BEFORE THE

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION Complainant, v. CASCADIA WATER, LLC Respondent.	DOCKET UW-240151

CASCADIA WATER, LLC

Direct Testimony of Matthew J. Rowell

POLICY, REVENUE REQUIREMENT, RATE DESIGN AND COST OF CAPITAL

Exh. MJR-1T

September 26, 2024

DIRECT TESTIMONY OF MATTHEW J. ROWELL

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I. Introduction

Q. Please state your name and business address.

A. My name is Matthew Rowell. My business address is 250 SW Taylor St., Portland, Oregon 97204.

Q. By whom are you employed and what is your position?

A. I am employed by Northwest Natural Gas Company as its Manager of Water Rates and Regulatory Affairs.

Q. On whose behalf are you providing this Prefiled Direct Testimony?

A. I am providing this testimony on behalf of Cascadia Water LLC ("Cascadia Water" or the "Company"), a wholly-owned subsidiary of NW Natural Water Company, LLC ("NW Natural Water"), a wholly-owned subsidiary of Northwest Natural Holding Company.

Q. Please describe your background and qualifications.

A. I have over twenty years of experience in utility rate regulation. I spent ten years as a member of the Arizona Corporation Commission's Utilities Division's Staff (starting in 1996). For approximately half of that time I served as the Utilities Division's Chief Economist. I worked directly on or oversaw some of the most complex and difficult cases of that era including several rate cases, an evaluation of water/wastewater policy, cases dealing with the restructuring of the telecommunications industry, and the reevaluation of Arizona's electric competition rules. I also served as the advisor to Commissioner and Chairman Doug Little from 2015 to 2017. As a consultant, I have provided testimony in multiple water/wastewater utility rate cases ranging from large Class A utilities to small Class D utilities. I hold a master's degree and ABD (all but

dissertation) in economics from Arizona State University and I hold the designation of Certified Rate of Return Analyst (awarded by the Society of Utility and Regulatory Financial Analysts). My curriculum vitae is attached as Exhibit MJR-2.

Q. What topics will your testimony address?

A. I will cover the following topics:

- Rate case schedules including rate base, income statements, and billing data.
- Pro forma adjustments to rate base, revenue, and expenses.
- Computation of the revenue requirement.
- Rate design and rate consolidation.
- Rate case expense.
- Benefits of utility acquisitions and their relation to rates.
- Cost of capital, including cost of debt, capital structure, and cost of equity.

II. Summary of the Case

Q. Please describe Cascadia Water.

A. Cascadia Water currently serves approximately 4,000 connections across the State of Washington. Cascadia Water consists of several water systems served under seven rate tariffs. The water systems are located in Clallam, Island, Skagit, Snohomish, Kitsap, Mason, and Grant Counties. The previous Cascadia Water rate case (UW-200979) included only the Clallam County and Island County systems. In that case the Washington Utilities and Transportation Commission ("Commission" or

"WUTC") consolidated the rate tariffs for the systems within Clallam County (the "Peninsula System") and the systems within Island County (the "Island System") but decided not to consolidate the Peninsula System and Island System. This created two rate tariffs: one for the Island System and one for the Peninsula System. Since that time, Cascadia Water has purchased new water systems that it now proposes to consolidate into the Peninsula System and the Island System tariffs, along with one system in Grant County (the "Pelican Point System") that the Company proposes to keep on a separate tariff. So, at the conclusion of this case Cascadia Water will consist of water systems served under three rate tariffs.

Cascadia Water's customer base is spread across the three proposed tariffs as follows:

Table 1 – Customer Base

	Meters
Island System	1,538
Peninsula System	1,860
Pelican Point System	556

Q. Please describe the procedural history of this Cascadia Water rate case (UW-240151).

A. The Company filed proposed rate tariffs on February 29, 2024 (the "Filing"). Over the subsequent months Cascadia Water responded to over one hundred informal data requests from the Commission staff ("Staff"), Public Counsel, and the Washington Consumer Advocates of Olympic Peninsula ("WCA"). Cascadia Water reached an

agreement with Staff that provided for a reduction in recoverable expenses, a revised capital structure, and a revised cost of debt. Revised rate tariffs consistent with that agreement were filed on June 26, 2024. At its June 27, 2024 Open Meeting, the Commission suspended the tariff for adjudication. The Commission's tariff suspension, in effect, rejected that agreement. The Commission held a prehearing conference on August 21, 2024. Prior to the prehearing conference, Staff, Public Counsel, Cascadia Water, and WCA submitted a proposed procedural schedule that was subsequently adopted in Order 02, which included the Company filing its proposed rates with supporting testimony, exhibits and schedules on September 26, 2024.

Q. Please discuss the review of the Filing conducted by Staff and Public Counsel.

A. The Company's Filing did not envision that written testimony and a formal evidentiary hearing would be necessary. Water rate cases before the WUTC have generally been processed by the Staff in a less formal manner and have not required a full hearing. Despite the less formal nature of the process, the review conducted by Staff and the Public Counsel was rigorous and thorough. Staff's audit was detailed and scrutinized all of Cascadia Water's test period expenses and plant in service. Both Staff and Public Counsel propounded numerous detailed informal data requests on the Company in order to evaluate the proposed revenue requirement. The Staff audit identified over $100,000 of expenses that they believed should not be recoverable. While the Company did not agree with all of those adjustments, Cascadia Water conceded to them as part of the agreement with Staff.

Q. How does this testimony compare to the Filing?

A. This testimony is based on the same test year as the Filing, the 12 months ended September 30, 2023. However, we have incorporated the cost of debt adjustment and many of the operating expense adjustments from the agreement previously reached with Staff into the testimony. Cascadia Water also included additional plant assets that have been placed in service in recent months, revised the proposed cost of equity, and included additional expenses including an estimated $175,000 in rate case expense (spread over two years.)

