, NW Natural forecasts the average EDIT balance in the rate year, reflecting the ARAM amortization over the rate period. The adjusted EDIT value was subsequently included in the revenue requirement model under Exhibit 1713, Line 9, titled "Accumulated Deferred Income Taxes – Depreciation." Therefore, the EDIT balance included in ADIT reflected the average ARAM amortization over the rate period.

Notwithstanding, NW Natural made a second adjustment outside of its ADIT calculation in the revenue requirement model Exhibit 1713, Line 11. Specifically, NW Natural further reduces ADIT (and increases rate base) by an additional $3,100,000 to account for amortization of the EDIT balance over the rate period.

Q. IS THE SECOND ADJUSTMENT NECESSARY?

A. No. The rate base amounts included in Exhibit 1713, Line 9, titled "Accumulated Deferred Income Taxes – Depreciation" already considered amortization of the EDIT during the rate period. Therefore, the additional adjustment on Line 11 was not necessary.

Q. WHAT IS THE IMPACT OF REMOVING THE SECOND ADJUSTMENT?

A. The impact of removing the line item titled EDIT Rate Base Adjustment is an approximate $301,328 reduction to revenue requirement.

g. Accrued Vacation

Q. WHAT AMOUNT OF ADIT HAS NW NATURAL INCLUDED FOR ACCRUED VACATION EXPENSES?

A. NW Natural has included ADIT of approximately $[redacted] for accrued vacation expense.

Q. WHAT BOOK ACCOUNTING IS USED FOR ACCRUED VACATION EXPENSES?

A. Accrued vacation represents a liability associated with vacation time that has been accrued and earned by the employees of NW Natural but not yet used by taking time off. For book purposes, the wages associated with vacation time are booked as an expense when employees earns vacation days, and recorded to a deferred liability until the employee uses the vacation days by taking time off. This creates a timing difference for book purposes between when an employee accrues and when an employee uses the vacation time.

Q. HOW IS ACCRUED VACATION CONSIDERED FOR TAX PURPOSES?

A. For tax purposes, accrued vacation is generally deducted when an employee is actually paid—that is, when an employee takes its vacation and receives its salary. Although, there is a 2.5-month period following the tax year, in which accrued vacation expenses can be deducted if paid within that period. This different treatment gives rise to a book-tax difference item that is considered in ADIT.

Q. DOES THE ACCRUED VACATION CREATE A BOOK-TAX DIFFERENCE IN REVENUE REQUIREMENT?

A. Not based on NW Natural's proposed revenue requirement. The ADIT for accrued vacation is created from the deferred liability that is booked between when vacation expenses are accrued and when they are paid. Revenue requirement does not recognize the deferred liability benefit

from accrued vacation expenses as a reduction to rate base. In response to AWEC Data Request 54, NW Natural confirmed that the accrued vacation expense is not considered in the lead-lag study used to establish cash working capital. NW Natural stated "[t]he timing differences from accrued vacation expenses were not considered in the lead lag study." Absent considering the benefit of the deferred liability in rate base, there is no book-tax difference to be considered in revenue requirement.

Q. WHAT DO YOU RECOMMEND?

A. I recommend either: 1) deducting the deferred liability associated with accrued vacation expense from rate base; or 2) removing the ADIT balance. In response to AWEC Data Request 55, NW Natural provided the historical accrued vacation balances over calendar year 2023. The 12-month average balance was $3,286,697. On an Oregon-allocated basis, this amounted to an approximate $2,793,692 balance, which I propose as a rate base reduction. The impact of this recommendation is an approximate $271,554 revenue requirement reduction.

h. <u>Lead-Lag Study: Revenues</u>

Q. HOW DOES NW NATURAL HANDLE REVENUES IN ITS LEAD-LAG STUDY?

A. NW Natural calculates a revenue lag on a monthly basis. Its calculation is based on unbilled revenues in a month, as well as the timing difference between when customers are billed and when they make their payments. From this analysis, NW Natural calculates an approximate 48.86 day revenue lag associated with its services.

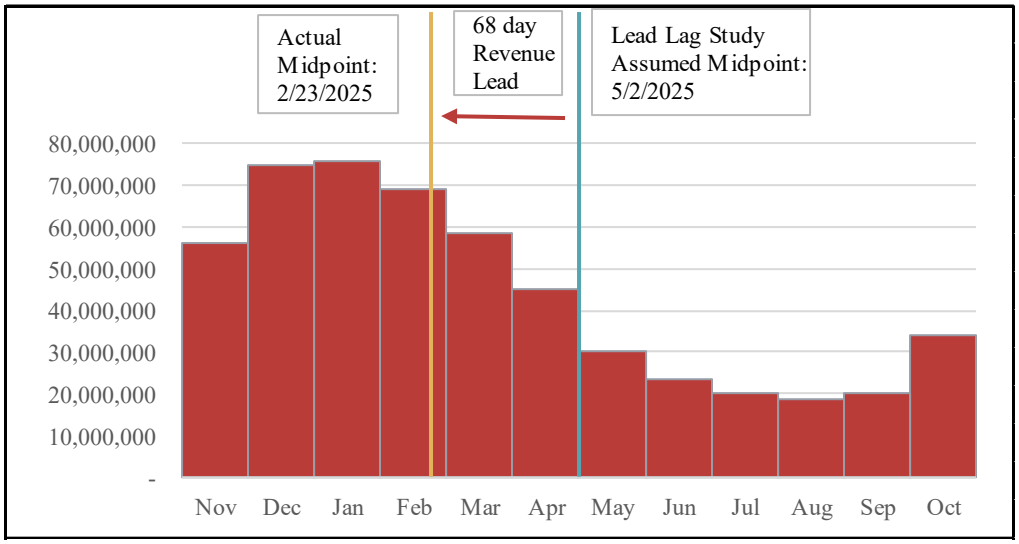
Q. DO YOU AGREE WITH THAT APPROACH?

A. No. The approach that NW Natural uses assumes that revenues are recognized at a ratable rate over the course of a year, when in practice, they are not. Calculating the lag monthly is also inconsistent with other lead-lag calculations that are performed on an annual basis. Notably,

when viewed on an annual basis, NW Natural's revenues are front loaded in the rate year because sales occur at a higher pace in November through February, as compared to summer months.

NW Natural's margin revenue forecast resulted in 52% of its rate year margin revenues being recovered in the first four months of the rate year. This can be seen in **Figure 3**, below.

Figure 3
NW Natural Annual Margin Revenue Lead $



In contrast, the lead-lag study assumes that revenues will be collected evenly throughout the year, with approximately 50% recovered in the first six months, and the remaining 50% recovered in the last six months. The significant skew in collections illustrated in **Figure 3**, is a major timing benefit to NW Natural. Margin revenue requirement is calculated as a flat value through the year, and if anything, the forecast margin revenues are lower in the first part of the year and higher in the latter part of the year, due to escalation and forecast adjustments assumed in NW Natural's revenue requirement study. Thus, while viewed on a monthly basis, there may be an approximate 40.86 day lag between when revenues are recognized and when customers pay their bills. On an annual basis, however, the opposite

is true. Because customers use more gas in the first months of the rate year, they are paying a higher portion of their margin revenue requirement in those periods, more than offsetting the monthly lag. Based on the above analysis, this annual timing difference resulted in a 67.53 day revenue lead over the course of the year. Thus, the net of the monthly revenue lag and the annual revenue lead is a net benefit to NW Natural of 26.67 days cash, which I recommend be considered in the working cash model.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. This shift in the revenue lag assumptions discussed above produces a major cash benefit to NW Natural. In its working cash model, this change resulted in an Oregon allocated daily working cash surplus of $97,318,953, compared to a daily working cash requirement of $19,852,186 in NW Natural's filed case. Thus, this change resulted in an approximate $117,171,138 reduction to rate base, and a corresponding $11,389,340 reduction to revenue requirement.

i. <u>Lead Lag Study: Taxes</u>

Q. WHAT ISSUE HAVE YOU IDENTIFIED WITH RESPECT TO TAXES IN THE LEAD LAG STUDY?

A. NW Natural calculates the lead-lag factor for taxes based on the due dates for estimated payments. It ignores, however, the rule which only requires estimated tax payments to cover the higher 90% of taxes payable or 100% of the taxes payable on the prior year's return.

