

**BEFORE THE WASHINGTON
UTILITIES & TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Complainant,

v.

CASCADE NATURAL GAS CORPORATION,

Respondent.

DOCKET UG-200568

**RESPONSE TESTIMONY OF J. RANDALL WOOLRIDGE
ON BEHALF OF THE
WASHINGTON STATE OFFICE OF THE ATTORNEY GENERAL
PUBLIC COUNSEL UNIT**

Exhibit JRW-1T

November 19, 2020

DOCKET UG-200568

RESPONSE TESTIMONY OF J. RANDALL WOOLRIDGE

EXHIBIT JRW-1T

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1 **Q. Please state your full name, address, and occupation.**

2 A. My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle,
3 State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co. and
4 Frank P. Smeal Endowed University Fellow in Business Administration at the University
5 Park Campus of Pennsylvania State University. I am also the Director of the Smeal
6 College Trading Room and President of the Nittany Lion Fund, LLC. A summary of my
7 educational background, research, and related business experience is provided in Exhibit
8 JRW-12

I. INTRODUCTION AND SUMMARY OF TESTIMONY

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

10 A. I have been asked by the Public Counsel Unit of the Washington State Attorney General's
11 Office to provide an opinion as to the overall fair rate of return or cost of capital for the
12 regulated gas utility service of Cascade Natural Gas Corporation ("Cascade" or the
13 "Company") and to evaluate Cascade's rate of return testimony in this proceeding.¹

14 **Q. How is your testimony organized?**

15 A. First, I summarize my cost of capital recommendation for the Company, and review the
16 primary areas of contention on the Company's position. Second, I provide an overview of
17 capital market conditions and authorized returns on equity (ROE) for utilities. Third, I
18 discuss the proxy group that I have used to estimate an equity cost rate for Cascade. Fourth,
19 I provide my recommendations on the Company's appropriate capital structure and senior

¹ In my testimony, I use the terms 'rate of return' and 'cost of capital' interchangeably. This is because the required rate of return of investors on a company's capital is the cost of capital.

1 capital cost rates. Fifth, I estimate the equity cost rate for the Company. Finally, I critique
2 Cascade's rate of return analysis and testimony. In Appendix A, I provide a summary of my
3 educational and professional background. In Appendix B, I provide a detailed summary of
4 the relationship between corporate earnings per share (EPS) and Gross Domestic Product
5 (GDP) growth.

A. Utility Rate of Return

6 **Q. What comprises a utility's "Rate of Return"?**

7 A. A company's overall rate of return consists of three main categories: (1) capital structure
8 (i.e., ratios of short-term debt, long-term debt, preferred stock and common equity); (2)
9 cost rates for short-term debt, long-term debt, and preferred stock; and (3) common
10 equity cost, otherwise known as ROE.

11 **Q. What is a utility's ROE intended to reflect?**

12 A. An ROE is most simply described as the allowed rate of profit for a regulated company.
13 In a competitive market, a company's profit level is determined by a variety of factors
14 including the state of the economy, the degree of competition a company faces, the ease
15 of entry into its markets, the existence of substitute or complementary products/services,
16 the company's cost structure, the impact of technological changes, and the supply and
17 demand for its services and/or products. For a regulated monopoly, the regulator
18 determines the level of profit available to the utility. The United States Supreme Court
19 established the guiding principles for establishing an appropriate level of profitability for

1 regulated public utilities in two cases: (1) *Bluefield*² and (2) *Hope*.³ In those cases, the
2 Court recognized that the fair rate of return on equity should be: (1) comparable to
3 returns investors expect to earn on investments with similar risk; (2) sufficient to assure
4 confidence in the company's financial integrity; and (3) adequate to maintain the
5 company's credit and to attract capital.

6 Thus, the appropriate ROE for a regulated utility requires determining the market-
7 based cost of capital. The market-based cost of capital for a regulated firm represents the
8 return investors could expect from other investments, while assuming no more and no
9 less risk. The purpose of all of the economic models and formulas in cost of capital
10 testimony (including those presented later in my testimony) is to estimate, using market
11 data of similar-risk firms, the rate of return equity investors require for that risk-class of
12 firms in order to set an appropriate ROE for a regulated firm.

B. Summary of Positions

13 **Q. Please review the company's proposed rate of return or cost of capital.**

14 A. Cascade witness Ms. Tammy J. Nygard recommends a capital structure consisting of 49.60
15 percent Total debt and 50.40 percent common equity, and a debt cost rate of 4.745 percent.
16 Cascade witness Ms. Ann E. Bulkley has recommended a common equity cost rate of 10.30
17 percent for Cascade. The Company's overall proposed rate of return is 7.544 percent.

² *Bluefield Water Works and Improvement Co. v. Pub. Serv. Comm'n of W. Va.*, 262 U.S. 679 (1923) ("Bluefield").

³ *Federal Power Comm'n v. Hope Nat. Gas Co.*, 320 U.S. 591 (1944) ("Hope").

1 **Q. Please review your recommendations regarding the appropriate market-based rate**
2 **of return for Cascade.**

3 A. I have reviewed the Company's proposed capital structure and overall cost of capital. I
4 demonstrate that Cascade's proposed capitalization has a higher common equity ratio and
5 lower financial risk than the capitalization the Company has maintained over time. As a
6 result, I have used a capital structure with a common equity ratio of 49.10 percent, which
7 is the capital structure adopted in the Company's last rate case, and is consistent with
8 Cascade's capitalization in recent years. To estimate an equity cost rate for the Company,
9 I have applied the Discounted Cash Flow Model (DCF) and the Capital Asset Pricing
10 Model (CAPM) to my proxy group of gas distribution companies ("Gas Proxy Group").
11 My DCF and CAPM analyses indicate an equity cost rate range of 7.30 percent to 9.0
12 percent.

13 **Q. What is your rate of return recommendation for Cascade?**

14 A. As noted, my equity cost rate studies indicate an ROE between 7.30 percent and 9.00
15 percent. I believe that this range accurately reflects current capital market data. Since I rely
16 primarily on the DCF approach, and Cascade's risk level is at the high-end of the Gas Proxy
17 Group, I will use 9.00 percent as my recommended equity cost rate for the Company. With
18 my recommended capitalization ratios and using Cascade's proposed debt cost rate, my
19 rate of return or cost of capital recommendation for the Company is 6.83 percent and is
20 summarized in Table 1 and Exhibit JRW-2.

Table 1
PC's Rate of Return Recommendation

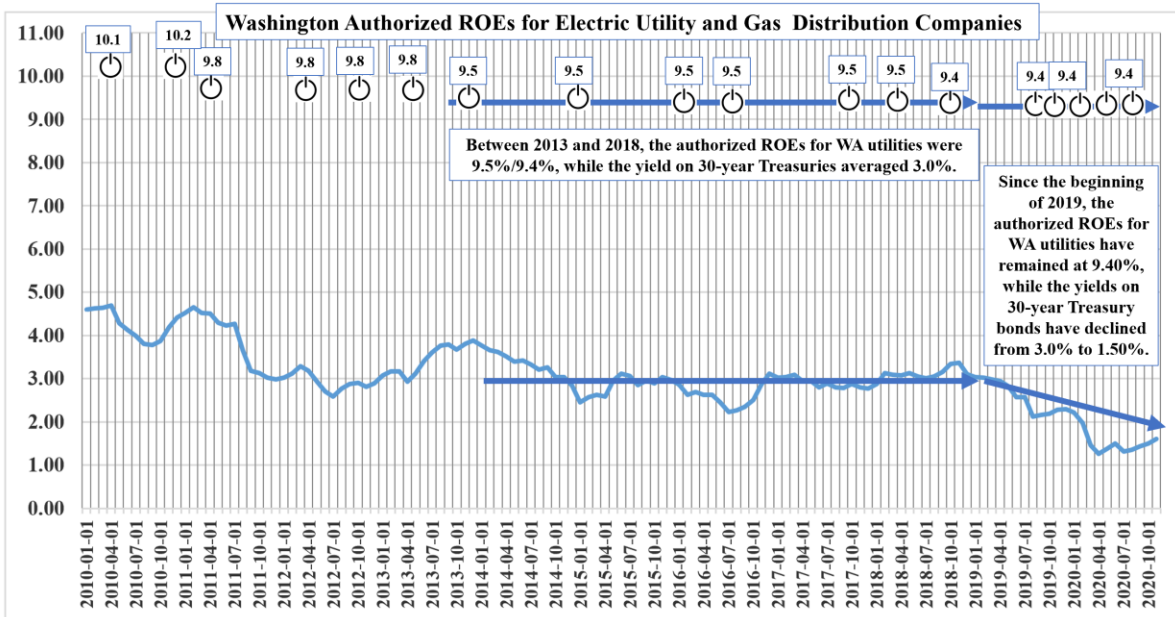
Capital Source	Capitalization Ratios	Cost Rate	Weighted Cost Rate
Debt	50.90%	4.75%	2.42%
Common Equity	49.10%	9.00%	4.42%
Total Capital	100.00%		6.83%

1 **Q. Please discuss the authorized ROEs for electric utility and gas distribution**
 2 **companies in Washington, and how they are related to interest rates?**

3 A. Figure 1 shows (1) the authorized ROEs in Washington for electric utility and gas
 4 distribution companies and (2) 30-year Treasury yields, since 2010. Between 2013 and
 5 2018, the authorized ROEs in Washington were in the 9.4 percent–9.5 percent range,
 6 while the 30-year Treasury yield averaged 3.0 percent. Over that time period, the
 7 difference between the authorized ROEs and 30-year Treasury yields was fairly constant.
 8 In the year 2019, yield on 30-year Treasury bonds declined about 100 basis points to 2.0
 9 percent, and traded at all-time lows. However, the authorized ROEs in Washington
 10 remained in the 9.4 percent–9.5 percent range. Now, in 2020, interest rates and capital
 11 costs declined to new record lows due to the impact of the novel coronavirus, and the 30-
 12 year Treasury yield has declined to the 1.50 percent range. The bottom line is that, unlike
 13 previous years, Washington authorized ROEs since the beginning of 2019 have not
 14 maintained their relationship with interest rates and have not reflected the decline in
 15 interest rates and capital costs.

16 //
 17 ///
 18 ////

Figure 1
Washington Authorized ROEs and 30-Year Treasury Yields
2010-2020



Date Sources: Washington ROEs - S&P Global Market Intelligence, RRA *Regulatory Focus*, 2020.
 Thirty-Year Treasury Yields - <https://fred.stlouisfed.org/series/DGS30>.