Q. Is the Company's proposed revenue requirement now higher than what was calculated in the Filing?

A. No. Making the changes discussed above does result in a revenue requirement that is higher than what was presented in the Filing for the Peninsula System and Pelican Point System. However, the Company proposes to forgo for purposes of this rate case any revenue in excess of the originally requested revenue requirements.

III. Rate Base

Q. Please discuss the calculation of the rate base.

A. The rate base for each system was calculated using standard methods based on NARUC guidelines and past practice of the Commission. The rate base is calculated as follows:

Plant in Service

LESS:

Accumulated Depreciation

=

Net Plant in Service

LESS:

Net Contributions in Aid of

Construction (CIAC)

Advances in Aid of Construction

(AIAC)

Customer Deposits

Deferred Income Tax Liabilities

ADD:

Deferred Income Tax Assets

Working Capital

Utility Plant Acquisition

Adjustment

=

Original Cost Rate Base

Q. How was rate base calculated for the three Cascadia Water systems?

A. Rate base was calculated separately for each of the three systems. While there is some shared plant that is allocated among the systems (e.g., office equipment), the vast

majority of plant is directly assigned to each system. The rate base for the three systems is calculated as follows:

Table 2 – Rate Base by System

(in $)	**Island System**	**Peninsula System**	**Pelican Point System**
Utility Plant in Service ("UPIS")	9,211,822	6,255,509	1,242,618
Accumulated Depreciation	(2,825,181)	(2,511,984)	(406,807)
Net Utility Plant in Service	6,386,641	3,743,524	835,811
Deferred Taxes	(5,731)	22,701	3,007
Contributions In Aid of Construction ("CIAC")	(347,535)	(281,798)	(111,750)
Accumulated Amortization of CIAC	148,195	45,252	76,489
Net CIAC	(199,340)	(236,546)	(35,261)
Acquisition Adjustment	0	0	0
RATE BASE	6,187,301	3,529,679	803,556

Q. Please discuss the components of the rate base calculation.

A. Net plant in service is the value of used and useful assets less the value of accumulated depreciation. This represents the net, or depreciated, value of plant that is used and useful for the provision of service to utility customers. Deferred taxes

result from the different depreciation rates used for regulatory purposes and tax purposes. CIAC results from funds or plant contributed to the utility, typically by a developer when utility service is first initiated in a newly developed area. Since contributed plant assets are not investments made by the utility, the utility is not entitled to a return on or of them, so they reduce the rate base.

Q. What about the acquisition adjustment?

A. Regulatory commissions sometimes allow recognition of an acquisition adjustment in rates base. The adjustment accounts for the difference between the purchase price of a utility and its rate base at the time of purchase. Purchase prices are typically higher than the rate base of a utility, so acquisition adjustments are almost always positive (i.e., they increase rate base). Cascadia Water has chosen not to seek an acquisition adjustment for any of the acquired systems included in this rate case.

Q. How does the rate base compare to the Filing?

A. The rate base calculations discussed above are essentially the same as those provided with the Filing, except for the inclusion of some additional plant assets that have come into service over the past several months and projects that were not in the Filing but that will be in service before the effective date of rates in this case (i.e., the plant in service is somewhat higher).[1] Specifically, the additional plant in service for each system is as follows:

1 There is also a corresponding increase in accumulated depreciation equal to a half year of depreciation on the additional assets.

Table 3 – Change in Utility Plant In Service by System

(in $)	**Island System**	**Peninsula System**	**Pelican Point System**
Change in UPIS relative to the Filing	107,605	680,624	281,301

IV. Operating Income

Q. How does operating income factor into the revenue requirement calculation?

A. Operating income represents the income available after all operating expenses have been paid, including depreciation and income taxes.[2] Put simply, it is equal to revenue minus expenses. The operating income divided by the rate base yields the actual return on rate base. If the actual return on rate base is less than the Commission authorized return, a rate increase is warranted. The revenue requirement is set such that revenues are sufficient to yield an operating income that, when divided by the rate base, provides the authorized rate of return on rate base. The operating income at existing rates is shown in detail on Exhibit MJR-3, MJR-4 and MJR-5, and summarized briefly here:

Table 4 – Operating Income (Loss) at Existing Rates

(in $)	Revenue	Operating Expenses (less interest expense)	Operating Income
Island System	1,035,375	1,194,406	(159,032)
Peninsula System	1,051,471	1,157,161	(105,691)
Pelican Point System	294,299	437,919	(143,621)

2 In some contexts, operating income can exclude depreciation and/or income taxes but the NARUC system of accounts include them.

As you can see each system has negative operating income. This means that not only is the Company not earning a fair return on its investment, but it is also not earning *any* return on its investment. An increase in revenue would be required just to bring Cascadia Water to a breakeven point.

Q. Please discuss the operating income adjustments recommended by Staff and agreed to by the Company.

A. In total, these adjustments reduce recoverable operating expenses by $86,826 in the Island System and Peninsula System. $46,544 of that amount are expenses attributable directly to the Peninsula System. The remaining $40,282 are expenses shared across the Peninsula System and Island System.

In the Pelican Point System, Staff's adjustments reduce recoverable operating expenses by $25,487.

The Staff adjustments incorporated in the income statement here are shown on Exhibit MJR-6.

Q. Please discuss the operating income adjustments not included in the Filing.

A. The adjustment to Salary and Wages expense (with a corresponding adjustment to payroll tax) is to account for increases in employee compensation, a new full time operator position, and one office employee moving from part time to full time in order to assist with customer service. There is also an increase to Depreciation expense to account for the depreciation on the additional plant included in rate base discussed above. Also, the rate case expense discussed above has been included.

Q. Why is the addition of $175,000 in rate case expense necessary?

A. As stated above, at the outset of this case it was not envisioned that a formal proceeding with an evidentiary hearing and multiple rounds of written testimony would be necessary. The informal process discussed above, while thorough, would not have required all of that procedure. Cascadia Water therefore believed it could process the case without help from outside attorneys or consultants. However, now that a fully adjudicated hearing is likely, it has become apparent that support from outside counsel is necessary.