Q. WHAT DO YOU RECOMMEND?

A. I recommend applying the 90% rule to the calculation of taxes in the lead-lag study. The impact of this recommendation increases the lag days for taxes in the lead lag study from 36.5 days to 58.5 days. This change reduces the cash working capital requirement by $1,451,903, with a corresponding revenue requirement reduction of $141,129.

j. Computer Software Retirements

Q. WHAT RETIREMENT ACTIVITY DID NW NATURAL FORECAST FOR ACCOUNT 303.1 COMPUTER SOFTWARE?

A. For computer software, NW Natural's capital forecast assumes just a single retirement in October 2023, with no further retirement activity in 2024 or 2025.

Q. IS THE BALANCE FOR COMPUTER SOFTWARE GROWING?

A. Yes. The balance for computer software has been growing rapidly. As of December 31, 2022, the actual balance was $116,367,948 and NW Natural forecasts that the balance will increase significantly by the November 1, 2024 rate effective date.

Q. WHAT DEPRECIATION PARAMETERS ARE ASSUMED FOR THIS ACCOUNT?

A. The account also has a rapid depreciable life, which corresponded to 16.3% depreciation rates in NW Natural's filed depreciation study. This was based on an estimated 5.0 year remaining life for the account. This account assumes a square retirement pattern. Accordingly, all things equal, the study assumed that approximately 20% of the existing plant balances would be retired in any given year.

Q. IS THAT CONSISTENT WITH THE ASSUMPTION USED IN THE CAPITAL FORECAST MODEL?

A. No. The capital forecast model assumed no retirement activity in 2024 or 2025.

Q. WHAT DO YOU RECOMMEND FOR THIS ACCOUNT?

A. I recommend tying the retirement activity to the depreciable life assumptions used in the depreciation study. By the end of 2024, the depreciation study assumed that all of the plant balances through 2009 would be retired, resulting in retirements of approximately $27,060,776.58. Adding this level of retirements results in an approximate $4,410,907 reduction to annual depreciation expenses. I used this value as an adjustment in my revenue requirement model, which resulted in a $4,558,398 reduction to revenue requirement.

An alternative way to estimate retirements is to use the expected remaining life for the account. In other words, an alternative method would be to assume that 20% of the existing plant would be retired in each year. This approach would result in a similar level of retirements of $23,273,590, or an approximate $3,793,595 reduction to depreciation expenses. In either case, where a rapid depreciation rate is being assumed, a corresponding rapid rate of retirements also needs to be assumed. Absent consistency, NW Natural will over recover its investment in these plant accounts.

Q. HAVE YOU IDENTIFIED ANY OTHER ERRORS WITH NW NATURAL'S DEPRECIATION CALCULATION FOR COMPUTER SOFTWARE?

A. Yes. The vintage data that NW Natural used to calculate the depreciation accrual for this account appears to contain a major error. In the accrual rate calculation for this account, NW Natural apportioned the retirements from 2021 and 2022 to the 2020 vintage, as opposed to allocating the retirement activity to the actual vintages that were retired. A simple comparison between the accrual rate calculation between the 2020 depreciation study and the 2022 depreciation study shows that the balances prior to 2020 were not adjusted in the study. This is true even though the retirement data that occurred in 2021 and 2022 were predominantly related to much earlier vintages, including SAP retirements from 2008 through 2012 that occurred in conjunction with the Horizon project. While this issue will be addressed in the depreciation docket, it is necessary to identify that issue here as well, since it may impact this recommendation related to the assumed retirement activity.

k. Director's Fees and Expense

Q. WHAT AMOUNT OF DIRECTORS' FEES DOES NW NATURAL INCLUDE IN REVENUE REQUIREMENT?

A. NW Natural provided transactional data supporting its actual 2023 non-labor O&M expense in response to Staff Data Request 201. Based on that response, NW Natural incurred $1,960,329 in Oregon-allocated operating expense associated with directors' fees, as well as approximately $350,117 in reimbursed board expenses. In the accounting data, these transactions were identified under the cost center name, "CORP SECRET-MISC GEN". These expenses include both the fees paid to the board members along with directors' expenses. The expenses include items such as board dinners and parking costs reimbursed by NW Natural.

Q. DO DIRECTORS BENEFIT CUSTOMERS?

A. While directors are a necessary part of the governance structure for NW Natural Holding Company, directors have a fiduciary responsibility towards shareholders, not ratepayers. Thus, when the interests of shareholders and ratepayers are aligned it can be said that directors are working for the benefit of ratepayers; otherwise, where there is a conflict, the board of directors act in the interest of shareholders. Further, given that NW Natural is now structured as a holding company, with a major focus on acquiring new businesses in new markets, the focus of the directors is now less on its gas business and more on NW Natural as a holding company.

Q. WHAT TREATMENT DO YOU RECOMMEND FOR DIRECTORS' FEES AND EXPENSE?

A. In recognition that directors primarily benefit shareholders, and that NW Natural is now structured as a holding company, I recommend that directors' fees and expenses be split 90/10, with 90% of the cost being paid by shareholders and 10% of the cost being paid by ratepayers.

This approach also recognizes that directors are highly compensated specifically because they provide a benefit to shareholders.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. Removing 90% of directors' fees and expenses results in an $2,148,932 reduction to revenue requirement.

l. Directors' and Officers' Insurance

Q. WHAT AMOUNT OF DIRECTORS' AND OFFICERS' INSURANCE HAS NW NATURAL INCLUDED IN REVENUE REQUIREMENT?

A. In response to Staff Data Request 201, NW Natural Identified $748,699 of directors' and officers' insurance on an Oregon-allocated basis.

Q. WHAT DO YOU RECOMMEND FOR DIRECTORS' AND OFFICERS' INSURANCE?

A. I recommend that the directors' and officers' insurance premiums be split 50/50 between shareholders and ratepayers. This treatment is consistent with past commission practice and recognizes that the insurance premiums are a benefit to shareholders. Since these policies impact both directors and officers, a higher sharing percentage was applied for ratepayers compared to directors' fees and expense. Considering that a major reason why this type of insurance is needed is to protect against shareholder lawsuits, some form of sharing between shareholders and ratepayers is appropriate. As a general principle, it is equitable to assign cost responsibility between shareholders and ratepayers in proportion to the benefits that are received by the respective interested parties. In this case, the directors' and officers' insurance premiums provide a significant benefit to shareholders, because among other things, they shield the shareholders from the financial impact of shareholder and other similar lawsuits. The cost of these lawsuits would otherwise be paid out of shareholder earnings and the

proceeds are often paid out to the shareholders themselves. Thus, it is appropriate for shareholders to bear a portion of these costs.