C. Primary Rate of Return Issues in this Case

1 **Q. Please provide an overview of the primary issues regarding rate of return in this**
 2 **proceeding.**

3 **A.** The primary issues related to the Company’s rate of return include the following:

4 Capital Market Conditions – Ms. Bulkley’s analyses, ROE results, and
 5 recommendations are based on assumptions of higher interest rates and capital costs.

6 However, interest rates and capital costs have remained at historically low levels in 2020,
 7 and the Federal Reserve has acknowledged that it will keep interest rates near zero for
 8 years to come.

9 Capital Structure – The Company has proposed a capital structure with a common
 10 equity ratio of 50.40 percent. This includes a higher common equity ratio and lower

1 financial risk than: (1) the companies in my Gas Proxy Group, and (2) the capitalization
2 the Company has maintained over time. As a result, I have used a capital structure with a
3 common equity ratio of 49.10 percent, which is the capital structure adopted in the
4 Company's last rate case, and is consistent with Cascade's capitalization in recent years.

5 There is a Disconnect Between the Results of Ms. Bulkley's ROE Studies and Her
6 10.3% ROE Recommendation – The vast majority of Ms. Bulkley's analyses suggest a
7 ROE that is much lower than her 10.3 percent ROE recommendation. The only analyses
8 that support a ROE of 10.3 percent are her CAPM studies. As discussed below, these
9 studies include an inflated long-term projected interest rate and a market risk premium
10 that is based on assumptions of future earnings growth and stock market returns that defy
11 economic logic.

12 DCF Approach – Ms. Bulkley and I have both employed the traditional constant-
13 growth DCF model. Ms. Bulkley has seriously overstated her reported DCF results in
14 three ways: (1) she has exclusively used the overly optimistic and upwardly biased EPS
15 growth rate forecasts of Wall Street analysts and *Value Line*; and (2) she has combined
16 abnormally high *Value Line* projected EPSs for her proxy companies, computed from a
17 three-year base period, with three-to-five-year projected growth rates of First Call and
18 Zacks; and (3) she has claimed that the DCF results underestimate the market-determined
19 cost of equity capital due to high utility stock valuations and low dividend yields. On the
20 other hand, when developing the DCF growth rate that I have used in my analysis, I have
21 reviewed 13 growth rate measures including historical and projected growth rate
22 measures and have evaluated growth in dividends, book value, and earnings per share. In

1 addition, Ms. Bulkley's errors are magnified by the fact that she has used a small proxy
2 group.

3 CAPM Approach – The CAPM approach since weh requires an estimate of the risk-
4 free interest rate, beta, and the market or risk premium. There are three issues with Ms.
5 Bulkley's CAPM analysis: (1) her long-term projected (3.20 percent) 30-year Treasury
6 yield is well in excess of current market yields; (2) she has employed the Empirical CAPM
7 ("ECAPM") version of the CAPM, which makes inappropriate adjustments to the risk-
8 free rate and the market risk premium; and (3) most significantly, she has computed a
9 market risk premium of 12.14 percent. The 12.14 percent market risk premium is much
10 larger than: (1) indicated by historic stock and bond return data; and (2) found in the
11 published studies and surveys of the market risk premium. In addition, I demonstrate that
12 the 12.14 percent market risk premium is based on unrealistic assumptions of future
13 economic and earnings growth and stock returns. To compute her market risk premium,
14 Ms. Bulkley has applied the DCF to the S&P 500 and employed analysts' three-to-five-
15 year earnings per share (EPS) growth-rate projections as a growth rate to compute an
16 expected market return and market risk premium. As I demonstrate later in my testimony,
17 the EPS growth-rate projection used for the S&P 500 and the resulting expected market
18 return and market risk premium include unrealistic assumptions regarding future
19 economic and earnings growth and stock returns. In short, her CAPM results are based on
20 the unrealistic assumption that, over the long-term, corporate earnings can grow at almost
21 three times GDP.

22 As I highlight in my testimony, there are three commonly used procedures for
23 estimating a market risk premium – historic returns, surveys, and expected return models.

1 I have used a market risk premium of 6.00 percent, which: (1) factors in all three
2 approaches – historic returns, surveys, and expected return models – to estimate a market
3 premium; and (2) employs the results of many studies of the market risk premium. As I
4 note, the 6.00 percent figure reflects the market risk premiums: (1) determined in recent
5 academic studies by leading finance scholars; (2) employed by leading investment banks
6 and management consulting firms; and (3) found in surveys of companies, financial
7 forecasters, financial analysts, and corporate CFOs.

8 Alternative Risk Premium Model - Ms. Bulkley also estimates an equity cost rate
9 using an alternative risk premium model, which she calls the Bond Yield Risk Premium
10 (BYRP) approach. There are two issues with this approach: (1) the base interest rates;
11 and (2) the risk premium. With respect to the base rates, her long-term projected (3.20
12 percent) 30-year Treasury yield is well in excess of current market yields. The risk premium
13 in her BYRP method is based on the historical relationship between the yields on long-
14 term Treasury yields and authorized ROEs for gas distribution companies. There are
15 several issues with this approach: (1) This approach is a gauge of commission behavior
16 and not investor behavior. Capital costs are determined in the market place through the
17 financial decisions of investors and are reflected in such fundamental factors as dividend
18 yields, expected growth rates, interest rates, and investors' assessment of the risk and
19 expected return of different investments; (2) Ms. Bulkley's methodology produces an
20 inflated measure of the risk premium because her approach uses historical authorized ROEs
21 and Treasury yields, and the resulting risk premium is applied to projected Treasury yields;
22 and (3) the risk premium is inflated as a measure of investors' required risk premium,
23 because gas distribution companies have been selling at market-to-book ratios in excess

1 of 1.0.⁴ This indicates that the authorized rates of return have been greater than the return
2 that investors require.

3 Expected Earnings Approach - Ms. Bulkley also uses the Expected Earnings
4 approach to estimate an equity cost rate for the Company. Ms. Bulkley computes the
5 expected ROE as forecasted by *Value Line* for her proxy group of gas utilities. As I
6 discuss in my critique of Ms. Bulkley's presentation, the so-called "Expected Earnings"
7 approach does not measure the market cost of equity capital, is independent of most cost
8 of capital indicators, ignores the research on the upward bias in *Value Line*'s earnings
9 projections, and has several other empirical issues. Therefore, the Commission should
10 ignore Ms. Bulkley's "Expected Earnings" approach in determining the appropriate ROE
11 for Cascade.

12 Other Factors - Ms. Bulkley also considers other risk factors in arriving at her
13 10.30 percent ROE recommendation. She claims that Cascade deserves an increment to
14 the authorized ROE for various risk factors, including its small size, customer
15 concentration, capital expenditures, and regulatory risk. She also contends that Cascade
16 deserves a higher ROE due to flotation costs. Ms. Bulkley's arguments on both the risk
17 factors and flotation costs are without merit. The Company's small size, customer
18 concentration, capital expenditures, and regulatory risk are considered in the credit-rating
19 process used by major rating agencies. The S&P issuer credit rating for Cascade of
20 BBB+, which is at the low end of the range of the Gas Proxy Group. With respect to
21 flotation costs, Ms. Bulkley has not cited any flotation costs paid by the Company. As

⁴ As discussed later in my testimony, a market-to-book ratio in excess of 1.0 indicates that a utility's earned ROE is above its cost of equity capital.

1 such, she is requesting greater revenues in the form of a higher ROE for flotation costs
2 that the Company does not incur.

II. CAPITAL MARKET CONDITIONS AND UTILITY AUTHORIZED ROES

A. Capital Market Conditions

3 **Q. Please review the financial markets in 2020.**

4 A. The financial markets began the year in good form – stock prices rose about five percent
5 in the first six weeks of the year and interest rates declined. Then came weeks of chaos. In
6 the middle of February, the spread of the coronavirus went global and the virus became a
7 major risk factor for the world’s population and global economy. The coronavirus disease
8 2019 (COVID-19), has spread to over 200 countries around the world and was officially
9 identified by the World Health Organization as a global pandemic in mid-March.

10 Investors around the world began to focus on the potential economic
11 consequences of the coronavirus in the middle of January.⁵ However, the markets largely
12 ignored the impact of the virus until the third week of February. From mid-February until
13 the third week of March, the S&P 500 declined 35 percent and investors fled to low risk
14 financial assets, most notably long-term Treasury bonds. The yield on the benchmark 30-
15 year Treasury bond declined from 2.0 percent and traded as low as 0.9 percent, an all-
16 time low. Furthermore, the day-to-day volatility of prices in financial markets was at
17 extremes. The VIX, which is the CBOE volatility index and is known as Wall Street’s

⁵ Akane Otane, *Coronavirus Tests Market’s Faith in Global Economy*, THE WALL STREET J., Jan. 28, 2020.

1 Fear Index, increased from 15 and traded over 50, a level which has not been seen since
2 the financial crisis in 2008.

3 The stock market began its recovery in the third week of March. Despite the
4 ongoing spread of COVID-19 and an economic crisis created by the virus that includes
5 record unemployment, the S&P 500 has come back strong and is close to its previous all-
6 time high in February. The 30-year Treasury yield, which was about 2.0 percent mid-
7 February, dropped to record low levels below 1.0 percent and now has come back to
8 about 1.5 percent. The VIX, which topped out over 50, is now about 25. And utility
9 stocks, which declined with the market by about 35 percent from Mid-February to mid-
10 March, have come back, but less so than the overall market.

11 **Q. Does Ms. Bulkley highlight the actions of the federal reserve in response to the**
12 **coronavirus pandemic?**

13 A. Yes. Ms. Bulkley notes that the Federal Reserve has been active in monetary policy to
14 support the economy in the wake of the coronavirus pandemic. In addition, since she
15 prepared her testimony, Federal Reserve Chair Jerome Powell stated that the Fed would
16 keep interest rates low for a number of years in a September 4th NPR interview: “We
17 think that the economy’s going to need low interest rates, which support economic
18 activity, for an extended period of time ... It will be measured in years.”⁶ Subsequently,
19 on September 15, 2020, Federal Reserve officials made more specific Mr. Powell’s
20 September 4th comments, projecting that they would keep interest rates near zero through

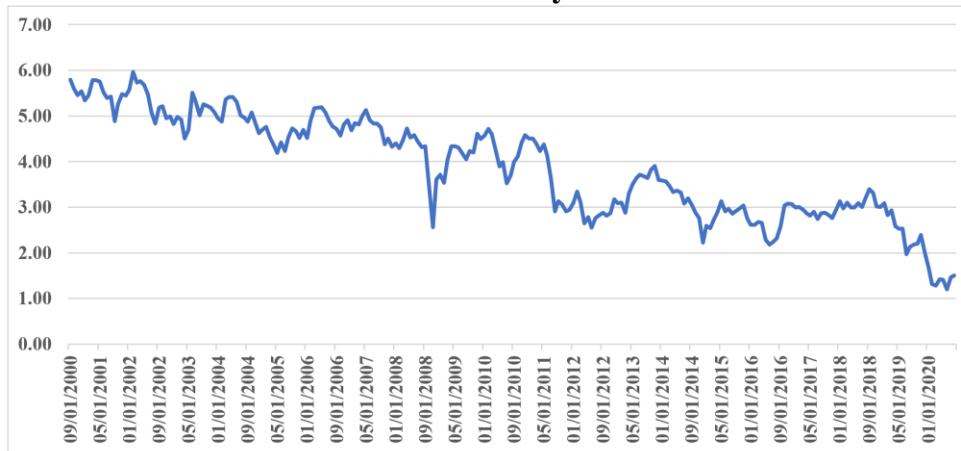
⁶ Jeff Cox, *Powell Says Duration of Low Interest Rates ‘Will Be Measured in Years’*, CNBC.COM, (Sept. 4, 2020, 3:52 PM EDT) <https://www.cnbc.com/2020/09/04/powell-says-duration-of-low-interest-rates-will-be-measured-in-years.html> (last updated Sept. 4, 2020, 4:48 PM EDT).

