**Exh. DCP-1T**
**Docket UG-170929**
**Witness: David C. Parcell**

**BEFORE THE WASHINGTON**
**UTILITIES AND TRANSPORTATION COMMISSION**

| | |
|---|---|
| **WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,**<br><br>**Complainant,**<br><br>**v.**<br><br>**CASCADE NATURAL GAS CORPORATION,**<br><br>**Respondent.** | **DOCKET UG-170929** |

# TESTIMONY OF

# DAVID C. PARCELL

## ON BEHALF OF STAFF OF WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

***Cost of Capital***

**February 15, 2018**

**TABLE OF CONTENTS**

## LIST OF EXHIBITS

# I. INTRODUCTION

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

A. My name is David C. Parcell. I am a Principal and Senior Economist of Technical Associates, Inc. My business address is Suite 130, 1503 Santa Rosa Rd., Richmond, Virginia 23229.

**Q. Please summarize your educational background and professional experience.**

A. I hold B.A. (1969) and M.A. (1970) degrees in economics from Virginia Polytechnic Institute and State University (Virginia Tech) and a M.B.A. (1985) from Virginia Commonwealth University. I have been a consulting economist with Technical Associates since 1970. I have provided cost of capital testimony in public utility ratemaking proceedings dating back to 1972 and I have previously filed testimony and/or testified in over 555 utility proceedings before about 50 regulatory agencies in the United States and Canada. I have previously filed testimony on behalf of the Staff of the Washington Utilities and Transportation Commission (Commission) in proceedings involving Avista, Puget Sound Energy and Pacific Power & Light Company, as well as Cascade Natural Gas. Exh. DCP-2 provides a more complete description of my education and relevant work experience.

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

A. I have been retained by the Commission Staff to evaluate the cost of capital ("COC") aspects of the current natural gas rate case of Cascade Natural Gas Corporation

("Cascade" or "Company"). I have performed independent studies and I am making recommendations of the current COC for Cascade.

**Q. Have you prepared an exhibit in support of your testimony?**

A. Yes. In addition to Exh. DCP-2, identified above, I have prepared Exh. DCP-3 through Exh. DCP-17. These exhibits were prepared either by me or under my direction. The information contained in these exhibits is correct to the best of my knowledge and belief

## II. RECOMMENDATIONS AND SUMMARY

**Q. What are your COC recommendations in this proceeding?**

A. My overall COC recommendations for Cascade are shown on Exh. DCP-3 and can be summarized as follows:

| Item | Percent | Cost | Weighted Cost | | |
|---|---|---|---|---|---|
| Long-Term Debt | 52.69% | 5.295% | | 2.79% | |
| Common Equity | 47.31% | 9.20% 9.35% 9.50% | 4.35% | 4.42% | 4.49% |
| Total | 100.0% | | 7.14% | | 7.28% |
| | | | | 7.21% | |

Cascade's application requests a COC of 7.598 percent and a cost of equity ("ROE") of 9.90 percent.

**Q. Please summarize your analyses and conclusions.**

A. This proceeding is concerned with Cascade's regulated natural gas operations in Washington. My analyses concern the Company's COC.

The first step in performing my COC analyses is to develop the appropriate capital structure. Cascade proposes use of a capital structure comprised of 50 percent common equity and 50 percent debt,[1] which is a hypothetical capital structure. The Commission has not adopted a capital structure approach for this Company in its previous two general rate cases, dating back to 2006, and has instead accepted settlements that did not address the capital structure approach.[2] I do not accept Cascade's proposed capital structure approach. Instead, I employ Cascade's actual December 31, 2016 capital structure ratios, which I believe is the proper capital structure for the Company.

The second step in a cost of capital calculation is to determine the embedded cost rate of debt. Cascade proposes use of a 5.295 percent cost of debt, which is the cost rate as of December 31, 2016.[3] I have accepted the Company's cost of debt.

The third step in the COC calculation is to estimate the ROE. I employ three recognized methodologies to estimate Cascade's ROE, to each of which I apply a group of proxy natural gas utilities. These three methodologies and my findings are:

| Methodology | Range |
|---|---|
| Discounted Cash Flow ("DCF") | 9.1%-9.3% (9.2% mid-point) |
| Capital Asset Pricing Model ("CAPM") | 6.7%-6.9% (6.8% mid-point) |
| Comparable Earnings ("CE") | 9.0%-10.0% (9.5% mid-point) |

[1] Nygard, Exh. TJN-1T at 2:1-2.
[2] *See Wash. Utils. & Transp. Comm'n v. Cascade Nat'l Gas Corp.*, Docket UG-060256, Order 05 (Jan. 12, 2007); *Wash. Utils. & Transp. Comm'n v. Cascade Nat'l Gas Corp.*, Docket UG-152286, Order 04 (Jul. 7, 2016).
[3] Nygard, Exh. TNJ-IT at 2:12-14.

Based upon these findings, I conclude that Cascade's ROE is within a range of 9.20 percent to 9.50 percent, which is based upon the mid-point of the range of the results for the DCF model and CE model.[4] I specifically recommend a 9.35 percent ROE for Cascade.

## III. ECONOMIC/LEGAL PRINCIPLES AND METHODOLOGIES

**Q. What are the primary economic and legal principles that establish the standards for determining a fair rate of return for a regulated utility?**

A. Public utility rates are normally established in a manner designed to allow the recovery of their costs, including capital costs. This is frequently referred to as "cost of service" ratemaking. Rates for regulated public utilities traditionally have been primarily established using the "rate base – rate of return" concept. Under this method, utilities are allowed to recover a level of operating expenses, taxes, and depreciation deemed reasonable for rate-setting purposes, and are granted an opportunity to earn a fair rate of return on the assets utilized (i.e., rate base) in providing service to their customers.

The rate base is derived from the asset side of the utility's balance sheet as a dollar amount and the rate of return is developed form the liabilities/owners' equity side of the balance sheet as a percentage. Thus, the revenue impact of the cost of capital is derived by multiplying the rate base by the rate of return, including income taxes.

The rate of return is developed from the cost of capital, which is estimated by weighting the capital structure components (i.e., debt, preferred stock, and common

[4] As I indicate in a later section, my ROE recommendation does not directly incorporate the CAPM results, which I believe to be somewhat low at this time, relative to the DCF and CE results.

equity) by their percentages of the capital structure and multiplying these values by their cost rates. This is also known as the weighted cost of capital.

Technically, "fair rate of return" is a legal and accounting concept that refers to an *ex post* (after the fact) earned return on an asset base, while the cost of capital is an economic and financial concept which refers to an *ex ante* (before the fact) expected, or required, return on a capital base. In regulatory proceedings, however, the two terms are often used interchangeably, and I have equated the two concepts in my testimony.

From an economic standpoint, a fair rate of return is normally interpreted to mean that an efficient and economically managed utility will be able to maintain its financial integrity, attract capital, and establish comparable returns for similar risk investments. These concepts are derived from economic and financial theory and are generally implemented using financial models and economic concepts.

Although I am not a lawyer and I do not offer a legal opinion, my testimony is based on my understanding that two United States Supreme Court decisions provide the controlling standards for a fair rate of return. The first decision is *Bluefield Water Works and Improvement Co. v. Public Serv. Comm'n of West Virginia*, 262 U.S. 679 (1923). In this decision, the court stated:

> The annual rate that will constitute just compensation depends upon many circumstances and must be determined by the exercise of fair and enlightened judgment, having regard to all relevant facts. 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; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and

> support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally.

It is generally understood that the *Bluefield* decision established the following standards for a fair rate of return: comparable earnings, financial integrity, and capital attraction. It also noted that required returns change over time, and there is an underlying assumption that the utility be operated efficiently.

The second decision is *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1942). In that decision, the court stated:

> The rate-making process under the [Natural Gas] Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and consumer interests . . . 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 this 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.

The three economic and financial parameters in the *Bluefield* and *Hope* decisions – comparable earnings, financial integrity, and capital attraction – reflect the economic criteria encompassed in the "opportunity cost" principle of economics. The opportunity cost principle provides that a utility and its investors should be afforded an opportunity (not a guarantee) to earn a return commensurate with returns they could expect to achieve on investments of similar risk. The opportunity cost principle is consistent with the fundamental premise on which regulation rests, namely, that it is intended to act as a surrogate for competition.

**Q. How can the *Bluefield* and *Hope* parameters be employed to estimate the cost of capital for a utility?**

A. Neither the courts nor economic/financial theory has developed exact and mechanical procedures for precisely determining the cost of capital. This is the case because the cost of capital is an opportunity cost and is prospective-looking, which dictates that it must be estimated. However, there are several useful models that can be employed to assist in estimating the ROE, which is the capital structure item that is the most difficult to determine. These include the DCF, CAPM, CE and risk premium ("RP") methods. I have not directly employed a RP model in my analyses although, as discussed later, my CAPM analysis is a form of the RP methodology. Each of these methodologies will be described in more detail later in my testimony.