The rate case has now been set for hearing and the Company is incurring legal costs to support the rate case litigation. Cascadia Water expects this rate case to be contentious and heavily litigated by an intervening party. For example, while Cascadia Water was preparing this testimony to support the Company's direct case, one intervenor in the rate case served 96 data requests, some with multiple parts, to the Company before discovery even opened in the case.

V. Revenue Requirement

Q. Please discuss the revenue requirement calculation.

A. The revenue requirement for the systems involved in this case was developed using the standard rate base rate of return method. The required return on rate base was calculated as discussed in Section VII below, where the required return is applied to the value of the rate base to obtain a required operating income. The required operating income is compared to actual operating income and the difference (grossed up for income taxes and bad debt) is the necessary revenue increase. The necessary revenue increases and revenue requirements are summarized here:

Table 5 – Needed Revenue Increases and Revenue Requirement by System

(in $)	Test Year Revenue	Revenue Increase	Revenue Requirement	Revenue Requirement Capped by Filing	Foregone Revenue
Island System	1,035,375	960,113	1,995,488	2,057,680	NA
Peninsula System	1,051,471	568,252	1,619,723	1,547,253	(72,470)
Pelican Point System	294,299	290,246	584,545	565,003	(19,542)

Exhibit MJR-7 shows the calculation of the revenue requirement.

Q. Please discuss the revenue requirement cap and the concession on revenue for the Pelican Point System and Peninsula System.

A. As discussed above, the Company is proposing to forgo any revenue in excess of what was originally proposed in its Filing. Rates proposed here are designed to collect no more than the revenue requirement the Company originally sought. This means that Cascadia Water will be foregoing $72,470 in annual revenue at the Peninsula System and $19,542 at the Pelican Point System.

VI. Consolidation and Rate Design

Q. What is the Company proposing regarding rate consolidation?

A. In the previous Cascadia Water rate case (UW-200979), the Commission consolidated the rate tariffs for the systems within Clallam County together (the Peninsula System) and the systems within Island County together (the Island System) but decided not to consolidate the Peninsula System with the Island Systems. This created two rate tariffs: one for the Island System and one for the Peninsula System.

Since that time, Cascadia Water has purchased new systems that it now proposes to consolidate into the Peninsula System and the Island System tariffs, along with one system in Grant County (Pelican Point System) that we propose to keep on a separate tariff.

Specifically, the Company proposes to consolidate the Discovery Bay, Aquarius and Pedersen systems into its Peninsula System rate tariff, and to consolidate the Northwest Water Services system into its Island System rate tariff. The proposed rate consolidations are based on geographic proximity.

While Cascadia Water is adding newly acquired systems to the existing tariffs, Cascadia Water is not proposing to consolidate the Island System with the Peninsula Systems at this time.

Q. Please discuss the benefits of consolidation.

A. The benefits of consolidation include reducing the administrative burden by reducing the number of rate schedules, enhancing customer service and ease of doing business, and mitigating the rate impact of large investments.

The consolidated rates provide an operational benefit by reducing system level tracking of time and materials and accounting for the allocation of costs to each system.

Consolidated rates allow for improved customer service and responsiveness by reducing the complexity of the tariff structure. Reducing the number of tariffs and rates improves understanding of tariffs and rates for customers, Company personnel and Staff.

The larger customer base attained through rate consolidation also mitigates rate volatility for the respective, smaller systems. Water utilities are highly capital intensive, and a relatively large capital investment can significantly impact rate base and the associated revenue requirement. Under consolidation, this effect is spread out over a larger base of customers mitigating its impact on individual customers. In the long term, consolidating rates will help spread the costs of system-wide improvements among a larger body of customers more equitably. Under a consolidated rate structure, in the short run one system may have higher rates due to investments in another system, however, each system will need investments and will benefit from consolidation.

Allowing for rate consolidation also is essential to encouraging the purchase of troubled utilities in need of access to capital to make necessary improvements to maintain system safety and reliability. It is only through rate consolidation that the costs of necessary improvements can be spread over enough customers to be manageable.

Q. Given the benefits of rate consolidation, why is the Company not proposing to consolidate the Island System with the Peninsula System at this time?

A. Cascadia Water believes there would be real benefits to our customers and to the Company from consolidation of the Island System with the Peninsula System. However, a vocal subset of customers has raised concerns about rate consolidation. Given the contentious nature of this case as it is, we decided to delay further consolidation in order to limit the number of issues in dispute.

Q. What rates are the Company proposing and how will they affect customers?

A. See Exhibit MJR-8 and Exhibit MJR-9 for the proposed rates and their impact on customers' bills.

VII. Capital Structure and Cost of Capital

Q. Please summarize the Company's cost of capital proposal.

A. The Company is proposing a capital structure consisting of 66% equity and 34% debt, a cost of debt of 5.22%, and a cost of equity of 10.9%. These values produce a total required return or Weighted Average Cost of Capital ("WACC") of 8.97% as shown on Exhibit MJR-10.

The cost of equity is supported by an analysis of the returns on equity currently being earned by a sample of water utilities using a Comparable Earnings analysis, Discounted Cash Flow model ("DCF"), and the Capital Asset Pricing model ("CAPM"). The cost of debt is based on the actual interest rate for debt held by Cascadia Water's parent company, NW Natural Water. The capital structure is Cascadia Water's parent company's actual capital structure at the end of the test year.

Q. Are you recommending a uniform rate of return for the systems involved in this rate case?

A. Yes.

Q. Your analysis indicates Cascadia Water faces a total cost of capital of 8.97 percent. What total returns on capital are Cascadia Water's systems actually earning?