1 2023 to help the economy fully recover from the pandemic.⁷

2 **Q. Ms. Bulkley does not discuss how the Fed’s actions have impacted utility bond yields.**
3 **Have utility bonds yields declined with Treasury bond yields?**

4 A. Yes. Figure 2 shows 30-year Treasury yields (Panel A), long-term ‘A’ rated utility yields
5 (Panel B), and the yield differentials between these two yields (Panel C) over the 2000-20
6 time period. The yield differentials in Panel C shows that the spread between utility and
7 Treasury yields has increased dramatically during the 2008 financial crisis and during
8 March of this year as a result of the coronavirus. The yield differential has declined
9 significantly in recent months, and is now back to the 1.0 percent to 1.5percent range that
10 it has been historically.

Figure 2
Panel A
30-Year Treasury Yields



Data Source: <https://fred.stlouisfed.org/series/DGS30>

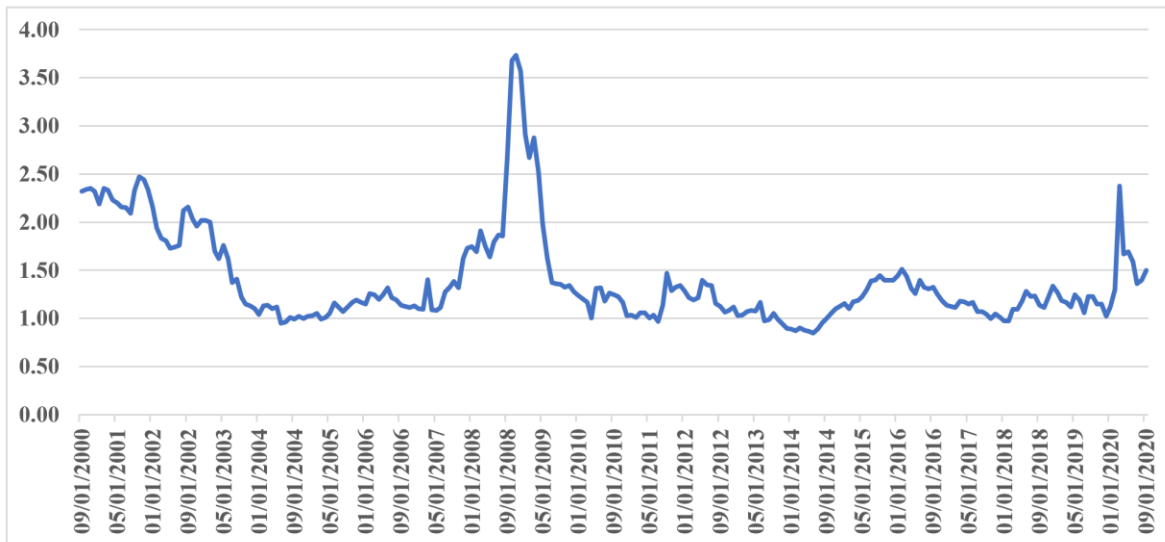
⁷ Victoria Guida, *Fed Expects to Keep Rates Near Zero through 2023*, POLITICO.COM (Sept. 16, 2020, 2:35 PM EDT) <https://www.politico.com/news/2020/09/16/federal-reserve-zero-interest-rate-416202> (last updated Sept. 16, 2020, 5:18 PM EDT).

Panel B
Long-Term A-Rated Utility Bond Yields



Data Source: Mergent Bond Record

Panel C
**Long-Term A-Rated Utility Bonds Minus
 30-Year Treasury Yields**

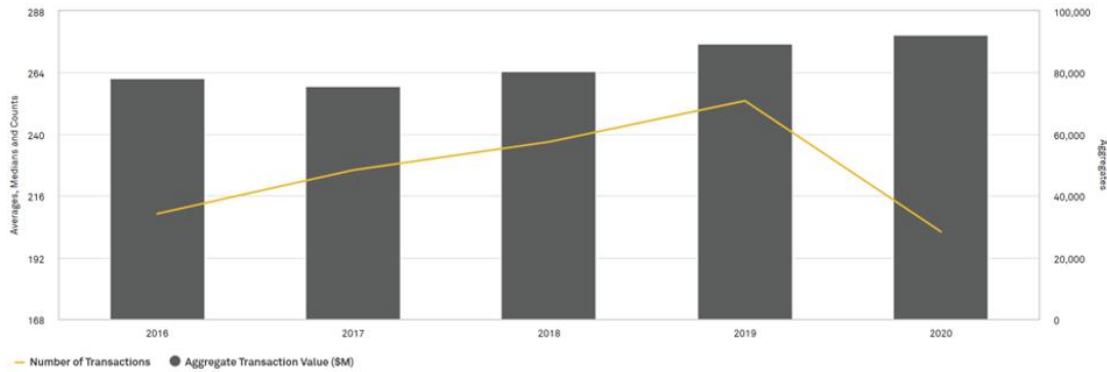


- 1 Q. **Have utilities taken advantage of the lower bond yields to raise capital?**
- 2 A. Yes. Figure 3 shows the amount of capital raised in debt (Panel A) and equity capital

1 markets from 2016-2020. Utilities have especially taken advantage of the low interest
 2 rates; as of October 2, 2020, they have already raised a record amount of capital in the
 3 debt markets. The amount of equity raised by utilities is shown in Panel B. 2020 year-to-
 4 date, the amount of equity is down a little relative to 2019, but this figure is only for the
 5 first nine months of 2020.

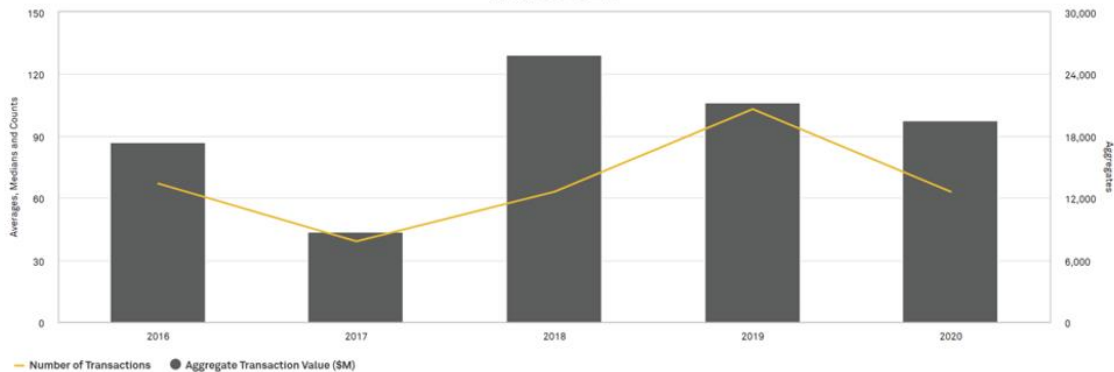
Figure 3

**Panel A
 Utility Debt Offerings
 2016-2020**



Source: S&P Global Market Intelligence.

**Panel B
 Utility Equity Offerings
 2016-2020**



Source: S&P Global Market Intelligence.

1 **Q. In her testimony, Ms. Bulkley implies that interest rates and capital costs are about**
2 **to increase, and she uses higher projected interest rates in her CAPM and risk**
3 **premium models. Please respond.**

4 A. In her discussion of capital market conditions, Ms. Bulkley points to forecasts of long-term
5 interest rates to imply that capital costs are about to increase and uses these forecasts in her
6 CAPM and risk premium approaches.

7 **Q. Please discuss the forecasts of higher interest rates by economists and other**
8 **professional forecasters.**

9 A. In recent years, there have been a number of studies showing that the consensus forecasts of
10 economists are that interest rates are going higher and these forecasts are continually
11 wrong. These include:

12 (1) after the announcement of the end of Quantitative Easing III (“QEIII”) program in
13 2014, all the economists in Bloomberg’s interest rate survey forecasted interest
14 rates would increase in 2014, and 100 percent of the economists were wrong;⁸

15 (2) *Bloomberg* reported that the Federal Reserve Bank of New York has gone as far
16 as stopping use of interest rate estimates of professional forecasters in its interest
17 rate model;⁹

18 (3) a study entitled “How Interest Rates Keep Making People on Wall Street Look
19 Like Fools,” which evaluated economists’ forecasts for the yield on ten-year

⁸ Ben Eisen, *Yes, 100% of Economists were Dead Wrong about Yields*, MARKETWATCH (Oct. 22, 2014, 8:01 AM EDT) <https://www.marketwatch.com/story/yes-100-of-economists-were-dead-wrong-about-yields-2014-10-21>.

⁹ Susanne Walker and Liz Capo McCormick, *Unstoppable \$100 Trillion Bond Market Renders Models Useless*, BLOOMBERG.COM (June 2, 2014, 12:37 PM), <http://www.bloomberg.com/news/2014-06-01/the-unstoppable-100-trillion-bond-market-renders-models-useless.html>.

1 Treasury bonds at the beginning of the year for the last ten years.¹⁰ The results
2 demonstrated that economists consistently predict that interest rates will go
3 higher, and interest rates have not fulfilled the predictions; and
4 (4) a study that tracked economists' forecasts for the yield on ten-year Treasury
5 bonds on an ongoing basis from 2010 until 2015, entitled "Interest Rate
6 Forecasters Are Shockingly Wrong Almost All of the Time," demonstrates how
7 economists continually forecast that interest rates are going up, but interest rates
8 have failed to go up.¹¹

9 **Q. Please summarize your discussion of the interest rate forecasts used by Ms. Bulkley.**

10 A. I recommend that the Commission ignore these forecasts because, as demonstrated in the
11 above studies, economists are always predicting that interest rates are going up, and they
12 have consistently been wrong. Ms. Bulkley makes a significant error in suggesting that
13 investors share economists' views of higher rates and that these views are incorporated into
14 their decision-making. I highlight that investors would not be buying long-term Treasury
15 bonds at current yields today if they followed economists' interest rate forecasts because a
16 near-term increase in interest rates would result in a negative rate of return on those bonds.