## IV. GENERAL ECONOMIC CONDITIONS

**Q. Are economic and financial conditions important in determining the costs of capital for a public utility?**

A. Yes. The costs of capital for both fixed-cost (debt and preferred stock) components and common equity are determined in part by current and prospective economic and financial conditions. At any given time, each of the following factors has an influence on the costs of capital:

- The level of economic activity (i.e., growth rate of the economy);
- The stage of the business cycle (i.e., recession, expansion, or transition);
- The level of inflation;

- The level and trend of interest rates; and,
- Current and expected economic conditions.

My understanding is that this position is consistent with the *Bluefield* decision, which noted "[a] rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally."[5]

**Q. What indicators of economic and financial activity did you evaluate in your analyses?**

A. I examined several sets of economic statistics from 1975 to the present. I chose this time period because it permits the evaluation of economic conditions over four full business cycles plus the current cycle allowing for an assessment of changes in long-term trends. Consideration of economic/financial conditions over a relatively long period of time allows me to assess how such conditions have had impacts on the level and trends of the costs of capital. This period also approximates the beginning and continuation of active rate case activities by public utilities that generally began in the mid-1970s.

A business cycle is commonly defined as a complete period of expansion (recovery and growth) and contraction (recession). A full business cycle is a useful and convenient period over which to measure levels and trends in long-term capital costs because it incorporates the cyclical (i.e., stage of business cycle) influences and, thus, permits a comparison of structural (or long-term) trends.

[5] *Bluefield*, 262 U.S. at 693.

**Q. Please describe the timeframes of the four prior business cycles and the current cycle.**

A. The four prior complete cycles and current cycle cover the following periods:

| Business Cycle | Expansion Cycle | Contraction Period |
|---|---|---|
| 1975-1982 | Mar. 1975-July 1981 | Aug. 1981-Oct. 1982 |
| 1982-1991 | Nov. 1982-July 1990 | Aug. 1990-Mar. 1991 |
| 1991-2001 | Mar. 1991-Mar. 2001 | Apr. 2001-Nov. 2001 |
| 2001-2009 | Nov. 2001-Nov. 2007 | Dec. 2007-June 2009 |
| Current | July 2009 - | |

Source: The National Bureau of Economic Research, "U.S. Business Cycle Expansions and Contractions."[6]

**Q. Do you have any general observations concerning the recent trends in economic conditions and their impact on capital costs over this broad period?**

A. Yes, I do. From the early 1980s until the end of 2007, the United States economy enjoyed general prosperity and stability. This period was characterized by longer economic expansions, relatively tame contractions, low and declining inflation, and declining interest rates and other capital costs.

However, in 2008 and 2009 the economy declined significantly, initially as a result of the 2007 collapse of the "sub-prime" mortgage market and the related liquidity crisis in the financial sector of the economy. Subsequently, this financial crisis intensified with a more broad-based decline initially based on a substantial increase in petroleum prices and a dramatic decline in the U.S. financial sector, culminating with the collapse and/or bailouts of a significant number of well-known institutions such as Bear Stearns, Lehman Brothers, Merrill Lynch, Freddie Mac, Fannie Mae, AIG and Wachovia.

[6] http://www.nber.org/cycles/cyclesmain.html.

The recession also witnessed the demise of national companies such as Circuit City and the bankruptcies of automotive manufacturers Chrysler and General Motors.

This decline has been described as the worst financial crisis since the Great Depression and has been referred to as the "Great Recession." Beginning in 2008, the U.S. and other governments implemented unprecedented actions to attempt to correct or minimize the scope and effects of this recession.

The recession reached its low point in mid-2009, when the economy began to expand again, although at a slow and uneven rate. However, the length and severity of the recession, as well as a relatively slow and uneven recovery, indicate that the impacts of the recession have been and will be felt for an extended period of time.

**Q. Please describe recent and current economic and financial conditions and their impact on the costs of capital.**

A. One impact of the Great Recession has been a reduction in actual and expected investment returns and a corresponding reduction in capital costs. This decline is evidenced by a decline in both short-term and long-term interest rates and the expectations of investors and is reflected in cost of equity model results (such as DCF, CAPM and CE). Regulatory agencies throughout the U.S. have recognized the decline in capital costs by authorizing lower returns on equity for regulated utilities in each of the last several years.[7]

[7] Regulatory Research Associates, "Regulatory Focus", January 30, 2018.

Exh. DCP-4 shows several sets of relevant economic and financial statistics for the cited time periods. Page 1 contains general macroeconomic statistics, page 2 shows interest rates, and page 3 contains equity market statistics.

Page 1 shows that in 2007 the economy stalled and subsequently entered a significant decline, as indicated by the lower growth rate in real (i.e., adjusted for inflation) Gross Domestic Product ("GDP"), lower levels of industrial production, and an increase in the unemployment rate. This recession lasted until mid-2009, making it a longer-than-normal recession, as well as a much deeper recession. Since then, economic growth has been somewhat erratic and the economy has grown slower than in prior expansions.

Page 1 also shows the rate of inflation. As reflected in the Consumer Price Index ("CPI"), inflation rose significantly during the 1975-1982 business cycle and reached double-digit levels in 1979-1980. The rate of inflation has declined substantially since 1981. Since 2008, the CPI has been 3 percent or lower, with 2014 and 2015 being below 1 percent and 2016 and 2017 being 2.1 percent. It is thus apparent that the rate of inflation has generally been declining over the past several business cycles. Recent and current levels of inflation are at the lowest levels of the past 35 years, which is reflective of lower capital costs.[8]

[8] The rate of inflation is one component of interest rate expectations of investors, who generally expect to receive a return in excess of the rate of inflation. Thus, a lower rate of inflation has a downward impact on interest rates and other capital costs.

**Q. What have been the trends in interest rates over the four prior business cycles and at the current time?**

A. Page 2 shows several series of interest rates. Both short-term and long-term rates rose sharply to record levels in 1975-1981 when the inflation rate was high. Interest rates have declined substantially in conjunction with the corresponding declines in inflation since the early 1980s.

From 2008 to late 2015, the Federal Reserve System ("Federal Reserve") maintained the Federal Funds rate (i.e., short-term interest rate) at 0.25 percent, an all-time low. The Federal Reserve has subsequently raised the Federal Funds rate on five occasions between December of 2015 and December of 2017.[9] The Federal Reserve also purchased U.S. Treasury securities to stimulate the economy.[10]

As seen on page 2, since 2013 both U.S. and corporate bond yields declined to their lowest levels in the past four business cycles and in more than 35 years. Even with the "tapering" and eventual ending of the Federal Reserve's Quantitative Easing program, as well as the Federal Reserve's raising of the Federal Funds rate, interest rates have remained low. Currently, both government and utility long-term lending rates remain near historically low levels, again reflective of lower capital costs.

[9] These were December 2015, December 2016, March 2017, June 2017, and December 2017.

[10] This is referred to as Quantitative Easing which was comprised of three "rounds." In "round" 3, known as QE3, the Federal Reserve initially purchased some $85 billion of U.S. Treasury Securities per month in order to stimulate the economy. The Federal Reserve eventually "tapered" its purchase of U.S. Treasury securities through October 2014, at which time Quantitative Easing ended.

**Q. What does Exh. DCP-4 show for trends of common share prices?**

A. Page 3 shows several series of common stock prices and ratios. These indicate that stock prices were essentially stagnant during the high inflation/high interest rate environment of the late 1970s and early 1980s. The 1983-1991 business cycle and the more recent cycles witnessed a significant upward trend in stock prices. The beginning of the recent financial crisis saw stock prices decline precipitously as stock prices in 2008 and early 2009 were down significantly from peak 2007 levels, reflecting the financial/economic crisis. Beginning in the second quarter of 2009, prices recovered substantially and ultimately reached and exceeded the levels achieved prior to the "crash." On the other hand, recent equity markets have been somewhat volatile.

**Q. What conclusions do you draw from your discussion of economic and financial conditions?**

A. Recent economic and financial circumstances have differed from any that have prevailed since at least the 1930s. In conjunction with the Great Recession, there was a decline in capital costs and returns which significantly reduced the value of most retirement accounts, investment portfolios and other assets. One significant aspect of this has been a decline in investor expectations of returns[11] even with the return of stock prices to levels achieved prior to the "crash."[12] This is evident in several ways: (1) lower interest rates on bank deposits; (2) lower interest rates on U.S. Treasury and utility bonds; and (3)

[11] *See, e.g.*, Kiplinger's Personal Finance, "Investors Brace for Smaller Gains, Focus on Long-Term", August 30, 2015.
[12] *See e.g.*, Vanguard News & Perspectives, "Stabilization, Not Stagnation: Expect Modest Returns", March 30, 2017, www.personal.vanguard.com/us/insights/artical/infographic-stabilization-032017.

lower authorized ROEs by regulatory commissions. Finally, as noted above, utility bond interest rates are currently at levels below those prevailing prior to the financial crisis of late 2008 to early 2009 and are near the lowest levels in the past 35 years. Even with the increase in long-term rates in late 2016, utility bond yields still remain well below the levels prevailing at the beginning of 2017. Furthermore, long-term utility bond rates in 2017 decreased, notwithstanding the Fed's increase in short-term rates as evidenced by the January 2018 yield on A-rated utility bonds (i.e., 3.86 percent) being below the levels prevailing at the beginning of 2017 (i.e., 4.14 percent), as shown on my Exh. DCP-4, page 2.