Q. WHAT IS THE IMPACT OF THIS RECOMMENDATION?

A. Assigning 50% of the directors' and officers' insurance to shareholders results in a $374,350 reduction to Oregon operating expense and a corresponding $386,867 reduction to revenue requirement.

m. Water Company Insurance Expenses

Q. WHAT WATER COMPANY INSURANCE EXPNESE DID YOU IDENTIFY IN REVENUE REQUIREMENT?

A. In response to Staff Data Request 201, NW Natural provided transactional data supporting its non-labor operating expenses for calendar year 2023. In the response, there were $750,832 of property insurance expenses associated with water company operations but recorded on NW Natural's books. These amounts can be identified by filtering for the cost center name of "INS-PROPERTY INS-LIA," and applying a text filter for Water in the purchase order text. Since these costs are unrelated to gas operations, I recommend that they be removed from revenue requirement. This recommendation results in a $775,938 revenue requirement reduction.

n. Water Company Non-Labor O&M

Q. WHAT ISSUE HAVE YOU IDENTIFIED WITH RESPECT TO WATER COMPANY NON-LABOR O&M EXPENSES?

A. In response to AWEC Data Requests 23 and 24, NW Natural acknowledged that the operating expenses it had presented for 2023 included non-labor O&M cost associated with water company acquisitions, which were improperly included in revenue requirement. In its supplemental response to AWEC Data Request 23, NW Natural identified $33,714 of Oregon allocated expenses that were improperly recorded in the gas utility company's operating

results. NW Natural also stated that it had provided an updated version of the transactional data in response to Staff Data Request 201, Attachment 3, which excluded the water company expenses.

Q. ARE THERE MORE WATER COMPANY EXPENSES NW NATURAL DID NOT IDENTIFY?

A. Yes. The expense descriptions included in the transactional data are generally vague. There were also items clearly related to the water business that were missed in NW Natural's review. For example, the Concur Posting Expense Report Document Number A000YNL700, contained a $247 charge with the description "Meetings w/AZ Commissioners." Similar charges on the same expense report, as well as elsewhere in the data, with vague titles such as "Commissioner meetings" are likely also unrelated Oregon gas service operations.

Q. WHAT DO YOU RECOMMEND?

A. Because it is clear that there are some expenses remaining in NW Natural's case related to its water business, and given the vague descriptions in some of the expense reports, I recommend a $50,000 expense disallowance, which amounts to a $51,672 reduction to revenue requirement.

IV. UM 2309 AMORTIZATION

Q. WHAT IS YOUR RECOMMENDATION RELATED TO THE DEFERRAL APPROVED IN DOCKET NO. UM 2309?

A. In Docket No. UM 2309, AWEC requested a deferral of Climate Protection Plan ("CPP") costs for transportation and special contract customers because the Oregon Court of Appeals ruled that the CPP rules were invalid. Specifically, AWEC requested that the CPP costs and expenses be deferred in a manner consistent with the Commission's Orders in Docket No. UG 435. The Commission approved AWEC's request for a deferral on April 2, 2024. In this

docket, AWEC requests that the Commission approve amortization of the deferral beginning on November 1, 2024 through Schedule 171. NW Natural has been recording this deferral and the balance is expected to be between $500,000 and $1,000,000 by the November 1, 2024, rate effective date.

Q. WHAT DID THE COMMISSION DETERMINE IN DOCKET NO. UG 435 RELATIVE TO THE CPP AND SB 98?

A Prior to the CPP, NW Natural's RNG investments were being made pursuant to Senate Bill ("SB") 98, which is only applicable to sales customers. After the CPP was enacted, those investments became eligible to be used for compliance with the CPP. In Docket No. UG 435, the Commission determined that RNG costs incurred prior to the CPP would be allocated solely to sales customers consistent with SB 98. Costs incurred after the CPP's effective date, however, would be allocated to all customers, including transportation and special contract customers. After this decision, NW Natural deferred the RNG related costs applicable to transportation and special contract customers, which were not yet reflected in those customers rates. In the November 2023 PGA cycle, NW Natural included recovery of CPP-related costs, including RNG investments and renewable thermal credit acquisitions, which were allocated broadly to all customers, including transportation and special contract customers on an equal cents per therm basis. Since the CPP has since been invalidated, however, AWEC recommends that the same principle used to establish the cost responsibility for transportation and special contract customers be applied in a manner consistent with the Commission's decisions in Docket No. UG 435. In other words, the deferred amounts should be removed from transportation and special contract rates and re-allocated to sales customers to be used for SB 98 purposes.

Q. HOW DO YOU RECOMMEND THE DEFERRAL BE REFUNDED TO TRANSPORTATION AND SPECIAL CONTRACT CUSTOMERS?

A. I recommend that these customers be given a credit through Schedule 171, Transportation Customer Renewable Natural Gas Offtake Costs. This is the same tariff that was used to amortize the deferral of RNG offtake expenses allocated to transportation and special contract customers, which were not yet reflected in those customer's rates following the enactment of the CPP.

V. COST OF SERVICE STUDY

Q. PLEASE SUMMARIZE YOUR GENERAL CONCERNS WITH NW NATURAL'S COST OF SERVICE STUDY.

A. In general, NW Natural's LRIC study shows that large customers are paying rates far in excess of their cost of service. The study uses the peak and average method, which is generally unfavorable towards high volume customer classes relative to other methods such as the average and excess method. Because the design day demand used in the peak and average method subsume the average usage, the peak and average method tends to overweight volumes relative to demand. In practice, however, gas distribution systems are built based on design day demands, not based on volumes. Therefore, the peak and average method is not necessarily consistent with cost causation principles, particularly where volumes are overweighted in the allocation factor calculation. In spite of this aspect of the LRIC model, however, large volume customer rates are still shown to be well above parity. This becomes a matter for rate spread, and since moving towards a more demand-centric cost allocation would only exacerbate this relationship, resolving this issue would not materially impact AWEC's proposed rate spread. Notwithstanding, there are a few issues within the framework of the

LRIC and peak and average method, which I discuss and propose below. These recommendations are detailed in **Table 6**, below, followed by discussion.

Table 6
LRIC Model Recommendations
LRIC Target % Increase – NW Natural Proposed Revenue Requirement

Schedule	Filed LRIC	Uniform Intr. Demand Credit	Intr. Demand Credit at 100%	Services Allocation
02R	34.2%	34.4%	35.1%	35.4%
03C	35.8%	36.0%	36.9%	37.1%
03I	6.5%	6.7%	7.5%	-0.8%
27R	57.0%	57.4%	58.5%	58.7%
31CSF	-22.0%	-21.6%	-20.6%	-24.2%
31CTF	-33.7%	-33.5%	-33.1%	-36.1%
31ISF	-20.5%	-20.3%	-19.4%	-22.3%
31ITF	-44.7%	-44.4%	-43.5%	-45.4%
32CSF	-19.7%	-19.2%	-17.7%	-20.1%
32ISF	-32.4%	-32.3%	-31.4%	-32.6%
32CTF	-41.8%	-41.6%	-40.3%	-41.9%
32ITF	-21.8%	-21.3%	-19.0%	-20.1%
32CSI	-0.7%	-5.7%	-30.3%	-31.6%
32ISI	-11.3%	-17.0%	-44.7%	-45.9%
32CTI	-51.1%	-40.8%	-77.5%	-78.0%
32ITI	3.5%	-14.0%	-55.8%	-56.9%

a. Interruptible Customer Allocation

Q. HOW HAS NW NATURAL ALLOCATED COSTS TO INTERRUPTIBLE CUSTOMERS?

A. NW Natural applies varying factors to allocate the cost of mains to interruptible customers. Some of the costs follow a direct allocation, with special allocation factors for certain mains with sizes smaller than or greater than four inches. Other costs are spread using the peak and average method.