A. Based on pro-forma test year data, the systems involved in this rate case achieved the following returns on total capital:

Table 6 – Test Year Achieved Rates of Return

System	Achieved Return on Capital
Island System	-2.57%
Peninsula System	-2.99%
Pelican Point System	-17.87%

Not only are the systems not covering their cost of capital, they also are experiencing negative rates of return.

Q. Please explain the concept of "cost of capital."

A. The cost of capital is the expected return on an investment necessary to attract investors to an enterprise (this cost exists for all companies, whether regulated like utilities, or in a competitive marketplace). The opportunity cost associated with choosing one investment over others is the forgone expected return of the other potential investments an investor could select. A company seeking to attract investors must provide a return at least equal to the return being provided by similar (in terms of risk) other enterprises. That return necessary to attract investment (both through debt financing and equity investment) is the company's "cost of capital." A utility that earns a return on its rate base at least equal to its cost of capital (and that is efficiently managed) will be able to attract necessary capital and maintain its financial

integrity. That is what utility regulation must provide under the *Hope* and *Bluefield* decisions of the U.S. Supreme Court.

The overall cost of capital, or weighted average cost of capital (WACC), is the weighted average of the cost of debt and the cost of equity. A utility's cost of debt is readily observable (it is the interest rate on its bonds and other debt), but the cost of equity is not directly observable and must be estimated.

Q. What is the difference between a utility's cost of equity, the authorized return on equity and the realized return on equity?

A. The cost of equity is the forward-looking opportunity cost of an equity investment. It is also the expected return required to attract equity capital. The authorized return on equity is the *estimate* of the cost of equity that the regulatory commission uses to determine the utility's revenue requirement. The realized (or actual) return on equity is a backward-looking accounting measurement that shows the return on equity that was actually realized over a given year. The realized return on equity is calculated by dividing the utility's net income by its average equity balance during that given year.

Q. Please discuss the challenges facing small and aging water utilities with respect to the cost of equity.

A. Like all firms, water utilities face business risks, operational risks, and financial risks. Business risk refers to the risk that a company will be unable to raise enough revenue to cover its operating expenses and its cost of capital. Operational risk refers to the risk that the company's operations will be negatively impacted (by acts of God,

natural occurrences, extreme weather, or equipment malfunctions). Financial risk refers to the risk that a company's cash flow will be such that it cannot make interest and principal payments on its debt. While all firms face these risks, the characteristics of the water utility industry make the nature of these risks fundamentally different than that for other industries. Furthermore, the unkempt state of many of Cascadia Water's systems enhances these risks substantially.

The capital intensive nature of the water utility industry is its primary non-regulatory source of risk. It is well known that utilities in general and water utilities in particular are highly capital intensive. A recent analysis of 96 different industries found that utilities in general are the 13th most capital intensive business (at $2.26 in capital for every dollar in revenue) and water utilities in particular are the 9th most capital intensive (at $3.44 in capital for every dollar of revenue).[3]

High levels of capital intensity tend to increase business risk because significant fluctuations in an operation's profitability are more likely for highly capital intensive businesses or firms. This is because a business with more fixed assets has a higher relative value of fixed costs and the high value of fixed cost do not vary with sales volume and thus cause higher fluctuations of profits. Higher risk deriving from high capital intensity will lead to a higher cost of capital.

Here is another way of explaining the impact of capital intensity on business risk:

> *"Ordinarily, businesses are not allowed to deduct the full costs of capital expenditures in the year the expenses are incurred. Therefore, the substantial outlays of capital required for such purchases must be*

3 Aswath Damodaran, adamodar@stern.nyu.edu, http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/capex.html

carefully planned out, usually years in advance. That way, companies can avoid overextending themselves financially and creating cash flow problems. For capital-intensive companies, proper management of capital expenditures is crucial for survival and growth. Effective management requires striking the right balance between the need for resources in the future and the ability to generate profits in the present." [Emphasis added.][4]

The nature of the water utility industry exacerbates the above issues because often capital outlays are necessary to solve or prevent health and safety issues. Such investments cannot be deferred for purely business reasons.

Q. Besides high levels of capital intensity, what other factors enhance the risk water utilities face?

A. All firms have essentially three sources of capital available for investment: debt, equity, and retained earnings (i.e., free cash flow). The relatively low depreciation rates inherent in the water utility industry make a reliance on retained earnings more difficult than for other industries. Recovery of depreciation expense is a principal source of cash flows for all utilities. The water utility industry's low depreciation rates make raising cash internally more difficult for water utilities than for other types of utilities. This makes securing debt and equity financing more important and tends to drive up the cost of capital.

Low depreciation rates along with a reliance on an original cost rate base makes water utilities more suspectable to inflation risk. Replacing plant that has been in the ground for some time can be problematic, since the replacement plant can be

4 Maveric, J.B., *"Which Types of Industries Have the Largest Capital Expenditures?",* Investopedia, June 22, 2020, Link: https://www.investopedia.com/ask/answers/020915/which-types-industries-have-largest-capital-expenditures.asp

significantly more costly than the original cost of the plant. Replacement programs can thus see significant increases in rate base.

Q. What impact does small size have on a water utility?

A. Consider the example of a large commercial user of water that decides to conserve and use less water. A large utility with a diverse customer base will be able to absorb that loss much more easily than a smaller utility that is far more dependent on each of its large users for revenue. On the cost side, smaller utilities are much more susceptible to earnings erosion due to equipment failure than are larger utilities. Consider a pump failure for example: to a large utility serving thousands of customers a single pump failure is really a drop in the bucket and will have little impact on overall earnings. For a smaller utility, the same pump failure can have a much greater impact on earnings.