**Q. How do these economic/financial conditions impact the determination of a cost of equity for regulated utilities?**

A. The costs of capital for regulated utilities have declined in recent years. For example, the current interest costs that utilities pay on new debt remain near the low point of the last several decades. In addition, the results of the traditional cost of equity models (i.e., DCF, CAPM and CE) are lower than was the case prior to the Great Recession. In light of this, it is not surprising that the average equity returns authorized by state regulatory agencies have declined and continued to remain relatively low through 2017, as follows:[13]

[13] Regulatory Research Associates, "Regulatory Focus", January 30, 2018, General Rate Cases.

| | Electric | | Natural Gas | |
|---|---|---|---|---|
| | Average | Median | Average | Median |
| 2007 | 10.32% | 10.23% | 10.22% | 10.20% |
| 2008 | 10.37% | 10.30% | 10.39% | 10.45% |
| 2009 | 10.52% | 10.50% | 10.22% | 10.26% |
| 2010 | 10.29% | 10.26% | 10.15% | 10.10% |
| 2011 | 10.19% | 10.14% | 9.91% | 10.05% |
| 2012 | 10.02% | 10.00% | 9.93% | 10.00% |
| 2013 | 9.82% | 9.82% | 9.68% | 9.72% |
| 2014 | 9.76% | 9.75% | 9.78% | 9.78% |
| 2015 | 9.60% | 9.53% | 9.60% | 9.68% |
| 2016 | 9.60% | 9.60% | 9.53% | 9.50% |
| 2017 | 9.68% | 9.60% | 9.72% | 9.60% |

## V. CASCADE'S OPERATIONS AND BUSINESS RISKS

**Q. Please summarize Cascade and its operations.**

A. Cascade is a natural gas distribution utility that provides natural gas to more than 282,000 customers in 96 communities in western and central Washington and central and eastern Oregon. The Company dates back to 1953.[14] In 2006, Cascade was acquired by MDU Resources Group, Inc. ("MDU") and currently operates as a division of MDU.

**Q. Please describe MDU and how Cascade fits into the operational structure of this entity.**

A. MDU is a diversified entity that is divided into six business segments:[15]

[14] Cascade Natural Gas website.
[15] Calculations made from information contained in MDU Resources Group, 2016 Form 10-K, page 6.

Natural Gas Segment
Montana-Dakota Utilities
Great Plains Natural Gas
Cascade Natural Gas
Intermountain Gas

Electric Segment
Montana-Dakota Utilities

Pipeline and Midstream Segment

Construction Materials and Contracting Segment
Knife River

Construction Services Segment
MDU Construction Services

Other
Centennial Resources
Centennial Capital

MDU's non-utility operations account for the majority of its consolidated 2016 operations, as noted below:[16]

| Segment | Operating Revenues | Operating Income |
|---|---|---|
| Electric | 7.8% | 16.7% |
| Natural Gas | 18.6% | 15.9% |
| Pipeline/Midstream | 3.4% | 10.6% |
| Construction Materials and Contracting | 45.4% | 43.7% |
| Construction Services | 26.0% | 13.1% |

This indicates that MDU's construction-related segments account for over one-half of its consolidated operations, whereas the natural gas segment accounts for less than 20 percent of its operations.

[16] MDU, 2016 Form 1-K, page 26.

Within the natural gas segment, Washington operations accounted for 26 percent of 2016 operating sales revenues and Oregon accounted for 8 percent.[17] Thus, Cascade operations were about one-third of MDU's natural gas operations.

**Q. What are the current security ratings of Cascade?**

A. The present debt ratings of Cascade are shown in Exh. DCP-5 and are as follows:

| | |
|---|---|
| Fitch | A- |
| Standard & Poor's | BBB+ |

**Q. What have been the trends in Cascade's bond ratings?**

A. This is also shown on Exh. DCP-5. As this indicates, Cascade's ratings have been the same over the past several years. The current Fitch ratings of Cascade are higher than those of MDU, while the Standard & Poor's ratings are the same.

**Q. How do the bond ratings of Cascade compare to other gas utilities?**

A. Cascade's ratings are generally similar to other natural gas utilities in the U.S. This is evidenced by the relative Standard & Poor's debt ratings, as shown on my Exh. DCP-8 and which indicates that Cascade's ratings are generally similar to those of the group of proxy natural gas utilities used to develop the cost of equity recommendations in my testimony.

[17] MDU, 2016 Form 10-K, page 12.

**Q. Does Cascade have access to any cost recovery mechanisms?**

A. Yes. Cascade's current filing includes requests for the following cost recovery mechanisms:

- Purchased Gas Adjustment (PGA)
- Conservation Program Adjustment (CPA)
- Cost Recovery Mechanism For Pipeline Replacement (CRM)
- Washington Energy Assistance Fund (NEAF) Program
- Decoupling Mechanism Adjustment

**Q. Do these mechanisms reduce the risk of Cascade?**

A. Yes, they do. Those mechanisms, on both an independent and collective basis, have the effect of transferring a portion of Cascade's risk from its shareholders to its ratepayers. This is the case since the risk of fully recovering certain expenses is reduced or eliminated.

**Q. Are regulatory mechanisms a relatively new aspect of public utility regulation?**

A. No, they are not. A brief history of regulatory mechanisms was provided in a September 12, 2017 report by Regulatory Research Associates, titled "Adjustment Clauses – a State-By-State Overview." This report stated (note that the term "Adjustment Clauses" was used in the report, which is a type of regulatory mechanism):

> **A defining characteristic of an adjustment clause is that it effectively shifts the risk associated with the recovery of the expense in question from shareholders to customers**, because if the clause operates as designed, the company is able to change its rates to recover its costs on a current basis, without any negative effect on the bottom line and without the expense and delay that accompanies a rate case filing.

> . . .
> The electric and natural gas utilities' use of adjustment clauses to recover variations in certain costs outside of the traditional rate case process had its origins in the 1973 Arab oil embargo, when fuel prices skyrocketed leaving the utilities with no way to recover the increased costs in a timely manner.
> . . .
> The result was the creation of the fuel adjustment clause (FAC), essentially a single-issue rate making process, whereby a utility is permitted to implement periodic adjustments (e.g., monthly, quarterly, semi-annually, annually) associated with changes in its cost of fuel.
> . . .
> Over the ensuing years, the use of adjustment clauses has expanded greatly. Adjustment clauses are generally reserved for expenses that are outside the control of the utility or are required by law or rule.
> **[Emphasis added]**

**Q. Have the rating agencies commented on the risk-reducing nature of regulatory mechanisms?**

A. Yes, they have. For example, a report by Moody's Investors Service, dated June 13, 2010 and titled "Cost Recovery Provisions Key to Investor Owned Utility Ratings and Credit Quality," cited the risk-reducing nature of regulatory mechanisms. In this report, Moody's noted:

> Some regulators believe that mechanisms like automatic adjustment clauses materially reduce the business and operating risk of a utility, providing justification for a relatively low allowed return on equity. We believe this is one of several reasons why both allowed and requested ROEs have trended downward over the last two decades.
>
> Moody's views automatic adjustment clauses, the most common of which is for fuel and purchased power, the largest component of utility operating expenses, as supportive of utility credit quality and important in reducing a utility's cash flow volatility, liquidity requirements, and credit risk.

Moody's, in fact, upgraded the bulk of the entire U.S. investor-owned utility industry in early 2014, largely due to regulators' increasing use of regulatory mechanisms and the

resulting improvement of utilities' finances. Moody's noted, in a February 3, 2014, Sector Comment titled "US Utility Sector Upgrades Driven by Stable and Transparent Regulatory Frameworks":

> We recently upgraded most US investor-owned utilities and many of their holding companies due to our view that the US regulatory environment has improved over the past several years. Most of the companies placed on review for upgrade in November 2013 were upgraded in late January 2014, and most by one notch.
> . . .
> US regulated utilities appear financially secure, thanks to their suite of transparent and timely cost and investment recovery mechanisms. When compared with other regulatory environments in developed countries, the overall regulatory environment for US utilities has steadily improved over the past few years and is expected to remain supportive and constructive for at least the next 3-5 years.
>
> Supportive regulatory frameworks
>
> Over the past few years, the US regulatory environment has been very supportive of utilities. We think this is partly a function of regulators acknowledging that their utility infrastructure needs a material amount of ongoing investment for maintenance, refurbishment and renovation purposes.
> . . .
> Stable and predictable financial profile
>
> A transparent suite of timely recovery mechanisms helps utilities generate stable and predictable revenues and cash flows, which can support a material amount of leverage.

**Q. Has Moody's further commented on the impact of regulatory mechanisms and reduced risk/lower authorized return on equity for utilities?**

A. Yes. In a March 10, 2015, Sector In-Depth report titled "Lower Authorized Equity Returns Will Not Hurt Near-Term Credit Profiles", Moody's stated:

> The credit profiles of US regulated utilities will remain intact over the next few years despite **our expectation that regulators will continue to trim the sector's profitability by lowering its authorized returns on equity (ROE). Persistently low interest rates and a comprehensive suite of**

> **cost recovery mechanisms ensure a lower business risk profile for utilities**, prompting regulators to scrutinize their profitability, which is defined as the ratio of net income to book equity. **[Emphasis added]**

**Q. How should these mechanisms be treated from a risk-reducing and cost of equity perspective?**

A. It is important to recognize these mechanisms in determining the cost of equity for a utility, such as Cascade. Moody's, for example, notes this in the reports cited above.