Q. HOW DID NW NATURAL APPLY THE PEAK AND AVERAGE CALCULATION FOR TRANSPORTATION CUSTOMERS?

A. NW Natural applied two different peak and average allocation factors. NW Natural performed one calculation in which the design day throughput used in the peak and average calculation

was reduced by 50% to account for interruptible customers. This factor was identified as Dist-5 in NW Natural's LRIC model. Correspondingly, NW Natural calculated a second peak and average factor, which did not provide any credit for interruption. This factor was identified as Dist-1 in the LRIC model.

Q. HOW DID NW NATURAL APPLY THESE TWO FACTORS?

A. NW Natural applied the Dist-5 factor, which included the interruptible discount, only to the category of mains that it referred to as "system core mains." Correspondingly, the Dist-1 factor, which did not provide a similar discount for interruptible customer demands, was applied to other distribution expenses, such as measuring and regulating equipment and compressor stations.

Q. IS IT REASONABLE TO EXCLUDE THE INTERRUPTIBLE DISCOUNT FOR REGULATING EQUIPMENT AND COMPRESSOR STATIONS?

A. No. Interruptible customers provide a major benefit for the entire distribution system. If the interruptible customers had requested to receive firm gas service, NW Natural would otherwise be required to make major system investments on its system, including investments in incremental regulation and compressor stations. Accordingly, the discounted peak requirements used in the peak and average calculation should apply uniformly to both the Dist-1 and Dist-5 factors. I have detailed the impact of such a change in **Table 6**, above.

Q. DO YOU AGREE WITH THE 50% DISCOUNT FOR DEMAND?

A. No. The customers that choose to take services on interruptible schedules are fully interruptible, not 50% interruptible. Taking interruptible gas is a major risk and cost to customers and a corresponding benefit to the system. If NW Natural were willing to provide 50% of the requirements for customers on interruptible schedules on a firm basis, then such an assumption would be appropriate. Since customers are fully interruptible, however, it is most

appropriate to provide a demand discount equal to 100% of the customer's requirements. Importantly, under this commonly accepted approach, interruptible customers are still allocated the costs attributable to throughput, and therefore, are still allocated a significant amount of costs based on their volumes. This change has also been detailed in **Table 6**.

b. Services Allocation

Q. WHAT ISSUE HAVE YOU IDENTIFIED WITH THE ALLOCATION OF SERVICES?

A. NW Natural treats small and large customers differently when allocating the cost of services, which results in the reconciliation between marginal costs and actual costs being allocated entirely to the small customer classes. When performing the cost allocation for services, NW Natural assumed that the service cost for large customers was equal to replacement cost (i.e. the marginal cost). NW Natural performed this calculation based on the cost of historical services installations over the period 2014 through 2022 with an inflation adjustment through 2025. These replacement cost amounts were then directly assigned to the large customer rate classes based on the number of customers in each class, with no reconciliation between the marginal cost and actual cost. In other words, NW Natural calculated 100% of the replacement capital cost, and then directly assigned that amount to the large customer classes regardless of the actual costs included in FERC Account 380.

Q. DID NW NATURAL PERFORM THE SAME CALCULATION FOR SMALL CUSTOMER CLASSES?

A. No. The service mains for the residential and small commercial rate classes were allocated using a different method. For those customers, the remaining cost, which had not already been directly assigned to the large customer classes, was allocated based on the proportional annual revenue requirement of each class's replacement cost. By doing it this way, NW Natural reconciled the allocated replacement costs for the small customer classes to the total plant in

service, while excluding the replacement cost amounts that had already been directly assigned to the large customer rate schedules. Replacement costs are typically higher than embedded costs because the cost to build things today is usually greater than it was in the past, say 50-years ago. Therefore, a reconciliation back to the actual cost usually reduces the allocated cost of a rate class. Since NW Natural only reconciled the replacement costs allocated to the small customer classes, however, the difference between the embedded costs and replacement costs was incorrectly allocated entirely to the small customer class.

Q. WHAT DO YOU RECOMMEND?

A. The replacement cost calculations for large and small customers are all based on the same data, and there appears to be no legitimate reason to apply a different approach for large and small customers. I recommend that a single allocation factor calculation be used for service mains and applied in a uniform manner for all customers. In **Table 6**, above, I applied the same method that is used for the small customer classes to all customer classes.

VI. RATE SPREAD

Q. PLEASE SUMMARIZE NW NATURAL'S PROPOSED RATE SPREAD.

A. NW Natural's rate spread proposal employs a somewhat complicated methodology that applies varying caps and floors to different rate schedules relative to the target rate increase modeled in the LRIC study. These caps and floors are not applied in a uniform manner to all rate schedules. Rather they are applied on an ad hoc basis to different rate schedules at differing levels. For example, NW Natural establishes a cap equal to 1.04 times the average rate increase for the residential schedules. NW Natural then applies a different cap equal to 1.05 times the average rate increase for commercial rate schedule 3. NW Natural then applies a third cap equal to 1.22 times the average rate increases for rate schedule 27. Next NW Natural

applies a floor equal to 0.50 of the average rate increase to above parity rate schedules, but only to those rate schedules that have a parity ratio in excess of 1.75. Finally, NW Natural recovers the remaining revenues from the other customers that do not fall within any of these categories.

Q. DO YOU SUPPORT THIS PROPOSAL?

A. No. This proposal is too complicated and applies different treatment to similarly situated rate schedules. A more straightforward way to design rates is to establish a single cap and a single floor. Under this approach all customers classes are allocated costs in a uniform manner in a way that follows the cost of service study results.

Q. ARE THE CAPS THAT NW NATURAL PROPOSED MEANINGFUL?

A. No. Applying a cap equal to 1.04 times the average rate increase is the equivalent of 1.2% to 1.5%. Relative to the overall rate increase, these cap levels do not have a meaningful impact on rate class revenues relative to their calculated cost of service.

Q. WHAT DO YOU RECOMMEND?

A. Given the major rate increase at issue in this proceeding, I recommend a uniform cap equal to 1.3 times the average rate increase. This will result in a maximum margin rate increase of 38.0% based on NW Natural's filed case and 18.3% based on AWEC's proposed revenue requirement. Further, I recommend a uniform floor at zero percent. This is based on the approach that the Commission approved in Avisa's 2014 General rate case.[28] The impact of my recommendation was detailed in **Table 3** in the Introduction Section I of this testimony.

Q. DOES THIS CONCLUDE YOUR OPENING TESTIMONY?

A. Yes.

[28] *In the matter of Avista Corp. dba Avista Utilities*, Docket UG 284, Order 15-054 at 5 (Feb. 23, 2015).