¹⁰ Joe Weisenthal, *How Interest Rates Keep Making People on Wall Street Look Like Fools*, BLOOMBERG.COM, (Mar 16, 2015, 4:38 AM) <http://www.bloomberg.com/news/articles/2015-03-16/how-interest-rates-keep-making-people-on-wall-street-look-like-fools..>

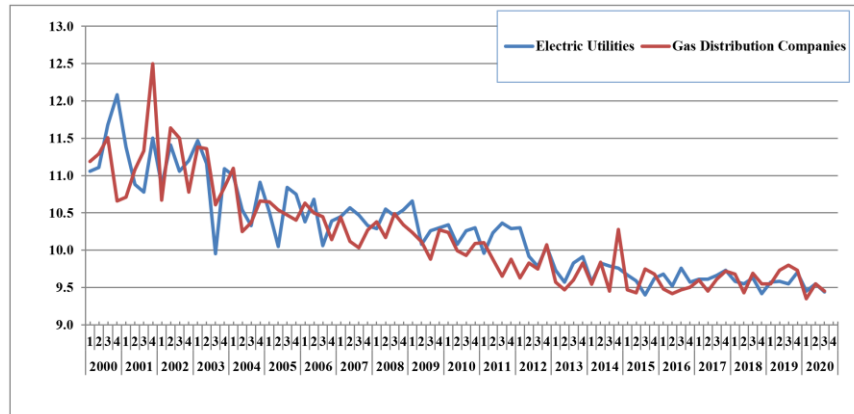
¹¹ Akin Oyedele, *Interest Rate Forecasters are Shockingly Wrong Almost All of the Time*, BUSINESS INSIDER (July 18, 2015, 5:25 AM). <http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time-2015-7>.

B. Authorized ROEs

1 **Q. Please discuss the trend in authorized ROEs for electric and gas companies.**

2 A. Over the years, as interest rates have come down, authorized ROEs for electric utility and
 3 gas distribution companies have declined to reflect a low capital cost environment. Figure
 4 4, which shows the quarterly authorized ROEs for electric utility and gas distribution
 5 companies in the U.S. from 2000 to 2020, clearly shows a downward trend in the data.
 6 For gas distribution companies, the authorized ROEs for gas distribution companies have
 7 declined from 9.94 percent in 2012, to 9.68 percent in 2013, 9.78 percent in 2014, 9.60
 8 percent in 2015, 9.50 percent in 2016, 9.72 percent in 2017, 9.59 percent in 2018, 9.71
 9 percent in 2019, and 9.45 percent in the first three quarters of 2020, according to
 10 Regulatory Research Associates.¹² S&P called the average gas ROE in the first half of
 11 2020 an “all-time low.”¹³

Figure 4
Authorized ROEs for Gas Utility and Gas Distribution Companies
2000-2020



¹² S&P Global Market Intelligence, Regulatory Research Associates, *Regulatory Focus*, 2020.

¹³ S&P Global Market Intelligence, *Gas ROE Authorizations Fall to New Low in H1'20*, Aug. 11, 2020.

1 **Q. Do you believe that your ROE recommendation meets *Hope* and *Bluefield***
2 **standards?**

3 A. Yes, I do. As previously noted, according to the *Hope* and *Bluefield* decisions, returns on
4 capital should be: (1) comparable to returns investors expect to earn on other investments
5 of similar risk; (2) sufficient to assure confidence in the company's financial integrity;
6 and (3) adequate to maintain and support the company's credit and to attract capital. As
7 shown on page 3 of Exhibit JRW-6, gas distribution companies have been earning ROEs
8 in the range of 8.0 percent to 9.0 percent in recent years. With such a ROE, gas
9 companies such as those in the proxy group have strong investment grade credit ratings,
10 their stocks have been selling at about 2.0 times book value, and they have been raising
11 abundant amounts of capital. While my recommendation is below the average authorized
12 ROEs for gas distribution companies, it reflects the record low levels of interest rates and
13 capital costs. Therefore, I believe that my ROE recommendation meets the criteria
14 established in the *Hope* and *Bluefield* decisions.

III. PROXY GROUP SELECTION

15 **Q. Please describe your approach to developing a fair rate of return recommendation**
16 **for Cascade.**

17 A. To develop a fair rate of return recommendation for the Company (market cost of equity),
18 I evaluated the return requirements of investors on the common stock of a proxy group of
19 nine publicly held gas distribution companies ("the Gas Proxy Group"). The Gas Proxy
20 Group consists of nine natural gas distribution companies listed by *Value Line* in the
21 Natural Gas Company industry group: Atmos Energy, Chesapeake Utilities, Inc., New

1 Jersey Resources, NiSource, Northwest Natural Holding Company, One Gas, Inc., South
2 Jersey Industries, Southwest Gas Corporation, and Spire, Inc.

3 **Q. How does your group compare to Ms. Bulkley's group of gas distribution**
4 **companies?**

5 A. Ms. Bulkley has excluded NiSource and Chesapeake Utilities from the group of gas
6 distribution companies covered by *Value Line*. Ms. Bulkley excludes companies that
7 receive less than 70 percent of operating income from regulated operations and 60
8 percent of operating income from gas operations. These screens exclude Chesapeake
9 Utilities and NiSource. Given the small number of regulated gas companies, I do not
10 believe these companies should be eliminated.

11 **Q. Please discuss the financial statistics for your proxy group.**

12 A. On page 1 of Exhibit JRW-3, I list the summary financial statistics for the Gas Proxy
13 Group. The median operating revenues and net plant among members of the Gas Proxy
14 Group are \$1,952.4 million and \$4,599.4 million, respectively. On average, the group
15 receives 70 percent of revenues from regulated gas operations, has an A-/BBB+ average
16 issuer credit rating from S&P, an average common equity ratio of 45.8 percent, and an
17 average earned return on common equity of 8.7 percent.

18 **Q. What role do bond ratings play in the investment community?**

19 A. I believe that bond ratings provide a good independent assessment of the investment risk
20 of a company.

21 **Q. How does the investment risk of the company compare to that of your gas proxy**
22 **group?**

1 A. The S&P issuer credit rating for Cascade is BBB+. The average S&P issuer credit rating
2 for the Gas Proxy Group is A-/BBB+. As such, I believe that, based on the credit ratings,
3 the Company is at the low end of the range of the proxy group.

4 **Q. Please discuss the investment risk of the gas proxy group as measured by the risk
5 metrics published by *Value Line*.**

6 A. On page 2 of Exhibit JRW-3, I show the riskiness of the Gas Proxy Group using five
7 different risk measures from *Value Line*. The comparisons of the risk measures include:
8 (1) Beta (0.84); (2) Financial Strength (A); (3) Safety (2.1); (4) Earnings Predictability
9 (67); and (5) Stock Price Stability (88).¹⁴ In my opinion, these risk measures indicate that
10 the group's investment risk is relatively low.

III. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES

11 **Q. Please describe Cascade's proposed capital structure.**

12 A. The Company has proposed a capital structure consisting of 49.60 percent total debt and
13 50.40 percent common equity, and a debt cost rate of 4.745 percent. This is shown in
14 Panel A of page 1 of Exhibit JRW-4.

15 **Q. How do the Company's proposed capital structure ratios compare to the average
16 capitalization ratios for companies in your proxy group?**

17 A. Cascade's proposed capital structure ratios include a common equity ratio of 50.40
18 percent. As shown on Page 1 of Exhibit JRW-3, the average quarterly common equity ratio
19 for the Gas Proxy Group, as of December 31, 2019, was 46.1 percent. As such, Cascade has

¹⁴ These metrics are defined on page 3 of Exhibit JRW-3.

1 proposed a capital structure that includes more common equity financing of its utility
2 operations than the average in the proxy group.

3 **Q. On pages 90-94 of her testimony and in Schedule 10,¹⁵ Ms. Bulkley attempts to**
4 **justify the Company's proposed capital structure by comparing Cascade's proposed**
5 **50.40 percent common equity ratio to the average equity ratio of the operating**
6 **utilities owned by the proxy holding companies. Is this the appropriate comparison?**

7 A. No. Contrary to Ms. Bulkley's assertions, the appropriate comparison when it comes to
8 common equity ratios is between the common equity ratio as proposed by the Company
9 and the average common equity ratios for the holding companies in the proxy group. The
10 reason is that both Ms. Bulkley and I use the holding companies to estimate a cost of
11 equity capital for the Company. That is because the holding companies have common
12 stock outstanding and so we can apply DCF and CAPM equity cost rate approaches.
13 Therefore, the common equity ratios of the holding companies are appropriate for
14 comparison purposes, not the common equity ratios of the subsidiary operating utility
15 companies.

16 **Q. What capital structure has cascade employed to finance its operations in recent**
17 **years?**

18 A. As shown in Panel B of Page 1 of Exhibit JRW-4, Cascade has maintained a capital
19 structure consisting of 51.48 percent debt and 48.52 percent equity over the 2018-2020
20 time period. This is generally in line with the Company's authorized common equity

¹⁵ Anne E. Bulkley, Exh. AEB-2 (Schedule 10).

1 ratios in its two most recent rate cases: (1) Docket UG-170929 – 49.0 percent authorized
2 on July 20, 2018,¹⁶; and (2) Docket UG-190210 – 49.1 percent authorized on February 3,
3 2020.¹⁷

4 **Q. What capital structure are you recommending in this case?**

5 A. Given the Company’s recent capitalizations and authorized common equity ratios, I will
6 use a capital structure consisting of 50.90 percent debt and 49.10 percent equity. This is
7 the capital structure agreed to in the settlement in Cascade’s most recent rate case
8 (Docket UG-190210).

9 **Q. Are you using the Company’s proposed debt cost rate?**

10 A. Yes.

IV. THE COST OF COMMON EQUITY CAPITAL

A. Overview

11 **Q. Why must an overall cost of capital or fair rate of return be established for a public**
12 **utility?**

13 A. In a competitive industry, the return on a firm’s common equity capital is determined
14 through the competitive market for its goods and services. Due to the capital
15 requirements needed to provide utility services and the economic benefit to society from
16 avoiding duplication of these services and the construction of utility infrastructure

¹⁶ *Wash. Utils. & Transp. Comm’n v. Cascade Nat. Gas Corp.* Docket UG-170929, Order 06 Final Order Rejecting Tariff Sheets; Resolving Contested Issues; Approving and Adopting Settlement Agreement; and Authorizing and Requiring Compliance Filing ¶ 58 (Jul. 20, 2018).