At the very least, the existence of Cascade's various existing mechanisms should be recognized in the ROE determination. I recommend that Cascade's return on equity be set at no higher than the mid-point of the cost of equity range for the proxy companies.

It should also be noted that these mechanisms help reduce regulatory lag. In addition to reducing risk, reduced regulatory lag helps ensure that utilities and their investors get their money back more quickly and thus experienced lesser time lost value of money.

## VI. CAPITAL STRUCTURE AND COST OF DEBT

**Q. What is the importance of determining a proper capital structure in a regulatory framework?**

A. A utility's capital structure is important because the concept of rate base – rate of return regulation requires the capital structure to be utilized in estimating the total cost of capital. Within this framework, it is proper to ascertain whether the utility's capital structure is appropriate relative to its level of business risk and relative to other utilities.

As discussed in Section III of my testimony, the purpose of determining the proper capital structure for a utility is to ascertain its capital costs. The rate base – rate of return concept recognizes the assets employed in providing utility services and provides for a return on these assets by identifying the liabilities and common equity (and their cost rates) used to finance the assets. In this process, the rate base is derived from the asset side of the balance sheet and the cost of capital is derived from the liabilities/owners' equity side of the balance sheet. The inherent assumption in this procedure is that the dollar values of the capital structure and the rate base are approximately equal and the former is utilized to finance the latter.

The common equity ratio (i.e., the percentage of common equity in the capital structure) is the capital structure item which normally receives the most attention. This is the case because common equity: (1) usually commands the highest cost rate; (2) generates associated income tax liabilities; and (3) causes the most controversy since its cost cannot be precisely determined.

**Q. What are the historic capital structure ratios of Cascade?**

A. I have examined the actual, historic (2012-2016) capital structure ratios of Cascade, which is shown on Exh. DCP-6. The common equity ratios have been:

| | Cascade | |
|---|---|---|
| | Including S-T Debt | Excluding S-T Debt |
| 2012 | 54.1% | 54.4% |
| 2013 | 48.3% | 50.0% |
| 2014 | 50.7% | 50.7% |
| 2015 | 47.1% | 47.1% |
| 2016 | 47.3% | 47.3% |

This indicates that Cascade has had an equity ratio that has declined over the past five years, from about 54 percent in 2012 to 47.3 percent in 2016.

**Q. How do these capital structures compare to those of investor-owned electric utilities?**

A. Exh. DCP-7 shows the common equity ratios (excluding short-term debt in capitalization) for the group of proxy natural gas utilities used in developing my cost of equity models and related conclusions. These are:

| Period | Average | Median |
|---|---|---|
| 2013-2017 | 51.9% | 54.1% |
| 2020-2022 | 52.0% | 54.5% |

These equity ratios are slightly higher than those of Cascade.

**Q. What have been the average common equity ratios adopted by U.S. State Regulatory Agencies in recent years?**

A. Over the past several years, the average common equity ratios cited in U.S. state regulated natural gas rate proceedings have been:[18]

| | |
|---|---|
| 2012 | 51.13% |
| 2013 | 50.60% |
| 2014 | 51.11% |
| 2015 | 49.93% |
| 2016 | 50.06% |
| 2017 | 49.88% |

[18] Regulatory Research Associates, "Regulatory Focus", January 31, 2018.

These are slightly higher than those of Cascade's common equity ratios. It is noteworthy, on the other hand, that some of which include short-term debt and some of which exclude short-term debt.

**Q. What capital structure has Cascade requested in the proceedings?**

A. Cascade proposes a capital structure comprised as follows:

| | Percent |
|---|---|
| Debt | 50.0% |
| Common Equity | 50.0% |

According to the Direct Testimony of Cascade witness Tammy J. Nygard, this requested capital structure "is based upon Cascade's actual average capital structure for the past five years." She also described this as a "target" capital structure.[19]

**Q. What capital structures do you propose to use in these proceedings?**

A. I have used the actual test year (December 31, 2016) capital structure with 47.31 percent common equity for the purposes of these proceedings. My proposed capital structure is:

| | |
|---|---|
| Short-Term Debt | 0.00% |
| Long-Term Debt | 52.69% |
| Common Equity | 47.31% |

**Q. Why are you proposing a capital structure for Cascade containing 47.31 percent common equity?**

[19] Nygard, Exh. TJN-1T at 4:3-9.

A. I first note that Cascade's actual capital structure as of December 31, 2016 contained 47.31 percent common equity, as shown on Exh. DCP-6. Thus, my proposed capital structure matches the recent actual capital structure ratio of the Company.

Second, the actual equity ratios of Cascade have decreased over the past five years; thus, the five-year average capital structure cited by the Company is not relevant at the present time.

Third, the proposed capital structure is similar to that approved for other natural gas utilities, as cited above.

**Q. What is your understanding of this Commission's recent policy on the proper capital structure to use to determine the COC?**

A. It is my understanding that the Commission's policy on determining a capital structure balances safety (the preservation of investment quality credit ratings and access to capital) against economy (the lowest overall cost to attract and maintain capital). The Commission noted that the appropriate capital structure can either be the Company's historical capital structure, the projected capital structure, or a hypothetical capital structure.[20]

Q. **Why is it more appropriate to use the actual capital structure of Cascade, rather than a hypothetical capital structure, in this proceeding?**

A. It is my experience that there are two instances where it is sometimes preferable to use a hypothetical capital structure, as opposed to a utility's actual capital structure. First,

[20] *WUTC v. Puget Sound Energy, Inc.*, Dockets UE-040640 and UG-040641, Order 06, 13, ¶ 27 (Feb. 18, 2005).

when a utility receives all of its capital (debt and equity) from its parent company, it is often preferable to use a hypothetical capital structure. Second, when a utility's actual capital structure is significantly different from the prevailing capital structures of other utilities in the same industry, it is sometimes preferable to use a hypothetical capital structure. In both types of instances, the hypothetical capital structure is selected to be similar to that prevailing within the utility industry. Cascade's situation reflects neither of these two instances. As a result, it is appropriate to use Cascade's actual test period capital structure.

Further, the Company has failed to demonstrate that its capital structure will be substantially different during the rate year than it was at the end of 2016, and has also failed to provide any documentation of a commitment of specific capital injections that will be made by investors (i.e., MDU and/or other investors) during the rate year. Having a "target" of 50 percent equity and 50 percent debt does not sufficiently ensure what financial strategies will take place during the rate year.[21] Therefore, I believe the Company's attempt to use a backward-looking methodology, like a five-year average, is unsupported and unjustified in this instance. The actual test period capital structure is appropriate to use for ratemaking purposes.

**Q. Is your recommended capital structure consistent with the Commission's policy?**

A. Yes. The capital structure that I use is the Company's actual 2016 capital structure, and is similar to recent actual ratios of Cascade. Further, it is consistent with the capital

[21] Nygard, Exh. TJN-1T at 4:3-9.

structure of other utilities. I also believe that the capital structure that I propose provides a "balance of safety and economy" as cited above.

**Q. What is the cost rate of debt in Cascade's application?**

A. Cascade proposes the cost of long-term debt as of December 31, 2016.[22] The Company's proposed cost of debt is 5.295 percent.[23]

**Q. Do you agree with this debt cost?**

A. Yes, I do, as this reflects the Company's actual test period cost of debt.

**Q. Can the ROE be determined with the same degree of precision as the cost of debt?**

A. No. The cost rates of debt are largely determined by interest payments, issue prices, and related expenses. The ROE, on the other hand, cannot be precisely quantified, primarily because this cost is an opportunity cost. As mentioned previously, there are several models that can be employed to estimate the ROE. Three of the primary methods – DCF, CAPM, and CE – are developed in the following sections of my testimony.

## VII. SELECTION OF PROXY GROUP

**Q. How have you estimated the ROE for Cascade?**

A. Cascade is not a publicly-traded company. Consequently, it is not possible to directly apply ROE models to Cascade. However, in COC analyses, it is customary to analyze

[22] Nygard, Exh. TJN-1T at 2:12-14.
[23] Nygard, Exh. TJN-1T at 3:13, Table 1.

groups of comparison, or "proxy," companies as a substitute for Cascade to determine its ROE.

I have accordingly selected a proxy group of publicly-traded natural gas distribution companies for comparison to Cascade. I am using the criteria cited on Exh. DCP-8. This proxy group also is the same as the proxy group used by Cascade witness J. Stephen Gaske.

## VIII. DISCOUNTED CASH FLOW (DCF) ANALYSIS

**Q. What is the theory and methodological basis of the DCF model?**

A. The DCF model is one of the oldest and most commonly-used models for estimating the ROE for public utilities.[24]

The DCF model is based on the "dividend discount model" of financial theory, which maintains that the value (price) of any security or commodity is the discounted present value of all future cash flows.