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

Alliance of Western Energy Consumers

Testimony of Bradley G. Mullins

EXHIBIT 101

Revenue Requirement Calculations

April 18, 2024

Natural Gas Revenue Requirement Summary ($000)

Line	Adj. No.	Description	Revenue Requirement Net Oper. Income	Rate Base	Rev. Req. Def. / (Suf.)	Impact of AWEC Adjustments Pre-Tax Net Oper. Income	Net Oper. Income	Rate Base	Rev. Req. Def. / (Suf.)
1		**Filed Revenue Requirement**	**$49,266**	**$2,136,361**	**154,913**				
Adjustments:									
2		Cost of Capital	$49,266	$2,136,361	138,588	-	-	-	(16,326)
3	a	Rate Base Valuation Period	$65,138	$1,934,557	95,830	21,743	15,872	($201,803)	(42,757)
4	b	Test Period Rev. and Exp.	$65,793	$1,934,557	94,903	897	655		(927)
5	c	RWIP Forecast	$65,793	$1,927,155	94,184	-	-	(7,403)	(720)
6	d	RWIP ADIT	$65,793	$1,907,123	92,237	-	-	(20,031)	(1,947)
7	e	Pre 1981 Flow Through	$67,267	$1,907,123	90,149	2,020	1,475	-	(2,087)
8	f	ARAM Adjustment	$67,267	$1,904,023	89,848	-	-	(3,100)	(301)
9	g	Accrued Vacation	$67,267	$1,901,230	89,576		-	(2,794)	(272)
10	h	Lead-Lag Study: Revenues	$67,267	$1,784,059	78,187		-	(117,171)	(11,389)
11	i	Lead-Lag Study: Taxes	$67,267	$1,782,607	78,046		-	(1,452)	(141)
12	j	Software Retirements	$70,487	$1,782,607	73,487	4,411	3,220	-	(4,558)
13	k	Directors' Fees & Expense	$72,005	$1,782,607	71,338	2,079	1,518	-	(2,149)
14	l	D&O Insurance	$72,279	$1,782,607	70,952	374	273	-	(387)
15	m	Water Company Insurance	$72,827	$1,782,607	70,176	751	548	-	(776)
16	n	Water Company Expense	$72,863	$1,782,607	70,124	50	37	-	(52)
21		Interest Coordination	$69,980	$1,782,607	74,206		(2,884)		4,082
22		**Adjusted Results**	**$69,980**	**$1,782,607**	74,206	**32,325**	**20,713**	**(353,754)**	**(80,707)**

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

Alliance of Western Energy Consumers

Testimony of Bradley G. Mullins

EXHIBIT 102

NW Natural Responses to AWEC Data Requests

April 18, 2024

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 23

Reference Staff Standard Data Request 57, Attachment 1: Please identify each transactional accounting entry associated with the Truxton Cerbat Acquisition in calendar year 2023.

Response:

In reviewing this data request, the Company has identified p-card transactions related to the Truxton Cerbat acquisition that were inadvertently coded to the gas company. NW Natural is currently updating its response to SDR 57 for actuals through December 31, 2023 and will remove any such transactions in the amended SDR. Additionally, the Company will identify each such transaction so that the inadvertent error can be corrected in the revenue requirement request.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 24

Please identify each business trip to Arizona in the base period, the purpose of the trip, the employees who made the trip, and identify each employee who made such trip.

Response:

In reviewing this data request, the Company has identified p-card transactions related to the water company related work in Arizona that were inadvertently coded to the gas company. NW Natural is currently updating its response to SDR 57 for actuals through December 31, 2023 and will remove any such transactions in the amended SDR. Additionally, the Company will identify each such transaction so that the inadvertent error can be corrected in the revenue requirement request.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 30

Reference workpaper "UG 490 - Exh. 1801 - WP3 - Meter Sets Cost Development," Tab "Meter Set Costs:"

a. Do the referenced costs include installation costs?

b. Please provide the full cost of each meter type included in the referenced workpaper, including the cost of installation and overheads.

Response:

a. The costs listed on the tab, “Meter Set Costs,” do not include installation costs.

b. Please refer to UG 490 AWEC DR 30 Attachment 1 for a breakdown of total costs for each meter type including installation and overhead costs. Tab “Table 2” in Attachment 1 indicates the total costs for the meters listed in “Table 2: Costs for Residential, Commercial, and 2 psig Delivery Meter Sets” from the filed workpaper, *UG 490 - Exh. 1801 - WP3 - Meter Sets Cost Development*, "Meter Set Costs” tab. Tab “Table 4” in Attachment 1 indicates the total costs for the meters listed in “Table 4: Costs for 5 psig (or Greater) Delivery Meter Sets” from the same filed workpaper and tab.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 34

Reference workpaper "UG 490 - Exh. 1700 - WP1 - Revenue Requirements Model," Tab "Exhibit 1713 - Rate Base & Dep," Lines 9-11:

a. Please provide workpapers supporting the accumulated deferred income tax balances, including depreciation ADIT, other ADIT, and the EDIT Rate Base adjustment. Please provide this information with detail for each book tax difference item assumed in the referenced rate base balances.

b. Please provide an explanation for the EDIT Rate Base adjustment, including an explanation for why the adjustment is necessary.

Response:

a. Please see Confidential UG 490 AWEC DR 34 Attachment 1. The workbook contains five tabs:

- "Defd Taxes – Exhibit Compare" – Provides the averaging calculation for the deferred tax related rate base items and compares those outcomes to the balances presented on Exhibit 1713.
- "Defd Taxes – Test and Base Yr" – The information presented here is the same as the original filing response to SDR 117. The individual deferred tax items, for the base and test years, are presented here.
- "Deferred Income Tax Plant" – The deferred tax balances related to plant are presented here by calendar and interim period end.
- "Oregon Plant EDIT" – The calendar year end and calendar year beginning balances for the excess deferred income tax (EDIT) balances related to plant for Oregon.
- "Defd Taxes OTHER" – The deferred income tax balances for the 'other' category displayed over time which support the base and test year balances.

b. The excess deferred income tax (EDIT) balance is included as a reduction in the determination of rate base. This reduction provides customers with the benefit of the EDIT deferral balance in rates. The EDIT rate base adjustment reflects that customers will also be receiving the benefit of the EDIT deferral through a reduction in income tax expense as a result of ongoing EDIT amortization.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 35

Reference NW Natural /300, Wilson /3:9-16:

a. Please provide workpapers to support the 49.04% equity ratio identified in the referenced testimony.
b. Please explain how NW Natural considers accumulated deferred taxes in the calculation of its actual capital structure.

Response:

a. See Confidential UG 490 AWEC DR 35 Attachment 1.

b. Deferred taxes are not considered in the calculation of capital structure. Accumulated deferred taxes impact rate base, and rate base net of deferred taxes is the amount requiring financing by the elements of the capital structure.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 39

Reference UG 490 - Exh. 1713 - WP1 - Gross Plant and Accum Deprec – CONFIDENTIAL:" Please provide forecast capital additions by funding project as assumed in the referenced workpaper.

Response:

See Confidential UG 490 AWEC DR 39 Attachment 1.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 44

Reference NW Natural / 407:

a. Please explain why certain growth estimates are marked as "n/a", such as for Boeing.
b. Please explain why the market cap of companies with "na" for a growth estimate were excluded from the weighted averaging calculation.

Response:

a. For the expected market return for the S&P 500, the companies with an "N/A" do not have a consensus growth rate reported by Bloomberg or Value Line.

b. The purpose of the analysis is to develop an expected market return using the Constant Growth DCF model which combines an expected dividend yield with an expected long-term growth rate and applying it to the S&P 500 Index. The S&P 500 Index is a market capitalization ("market cap")-weighted index. Therefore, a market cap-weighted dividend yield and market cap-weighted long-term growth rate is used.