Q. Please explain how the above factors are relevant to the issue of setting a forward looking cost of equity.

A. The above discussion clearly demonstrates that small unkempt water utilities face a higher than typical level of risk – and under *Bluefield* a "public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding, risks and uncertainties." Since the utilities included in the "proxy group" used in cost of equity models do not face the challenges outlined above, those proxy-based models can understate the

necessary ROE for a small water utility struggling with aging and failing infrastructure. Thus, ROE estimates that are developed through the use of a sample of publicly traded utilities (whether they are based on a Comparative Earnings analysis, a DCF analysis, a CAPM analysis or some other method) need to be augmented upwards to reflect Cascadia Water's circumstances.

Q. Why do the risks outlined above imply that Cascadia Water faces a higher cost of capital than is typical?

A. The expected return required to attract capital to an investment depends on that investment's perceived risk. The higher the risk, the higher will be the expected return necessary to attract sufficient capital.[5] Equity investors will require relatively higher expected returns to invest in a higher risk endeavor like a small water system in need of significant capital improvements.

Q. Are water utilities typically considered to be low risk? How can a monopoly owner be thought of as a high-risk investment?

A. Those are legitimate and logical questions. The wide-spread perception that water utilities are a low-risk investment is based primarily on utility bonds which are typically highly rated. Utilities may present low risk to bond investors but that does not mean that equity investors face the same risk. Utility bond ratings are generally high because it is widely accepted that regulators will not allow a large utility to default on the obligations of its bonds. However, experience shows that no such

5 This basic relationship between risk and return is fundamental to finance theory and practice. Markowitz, Harry M. "Portfolio Selection," The Journal of Finance, Vol. VII, March 1952, 77-91 provides an early exploration of the implications of the risk-return relationship.

protection is afforded equity holders. Equity investors face the real probability of earning a below-normal return which inevitably leads to share price erosion and a loss of capital.

Q. There have been significant economic disruptions over the past several years. Please discuss the current economic situation.

A. The current macroeconomic situation is unprecedented and characterized by a high degree of uncertainty. While many commenters have been predicting a recession and growth has slowed, the unemployment rate has remained quite low. Fed policy meant to counter inflation was widely expected to result in a recession, but the focus on the Fed's interest rate policy is likely to prove overly simplistic.

In the wake of the 2008 financial crisis the Fed undertook an aggressive policy of low rates and "quantitative easing" i.e., debt purchases. This loose monetary policy was seen as necessary to prop up the economy in the wake of an historic real estate-lead collapse. This loose policy was maintained for over a decade and just when it seemed the economy was returning to a more "normal" trajectory, the Coronavirus pandemic significantly disrupted the global economy. A short recession ensued and the Fed again slashed interest rates and embarked on an aggressive policy of debt purchases. And, while in the past the Fed's debt purchases were limited to bonds issued by the Federal Government and mortgage-backed securities, it expanded into purchasing exchange-traded funds (ETFs) of corporate bonds and corporate bonds directly.

At the beginning of the COVID pandemic, most observers feared a demand side recession i.e., that consumers would slow their spending as a result of COVID. Demand side factors have dominated macroeconomic policy discussions for forty years so this is not surprising. However, as it turned out, demand was surprisingly resilient and supply chain disruptions had a much bigger impact on the economy. Supply disruptions of this magnitude had not been seen since the oil embargoes of the 1970s.

The severe COVID restrictions put in place in China disrupted supply chains for a wide variety of products across the global economy. Those supply chain disruptions were surprisingly persistent and were exacerbated by the Russia-Ukraine war. Prior to the war, Ukraine was one of the top exporters of agricultural goods. Those exports have been significantly curtailed putting upward pressure on global food prices.

The increased prevalence of extreme weather events has also put upward pressure on prices. 2022 saw losses from natural catastrophes at levels well above average.[6] This put upward pressure on insurance rates and drove up demand for replacement goods while the supply chain was still recovering.

In response to surging inflation the Fed undertook a series of rate hikes in an effort to cool the US economy. That is, the Fed attempted to temper demand by

6 Hurricanes and floods bring $120 billion in insurance losses in 2022
https://www.reuters.com/business/environment/hurricanes-floods-bring-120-billion-insurance-losses-2022-2023-01-09/

tightening monetary policy. Inflation turned out to be surprisingly persistent however and has only recently come down close to the Fed's 2% target.

Three reasons appear to account for the persistence of inflation in the face of rising interest rates. First, as noted above, this bout of inflation has been driven by supply side factors while tight monetary policy is mainly a demand-side lever. Second, government fiscal policy has been expansionary and thus has worked against the Fed's tight money policy. And finally, the Fed's tight money policy may not be as tight as the interest rate rises lead us to believe. As stated above, the Fed made substantial debt purchases at the onset of the COVID crisis. The Fed has reduced its debt holdings since then, but they are still at historic highs. The Fed has not attempted to sell this debt but has let it "roll off" as it is paid off or refinanced. But refinancing activity has been greatly reduced by higher interest rates so the roll off is slow. The Fed's hoarding of debt essentially removed a significant amount of debt from the market which drives the price of debt up and interest rates down. So, the slow roll off of the Fed's debt purchases moderated the impact of the Fed's interest rate hikes.[7]

Very recently (just last week), the Fed cut interest rates in response to some weakening in the labor market and slowing growth. It is yet to be seen what the effect of the Fed's recent loosening will be. It could result in the proverbial "soft landing" where the economy grows at a moderate but decent pace with inflation kept

7 The Evolving Role of the Fed's Balance Sheet: Effects and Challenges, Chaitri Gulati and A. Lee Smith, Federal Reserve Bank of Kansas City, https://www.kansascityfed.org/Economic%20Review/documents/9251/EconomicReviewV107N4GulatiSmith.pdf

near the 2% target. But this is not guaranteed, and inflationary pressures could reappear and/or economic growth could be stymied by consumer spending running out of steam.

We are thus left in an uncertain macroeconomic situation. The Fed's recent loosening may very well avoid a recession. But that is far from certain. Businesses, including utilities, are faced with planning capital expenditures at a time when future conditions are as opaque as they have ever been. This is especially significant for utilities that must maintain significant capital reinvestment plans.