The most common variant of the DCF model assumes that dividends are expected to grow at a constant rate (the "constant growth" or "Gordon DCF model"). In this framework, the ROE is derived from the following formula:

[24] Certain regulatory commissions (e.g., Federal Energy Regulatory Commission) rely primarily on the DCF methodology in determining the ROE for public utilities.

$$K = \frac{D}{P} + g$$

where: P = current price

D = current dividend rate

K = discount rate (cost of capital)

g = constant rate of expected growth

This formula essentially recognizes that the return expected or required by investors is comprised of two factors: the dividend yield (current income) and expected growth in dividends (future income).

**Q. Please explain how you employ the DCF model.**

A. I use the constant growth DCF model. In doing so, I combine the current dividend yield for each of the proxy utility stocks described in the previous section with several indicators of expected dividend growth.

**Q. How did you derive the dividend yield component of the DCF equation?**

A. Several methods can be used to calculate the dividend yield component. These methods generally differ in the manner in which the dividend rate is employed (i.e., current versus future dividends or annual versus quarterly compounding variant). I used a quarterly version of the dividend yield, which is expressed as follows:

$$Yield = \frac{D_0(1 + 0.5g)}{P_0}$$

This dividend yield component recognizes the timing of dividend payments and dividend increases.

The $P_0$ in my yield calculation is the average of the high and low stock price for each proxy company for the most recent three-month period (November 2017 -January 2018). The $D_0$ is the current annualized dividend rate for each proxy company.

**Q. How do you estimate the dividend growth component of the DCF equation?**

A. The DCF model's dividend growth rate component is usually the most crucial and controversial element involved in using this methodology. The objective of estimating the dividend growth component is to reflect the growth expected by investors that is embodied in the price (and yield) of a company's stock. As such, it is important to recognize that individual investors have different expectations and consider alternative indicators in deriving their expectations. This is evidenced by the fact that every investment decision resulting in the purchase of a particular stock is matched by another investment decision to sell that stock.

A wide array of indicators exists for estimating investors' growth expectations. As a result, it is evident that investors do not always use one single indicator of growth. It therefore is necessary to consider alternative dividend growth indicators in deriving the growth component of the DCF model. I have considered five indicators of growth in my DCF analyses. These are:

1. Years 2013-2017 (5-year average) earnings retention, or fundamental growth;
2. Five-year average of historic growth in earnings per share (EPS), dividends per share (DPS), and book value per share (BVPS);
3. Years 2018 and 2020-2022 projections of earnings retention growth (per Value Line);

4. Years 2014-2016 to 2020-2022 projections of EPS, DPS, and BVPS (per Value Line); and

5. Five-year projections of EPS growth (per First Call).

I believe this combination of growth indicators is a representative and appropriate set with which to begin the process of estimating investor expectations of dividend growth for the group of proxy companies. I also believe that these growth indicators reflect the types of information that investors consider in making their investment decisions. As I indicated previously, investors have an array of information available to them, all of which would be expected to have some impact on their decision-making process.

**Q. Please describe your DCF calculations.**

A. Exh. DCP-9 presents my DCF analysis. Page 1 shows the calculation of the "raw" (i.e., prior to adjustment for growth) dividend yield for each proxy company. Pages 2 and 3 show the growth rates for the group of proxy companies. Page 4 shows the DCF calculations, which are presented on several bases: mean, median, low and high values. These results can be summarized as follows:

| | Mean | Median | Mean Low[25] | Mean High[26] | Median Low[27] | Median High[28] |
|---|---|---|---|---|---|---|
| Proxy Group | 7.5% | 7.8% | 6.3% | 9.3% | 5.6% | 9.1% |

I note that the individual DCF calculations shown on Exh. DCP-9 should not be interpreted to reflect the expected cost of capital for individual companies in the proxy

[25] Using only the lowest average growth rate.
[26] Using only the highest average growth rate.
[27] Using the lowest median growth rate.
[28] Using only the highest median growth rate.

group; rather, the individual values shown should be interpreted as alternative information considered by investors.

**Q. What do you conclude from your DCF analyses?**

A. The DCF rates resulting from the analysis of the proxy groups fall into a wide range between 5.6 percent and 9.3 percent. The highest DCF rates, on both a mean and median basis, are 9.1 percent to 9.3 percent.

I believe a range of 9.1 percent to 9.3 percent (9.2 percent mid-point) represents the current DCF-derived ROE for the proxy group. This range includes the highest DCF rates and exceeds the low and mean/median DCF rates.

## IX. CAPITAL ASSET PRICING MODEL (CAPM) ANALYSIS

**Q. Please describe the theory and methodological basis of the CAPM.**

A. CAPM was developed in the 1960s and 1970s as an extension of modern portfolio theory (MPT), which studies the relationships among risk, diversification, and expected returns. The CAPM describes and measures the relationship between a security's investment risk and its market rate of return.

**Q. How is the CAPM derived?**

A. The general form of the CAPM is:

$$K = R_f + \beta(R_m - R_f)$$

where: K = cost of equity

$R_f$ = risk free rate

$R_m$ = return on market

$\beta$ = beta

$R_m$-$R_f$ = market risk premium

The CAPM is a variant of the RP method. I believe the CAPM is generally superior to the simple RP method because the CAPM specifically recognizes the risk of a particular company or industry (i.e., beta), whereas the simple RP method assumes the same ROE for all companies exhibiting similar bond ratings or other characteristics.

**Q. What do you use for the risk-free rate?**

A. The first input of the CAPM is the risk-free rate ($R_f$). The risk-free rate reflects the level of return that can be achieved without accepting any risk.

In CAPM applications, the risk-free rate is generally recognized by use of U.S. Treasury securities. Two general types of U.S. Treasury securities are often utilized as the $R_f$ component, short-term U.S. Treasury bills and long-term U.S. Treasury bonds.

I have performed CAPM calculations using the three-month average yield (November 2017 - January 2018) for 20-year U.S. Treasury bonds. I use the yields on long-term Treasury bonds since this matches the long-term perspective of ROE analyses. Over this three-month period, these bonds had an average yield of 2.64 percent.

**Q. What is beta and what betas do you employ in your CAPM?**

A. Beta is a measure of the relative volatility (and thus risk) of a particular stock in relation to the overall market. Betas less than 1.0 are considered less risky than the market, whereas betas greater than 1 are more risky. Utility stocks traditionally have had betas below 1. I utilize the most recent Value Line betas for each company in the proxy group.

**Q. How do you estimate the market risk premium component?**

A. The market risk premium component ($R_m$-$R_f$) represents the investor-expected premium of common stocks over the risk-free rate, or long-term government bonds. For the purpose of estimating the market risk premium, I considered alternative measures of returns of the S&P 500 (a broad-based group of large U.S. companies) and 20-year U.S. Treasury bonds (i.e., same timeframe as employed in Duff & Phelps source [formerly Ibbotson and Morningstar] used to develop risk premiums).

First, I compared the actual annual returns on equity of the S&P 500 with the actual annual income returns of U.S. Treasury bonds. Exh. DCP-10 shows the ROE for the S&P 500 group for the period 1978-2016 (all available years reported by S&P). This schedule also indicates the annual yields on 20-year U.S. Treasury bonds and the annual differentials (i.e., risk premiums) between the S&P 500 and U.S. Treasury 20-year bonds. Based upon these returns, I conclude that the risk premium from this analysis is 7.0 percent.

I next considered the total returns (i.e., dividends/interest plus capital gains/losses) for the S&P 500 group as well as for long-term government bonds, as tabulated by Duff & Phelps, using both arithmetic and geometric means. I considered the

total returns for the entire 1926-2016 period reported by this source, which are as follows:

| | S&P 500 | L-T Gov't Bonds | Risk Premium |
|---|---|---|---|
| Arithmetic | 12.0% | 6.0% | 6.0% |
| Geometric | 10.0% | 5.5% | 4.5% |

I conclude from this analysis that the expected risk premium is about 5.8 percent (i.e. average of all three risk premiums: 7.0 percent from Exh. DCP-10; 6.0 percent arithmetic and 4.5 percent geometric from Duff & Phelps). I believe that a combination of arithmetic and geometric means is appropriate since investors have access to both types of means[29] and presumably, both types are reflected in investment decisions and thus, stock prices and the ROE.

**Q. What are your CAPM results?**

A. Exh. DCP-11 shows my CAPM calculations. The results are:

| | Mean | Median |
|---|---|---|
| Proxy Group | 6.9% | 6.7% |

**Q. What is your conclusion concerning the CAPM ROE?**

A. The CAPM results collectively indicate a ROE of 6.7 percent to 6.9 percent for the groups of proxy utilities. I conclude that an appropriate CAPM ROE estimation for Cascade is 6.7 percent to 6.9 percent.

[29] For example, Value Line uses compound (i.e., geometric) growth rates in its projection. In addition, mutual funds report growth rates on a compound basis.

## X. COMPARABLE EARNINGS (CE) ANALYSIS

**Q. Please describe the basis of the CE methodology.**

A. The CE method is derived from the "corresponding risk" concept discussed in the *Bluefield* and *Hope* cases. This method is thus based upon the economic concept of opportunity cost. As previously noted, the ROE is an opportunity cost: the prospective return available to investors from alternative investments of similar risk.

The CE method is designed to measure the returns expected to be earned on the original cost book value of similar risk enterprises. Thus, it provides a direct measure of the fair return, since it translates into practice the competitive principle upon which regulation rests.