   Companies that do not have an expected growth rate are excluded from the market cap-weighted long-term growth rate calculation for the S&P 500 Index because (1) a growth rate is required for the Constant Growth DCF model and 2) it would be inconsistent to include those companies in the market cap weighting but exclude them in the calculation of the market cap weighted growth rate.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 51

Reference Workpaper UG 490 - Exh. 1700 - WP1 - Revenue Requirements Model, Tab "Exhibit 1710 – Taxes:" Excel Rows 44-45:

a. Please provide an explanation for the permanent differences titled "Pre-1981 Depreciation" and "Pre-1981 Removal Costs"
b. Please explain how the amounts in the referenced rows were calculated.
c. Please provide workpapers or relevant documentation supporting the calculation of the amounts in the referenced rows.

Response:

NW Natural Gas Company 'flowed-through' certain tax items to customers as incurred prior to 1981. Flow-through generally means that normalization was not followed. The result being that a tax item (e.g., a tax benefit) is flowed through immediately to customers as a reduction to ratemaking income tax expense when it occurs and then collected from customers later as an increase in ratemaking income tax expense when the tax item reverses. These items, taken together, represent a net flow-through benefit that was provided to customers.

In 2008, the Commissions of both Oregon and Washington issued orders, proceedings UG-080546 in Washington and UM1335 in Oregon, that agreed to the total system amounts to be amortized. The amortization of both these flow-through items will be completed in 2027 and the original flow-through benefits will be fully recovered.

The inset table shows the annual amortization, on a system-wide basis, from 2017 through to the expected completion in 2027.

	Flow-Through Amortization Via Income Tax Expense	
Year	Pre-1981 Depreciation (1)	Removal Costs (2)
2017	7,350,000	(1,175,000)
2018	7,350,000	(1,175,000)
2019	7,350,000	(1,175,000)
2020	7,350,000	(1,175,000)
2021	7,350,000	(1,175,000)
2022	7,350,000	(1,175,000)
2023	7,350,000	(1,175,000)
2024	7,350,000	(1,175,000)
2025	7,350,000	(1,175,000)
2026	7,350,000	(1,175,000)
2027	4,624,677	(739,319)

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 54

Reference workpaper "UG 490 - Exh. 1713 - WP3 - Cash Working Capital – CONFIDENTIAL," tab "Labor": Please explain how the timing difference from accrued vacation expenses is considered in the referenced lead lag study.

Response:

The timing differences from accrued vacation expenses were not considered in the lead lag study. The amounts in the study are the cash flows of direct labor expense and do not include accrued vacation expenses. The accrued vacation expenses are shown as a liability on the balance sheet and the balance of that liability at the end of the year is that year's vacation accrual expense.

NW Natural®

Rates & Regulatory Affairs
UG 490
Request for a General Rate Revision
Data Request Response

Request No.: UG 490 AWEC DR 55

Please provide NW Natural's monthly accrued vacation balance over the period January 1, 2023 through December 31, 2023.

Response:

NW Natural's monthly accrued vacation balance over the period January 1, 2023 through December 31, 2023 is as follows:

2023	
A/P HOURLY PTO-BU EMPLOYEES	
Period	Cumulative Balance
1	(2,381,450.12)
2	(2,622,856.98)
3	(2,950,480.75)
4	(3,224,578.22)
5	(3,355,998.66)
6	(3,599,471.51)
7	(3,544,692.36)
8	(3,746,954.00)
9	(3,687,493.53)
10	(4,058,823.54)
11	(3,821,900.03)
12	(2,455,659.74)

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

Alliance of Western Energy Consumers

Testimony of Bradley G. Mullins

EXHIBIT 103

Third-Party Risk Premium Estimates

April 18, 2024

KROLL

Kroll Cost of Capital Recommendations and Potential Upcoming Changes – February 8, 2024 Update

Executive Summary

Kroll regularly reviews fluctuations in global economic and financial market conditions that may warrant changes to our equity risk premium (ERP) and accompanying risk-free rate recommendations. The risk-free rate and ERP are key inputs used to calculate the cost of equity capital in the context of the Capital Asset Pricing Model (CAPM) and other models used to develop discount rates. We also update country risk data on a quarterly basis for 175+ countries using various models.

The Kroll Recommended U.S. ERP is being reaffirmed at 5.5% when developing USD-denominated discount rates, but it could be lowered in the near future. The Kroll Recommended Eurozone ERP is being reaffirmed in the range of 5.5% to 6.0%, but we believe that a 5.5% ERP (i.e., towards the lower end of the range) is more appropriate when developing EUR-denominated discount rates as of February 5, 2024, and thereafter, until further guidance is issued.

Cost of Capital Recommendations

United States

The **Kroll Recommended U.S. ERP remains at 5.5%**. This is matched with the higher of a U.S. normalized risk-free rate of 3.5% or the spot 20-year U.S. Treasury yield as of the valuation date.

Recently, as interest rate uncertainty began to subside and a scenario of soft landing became more plausible, investor confidence has risen. Interest rates have likely peaked, and investors are pricing significant policy rate cuts in 2024. The Federal Reserve (Fed) may ultimately be more conservative about the timing and speed of cuts than investors are anticipating. Nevertheless, in its December 2023 meeting the Fed projected a median reduction in its policy rate of 80 basis points, which boosted investor optimism.

Recently, the S&P 500 and the Dow Jones Industrial Average indices have both reached new record highs, which had not occurred in two years. While markets may still experience high volatility until interest rates settle, continued strength in consumer spending and the job market, coupled with an expected improvement in earnings growth, may lead equity markets in the U.S. to test new highs. This "risk-on" attitude means the equity risk premium is likely to come down, barring a major geopolitical event (e.g. escalation of Middle East conflict) or other unforeseen materially negative events.

Eurozone (From a German Investor Perspective)

The Kroll Recommended Eurozone ERP remains in the range of 5.5% to 6.0%, to be used in conjunction with the higher of a German normalized risk-free rate of 3.0% or the spot 15-year German government bond yield as of the valuation date.

However, recent inflation readings in the Eurozone have declined at a much faster pace than initially anticipated by economists and the European Central Bank (ECB). In light of these developments, rate cuts are also being contemplated by the ECB in 2024. Long-term inflation expectations have also declined significantly, in both Germany and the overall Eurozone. As a result, it is possible that the Kroll normalized risk-free rate for Germany will be lowered in the near future. In addition, although the Eurozone economy has not been as resilient as in the U.S., real GDP growth in 2023 likely ended in a much better place than originally projected at the beginning of the year. The job market continues to be relatively strong, and economic recovery is expected to continue, albeit at a slow pace in some of the countries within the region (e.g. Germany, Italy, etc.). Benchmark stock indices in some of the countries in the Eurozone have touched new records, like the CAC-40 in France and the DAX in Germany. The STOXX Europe 600 index has been approaching, but not yet reaching, the record high last observed in early 2022.

While the Kroll Recommended Eurozone ERP remains in the range of 5.5% to 6.0%, based on current economic and financial market conditions, we believe that a **5.5% ERP (i.e., towards the lower end of the range) is more appropriate when developing EUR-denominated discount rates as of February 5, 2024**, and thereafter, until further guidance is issued.

Incremental country risk adjustments for other Eurozone countries with a sovereign debt rating below AAA may be appropriate. Please note that this information does not supersede Germany's IDW (Institut der Wirtschaftsprüfer) guidance for projects that will be reviewed by German auditors or regulators.