Q. What are the implications of the current macroeconomic situation for cost of equity estimation?

A. The models used to estimate the cost of equity (discussed in detail below) are considered to be "market based." That is, they incorporate data from the financial markets that indicate investors' views on current and future market conditions. With a high degree of central bank intervention in the markets, we can question whether financial data are in fact "market based." The Fed (and other central banks around the world) is not a market actor. The Fed's actions represent the deliberate intervention of a government (i.e., non-market) actor in the financial markets intended to influence asset prices. The Fed is purposefully putting its thumb on the scale.

While the Fed's interest rate increases were slow to bring inflation down in the real economy, they had much more dramatic impacts on equity markets. Stock prices have been highly volatile and deflated considerably in the wake of the Fed's rate hikes only to rise to record levels after the recent rate cut.

So, ROE estimation models that rely on market-based information must be used carefully. The current state of the "market" is highly influenced by Fed (i.e., non-market) policy which could change in the near future. Further, the Fed's impact on the macroeconomy is still uncertain. There is still a somewhat widely held belief that a recession is imminent. But it is far from certain that this will be the case. The degree of uncertainty is currently quite high.

This state of affairs should be considered when interpreting the results of ROE estimation models and is discussed in detail below for each of the models used.

Q. Please discuss your general approach to ROE estimation.

A. Since Cascadia Water's (or any single utility's) cost of equity is not directly observable, models that rely on a proxy group of publicly traded water utilities are used. I present cost of equity estimates based on three different models: Comparable Earnings, DCF, and the CAPM. Using different models is a common practice in cost of equity estimation and it allows for checking the reasonableness of any one estimate against those produced by the other models.

The models rely on a proxy group of companies for which publicly available data are available. To the extent possible the proxy group should consist of pure-play regulated water utilities. The proxy group I rely on is as follows:

Table 7 – Proxy Group Companies

Symbol	Company
AWR	American States Water Co.
AWK	American Water Works
WTRG	Essential Utilities, Inc.
ARTNA	Artesian Resources Corp.
CWT	California Water Service Group
MSEX	Middlesex Water
YORW	York Water

Q. Please describe the Comparable Earnings approach to estimating ROEs.

A. The Comparable Earnings approach is more straightforward compared to other commonly used ROE estimation techniques. The Comparable Earnings approach involves selecting a sample of companies and calculating their actual or expected returns on equity. The period of time over which the actual or expected returns on equity are collected varies by the case. The sample returns on equity are averaged and used as a proxy for the required return on equity of the utility in question.

Q. Please explain how the use of a Comparable Earnings analysis is consistent both with the legal and economic underpinnings of rate of return regulation.

A. From an economic perspective, the cost of capital is an opportunity cost, the foregone opportunities associated with making a particular investment. A Comparable Earnings approach produces the most straightforward calculation of the real

opportunity cost faced by a potential investor. The Comparable Earnings approach fits the concept of "corresponding risk" espoused by the seminal *Hope* and *Bluefield* US Supreme Court cases. The *Hope* and *Bluefield* cases are widely regarded as foundational to modern rate base rate of return regulation. The cases' assessment of cost of capital issues is best summarized in the following quote from *Hope*:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard *the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks*. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[8] [Emphasis added.]

The three cost of capital standards established by *Hope* and *Bluefield* are commensurate (i.e., comparable) earnings, financial integrity and capital attraction. A Comparable Earnings analysis of the cost of equity corresponds directly and literally with the commensurate earnings standard. The Comparable Earnings approach also satisfies the financial integrity standard since only companies characterized by a high degree of financial integrity should be included in the proxy group used to develop the cost of equity. Because of the enhanced risk associated with operating a small utility in need of substantial upgrades (discussed above), a Comparable Earnings analysis (or any other type of analysis) based on a sample of companies with more normal risk profiles will have to be augmented upwards in order to satisfy the capital attraction standard.

8 Federal Power Commission et. al. v. Hope Natural Gas Company (320 U.S. 591), Emphasis added.

Q. Please discuss the specific Comparable Earnings analysis you performed.

A. I have employed a Comparable Earnings method that relies on five years of historical data and five years of forecasted data. The five years of historical data are the actual achieved ROEs of the proxy utilities from 2019 to 2023. The five years of forecasted data are forecasted ROEs that represent investors' expectations of future ROEs. The forecasts are obtained from Value Line, a highly reputable source of financial data. There has been debate about whether historical or forecasted data is most appropriate for this type of analysis; as such, a hybrid approach is sensible because it acknowledges that investors rely on both history and forecasts when evaluating investments.

Unfortunately, Value Line no longer provides ROE forecasts for smaller utilities (and there is no other comparable source), so the two smallest members of the proxy group (ARTNA and YORW) are excluded from the Comparable Earnings analysis.

Q. What are the results of your Comparable Earnings analysis?

A. The Comparable Earnings analysis produces an average ROE estimate of 10.6% and a range of 8.2% to 13.8%.

Q. Please describe the DCF model.

A. The DCF, or Discounted Cash Flow, model is based on the idea that the present value of an asset that pays off in the future is the discounted expected value of the future pay off. This means that the price of a stock is:

$$P = \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \frac{D_3}{(1+r)^3} + \frac{D_4}{(1+r)^4} + \cdots$$

Where P is the stock price, D_1 is the dividend paid in future year one, D_2 is the dividend paid in future year two, D_3 is the dividend paid in future year three etc., (1 + r) is the discount rate and r is the rate of return.

Assuming that dividends grow at a constant rate of g and that the future stream of dividends is infinite allows the above equation to be rewritten as:

$$P = \frac{D_0}{(r-g)}$$

Where D_0 is the current dividend being paid.