The CE method normally examines the experienced and/or projected return on book common equity. The logic for examining returns on book equity follows from the use of original cost rate base regulation for public utilities, which uses a utility's book common equity to determine the cost of capital. This cost of capital is, in turn, used as the fair rate of return which is then applied (multiplied) to the book value of rate base to establish the dollar level of capital costs to be recovered by the utility. This technique is thus consistent with the rate base-rate of return methodology used to set utility rates.

**Q. How do you apply the CE methodology in your analysis of Cascade's ROE?**

A. I apply the CE methodology by examining realized ROEs for the group of proxy utilities, as well as unregulated companies, and evaluating investor acceptance of these returns by reference to the resulting market-to-book ratios ("M/Bs"). In this manner it is possible to

assess the degree to which a given level of return equates to the COC. It is generally recognized for utilities that an M/B of greater than one (i.e., 100 percent) reflects a situation where a company is able to attract new equity capital without dilution (i.e., above book value). As a result, one objective of a fair cost of equity is the maintenance of stock prices at or above book value. There is no regulatory obligation to set rates designed to maintain an M/B significantly above one.

I further note that my CE analysis is based upon market data (through the use of M/Bs) and is thus essentially a market test. As a result, my CE analysis is not subject to the criticisms occasionally made by some who maintain that past earned returns do not represent the cost of capital. In addition, my CE analysis also uses prospective returns and thus is not backward looking.

**Q. What time periods do you examine in your CE analysis?**

A. My CE analysis considers the experienced ROEs of the proxy group of utilities for the period 2002-2017 (i.e., the last 16 years). The CE analysis requires that I examine a relatively long period of time in order to determine trends in earnings over at least a full business cycle. Further, in estimating a fair level of return for a future period, it is important to examine earnings over a diverse period of time in order to avoid any undue influence from unusual or abnormal conditions that may occur in a single year or shorter period. Therefore, in forming my judgment of the current cost of equity, I focused on two periods: 2009-2017 (the current business cycle) and 2002-2008 (the most recent business cycle). I have also considered projected ROEs for 2018 and 2020-2022.

**Q. Please describe your CE analysis.**

A. Exhibit Nos. DCP-12 and DCP-13 contain summaries of experienced ROEs and M/Bs for two groups of companies, while Exh. DCP-14 presents a risk comparison of utilities versus unregulated firms.

Exh. DCP-12 shows the ROEs and M/Bs for the group of proxy utilities. These can be summarized as follows:

| | Proxy Group |
|---|---|
| Historic ROE | |
| Mean | 10.0-10.9% |
| Median | 9.6-10.5% |
| Historic M/B | |
| Mean | 168-181% |
| Median | 166-173% |
| Prospective ROE | |
| Mean | 9.6-10.5% |
| Median | 9.5-10.0% |

These results indicate that historic ROEs of 9.6 percent to 10.9 percent have been adequate to produce M/Bs of 166 percent to 181 percent for the group of utilities. Furthermore, projected returns on equity for 2018 and 2020-2022 are within a range of 9.5 percent to 10.5 percent for the utility groups. These relate to 2017 M/Bs of 217 percent or greater.

**Q. Do you also review the earnings of unregulated firms?**

A. Yes. As an alternative, I also examine the S&P's 500 Composite group. This is a well-recognized group of firms that is widely utilized in the investment community and is indicative of the competitive sector of the economy. Exh. DCP-13 presents the earned

ROEs and M/Bs for the S&P 500 group over the past fifteen years (i.e., 2002-2016). As this schedule indicates, over the two business cycle periods, this group's average ROEs ranged from 12.4 percent to 13.3 percent, with average M/Bs ranging between 233 percent and 275 percent.

**Q. How can the above information be used to estimate Cascade's ROE?**

A. The recent ROEs of the proxy utilities and S&P 500 group can be viewed as an indication of the level of return realized and expected in the regulated and competitive sectors of the economy. In order to apply these returns to the ROE for the proxy utilities, however, it is necessary to compare the risk levels of the utilities and the competitive companies. I do this in Exh. DCP-14, which compares several risk indicators for the S&P 500 group and the natural gas utility group. The information in this exhibit indicates that the S&P 500 group is more risky than the utility proxy group.

**Q. What ROE is indicated by your CE analysis?**

A. Based on recent ROEs and M/Bs, my CE analysis indicates that the ROE for the proxy utilities is no more than 9.0 percent to 10.0 percent (9.5 percent mid-point). Recent ROEs of 9.6 percent to 10.9 percent have resulted in M/Bs of 166 percent and over. Prospective ROEs of 9.5 percent to 10.5 percent have been accompanied by M/Bs over 215 percent. As a result, it is apparent that authorized returns below this level would continue to result in M/Bs of well above 100 percent. As I indicated earlier, the fact that M/Bs substantially exceed 100 percent indicates that historic and prospective ROEs of 9.5 percent reflect earning levels that are well above the actual cost of equity for those

regulated companies. I also note that a company whose stock sells above book value can attract capital in a way that enhances the book value of existing stockholders, thus creating a favorable environment for financial integrity. Finally, I note that my 9.0 percent to 10.0 percent CE recommendation generally reflects the actual and prospective ROEs for the proxy group. I have made no adjustments to these return levels to reflect the high M/Bs.

## XI. RETURN ON EQUITY RECOMMENDATION

**Q. Please summarize the results of your three ROE analyses.**

A. My three ROE analyses produced the following:

| | Mid-Point | Range |
|---|---|---|
| DCF | 9.2% | 9.1-9.3% |
| CAPM | 6.8% | 6.7-6.9% |
| CE | 9.5% | 9.0-10.0% |

These results indicate an overall broad range of 6.7 percent to 10.0 percent, which focuses on the respective individual model results. Using mid-point values, the range is 6.8 percent to 9.5 percent. I recommend a ROE range of 9.2 percent to 9.5 percent for Cascade (mid-point of 9.35 percent). This range includes the mid-point of my DCF results and the mid-point of my CE results. My specific ROE recommendation is 9.35 percent.

**Q. It appears that your CAPM results are less than your DCF and CE results. Does this imply that the CAPM results should not be considered in determining the cost of equity for Cascade?**

A. No. It is apparent that the CAPM results are less than the DCF and CE results. There are two reasons for the lower CAPM results. First, risk premiums are lower currently than was the case in prior years. This is the result of lower equity returns that have been experienced over the past several years. This is also reflective of a decline in investor expectations of equity returns and risk premiums. Second, the level of interest rates on U.S. Treasury bonds (i.e., the risk-free rate) has been lower in recent years. This is partially the result of the actions of the Federal Reserve System to stimulate the economy. This also impacts investor expectations of returns in a negative fashion. I note that, initially, investors may have believed that the decline in Treasury yields was a temporary factor that would soon be replaced by a rise in interest rates. However, this has not been the case as interest rates have remained low and continued to decline for the past six-plus years. As a result, it cannot be maintained that low interest rates (and low CAPM results) are temporary and do not reflect investor expectations. Consequently, the CAPM results should be considered as one factor in determining the cost of equity for Cascade.

## XII. TOTAL COST OF CAPITAL

**Q. What is the total COC for Cascade?**

A. Exh. DCP-3 reflects the total COC for Cascade using my proposed capital structure and embedded costs of debt, as well as my ROE recommendations. The resulting COC is a range of 7.14 percent to 7.28 percent. With my 9.35 percent ROE, my COC recommendation is 7.21 percent.

## XIII. COMMENTS ON COMPANY TESTIMONY

**Q. What ROE is Cascade requesting in this proceeding?**

A. Cascade is requesting a 9.90 percent ROE. This 9.90 percent ROE is sponsored by Cascade's cost of capital witness J. Stephen Gaske.[30]

**Q. What is the basis of Dr. Gaske's 9.90 percent ROE recommendation?**

A. Dr. Gaske's 9.90 percent ROE recommendation for Cascade is primarily derived from two sets of DCF analyses, which are then "tested for reasonableness" by two risk premium analyses: a market DCF analysis of the S&P 500; and, a size-adjusted CAPM analysis.

His DCF analyses are summarized as follows:[31]

| | Basic DCF Analysis | Blended Growth Rate DCF Analysis |
|---|---|---|
| High | 11.84% | 10.75% |
| 3rd Quartile | 10.22% | 9.64% |
| Median | 9.22% | 9.13% |
| 1st Quartile | 7.82% | 8.01% |
| Low | 7.11% | 7.85% |

His additional analyses produce the following results:[32]

[30] Gaske, Exh. JSG-1T at 2:20-21, and 31:8-11.
[31] Gaske, Exh. JSG-1T at 30: Table 2.
[32] Gaske, Exh. JSG-1T at 30: Table 3.

| | Return |
|---|---|
| Risk Premium (Long-Term Corporate Bonds) | |
| vs. Large Company Stocks | 9.9% |
| vs. Small Company Stocks | 18.2% |
| Gas Utility Risk Premium (Regression of Authorized ROEs against 30-yr Treasury yields) | 10.0% |
| Market DCF (S&P 500) | 12.5% |
| Forward-Looking CAPM | 11.3% |

**Q. What is the basis of Dr. Gaske's DCF analyses?**

A. Dr. Gaske performs two sets of DCF analyses. His analyses can be summarized as follows:[33]

Yield = six-month average of monthly DPS divided by average of high and low stock prices for that month for each proxy company,

Projected yield = Yield times "quarterly DCF model factor" (1 + 0.625g)

Growth – two sets of growth (g) factors:

"Basic" DCF analysis = EPS forecasts for each proxy company,

"Blended" Growth rate analysis = EPS forecasts weighted by 2/3 and "sustainable growth" weighted by 1/3

Flotation Cost Adjustment = DCF results multiplied by (1.04)

As is shown in response to the prior question, the median DCF result for his "Basic" DCF analysis is 9.22 percent and the median result for his "Blended" DCF analysis is 9.13 percent. However, Dr. Gaske does not utilize these median results in his recommendation, but rather calculates and gives primary weight to the values "between the median and third quartile" of the range of his "Basic" DCF analysis.[34]

[33] Gaske, Exh. JSG-2, Schedule 4.
[34] Gaske, Exh. JSG-1T at 31:8-11.