¹⁷ *Wash. Utils. & Transp. Comm’n v. Cascade Nat. Gas Corp.* Docket UG-19210, Order 05 Final Order Approving and Adopting Settlement Agreement ¶ 10 (Feb. 3, 2020).

1 facilities, many public utilities are monopolies. Because of the lack of competition and
2 the essential nature of their services, it is not appropriate to permit monopoly utilities to
3 set their own prices. Thus, regulation serves as a substitute for the absence of
4 competition, and seeks to establish prices that are fair to consumers and, at the same time,
5 sufficient to meet the operating and capital costs of the utility, *i.e.*, provide an adequate
6 return on capital to attract investors.

7 **Q. Please provide an overview of the cost of capital in the context of the theory of the**
8 **firm.**

9 A. The total cost of operating a business includes the cost of capital. The cost of common
10 equity capital is the expected return on a firm's common stock that the marginal investor
11 would deem sufficient to compensate for risk and the time value of money. In
12 equilibrium, the expected and required rates of return on a company's common stock are
13 equal.

14 Normative economic models of a company or firm, developed under very
15 restrictive assumptions, provide insight into the relationship between a firm's
16 performance or profitability, capital costs, and the value of the firm. Under the
17 economist's ideal model of perfect competition, where entry and exit are costless,
18 products are undifferentiated, and there are increasing marginal costs of production, firms
19 produce up to the point where price equals marginal cost. Over time, a long-run
20 equilibrium is established where price equals average cost, including the firm's capital
21 costs. In equilibrium, total revenues equal total costs, and because capital costs represent
22 investors' required return on the firm's capital, actual returns equal required returns, and
23 the market value must equal the book value of the firm's securities.

1 In a competitive market, firms can achieve competitive advantage due to product-
2 market imperfections. Most notably, companies can gain competitive advantage through
3 product differentiation (adding real or perceived value to products) and by achieving
4 economies of scale (decreasing marginal costs of production). Competitive advantage
5 allows firms to price products above average cost and thereby earn accounting profits
6 greater than those required to cover capital costs. When profits are in excess of those
7 required by investors, or when a firm earns a return on equity in excess of its cost of
8 equity, investors respond by valuing the firm's equity in excess of its book value.

9 James M. McTaggart, founder of the international management consulting firm
10 Marakon Associates, described this essential relationship between the return on equity,
11 the cost of equity, and the market-to-book ratio in the following manner:

12 Fundamentally, the value of a company is determined by the cash flow it
13 generates over time for its owners, and the minimum acceptable rate of
14 return required by capital investors. This "cost of equity capital" is used to
15 discount the expected equity cash flow, converting it to a present value. The
16 cash flow is, in turn, produced by the interaction of a company's return on
17 equity and the annual rate of equity growth. High return on equity (ROE)
18 companies in low-growth markets, such as Kellogg, are prodigious
19 generators of cash flow, while low ROE companies in high-growth markets,
20 such as Texas Instruments, barely generate enough cash flow to finance
21 growth.

22 A company's ROE over time, relative to its cost of equity, also determines
23 whether it is worth more or less than its book value. If its ROE is
24 consistently greater than the cost of equity capital (the investor's minimum
25 acceptable return), the business is economically profitable and its market
26 value will exceed book value. If, however, the business earns an ROE
27 consistently less than its cost of equity, it is economically unprofitable and
28 its market value will be less than book value.¹⁸

¹⁸ James M. McTaggart, *The Ultimate Poison Pill: Closing the Value Gap*, COMMENTARY, Spring 1986, at 3.

1 As such, the relationship between a firm’s return on equity, cost of equity, and
2 market-to-book ratio is relatively straightforward. A firm that earns a return on equity
3 above its cost of equity will see its common stock sell at a price above its book value.
4 Conversely, a firm that earns a return on equity below its cost of equity will see its
5 common stock sell at a price below its book value.

6 **Q. Please provide additional insights into the relationship between ROE and market-**
7 **to-book ratios.**

8 A. This relationship is discussed in a classic Harvard Business School case study entitled
9 “Note on Value Drivers.” On page 2 of that case study, the author describes the
10 relationship very succinctly:

11 For a given industry, more profitable firms – those able to generate higher
12 returns per dollar of equity – should have higher market-to-book ratios.
13 Conversely, firms which are unable to generate returns in excess of their
14 cost of equity [(K)] should sell for less than book value.

<i>Profitability</i>	<i>Value</i>
<i>If ROE > K</i>	<i>then Market/Book > 1</i>
<i>If ROE = K</i>	<i>then Market/Book = 1</i>
<i>If ROE < K</i>	<i>then Market/Book < 1¹⁹</i>

20 To assess the relationship by industry, as suggested above, I performed a
21 regression study between estimated ROE and market-to-book ratios using natural gas
22 distribution and electric utility companies. I used all companies in these two industries
23 that are covered by *Value Line* and have estimated ROE and market-to-book ratio data.

¹⁹ Benjamin Esty, *Note on Value Drivers*, HARVARD BUSINESS SCHOOL, Case No. 9-297-082, Apr. 7, 1997.

1 The results are presented in Exhibit JRW-5. The average R-square is 0.50.²⁰ This
2 demonstrates the strong positive statistically significant relationship between ROEs and
3 market-to-book ratios for public utilities. Given that the market-to-book ratios have been
4 above 1.0 for a number of years, this also demonstrates that utilities have been earning
5 ROEs above the cost of equity capital for many years.

6 **Q. What economic factors have affected the cost of equity capital for public utilities?**

7 A. Exhibit JRW-6 provides indicators of public utility equity cost rates over the past decade.

8 Page 1 shows the yields on long-term A-rated public utility bonds. These yields
9 decreased from 2000 until 2003, and then hovered in the 5.50 percent-6.50 percent range
10 from mid-2003 until mid-2008. These yields peaked in November 2008 at 7.75 percent
11 during the Great Recession. These yields have generally declined since then, dropping
12 below 4.0 percent on four occasions - in mid-2013, in early 2015, in the summer of 2016,
13 and in late 2017. These yields increased in 2018, fell back below 4.0 percent in 2019 and
14 have fallen much lower in 2020 to below 3.00 percent.

15 Page 2 of Exhibit JRW-6 provides the dividend yields for the companies in the
16 Gas Proxy Group over the past 17 years. The dividend yields for the gas group declined
17 from 5.8 percent to 3.1 percent between the years 2000 to 2007, increased to about 4.0
18 percent in 2009, and have declined steadily since that time. The average dividend yield
19 has been in the 2.70 percent to 2.90 percent range in the past three years.

²⁰ R-square measures the percent of variation in one variable (e.g., market-to-book ratios) explained by another variable (e.g., expected ROE). R-squares vary between zero and 1.0, with values closer to 1.0 indicating a higher relationship between two variables.

1 Average earned returns on common equity and market-to-book ratios for gas
2 utilities are on page 3 of Exhibit JRW-6. For the gas group, earned returns on common
3 equity have been in the range of 9.0 percent to 12.0 percent over these years. Over the
4 past decade, the actual earned ROEs have declined from the 12.0 percent range to about
5 9.0 percent. The average earned ROE in the past three years has been in the 8.0 percent to
6 9.0 percent range. The average market-to-book ratios for this group, have been over
7 2.00X in the past three years. This means that, for at least the last decade, returns on
8 common equity have been greater than the cost of capital, or more than necessary to meet
9 investors' required returns. This also means that customers have been paying more than
10 necessary to support an appropriate profit level for regulated utilities.

11 **Q. What factors determine investors' expected or required rate of return on equity?**

12 A. The expected or required rate of return on common stock is a function of market-wide as
13 well as company-specific factors. The most important market factor is the time value of
14 money, as indicated by the level of interest rates in the economy. Common stock investor
15 requirements generally increase and decrease with like changes in interest rates. The
16 perceived risk of a firm is the predominant factor that influences investor return
17 requirements on a company-specific basis. A firm's investment risk is often separated into
18 business risk and financial risk. Business risk encompasses all factors that affect a firm's
19 operating revenues and expenses. Financial risk results from incurring fixed obligations in
20 the form of debt in financing its assets.

21 **Q. How does the investment risk of utilities compare with that of other industries?**

22 A. Due to the essential nature of their service as well as their regulated status, public utilities
23 are exposed to a lesser degree of business risk than other, non-regulated businesses. The

1 relatively low level of business risk allows public utilities to meet much of their capital
2 requirements through borrowing in the financial markets, thereby incurring greater than
3 average financial risk. Nonetheless, the overall investment risk of public utilities is below
4 most other industries.

5 Page 4 of Exhibit JRW-6 is an updated study of industry betas. I updated my
6 industry beta study and now the average electric, gas, and water utility betas are 0.86,
7 0.85, and 0.78, respectively. As discussed below, utility stocks were more volatile than
8 the overall market during March and April 2020 when the financial markets were
9 especially volatile. *Value Line* updates betas for companies on a quarterly basis. As such,
10 this short period when utility stocks were more volatile than the market resulted in a
11 significant increase in utility betas as published by *Value Line*. In fact, the betas of most
12 of the low beta industries increased in the update. Nonetheless, utilities are still among
13 the lowest risk industries as measured by beta. In addition, this issue is discussed later in
14 this testimony, as there are some measurement problems with *Value Line* betas.

15 **Q. What is the cost of common equity capital?**

16 A. The costs of debt and preferred stock are normally based on historical or book values and
17 can be determined with a great degree of accuracy. The cost of common equity capital,
18 however, cannot be determined precisely and must instead be estimated from market data
19 and informed judgment. This return requirement of the stockholder should be
20 commensurate with the return requirement on investments in other enterprises having
21 comparable risks.

22 According to valuation principles, the present value of an asset equals the
23 discounted value of its expected future cash flows. Investors discount these expected cash

1 flows at their required rate of return that, as noted above, reflects the time value of money
2 and the perceived riskiness of the expected future cash flows. As such, the cost of
3 common equity is the rate at which investors discount expected cash flows associated
4 with common stock ownership.

5 **Q. How can the expected or required rate of return on common equity capital be**
6 **determined?**

7 A. Models have been developed to ascertain the cost of common equity capital for a firm.
8 Each model, however, has been developed using restrictive economic assumptions.
9 Consequently, judgment is required in selecting appropriate financial valuation models to
10 estimate a firm's cost of common equity capital, in determining the data inputs for these
11 models, and in interpreting the models' results. All of these decisions must take into
12 consideration the firm involved as well as current conditions in the economy and the
13 financial markets.