We will continue to closely monitor the situation and publish new guidance when appropriate.

Please contact our support team with any questions: costofcapital.support@kroll.com

Historical Implied Equity Risk Premiums

Data Used: Multiple data services

Data: Historical Implied Equity Risk Premiums for the US (See my paper on equity risk premiums for details)

Date: January 2024

Download as an excel file instead: https://www.stern.nyu.edu/~adamodar/pc/datasets/histimpl.xls

Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	Dividends + Buybacks	Change in Earnings	Change in Dividends	T.Bill Rate	T.Bond Rate	Bond-Bill	Smoothed Growth	Implied Premium (DDM)	Analyst Growth Estimate	Implied ERP (FCFE)	Implied Premium (FCFE with sustainable Payout)	ERP/Riskfree Rate
1960	5.34%	3.41%	58.11	3.10	1.98				2.66%	2.76%	0.10%	2.45%					
1961	4.71%	2.85%	71.55	3.37	2.04		8.60%	2.91%	2.13%	2.35%	0.22%	2.41%	2.92%		2.92%		1.24
1962	5.81%	3.40%	63.1	3.67	2.15		8.79%	5.21%	2.73%	3.85%	1.12%	4.05%	3.56%		3.56%		0.92
1963	5.51%	3.13%	75.02	4.13	2.35		12.75%	9.45%	3.12%	4.14%	1.02%	4.96%	3.38%		3.38%		0.82
1964	5.62%	3.05%	84.75	4.76	2.58		15.23%	10.08%	3.54%	4.21%	0.67%	5.13%	3.31%		3.31%		0.79
1965	5.73%	3.06%	92.43	5.30	2.83		11.20%	9.42%	3.93%	4.65%	0.72%	5.46%	3.32%		3.32%		0.71
1966	6.74%	3.59%	80.33	5.41	2.88		2.23%	1.96%	4.76%	4.64%	-0.12%	4.19%	3.68%		3.68%		0.79
1967	5.66%	3.09%	96.47	5.46	2.98		0.85%	3.37%	4.21%	5.70%	1.49%	5.25%	3.20%		3.20%		0.56
1968	5.51%	2.93%	103.86	5.72	3.04		4.81%	2.09%	5.21%	6.16%	0.95%	5.32%	3.00%		3.00%		0.49
1969	6.63%	3.52%	92.06	6.10	3.24		6.66%	6.49%	6.58%	7.88%	1.30%	7.55%	3.74%		3.74%		0.47
1970	5.98%	3.46%	92.15	5.51	3.19		-9.72%	-1.61%	6.53%	6.50%	-0.03%	4.78%	3.41%		3.41%		0.52
1971	5.46%	3.10%	102.09	5.57	3.16		1.15%	-0.74%	4.39%	5.89%	1.50%	4.57%	3.09%		3.09%		0.52
1972	5.23%	2.70%	118.05	6.17	3.19		10.76%	0.71%	3.84%	6.41%	2.57%	5.21%	2.72%		2.72%		0.42
1973	8.16%	3.70%	97.55	7.96	3.61		28.93%	13.24%	6.93%	6.90%	-0.03%	8.30%	4.30%		4.30%		0.62
1974	13.64%	5.43%	68.56	9.35	3.72		17.48%	3.14%	8.00%	7.40%	-0.60%	6.42%	5.59%		5.59%		0.76
1975	8.55%	4.14%	90.19	7.71	3.73		-17.54%	0.30%	5.80%	7.76%	1.96%	5.99%	4.13%		4.13%		0.53
1976	9.07%	3.93%	107.46	9.75	4.22		26.39%	13.10%	5.08%	6.81%	1.73%	8.19%	4.55%		4.55%		0.67
1977	11.43%	5.11%	95.1	10.87	4.86		11.53%	15.07%	5.12%	7.78%	2.66%	9.52%	5.92%		5.92%		0.76
1978	12.11%	5.39%	96.11	11.64	5.18		7.07%	6.60%	7.18%	9.15%	1.97%	8.48%	5.72%		5.72%		0.63
1979	13.48%	5.53%	107.94	14.55	5.97		25.01%	15.23%	10.38%	10.33%	-0.05%	11.70%	6.45%		6.45%		0.62
1980	11.04%	4.74%	135.76	14.99	6.44		3.01%	7.81%	11.24%	12.43%	1.19%	11.01%	5.03%		5.03%		0.40
1981	12.39%	5.57%	122.55	15.18	6.83		1.31%	6.08%	14.71%	13.98%	-0.73%	11.42%	5.73%		5.73%		0.41
1982	9.83%	4.93%	140.64	13.82	6.93		-8.95%	1.58%	10.54%	10.47%	-0.07%	7.96%	4.90%		4.90%		0.47
1983	8.06%	4.32%	164.93	13.29	7.12		-3.84%	2.76%	8.80%	11.80%	3.00%	9.09%	4.31%		4.31%		0.37
1984	10.07%	4.68%	167.24	16.84	7.83		26.69%	9.85%	9.85%	11.51%	1.66%	11.02%	5.11%		5.11%		0.44
1985	7.42%	3.88%	211.28	15.68	8.20		-6.91%	4.74%	7.72%	8.99%	1.27%	7.89%	4.03%	6.75%	3.84%		0.43
1986	5.96%	3.38%	242.17	14.43	8.19		-7.93%	-0.15%	6.16%	7.22%	1.06%	5.54%	3.36%	6.96%	3.58%		0.50
1987	6.49%	3.71%	247.08	16.04	9.17		11.10%	11.99%	5.47%	8.86%	3.39%	9.66%	4.18%	8.58%	3.99%		0.45
1988	8.20%	3.68%	277.72	24.12	10.22		50.42%	11.49%	6.35%	9.14%	2.79%	9.76%	4.12%	7.67%	3.77%		0.41
1989	6.80%	3.32%	353.4	24.32	11.73		0.83%	14.80%	8.37%	7.93%	-0.44%	9.58%	3.85%	7.46%	3.51%		0.44
1990	6.58%	3.74%	330.22	22.65	12.35		-6.87%	5.26%	7.81%	8.07%	0.26%	7.39%	3.92%	7.19%	3.89%		0.48
1991	4.58%	3.11%	417.09	19.30	12.97		-14.79%	5.03%	7.00%	6.70%	-0.30%	6.34%	3.27%	7.81%	3.48%		0.52
1992	4.16%	2.90%	435.71	20.87	12.64		8.13%	-2.59%	5.30%	6.68%	1.38%	4.67%	2.83%	9.83%	3.55%		0.53
1993	4.25%	2.72%	466.45	26.90	12.69		28.89%	0.41%	3.50%	5.79%	2.29%	4.73%	2.74%	8.00%	3.17%		0.55
1994	5.89%	2.91%	459.27	31.75	13.36		18.03%	5.34%	5.00%	7.82%	2.82%	7.23%	3.06%	7.17%	3.55%		0.45
1995	5.74%	2.30%	615.93	37.70	14.17		18.74%	6.00%	3.50%	5.57%	2.07%	5.65%	2.44%	6.50%	3.29%		0.59
1996	4.83%	2.01%	740.74	40.63	14.89		7.77%	5.10%	5.00%	6.41%	1.41%	6.13%	2.11%	7.92%	3.20%		0.50
1997	4.08%	1.60%	970.43	44.09	15.52		8.52%	4.25%	5.35%	5.74%	0.39%	5.45%	1.67%	8.00%	2.73%		0.48
1998	3.11%	1.32%	1229.23	44.27	16.20		0.41%	4.37%	4.33%	4.65%	0.32%	4.60%	1.38%	7.20%	2.26%		0.49
1999	3.07%	1.14%	1469.25	51.68	16.71		16.74%	3.16%	5.37%	6.44%	1.07%	5.75%	1.20%	12.50%	2.05%		0.32
2000	3.94%	1.23%	1320.28	56.13	16.27		8.61%	-2.65%	5.73%	5.11%	-0.62%	3.71%	1.65%	12.00%	2.87%		0.56
2001	3.85%	1.37%	1148.09	38.85	15.74	30.08	-30.79%	-3.24%	1.80%	5.05%	3.25%	3.56%	1.73%	10.30%	3.62%	2.91%	0.72
2002	5.23%	1.83%	879.82	46.04	16.08	29.83	18.51%	2.15%	1.20%	3.81%	2.61%	3.57%	2.29%	8.00%	4.10%	4.73%	1.08
2003	4.87%	1.61%	1111.91	54.69	17.88	31.58	18.79%	11.19%	1.00%	4.25%	3.25%	5.35%	2.12%	11.00%	3.69%	4.74%	0.87
2004	5.58%	1.60%	1211.92	67.68	19.407	40.60	23.75%	8.54%	2.18%	4.22%	2.04%	4.90%	2.02%	8.50%	3.65%	4.86%	0.86
2005	5.47%	1.79%	1248.29	76.45	22.38	61.17	12.96%	15.32%	4.31%	4.39%	0.08%	6.16%	2.20%	8.00%	4.08%	5.22%	0.93
2006	6.18%	1.77%	1418.3	87.72	25.05	73.16	14.74%	11.93%	4.88%	4.70%	-0.18%	5.93%	1.97%	12.50%	4.16%	6.12%	0.89
2007	5.62%	1.89%	1468.36	82.54	27.73	95.36	-5.91%	10.70%	3.31%	4.02%	0.71%	5.03%	2.06%	5.00%	4.37%	4.59%	1.09
2008	7.24%	3.11%	903.25	65.39	28.05	67.52	-20.78%	1.15%	1.59%	2.21%	0.62%	2.11%	4.05%	4.00%	6.43%	6.92%	2.91
2009	5.35%	2.00%	1115.10	59.65	22.31	37.43	-8.78%	-20.46%	0.14%	3.84%	3.70%	0.28%	2.60%	7.20%	4.36%	4.64%	1.14
2010	6.65%	1.84%	1257.64	83.66	23.12	55.53	40.25%	3.63%	0.13%	3.29%	3.16%	3.33%	2.24%	6.95%	5.20%	6.09%	1.58
2011	7.72%	2.07%	1257.60	97.05	26.02	**71.28**	16.01%	12.54%	0.03%	1.88%	1.85%	2.75%	2.71%	7.18%	6.01%	8.34%	3.20
2012	7.18%	2.13%	1426.19	102.47	30.44	75.90	5.58%	16.99%	0.05%	1.76%	1.71%	2.93%	2.47%	5.27%	5.78%	7.30%	3.28
2013	5.81%	1.96%	1848.36	107.45	36.28	88.13	4.86%	19.19%	0.07%	3.04%	2.97%	5.01%	2.03%	4.28%	4.96%	4.99%	1.63
2014	5.49%	1.92%	2058.90	113.01	39.44	101.98	5.17%	8.71%	0.05%	2.17%	2.12%	2.77%	2.24%	5.58%	5.78%	5.48%	2.66
2015	5.20%	2.11%	2043.94	106.32	43.16	106.10	-5.92%	9.43%	0.21%	2.27%	2.06%	2.96%	2.46%	5.51%	6.12%	5.16%	2.70
2016	4.86%	2.01%	2238.83	108.86	45.03	108.67	2.39%	4.33%	0.51%	2.45%	1.94%	2.64%	2.41%	5.54%	5.69%	4.50%	2.32
2017	4.67%	1.86%	2673.61	124.94	49.73	108.28	14.77%	10.44%	1.39%	2.41%	1.02%	3.22%	2.36%	7.05%	5.08%	4.75%	2.11
2018	5.92%	2.14%	2506.85	148.34	53.61	136.65	18.73%	7.80%	2.37%	2.68%	0.31%	3.24%	2.50%	4.12%	5.96%	5.55%	2.22
2019	5.03%	1.82%	3230.78	*162.35*	*58.80*	150.50	9.44%	9.68%	1.55%	1.92%	0.37%	2.57%	2.03%	3.96%	5.20%	5.06%	2.71
2020	3.72%	1.51%	3756.07	139.76	56.70	127.78	-13.91%	-3.57%	0.09%	0.93%	0.84%	0.74%	1.65%	5.42%	4.72%	4.94%	5.08
2021	4.33%	1.24%	4766.18	206.38	59.20	147.24	47.67%	4.41%	0.06%	1.51%	1.45%	1.71%	1.72%	6.47%	4.24%	4.90%	2.81
2022	5.72%	1.78%	3839.50	219.49	68.34	181.99	6.35%	15.44%	4.42%	3.88%	-0.54%	5.59%	2.16%	6.41%	5.94%	5.11%	1.53
2023	4.61%	1.47%	4769.83	219.70	70.30	164.25	0.10%	2.87%	5.20%	3.88%	-1.32%	3.73%	1.97%	8.74%	4.60%	4.57%	1.19