**Q. Do you have any disagreements with Dr. Gaske's DCF analyses and conclusions?**

A. Yes, I have certain disagreements with Dr. Gaske's DCF analyses. These include the "1 + 0.625" quarterly DCF model factor, the "1.04" flotation cost factor, and the use of DCF results that exceed the median results.

**Q. Why do you disagree with the Quarterly DCF Model Factor that Dr. Gaske employs?**

A. It is customary to "adjust" the dividend yield in a DCF context to recognize that dividends are expected to be raised over the coming year. The standard adjustment is "1 + .5g", which has been used, for example, by the Federal Energy Regulatory Commission ("FERC") for a number of years. The logic for this adjustment is an inherent assumption that some companies will raise dividends in each of the next four quarters and, on average, all companies will raise dividends half way through the year.

Dr. Gaske does recognize the "1 + .5g" adjustment in his testimony, but also incorporates a "1 + .75g" factor. He averages the two factors, which is "1 + .625g". Even though the impact of the DCF model results differential between "1 + .5g" and "1 + .625g" are small, I do disagree with his unorthodox method.

**Q. Why do you agree with Dr. Gaske's flotation cost adjustment?**

A. Dr. Gaske's flotation cost adjustment, or "1.04" essentially increases the DCF results by four percent. This is improper for two reasons. First, there has been no demonstration that MDU plans to have a public offering of new common shares for the purposes of injecting new common equity into Cascade. Absent any such demonstration, there is no

anticipation that actual flotation costs will be incurred and thus no justification for making any type of flotation cost adjustment.

Second, the type of adjustment Dr. Gaske proposes is improper even in the context of anticipated flotation costs. This is the case since his proposed adjustment applies a four percent cost factor to all of Cascade's common equity, which is improper. A significant portion of Cascade's common equity is retained earnings, which are not the result of public offerings and thus, under no circumstances, are flotation costs incurred.

**Q. Have you calculated the impact of these two adjustment factors on Dr. Gaske's DCF results?**

A. Yes, I have. As is shown on Exh. DCP-15, with the proper use of the "1 + .5g" dividend yield adjustment, and elimination of the improper flotation cost adjustment, the average and median DCF results for Dr. Gaske's proxy group fall within a range of 8.63 percent to 8.86 percent. This corresponds to my DCF range.

**Q. Do you agree with Dr. Gaske's use of DCF values above the median values (i.e., the "third quartile" of individual company values) in deriving his DCF recommendation?**

A. No, I do not agree. Dr. Gaske maintains that DCF results for regulated gas distribution companies "are being affected by artificial factors in the current and projected capital markets, including the following two key factors: (1) the Federal Reserve's continuing

accommodative monetary policy; (2) and the market's expectation for substantially higher interest rates."[35]

These are not new "factors" and are also not reasons for ignoring the DCF results at this time.

**Q. What is the basis for Dr. Gaske's conclusion that current DCF rates are "artificially low"?**

A. Dr. Gaske is apparently relying on two decisions of the FERC where it concluded that then-current DCF rates were below proper levels due to "anomalous" capital market conditions.[36] Dr. Gaske states "…in two recent decisions, the FERC expressed concern that Federal Reserve actions may have artificially reduced current dividend yields for utilities and the results of the DCF model may not be representative of the true cost of capital at this time."[37] In fact, Opinion No. 531 has been overturned by a Federal Appeals Court and has been remanded to FERC.

**Q. Were you personally involved in either of the FERC proceedings cited by Dr. Gaske?**

A. Yes. I was a cost of capital witness in the docket leading up to Opinion No. 551, which was significantly based on the record leading up to Opinion No. 531, et.al.

[35] Gaske, Exh. JSG-1T at 19:19-22.
[36] Gaske, Exh. JSG-1T at 20:1-4 and footnote 18.
[37] Gaske, Exh. JSG-1T at 20:1-4.

**Q. What is your understanding of the FERC's determination, in Opinion 531, to adopt a ROE above the mid-point of the DCF findings in that proceeding?**

A. In Opinion 531, FERC indicated that it "typically sets the base ROE with regard to multiple entities at the midpoint of the zone of reasonableness."[38] However, in that proceeding, FERC cited "unusual capital markets conditions" present at that time and concluded that the ROE for the New England Transmission Owners ("NETOs") should be set halfway between the midpoint of the zone of reasonableness and the top of the zone of reasonableness.[39] FERC also referred to "unique capital market conditions" and anomalous capital market conditions.[40]

My reading of Opinion 531 indicates that FERC, in making the determination that then-current (i.e., 2012) capital market conditions were unusual, unique and/or anomalous, considered that "bond yields are at historic lows."[41]

**Q. What about interest rates and the expectation that they will increase significantly over the near term?**

A. The expectation of an increase in bond yields and other interest rates did not transpire over the near term as was anticipated in the record underlying Opinion 531.[42]

Yet, as my Exh. DCP-4, page 2 shows that, as of January 2018, the actual yield on A-rated utility bonds was 3.86 percent, or less than the average yield on A-rated utility bonds in 2012 (i.e., 4.13 percent), the time frame of Opinion 531. Thus, the "significant"

[38] *Coakley v. Bangor Hydro-Electric Co.*, 147 FERC ¶ 61234, 62463, ¶142 (F.E.R.C. June 19, 2014), *review granted, order vacated sub nom. Maine v. Fed. Energy Regulatory Comm'n*, 854 F.3d 9 (D.C. Cir. 2017). FERC uses the median DCF value for a single entity, such as is the case in the present Cascade proceeding.
[39] *Id.* at 62463, ¶142.
[40] *Id.* at 62464, ¶145.
[41] *Id.* at 62474, ¶145, n. 285.
[42] *See id.* at 62461, ¶129-30.

increase in bonds, and apparently relied upon by FERC in Opinion 531, did not materialize.

**Q. Is there evidence of an expectation that interest rates will rise in the near term?**

A. Financial markets are inherently subject to fluctuations. Given that this current proceeding involves a time period more than five years later than that in Opinion 531, and in light of the fact that the underlying rationale for the upward adjustment there never transpired, it seems patently unreasonable to make any other such adjustment here absent a change in financial conditions that is actually shown to have measurable effects, i.e., in the DCF analysis itself.

**Q. Please now turn to the risk premium tests Dr. Gaske considered to "test for reasonableness" in his DCF conclusions.**

A. Dr. Gaske first performed two risk premium analyses as a check on his DCF results. His first risk premium study compares the annual total returns (stock) of the Standard & Poor's 500 with the return on corporate bonds (as published by Duff & Phelps) over the 1926-2016 period, which yields a 5.7 percent differential. He adds this 5.7 percent differential to the 4.2 percent average yield on corporate bonds, the result is 9.9 percent, which he then adds a "size adjustment" to reach a conclusion of 18.2 percent.[43]

Aside from the fact that an 18.2 percent level defies logic for a regulated utility, there are problems with Dr. Gaske's first risk premium.

[43] Gaske, Exh. JSG-1T at 21:1-12.

**Q. Do you agree with this methodology for estimating the cost of equity for Cascade?**

A. No. Dr. Gaske's historic risk premium of 5.7 percent is simply an examination of historical events going back to 1926. He has made no demonstration that economic and financial conditions in 2018 are similar to those over the past ninety plus years. The use of such a methodology implicitly assumes that the events of each of these years can have the same influences at the current time.

In addition, the risk premiums developed by Dr. Gaske are generally dominated by the influence of capital gains in many years. I do not believe it is proper to assign Cascade's cost of equity based directly upon a methodology which is dominated by stock market changes and bond market changes.

Dr. Gaske's second risk analysis uses allowed risk premiums for the natural gas utility industry. In this phase of his risk premium testimony, Dr. Gaske compares the differential between allowed returns on equity for natural gas utilities and long-term Treasury bonds over the 1992-2017 period. The average spread over this period was 5.7 percent,[44] but Dr. Gaske does not utilize this differential as his risk premium. Instead, he performs regression analyses to track the risk premium in terms of rising and falling interest rates. He then concludes, for example, that a 6.85 percent risk premium is appropriate in conjunction with a 2.8 percent Treasury bond yield.[45] This adjustment is not consistent with Dr. Gaske's historic risk premium analyses where he simply took the average risk premium over the entire 1926-2016 period and applied it to the projected level of Treasury bond yields.