14 **Q. How did you estimate the cost of equity capital for the Company?**

15 A. Primarily, I rely on the DCF model to estimate the cost of equity capital. Given the
16 investment valuation process and the relative stability of the utility business, the DCF
17 model provides the best measure of equity cost rates for public utilities. I have also
18 performed an analysis based on the capital asset pricing model (CAPM); however, I give
19 these results less weight because I believe that risk premium studies, of which the CAPM
20 is one form, provide a less reliable indication of equity cost rates for public utilities.

21 **Q. Why do you think that CAPM provides a less reliable indicator of equity cost rates?**

A. I believe that the CAPM provides a less reliable measure of a utility's equity cost rate
because it requires an estimate of the market risk premium. As discussed below, there is a

wide variation in estimates of the market risk premium found in studies by academics and investment firms as well as in surveys of market professionals.

B. DCF Analysis

1 **Q. Please describe the theory behind the traditional DCF model.**

2 A. According to the DCF model, the current stock price is equal to the discounted value of all
3 future dividends that investors expect to receive from investment in the firm. As such,
4 stockholders' returns ultimately result from current as well as future dividends. As owners
5 of a corporation, common stockholders are entitled to a *pro rata* share of the firm's
6 earnings. The DCF model presumes that earnings that are not paid out in the form of
7 dividends are reinvested in the firm so as to provide for future growth in earnings and
8 dividends. The rate at which investors discount future dividends, which reflects the timing
9 and riskiness of the expected cash flows, is interpreted as the market's expected or required
10 return on the common stock. Therefore, this discount rate represents the cost of common
11 equity. Algebraically, the DCF model can be expressed as:

$$12 \quad P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_n}{(1+k)^n}$$

15 where P is the current stock price, D_n is the dividend in year n, and k is the cost of common
16 equity.

17 **Q. Is the DCF model consistent with valuation techniques employed by investment**
18 **firms?**

19 A. Yes. Virtually all investment firms use some form of the DCF model as a valuation
20 technique. One common application for investment firms is called the three-stage DCF or

1 dividend discount model (DDM). The stages in a three-stage DCF model are presented in
2 Exhibit JRW-7, Page 1 of 1. This model presumes that a company's dividend payout
3 progresses initially through a growth stage, then proceeds through a transition stage, and
4 finally assumes a maturity (or steady-state) stage. The dividend-payment stage of a firm
5 depends on the profitability of its internal investments, which, in turn, is largely a
6 function of the life cycle of the product or service.

7 (1) Growth stage: Characterized by rapidly expanding sales, high profit margins, and
8 an abnormally high growth in earnings per share. Because of highly profitable
9 expected investment opportunities, the payout ratio is low. Competitors are
10 attracted by the unusually high earnings, leading to a decline in the growth rate.

11 (2) Transition stage: In later years, increased competition reduces profit margins and
12 earnings growth slows. With fewer new investment opportunities, the company
13 begins to pay out a larger percentage of earnings.

14 (3) Maturity (steady-state) stage: Eventually, the company reaches a position where
15 its new investment opportunities offer, on average, only slightly attractive ROEs.
16 At that time, its earnings growth rate, payout ratio, and ROE stabilize for the
17 remainder of its life. The constant-growth DCF model is appropriate when a firm is
18 in the maturity stage of the life cycle.

19 In using this model to estimate a firm's cost of equity capital, dividends are
20 projected into the future using the different growth rates in the alternative stages, and
21 then the equity cost rate is the discount rate that equates the present value of the future
22 dividends to the current stock price.

1 **Q. How do you estimate stockholders' expected or required rate of return using the**
2 **DCF model?**

3 A. Under certain assumptions, including a constant and infinite expected growth rate, and
4 constant dividend/earnings and price/earnings ratios, the DCF model can be simplified to
5 the following:

$$6 \quad P = \frac{D_1}{k - g}$$

7
8
9 where D_1 represents the expected dividend over the coming year and g is the expected
10 growth rate of dividends. This is known as the constant-growth version of the DCF
11 model. To use the constant-growth DCF model to estimate a firm's cost of equity, one
12 solves for "k" in the above expression to obtain the following:

$$13 \quad k = \frac{D_1}{P} + g$$

14
15
16 **Q. In your opinion, is the constant-growth version of the DCF model appropriate for**
17 **public utilities?**

18 A. Yes. The economics of the public utility business indicate that the industry is in the
19 maturity or constant-growth stage of a three-stage DCF. The economics include the
20 relative stability of the utility business, the maturity of the demand for public utility
21 services, and the regulated status of public utilities (especially the fact that their returns
22 on investment are effectively set through the ratemaking process). The appropriate DCF
23 valuation procedure for companies in this stage is the constant-growth DCF. In the
24 constant-growth version of the DCF model, the current dividend payment and stock price

1 are directly observable. However, the primary problem and controversy in applying the
2 DCF model to estimate equity cost rates entails estimating investors' expected dividend
3 growth rate.

4 **Q. What factors should one consider when applying the DCF methodology?**

5 A. One should be sensitive to several factors when using the DCF model to estimate a firm's
6 cost of equity capital. In general, one must recognize the assumptions under which the
7 DCF model was developed in estimating its components (the dividend yield and the
8 expected growth rate). The dividend yield can be measured precisely at any point in time;
9 however, it tends to vary somewhat over time. Estimation of expected growth is
10 considerably more difficult. One must consider recent firm performance, in conjunction
11 with current economic developments and other information available to investors, to
12 accurately estimate investors' expectations.

13 **Q. What dividend yields have you reviewed?**

14 A. I have calculated the dividend yields for the companies in the proxy group using the
15 current annual dividend and 30-day, 90-day, and 180-day average stock prices. These
16 dividend yields are provided in page 2 of Exhibit JRW-8. Due to changing market
17 conditions in 2020, I am using the dividend yields derived from the 30-day and 90-day
18 average stock prices. For the Gas Proxy Group, the median dividend yields using the 30-
19 day and 90-day average stock prices range from 3.6 percent to 3.7 percent. As a result, I
20 am using 3.65 percent as the dividend yield for the Gas Proxy Group.

21 **Q. Please discuss the appropriate adjustment to the spot dividend yield.**

22 A. According to the traditional DCF model, the dividend yield term relates to the dividend
23 yield over the coming period. Professor Myron Gordon, who is associated with the

1 development of the DCF model for popular use, indicates that this is obtained by: (1)
2 multiplying the expected quarterly dividend over the coming quarter by four, and (2)
3 dividing the resulting annual dividend by the current stock price to determine the
4 appropriate dividend yield for a firm that pays dividends on a quarterly basis.²¹

5 In applying the DCF model, some analysts adjust the current dividend for growth
6 over the coming year as opposed to the coming quarter. This can be complicated because
7 firms tend to announce changes in dividends at different times during the year. As such,
8 the dividend yield that is computed based upon presumed growth over the coming quarter
9 as opposed to the coming year can be quite different. Consequently, it is common for
10 analysts to adjust the dividend yield by some fraction of the long-term expected growth
11 rate.

12 **Q. Given this discussion, what adjustment factor do you use for your dividend yield?**

13 A. I adjust the dividend yield (D/P) by one-half (0.5) of the expected growth (g) so as to
14 reflect growth over the coming year. The DCF equity cost rate (K) is computed as:

$$K = [(D/P) * (1 + 0.5g)] + g$$

16 **Q. Please discuss the growth rate component of the DCF model.**

17 A. There is debate as to the proper methodology to employ in estimating the growth
18 component of the DCF model. By definition, this component is investors' expectation of
19 the long-term dividend growth rate. Presumably, investors use some combination of

²¹ Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62, Docket No. 79-05, *Petition for Modification of Prescribed Rate of Return* (F.C.C. Apr. 1980).

1 historical and/or projected growth rates for earnings and dividends per share and for
2 internal or book-value growth to assess long-term potential.

3 **Q. What growth data have you reviewed for the proxy group?**

4 A. I have analyzed a number of measures of growth for the companies in the proxy group. I
5 reviewed *Value Line*'s historical and projected growth rate estimates for earnings per
6 share (EPS), dividends per share (DPS), and book value per share (BVPS). In addition, I
7 utilized the average EPS growth rate forecasts of Wall Street analysts as provided by
8 Yahoo and Zacks. These services solicit three-to-five-year earnings growth rate
9 projections from securities analysts and compile and publish the means and medians of
10 these forecasts. Finally, I assessed prospective growth as measured by prospective
11 earnings retention rates and earned returns on common equity.

12 **Q. Please discuss historical growth in earnings and dividends as well as internal
13 growth.**

14 A. Historical growth rates for EPS, DPS, and BVPS are readily available to investors and are
15 presumably an important ingredient in forming expectations concerning future growth.
16 However, one must use historical growth numbers as measures of investors' expectations
17 with caution. In some cases, past growth may not reflect future growth potential. Also,
18 employing a single growth rate number (for example, for five or 10 years) is unlikely to
19 accurately measure investors' expectations, due to the sensitivity of a single growth rate
20 figure to fluctuations in individual firm performance as well as overall economic
21 fluctuations (i.e., business cycles). However, one must appraise the context in which the
22 growth rate is being employed. According to the conventional DCF model, the expected
23 return on a security is equal to the sum of the dividend yield and the expected long-term

1 growth in dividends. Therefore, to best estimate the cost of common equity capital using
2 the conventional DCF model, one must look to long-term growth rate expectations.

3 Internally generated growth is a function of the percentage of earnings retained
4 within the firm (the earnings retention rate) and the rate of return earned on those
5 earnings (the return on equity). The internal growth rate is computed as the retention rate
6 times the return on equity. Internal growth is significant in determining long-term
7 earnings and, therefore, dividends. Investors recognize the importance of internally
8 generated growth and pay premiums for stocks of companies that retain earnings and earn
9 high returns on internal investments.

10 **Q. Which EPS forecasts should be used in developing a DCF growth rate?**

11 A. The DCF growth rate is the long-term projected growth rate in EPS, DPS, and BVPS.
12 Therefore, in developing an equity cost rate using the DCF model, the projected long-
13 term growth rate is the projection used in the DCF model.

14 **Q. Why do you not rely exclusively on the EPS forecasts of Wall Street analysts in
15 arriving at a DCF growth rate for the proxy group?**

16 A. There are several reasons. First, the appropriate growth rate in the DCF model is the
17 dividend growth rate, not the earnings growth rate. Nonetheless, over the very long term,
18 dividends and earnings will have to grow at a similar growth rate. Therefore,
19 consideration must be given to other indicators of growth, including prospective dividend
20 growth, internal growth, as well as projected earnings growth.