Solving this equation for r gives the standard formulation of the DCF model used in ROE estimation:

$$r = \frac{D_0}{P} + g$$

The required rate of return equals the current dividend yield plus the expected growth rate.

While the mathematics that connect the above steps may not be intuitively obvious, this basic relationship between stock price, dividend yield and the growth rate is regarded as a truism of finance.

The dividend yield of a stock is readily attainable from a variety of sources. However, the expected growth rate is not known with certainty and a proxy for it must be selected.

Q. How did you calculate the dividend yield for the companies in the sample?

A. The dividend yield is the annual per-share dividend paid by a company to its investors divided by the company's share price. For the per-share dividends paid, I use an annualization of the most recently available quarterly dividend (second quarter 2024) provided by Value Line. For the share price, I used the average daily closing price from June 18, 2024 thru September 18, 2024 obtained from Yahoo Finance. The calculation of the dividend yield is shown on Exhibit MJR-10.

Q. How did you calculate the expected dividend growth rate?

A. Like most aspects of ROE estimation, there are different views regarding the best method of estimating investors growth expectations. Actual and forecasted growth rates in earnings per share ("EPS"), dividends per share ("DPS"), and book value per share ("BVPS") have all been suggested as appropriate indicators of investors expectations regarding dividend growth rates. I take a hybrid approach and use an average of five-year historical growth rates in EPS, DPS, and BVPS to develop an expected dividend growth rate. Exhibit MJR-10 shows the calculation of the expected dividend growth rate.

Q. Please discuss the assumptions that the DCF model relies on.

A. Like all models the DCF is a simplification of reality. In order to make financial models practical for actual use, simplifying assumptions must be made about the behavior and beliefs of investors and company management. The following are assumptions that the DCF relies on. The first four assumptions are necessary for any DCF model while the last four are necessary only for constant growth DCF models.[9]

Assumption 1: Investors value stocks in the classical economic framework, i.e., they make investment decisions in a rational fashion based on their perception of value.

Assumption 2: Investors discount future dividends at the same rate (1 + the cost of equity) in each future period. This implies that investors assume that the yield curve is flat (i.e., that interest rates on short-term, intermediate-term and long-term debt are the same). While this assumption is unrealistic, its practical implications are limited, i.e., it does not really matter to the analysis.

Assumption 3: The cost of equity derived from the DCF model corresponds to the specific stream of future cash flows included in the model. In other words, it is dependent on the specific circumstances of the company whose data is being used in the model. If investors expected the same cash flows but with a higher level of risk, the resulting cost of equity would not be the same. This is because the stock price will decline if perceived risk increases (even if expected cash flows do not change). In the context of the DCF model, a lower stock price results in a higher cost of equity.

9 This discussion of DCF assumptions follows Morin, 2006, 251-258.

This supports the notion that the DCF cost of equity results should be adjusted upwards to account for the specific risks faced by Cascadia Water.

Assumption 4: The source of value to investors is dividends.

Assumption 5: The cost of equity must be greater than the expected growth rate of dividends. This means that the DCF model cannot be used for growth stocks but it is not an issue for most utilities.

Assumption 6: The expected dividend growth rate is constant for every future year to infinity. This does not mean that dividends must actually grow at the same rate every year. Rather, investors are assumed to expect the growth rate to be constant. If the actual growth rate varies randomly around an average expected rate, this assumption is not violated.

Assumption 7: Investors require the same return on equity in each future year. This implies that the risks faced by the firm are assumed to be constant.

Assumption 8: There is no external financing. Dividend growth comes solely from the retention of earnings.

Q. Why can the DCF model be problematic?

A. One drawback of the DCF model is that it relies on stock market prices that change from day to day. Stock prices tend to fluctuate much more and more frequently than do our estimates for dividends and the dividend growth rate. This means that as the stock market fluctuates, the ROE estimates produced by the DCF approach will also fluctuate. For instance, the annual compounding DCF ROE estimates can vary

widely if there is a stock market rally or crash. However, there is absolutely no reason to believe that the risks associated with operating a water utility have changed because of a stock market rally or crash.

Q. How can this problem be dealt with?

A. To deal with this problem, I have used the average stock price for each of the proxy companies over the most recent practicable three-month period.

Q. What are the results of your DCF analysis?

A. The DCF analysis discussed here produces an average ROE estimate of 10.14% with a range of 7.2% to 13%.

Q. Please discuss the CAPM or Capital Asset Pricing Model.

A. The CAPM is quite different from the DCF model. The DCF model is a multi-period model that explicitly recognizes that investment returns are paid out over time. In stark contrast, the CAPM is a single period model; it is essentially an instantaneous snapshot of a moment in time and thus it eschews the concept of the time value of money and of discount rates. Further, while the DCF model explicitly recognizes that the cost of equity depends upon firm-specific factors such as a firm's dividend yield and expected dividend growth rate, the CAPM assumes that investors ignore all such firm-specific factors. Unlike the DCF model which is grounded by the "old school" financial concept that the value of an asset is the discounted sum of future cash

flows,[10] the CAPM is based on the more recent theory of Efficient Markets and Modern Portfolio Theory.[11]

Q. What is the basic formulation of the CAPM?

A. The CAPM specifies the relationship between the cost of equity, the "risk free" rate of return, beta and the market risk premium. This relationship is expressed as:

$$r = RF + \beta * (RM - RF)$$

Where: r = the cost of equity

RF = The "risk free" rate of return

β = Beta, the expected correlation between a given securities return and the market rate of return.

RM = the market rate of return

RM – RF = the market risk premium.

The risk free rate of return, RF, is the hypothetical return on the hypothetical risk free asset. In reality, no asset is risk free so an appropriate proxy for the risk free rate must be selected by the analyst.