[44] Gaske, Exh. JSG-2, Schedule 5.
[45] Gaske, Exh. JSG-1T at 22:1-13.

There are several problems with Dr. Gaske's risk premium analyses, all of which have the effect of overstating the ROE for the proxy companies and Cascade. First, the highest risk premium values over this period occurred in 2008-2017.[46] This corresponds to the period which Dr. Gaske describes bond yields as "artificially low."[47] Thus, Dr. Gaske's recent above-average risk premiums are driven by "artificially low" interest rates. He cannot have it both ways – if recent interest rates are not representative, they cannot be used as a standard for establishing Cascade's ROE.

Second, it is not proper to compare utility authorized ROEs in the 1970's and 1980's with the current time. Current ROE's reflect a suite of favorable regulatory mechanisms that greatly enhance utilities' ability to recover costs, which is risk-reducing and thus warrants low ROEs.[48]

I also note that there has been a downward trend in allowed returns on equity for natural gas utilities in recent years. According to the source of Dr. Gaske's allowed risk premium analysis, (Regulatory Focus, published by Regulatory Research Associates, as cited earlier in my testimony), the annual average return on equity awards[49] have been:

| Year | Average | Median |
|---|---|---|
| 2007 | 10.22% | 10.20% |
| 2008 | 10.39% | 10.45% |
| 2009 | 10.22% | 10.26% |
| 2010 | 10.15% | 10.10% |
| 2011 | 9.91% | 10.05% |
| 2012 | 9.93% | 10.00% |
| 2013 | 9.68% | 9.72% |
| 2014 | 9.78% | 9.78% |
| 2015 | 9.60% | 9.68% |
| 2016 | 9.53% | 9.50% |
| 2017 | 9.72% | 9.60% |

[46] Gaske, Exh. JSG-2, Schedule 5, page 2.
[47] Gaske, Exh. JSG-1T at 10:14-17.
[48] *See, e.g.*, Moody's Investors Service, Sector Comments, "US Utility Sector Upgrades Driven by Stable and Transparent Regulatory Frameworks", February 3, 3014.
[49] General Rate Cases.

It is noteworthy that the average authorized return on equity has not been as large as Dr. Gaske's 9.9 percent return on equity recommendation since 2012.

**Q. What is Dr. Gaske's next methodology that he used as a check on his DCF analysis?**

A. Dr. Gaske next performed a DCF analysis for the S&P 500, which produces a 12.54 percent return.[50]

This is not an appropriate level of ROE for Cascade. As I indicated earlier in my testimony, the S&P 500 group has a higher level of risk than the natural gas utility industry. Thus, its cost of equity is higher. As a result, the DCF cost for the S&P 500 provides no standard for Cascade.

**Q. What is Dr. Gaske's final check methodology?**

A. Dr. Gaske next performs a CAPM using the following components:[51]

| | |
|---|---|
| S&P 500 DCF Return | 12.54% |
| Projected T-Bond Yield | 3.52% |
| Market Risk Premium | 9.02% |
| Value Line beta for each proxy Company | |
| Size Adjustment | |

There are two primary errors in Dr. Gaske's CAPM analysis. First, he used projected T-bond yields. Second, he makes a size adjustment.

[50] Gaske, Exh. JSG-1T at 22:17-25.
[51] Gaske, Exh. JSG-2, Schedule 8.

**Q. Why is it not proper to use projected interest rates as the risk-free rate in a CAPM?**

A. It is improper to use prospective interest rates, because they are not measurable and not achievable. For example, if the current yield on 20-year U.S. Treasury Bonds is about 2.6 percent, this reflects the rate that investors can actually receive on their investment. Investors cannot receive a prospective yield on their investments since such a yield is not actual but rather speculative. It is instead proper to use the current yield as the risk-free rate in a CAPM context. This is the case since the current yield is known and measurable and reflects investors' collective assessment of all capital market conditions.

Use of the current risk-free rate in a CAPM context is similar to using the current yield in a DCF context. Analysts do not use prospective stock prices as the basis for the dividend yield in a DCF analysis, as use of prospective stock prices is speculative. Use of current stock prices is appropriate, as are used by Dr. Gaske. Likewise, current levels of interest rates reflect all current information (i.e., the efficient market hypothesis) and should be used as the risk-free rate in the CAPM.

**Q. Why is it improper to add a "size adjustment" to CAPM results?**

A. Dr. Gaske adds a "size" premium to his CAPM results for each of his natural gas group companies. Dr. Gaske maintains that there is justification for making a small-firm risk adjustment that results in a higher cost of capital for small firms. His proposed size adjustment varies among the proxy companies with individual values up to 1.66 percent.[52] Such an adjustment is improper and results in an overstatement of the ROE for the proxy natural gas utilities.

[52] Gaske, Exh. JSG-8.

There are compelling reasons why a small size adjustment is not proper for regulated utilities. Dr. Gaske's proposed size adjustment is based upon his reference to the previously-cited Duff & Phelps studies. However, the small size adjustment in the Duff & Phelps studies is based on the analysis of all stocks, the majority of which are unregulated and include industries that are much more risky than utilities. While it may or may not be true that on an overall market basis, smaller publicly-traded firms exhibit more risk than larger firms, these smaller companies tend to be engaged in riskier businesses as a whole than do larger businesses. Such is not the case for regulated utilities.

Indeed, an academic study conducted by Professor Annie Wong found that:

> [U]tility and industrial stocks do not share the same characteristics. First, given firm size, utility stocks are consistently less risky than industrial stocks. Second, industrial betas tend to decrease with firm size but utility betas do not. These findings may be attributed to the fact that all public utilities operate in an environment with regional monopolistic power than regulated financial structure. As a result, the business and financial risks are very similar among the utilities regardless of their sizes. Therefore, utility betas would not necessarily be expected to be related to firm size.
>
> This implies that although the price phenomenon has been strongly documented for the industrials, the findings suggest that there is no need to adjust for the firm size in utility rate regulation.[53]

**Q. Can you provide any evidence that "size" or "business risk" adjustments are not generally recognized as risk factors in regulatory proceedings such as this one?**

A. Yes, I can. The following table reflects the average size (as measured by net plant) and currently authorized returns on equity or various types of regulated utilities:

[53] Wong, Annie, "Utility Stocks And The Size Effect: An Empirical Analysis", Journal of the Midwest Finance Association, 1993, pp. 95-101.

| Industry | Average Net Plant (000) | Average Authorized ROE[54] |
|---|---|---|
| Electric Combination | $20,235 | 10.33% |
| Electric-Gas | $20,564 | 10.24% |
| Natural Gas | $2,918 | 9.49% |
| Water | $2,760 | 9.65% |

Source: AUS Utility Reports, September 2016.

As shown here the smallest utilities have the lowest authorized ROEs (i.e., smallest types of utilities, as measured by Net Plant, have lowest authorized ROEs).

**Q. Can you provide any direct comparisons of natural gas utilities that demonstrates that smaller utilities are not more risky than larger ones?**

A. Yes. Implicit in Dr. Gaske's proposal is an assumption that any perceived small size risk adjustment for unregulated companies (*i.e.*, source of information cited in the Duff & Phelps source Dr. Gaske relies on for his small size adjustment) applies to regulated public utilities. Exh. DCP-16 demonstrates objectively that this is not the case. As Exh. DCP-16 shows, there is no significant difference and no discernible pattern of increase among the risk indicators of publicly-traded natural gas utilities of different sizes.

In addition, the same is true for electric utilities (Exh. DCP-17). The table below summarizes the information contained in this exhibit.[55]

| Cap Size | Safety | Beta | Financial Strength | S&P Rank | S&P Rating | Moody's Rating |
|---|---|---|---|---|---|---|
| Under $3 B | 2.3 | .73 | B++ | A-/B+ | BBB+/BBB | A3/Baa1 |
| $3-$5 B | 2.0 | .76 | A | A-/B+ | BBB | Baa1 |
| $5-$10 B | 2.0 | .74 | A/B++ | A-/B++ | BBB+ | Baa1/Baa2 |
| $10-$15 B | 2.7 | .70 | B++/B+ | B | B++ | Baa1/Baa2 |

[54] Authorized ROEs reflect currently-authorized levels, which may not be recently determined.
[55] Electric utilities are shown here for comparative purpose, since these are significantly more publicly-traded electric utilities than natural gas utilities. Thus, there are more companies to compare for size-related risk characteristics.

| | | | | | | |
|---|---|---|---|---|---|---|
| $15-$25 B | 1.3 | .61 | A | A- | A- | Baa1 |
| $25 B Plus | 2.1 | .68 | B++ | B+ | B++ | Baa1/Baa2 |

The safety rank, beta values, financial strength, S&P stock rankings and Moody's/S&P bond ratings are about the same for all sizes of electric utilities. These risk indicators do not reflect any risk differential as the size of the electric utilities decrease from large to small. To the contrary, this data indicates that regulated monopoly utility providers have approximately the same risk regardless of size. As a result, the logic Dr. Gaske uses to justify his proposed small size adjustment is not justified.

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

A. Yes, it does.