21 Second, a 2011 study by Lacina, Lee, and Xu has shown that analysts' long-term
22 earnings growth rate forecasts are not more accurate at forecasting future earnings than

1 just using last year's earnings figure as the projected future earnings number.²²

2 Employing data over a 20-year period, these authors demonstrate that using the most
3 recent year's EPS figure to forecast EPS in the next three-to-five years proved to be just
4 as accurate as using the EPS estimates from analysts' long-term earnings growth rate
5 forecasts. In the authors' opinion, these results indicate that analysts' long-term earnings
6 growth rate forecasts should be used with caution as inputs for valuation and cost of
7 capital purposes.

8 Finally, and most significantly, it is well known that the long-term EPS growth
9 rate forecasts of Wall Street securities analysts are overly optimistic and upwardly biased.
10 This has been demonstrated in a number of academic studies over the years.²³ Hence,
11 using these growth rates as a DCF growth rate will provide an overstated equity cost rate.
12 On this issue, a study by Easton and Sommers (2007) found that optimism in analysts'
13 growth rate forecasts leads to an upward bias in estimates of the cost of equity capital of
14 almost 3.0 percentage points.²⁴

15 **Q. Are the EPS growth rate forecasts of *Value Line* also overly optimistic and upwardly**

²² 8 M. Lacina, B. Lee & Z. Xu, ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING at 77-101 (Kenneth D. Lawrence, Ronald K. Klimberg eds., Emerald Group Publishing Ltd., 2011).

²³ The studies that demonstrate analysts' long-term EPS forecasts are overly-optimistic and upwardly biased include: R.D. Harris, *The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts*, J. OF BUSINESS FINANCE & ACCOUNTING, 725-55 (June/July 1999); P. Dechow, A. Hutton, and R. Sloan, *The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings*, CONTEMPORARY ACCOUNTING RESEARCH (2000); K. Chan, L., Karceski, J., & Lakonishok, J., *The Level and Persistence of Growth Rates*, J. OF FINANCE, 643-684 (2003); 8 M. Lacina, B. Lee and Z. Xu, (2011), ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING (Kenneth D. Lawrence, Ronald K. Klimberg eds., Emerald Group Publishing Limited, 2011); and Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, *Equity Analysts, Still Too Bullish*, MCKINSEY ON FINANCE, Spring 2010, at 14-17.

²⁴ Peter D. Easton & Gregory A. Sommers, *Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts*, 45 J. ACCT. RES. 983-1015 (2007).

1 **biased?**

2 A. Yes. A study by Szakmary, Conover, and Lancaster (2008) evaluated the accuracy of
3 *Value Line*'s three-to-five-year EPS growth rate forecasts using companies in the Dow
4 Jones Industrial Average over a 30-year time period and found these forecasted EPS
5 growth rates to be significantly higher than the EPS growth rates that these companies
6 subsequently achieved.²⁵

7 **Q. Is it your opinion that stock prices reflect the upward bias in the EPS growth rate**
8 **forecasts?**

9 A. Yes, I do believe that investors are well aware of the bias in analysts' EPS growth rate
10 forecasts and stock prices, therefore, reflect the upward bias.

11 **Q. How does that affect the use of these forecasts in a DCF equity cost rate study?**

12 A. According to the DCF model, the equity cost rate is a function of the dividend yield and
13 expected growth rate. Because stock prices reflect the bias, it would affect the dividend
14 yield. In addition, the DCF growth rate needs to be adjusted downward from the projected
15 EPS growth rate to reflect the upward bias.

16 **Q. Please discuss the historical growth of the companies in the proxy group, as**
17 **provided by *Value Line*.**

18 A. Page 3 of Exhibit JRW-8 provides the five- and 10-year historical growth rates for EPS,
19 DPS, and BVPS for the companies in the proxy group, as published in the *Value Line*
20 *Investment Survey*. The median historical growth measures for EPS, DPS, and BVPS for

²⁵ A. Szakmary, C. Conover, & C. Lancaster, *An Examination of Value Line's Long-Term Projections*, J. OF BANKING & FIN. 820-833 (May 2008).

1 the Gas Proxy Group, as provided in Panel A, range from 4.5 percent to 6.5 percent, with
2 an average of the medians of 5.9 percent.

3 **Q. Please summarize *Value Line*'s projected growth rates for the companies in the**
4 **proxy group.**

5 A. *Value Line*'s projections of EPS, DPS, and BVPS growth for the companies in the proxy
6 group are shown on page 4 of Exhibit JRW-8. As I stated above, due to the presence of
7 outliers, I use the medians in my analysis. For the Gas Proxy Group, as shown in Panel A
8 of page 4 of Exhibit JRW-8, the medians range from 6.5 percent to 9.0 percent, with an
9 average of the medians of 7.2 percent.

10 Also provided on page 4 of Exhibit JRW-8 are the prospective sustainable growth
11 rates for the companies in the Gas Proxy Group as measured by *Value Line*'s average
12 projected return on shareholders' equity and retention rate. As I noted above, sustainable
13 growth is a significant and primary driver of long-run earnings growth. For the Gas Proxy
14 Group, the median prospective sustainable growth rate is 4.3 percent.

15 **Q. Please assess growth for the proxy group as measured by analysts' forecasts of**
16 **expected five-year EPS growth.**

17 A. Yahoo and Zacks collect, summarize, and publish Wall Street analysts' three-to-five-year
18 EPS growth rate forecasts for the companies in the Gas Proxy Group. These forecasts are
19 provided for the companies in the proxy group on page 5 of Exhibit JRW-8. I have
20 reported both the mean and median growth rates for the Group. Since there is considerable
21 overlap in analyst coverage between the two services, and not all of the companies have
22 forecasts from the different services, I have averaged the expected three-to-five-year EPS
23 growth rates from the two services for each company to arrive at an expected EPS growth

1 rate for each company. The mean and median of analysts' projected EPS growth rates for
2 the gas group are 5.5 percent and 4.8 percent, respectively.²⁶

3 **Q. Please summarize your analysis of the historical and prospective growth of the**
4 **proxy group.**

5 A. Page 6 of Exhibit JRW-8 shows the summary DCF growth rate indicators for the Gas
6 Proxy Group.

7 The historical growth rate indicators for my Gas Proxy Group imply a baseline
8 growth rate of 5.9 percent. The average of the projected EPS, DPS, and BVPS growth
9 rates from *Value Line* is 7.2 percent, and *Value Line*'s projected sustainable growth rate is
10 4.3 percent. The projected EPS growth rates of Wall Street analysts for the Gas Proxy
11 Group are 5.5 percent and 4.8 percent as measured by the mean and median growth rates.
12 The overall range for the projected growth rate indicators (ignoring historical growth) is
13 4.3 percent to 7.2 percent. Giving primary weight to the projected EPS growth rate of
14 Wall Street analysts, I believe that the appropriate growth rate for the Gas Proxy Group is
15 in the 5.00 percent to 5.50 percent. I will use the average of this range, 5.25 percent, as
16 my DCF equity cost rate for Cascade.²⁷

17 **Q. Did you rely on historical growth rate in arriving at your 5.25 percent DCF growth**
18 **rate?**

²⁶ Given the variation in the measures of central tendency of analysts' projected EPS growth rates for the proxy group, I have considered both the mean and median figures in the growth rate analysis.

²⁷ As discussed below, I am giving less weight to the projected growth rates from *Value Line* because *Value Line* projects growth from a three-year base period (and not from today) which significant inflates projected growth for these gas companies.

1 A. No. I reviewed historical growth rates but did not rely on them.

2 **Q. Based on the above analysis, what are your indicated common equity cost rates from**
 3 **the DCF model for the proxy group?**

4 A. My DCF-derived equity cost rates for the Gas Proxy Group are summarized on page 1 of
 5 Exhibit JRW-8 and in Table 2 below.

Table 2
DCF-derived Equity Cost Rate/ROE

	Dividend Yield	1 + ½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Gas Proxy Group	3.65%	1.02625	5.25%	8.95%

6 The calculation for the Gas Proxy Group is the 3.65 percent dividend yield, times
 7 the one and one-half growth adjustment of 1.02625, plus a DCF growth rate of 5.25
 8 percent, which results in an equity cost rate of 9.00 percent.

C. Capital Asset Pricing Model

9 **Q. Please discuss the CAPM.**

10 A. The CAPM is a risk premium approach to gauging a firm’s cost of equity capital.
 11 According to the risk premium approach, the cost of equity is the sum of the interest rate
 12 on a risk-free bond (R_f) and a risk premium (RP), as in the following:

13
$$k = R_f + RP$$

14 The yield on long-term U.S. Treasury securities is normally used as R_f . Risk premiums are
 15 measured in different ways. The CAPM is a theory of the risk and expected returns of
 16 common stocks. In the CAPM, two types of risk are associated with a stock: firm-

1 specific risk or unsystematic risk, and market or systematic risk, which is measured by a
2 firm's beta. The only risk that investors receive a return for bearing is systematic risk.

3 According to the CAPM, the expected return on a company's stock, which is also
4 the equity cost rate (K), is expressed as:

$$K = (R_f) + \beta * [E(R_m) - (R_f)]$$

6 Where:

- 7 • K represents the estimated rate of return on the stock;
- 8 • $E(R_m)$ represents the expected rate of return on the overall stock market. Frequently,
9 the S&P 500 is used as a proxy for the "market";
- 10 • (R_f) represents the risk-free rate of interest;
- 11 • $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the excess
12 rate of return that an investor expects to receive above the risk-free rate for investing
13 in risky stocks; and
- 14 • $Beta$ —(β) is a measure of the systematic risk of an asset.

15 To estimate the required return or cost of equity using the CAPM requires three
16 inputs: the risk-free rate of interest (R_f), the beta (β), and the expected equity or market
17 risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is represented
18 by the yield on long-term U.S. Treasury bonds. β , the measure of systematic risk, is a
19 little more difficult to measure because there are different opinions about what
20 adjustments, if any, should be made to historical betas due to their tendency to regress to
21 1.0 over time. And finally, the most difficult input to measure is the expected equity or
22 market risk premium ($E(R_m) - (R_f)$). I will discuss each of these inputs below.

23 **Q. Please discuss Exhibit JRW-9.**

24 A. Exhibit JRW-9 provides the summary results for my CAPM study. Page 1 shows the
25 results, and the following pages contain the supporting data.

1 **Q. Please discuss the risk-free interest rate.**

2 A. The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free rate
3 of interest in the CAPM. The yield on long-term U.S. Treasury bonds, in turn, has been
4 considered to be the yield on U.S. Treasury bonds with 30-year maturities.