Update: Januaary 2024

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

Alliance of Western Energy Consumers

Testimony of Bradley G. Mullins

EXHIBIT 104

Capital Asset Pricing Model Analysis

April 18, 2024

Risk Free Rate		Equity Risk Premium		Beta	Cost of
Source	**Value**	**Source**	**Value**	**Range**	**Equity**
Actual	4.74	Kroll	5.50	0.555	7.80
Actual	4.74	Kroll	5.50	0.839	9.35
Actual	4.74	Kroll	5.50	0.875	9.55
Actual	4.74	NYU	4.57	0.555	7.30
Actual	4.74	NYU	4.57	0.839	8.55
Actual	4.74	NYU	4.57	0.875	8.75
Forecast	3.80	Kroll	5.50	0.555	6.85
Forecast	3.80	Kroll	5.50	0.839	8.40
Forecast	3.80	Kroll	5.50	0.875	8.60
Forecast	3.80	NYU	4.57	0.555	6.35
Forecast	3.80	NYU	4.57	0.839	7.65
Forecast	3.80	NYU	4.57	0.875	7.80
Average	4.27		5.04	0.756	8.10
				Recommended	**9.20**

CABLE HUSTON LLP

CHAD M. STOKES cstokes@cablehuston.com

April 18, 2024

Via Electronic Filing

Public Utility Commission of Oregon
Attn: Filing Center
201 High St. SE, Suite 100
Salem, OR 97301

Re: *In the Matter of Northwest Natural Gas Company, dba NW Natural Request for a General Rate Revision,* Docket No. UG 490

Redacted Opening Testimony of Bradley G. Mullins

Dear Filing Center:

Attached please find the Redacted Opening Testimony of Bradley G. Mullins, on behalf of Alliance of Western Energy Consumers. The unredacted version of this confidential testimony was previously filed with the Commission and served on the parties who signed the Protective Order in this Docket.

Thank you for your assistance, and please do not hesitate to contact our office with any questions.

Very truly yours,

Chad M. Stokes