10 First advanced by Fisher (1907) and expanded on by Williams (1938.)
11 Markowitz (1952), Sharpe (1963) and Lintner (1965)

Beta measures a given asset's propensity to move with the "market." A Beta of 1 indicates that the asset tends to move in perfect correlation with the market. A Beta of 0.5 indicates the asset tends to move half as much as the market.[12]

Historical betas are determined by the use of a statistical model known as regression analysis that determines the correlation between a given asset's return and the market return. Historical betas are often used as a proxy for expected betas when formulating the CAPM.

The market rate of return, RM, is supposed to represent the return on a hypothetical portfolio consisting of **all assets.** In theory this portfolio would consist of all conceivable asset classes: stocks, bonds, agricultural commodities, gold and other metals, art, collectables, etc. However, in practice the market portfolio is usually represented by a broad portfolio of stocks. This difference between the theoretical CAPM and how it is used in practice has been cited as one of the CAPM's fundamental drawbacks.[13]

The market risk premium, RM – RF, is the difference between the market return and the risk free rate of return. It represents the additional return required to compensate investors for the risk associated with holding the market portfolio rather

12 I say "tends to" because Betas are determined statistically through a regression model. The statistical model used to estimate Beta is:
$r = RF + \beta * (RM - RF) + \varepsilon$ where ε is a random error term. I.e., the CAPM does not explain all of the variability in r.
13 Morin, New Regulatory Finance at 176.

than the risk free asset. This factor explains why investors choose the risk inherent in the market rather than risk free investments: they expect to earn more money.

Q. What proxy did you use for the risk free rate of return in the CAPM analysis?

A. The utilized risk free rate is an average of the interest rate on 20-year treasuries from the most recent three months.

Q. How did you pick the betas used in your CAPM analysis?

A. For each of the proxy companies, Value Line's estimated betas were obtained.

Q. How did you develop the market risk premium (RM – RF) used in your CAPM analysis?

A. An ROE for the S&P 500 was calculated and compared to the yield on 20-year treasury bonds for each of the past 42 years. These 42 annual risk premiums were then averaged.

Q. Please discuss the results of your CAPM analysis.

A. The CAPM model discussed here produces an average ROE estimate of 10.83% and a range of 9.8% to 12.29%.

Q. How does Cascadia Water compare to the sample of utilities used in the above analyses?

A. Cascadia Water is considerably smaller than the utilities in the sample and it faces considerably greater risk as a result of its extremely small size and its need for capital investment.

Q. Obviously Cascadia Water is considerably smaller than the proxy companies. But how small is it?

A. The proxy companies' annual revenue averages over $1 billion, which is almost 500 times larger than Cascadia Water. Even the smallest utility in the proxy group is thirty times larger than Cascadia Water.

Q. What are the implications of Cascadia Water's small size relative to the sample of utilities used to determine the cost of equity?

A. Cascadia Water's small size relative to the sample utilities raises questions about how the use of such a sample can conform to the "corresponding risk" standard derived from the *Hope* and *Bluefield* cases. The risk profile of small firms is fundamentally different from that of large firms. Small firms are widely regarded as riskier than large firms. Therefore, reliance on a sample of large firms can dramatically understate the risk (and the necessary cost of equity) for smaller utilities. In order to conform to *Hope* and *Bluefield's* "corresponding risk" standard, consideration of Cascadia Water's small size is necessary.

Q. Has the WUTC recognized the inherent risk of small utilities with respect to ROE estimation?

A. Yes, for many years the WUTC approved ROEs of 12% for water utilities operating in the State of Washington. The WUTC's historical use of a 12% ROE is a clear acknowledgment of the unique risks faced by small utilities.

Q. What method do you propose to use to account for the risk factors of a small utility in need of capital investment?

A. There is no universally accepted method for determining an appropriate risk-based adjustment. Therefore, I recommend that an ROE in the higher end of the range of ROE estimates presented here be used for ratemaking purposes in this rate case.

Q. Please summarize your recommendation regarding ROE.

A. The results of the various ROE estimation techniques employed for this testimony are summarized here:

Table 8 – ROE Results

Model	Range	Average
Comparable Earnings	8.2% to 13.8%	10.57%
DCF	7.2% to 13%	10.14%
CAPM	9.8% to 12.29%	10.83%

This analysis produces a wide range of ROE estimates from as low as 7.2% to as high as 13.8%. Given the risk profile of Cascadia Water, an ROE estimate of 10.9% is appropriate. The overall average of the ROE estimates presented here is 10.51%. Cascadia Water's risk profile requires that an ROE estimate above the average be used. An ROE of 10.9% is well below the highest ROE estimates presented here. The 10.9% ROE estimate reflects the elevated risks that small utilities face while still being a reasonable number, significantly lower than the ROEs authorized by the WUTC historically.

Q. What is your recommendation regarding the capital structure and cost of debt for this rate case?

A. We propose to use the capital structure and cost of debt of Cascadia Water's direct parent, NW Natural Water. Its capital structure is 66% equity, 34% debt and its cost of debt is 5.22%.

Q. What is the weighted average cost of capital (WACC)?

A. The WACC is a cost of capital for the whole firm that is derived by weighting the cost of capital associated with each source of capital (debt and equity) by its share in the firm's overall capital structure.

(Cost of Debt x Debt % of Capital Structure) + (Cost of Equity x Equity % of Capital Structure) = WACC

(5.22% x 34%) + (10.9% x 66%) = 8.97%

Q. Does this conclude your Direct Testimony?

A. Yes.

VII. List of Exhibits

Exh. MJR-2 Curriculum Vitae

Exh. MJR-3 Peninsula Systems Income Statement

Exh. MJR-4 Islands Systems Income Statement

Exh. MJR-5 Pelican Point Systems Income Statement

Exh. MJR-6 WUTC Staff Adjustments Previously Agreed to and Included in September 26, 2024 Filing

Exh. MJR-7 Revenue Requirement

Exh. MJR-8 Proposed Rates

Exh. MJR-9 Proposed Bills

Exh. MJR-10 Capital Structure and Cost of Capital