5 **Q. What risk-free interest rate are you using in your CAPM?**

6 A. As shown on page 2 of Exhibit JRW-9, the yield on 30-year U.S. Treasury bonds has been
7 in the 1.3 percent to 4.0 percent range over the 2013–2020 time period. The current 30-
8 year Treasury yield is near the bottom of this range. Given the recent range of yields, I
9 have chosen to use a yield toward the middle of the range as my risk-free interest rate.
10 Therefore, I am using 2.50 percent as the risk-free rate, or R_f , in my CAPM. This rate is
11 consistent with Duff & Phelps, who are also using 2.50 percent (see page 7 of Exhibit
12 JRW-9).²⁸

13 **Q. Does your 2.50 percent risk-free interest rate take into consideration forecasts of**
14 **higher interest rates?**

15 A. No, it does not. As I stated before, forecasts of higher interest rates have been notoriously
16 wrong for a decade. My 2.50 percent risk-free interest rate takes into account the range of
17 interest rates in the past and effectively synchronizes the risk-free rate with the market
18 risk premium. The risk-free rate and the market risk premium are interrelated in that the
19 market risk premium is developed in relation to the risk-free rate. As discussed below,
20 my market risk premium is based on the results of many studies and surveys that have

²⁸ Duff & Phelps, *Cost of Capital Research Center* (2020) <https://www.duffandphelps.com/insights/publications/cost-of-capital>.

1 been published over time. Therefore, my risk-free interest rate of 2.50 percent is
2 effectively a normalized risk-free rate of interest.

3 **Q. What betas are you employing in your CAPM?**

4 A. Beta (β) is a measure of the systematic risk of a stock. The market, usually taken to be the
5 S&P 500, has a beta of 1.0. The beta of a stock with the same price movement as the
6 market also has a beta of 1.0. A stock with price movement greater than that of the
7 market, such as a technology stock, is riskier than the market and has a beta greater than
8 1.0. A stock with below average price movement, such as that of a regulated public
9 utility, is less risky than the market and has a beta less than 1.0. Estimating a stock's beta
10 involves running a linear regression of a stock's return on the market return.

11 As shown on page 3 of Exhibit JRW-9, the slope of the regression line is the
12 stock's β . A steeper line indicates that the stock is more sensitive to the return on the
13 overall market. This means that the stock has a higher β and greater-than-average market
14 risk. A less steep line indicates a lower β and less market risk.

15 Several online investment information services, such as Yahoo and Reuters,
16 provide estimates of stock betas. Usually these services report different betas for the same
17 stock. The differences are usually due to: (1) the time period over which β is measured;
18 and (2) any adjustments that are made to reflect the fact that betas tend to regress to 1.0
19 over time.

20 **Q. Please discuss the recent change in betas.**

21 A. I have traditionally used the betas as provided in the *Value Line Investment Survey*. As
22 discussed above, the betas for utilities recently increased significantly as a result of the
23 volatility of utility stocks during the stock market meltdown associated with the novel

1 coronavirus in March. Utility betas as measured by *Value Line* have been in the 0.55 to
2 0.70 range for the past 10 years. But utility stocks were much more volatile relative to
3 the market in March and April of this year, and this resulted in an increase of above 0.30
4 to the average utility beta.

5 *Value Line* defines their computation of beta as:²⁹

6 Beta - A relative measure of the historical sensitivity of a stock's price to
7 overall fluctuations in the New York Stock Exchange Composite Index. A
8 Beta of 1.50 indicates a stock tends to rise (or fall) 50% more than the New
9 York Stock Exchange Composite Index. The "Beta coefficient" is derived
10 from a regression analysis of the relationship between weekly percent-age
11 changes in the price of a stock and weekly percentage changes in the NYSE
12 Index over a period of five years. In the case of shorter price histories, a
13 smaller time period is used, but two years is the minimum. The Betas are
14 adjusted for their long-term tendency to converge toward 1.00. *Value Line*
15 then adjusts these Betas to account for their long-term tendency to
16 converge toward 1.00.

17 However, there are several issues with *Value Line* betas:

18 1. *Value Line* betas are computed using weekly returns, and the volatility of utility stocks
19 during March was impacted by using weekly and not monthly returns. Yahoo Finance
20 uses five years of monthly returns to compute betas, and Yahoo Finance's betas for
21 utilities are lower than *Value Line*'s.

22 2. *Value Line* betas are computed using the New York Stock Exchange Index as the
23 market. While about 3,000 stocks trade on the NYSE, most technology stocks are traded
24 on the NASDAQ or over-the-counter market and not the NYSE. Technology stocks,
25 which make up about 25 percent of the S&P 500, tend to be more volatile. If they were
26 traded on the NYSE, they would increase the volatility of the measure of the market and

²⁹ *Value Line* (2020) www.valueline.com.

1 thereby lower utility betas.

2 3. Major vendors of CAPM betas such as Merrill Lynch, *Value Line*, and Bloomberg
3 publish adjusted betas. The so-called Blume adjustment cited by *Value Line* adjusts betas
4 calculated using historical returns data to reflect the tendency of stock betas to regress
5 toward 1.0 over time, which means that the Betas of typical low beta stocks tend to increase
6 toward 1.0, and the betas of typical high beta stocks tend to decrease toward 1.0.³⁰

7 The Blume adjustment procedure is:

8
$$\text{Regressed Beta} = .67 * (\text{Observed Beta}) + 0.33$$

9 For example, suppose a company has an observed past beta of 0.50. The regressed (Blume-
10 adjusted) beta would be:

11
$$\text{Regressed Beta} = .67 * (0.50) + 0.33 = 0.67$$

12 Blume offered two reasons for betas to regress toward 1.0. First, he suggested it may be a
13 by-product of management's efforts to keep the level of firm's systematic risk close to that
14 of the market. He also speculated that it results from the management's efforts to diversify
15 through investment projects.

16 However, there is an issue with using regressed betas for utilities. Specifically, a
17 study by Michelfelder and Theodossiou investigated whether regressed Betas are
18 appropriate for utilities.³¹ Conceptually, Michelfelder and Theodossiou suggested that
19 utilities are different from unregulated companies in several areas, which may result in betas

³⁰ M. Blume, *On the Assessment of Risk*, J. OF FIN. (Mar. 1971).

³¹ Richard A. Michelfelder and Panayiotis Theodossiou, *Public Utility Beta Adjustment and Biased Costs of Capital in Public Utility Rate Proceedings*, THE ELECTRICITY J., (Nov. 2013).

1 not regressing toward 1.0:³²

2 Being natural monopolies in their own geographic areas, public utilities
3 have more influence on the prices of their product (gas and electricity) than
4 other firms. The rate setting process provides public utilities with the
5 opportunity to adjust prices of gas and gasity to recover the rising costs of
6 fuel and other materials used in the transmission and distribution of gasity
7 and gas.

8 To test for a regression toward 1.0, the authors used monthly holding period total
9 returns for 57 publicly traded U.S. public utilities for the period from January 1962 to
10 December 2007 using 60, 84, 96, and 108 monthly returns over five different non-lapping
11 periods. They also used alternative time periods and got similar results. The authors came to
12 the following conclusion from their analysis of the data:³³

13 Major vendors of CAPM Betas such as Merrill Lynch, Value Line, and
14 Bloomberg distribute Blume adjusted betas to investors. We have shown
15 empirically that public utility betas do not have a tendency to converge to
16 1. Short-term Betas of public utilities follow a cyclical pattern with recent
17 downward trends, then upward structural breaks with long-term betas
18 following a downward trend.

19 The authors concluded that utility betas converge to 0.59 as opposed to 1.0. The
20 implication is that using regressed betas such as those from *Value Line* will result in an
21 inflated expected return using the CAPM for gas utilities.

22 **Q. Given this discussion, what betas are you using in your CAPM?**

23 A. As shown on page 3 of Exhibit JRW-9, the median *Value Line* beta for the Gas Proxy
24 Group is 0.80. At this point, until I have studied utility betas in more depth, I will

³² *Id.*, at 61.

³³ *Id.*, at 67.

1 continue to use *Value Line* betas in my CAPM. I believe this is a conservative approach
2 at this time.

3 **Q. Please discuss the market risk premium.**

4 A. The market risk premium is equal to the expected return on the stock market (e.g., the
5 expected return on the S&P 500, $E(R_m)$ minus the risk-free rate of interest (R_f). The
6 market risk premium is the difference in the expected total return between investing in
7 equities and investing in “safe” fixed-income assets, such as long-term government
8 bonds. However, while the market risk premium is easy to define conceptually, it is
9 difficult to measure because it requires an estimate of the expected return on the market -
10 $E(R_m)$. As is discussed below, there are different ways to measure $E(R_m)$, and studies have
11 come up with significantly different magnitudes for $E(R_m)$. As Merton Miller, the 1990
12 Nobel Prize winner in economics indicated, $E(R_m)$ is very difficult to measure and is one
13 of the great mysteries in finance.³⁴

14 **Q. Please discuss the alternative approaches to estimating the market risk premium.**

15 A. Page 4 of Exhibit JRW-9 highlights the primary approaches to, and issues in, estimating
16 the expected market risk premium. The traditional way to measure the market risk
17 premium was to use the difference between historical average stock and bond returns. In
18 this case, historical stock and bond returns, also called *ex post* returns, were used as the
19 measures of the market’s expected return (known as the *ex ante* or forward-looking
20 expected return). This type of historical evaluation of stock and bond returns is often
21 called the “Ibbotson approach” after Professor Roger Ibbotson, who popularized this

³⁴ Merton Miller, *The History of Finance: An Eyewitness Account*, J. OF APPLIED CORP. FIN., 3 (2000).

1 method of using historical financial market returns as measures of expected returns.
2 However, this historical evaluation of returns can be a problem because: (1) *ex post*
3 returns are not the same as *ex ante* expectations; (2) market risk premiums can change
4 over time, increasing when investors become more risk-averse and decreasing when
5 investors become less risk-averse; and (3) market conditions can change such that *ex post*
6 historical returns are poor estimates of *ex ante* expectations.

7 The use of historical returns as market expectations has been criticized in
8 numerous academic studies as discussed later in my testimony. The general theme of
9 these studies is that the large equity risk premium discovered in historical stock and bond
10 returns cannot be justified by the fundamental data. These studies, which fall under the
11 category “*Ex Ante* Models and Market Data,” compute *ex ante* expected returns using
12 market data to arrive at an expected equity risk premium. These studies have also been
13 called “Puzzle Research” after the famous study by Mehra and Prescott in which the
14 authors first questioned the magnitude of historical equity risk premiums relative to
15 fundamentals.³⁵

16 In addition, there are a number of surveys of financial professionals regarding the
17 market risk premium, as well as several published surveys of academics on the equity
18 risk premium. Duke University has published a CFO Survey on a quarterly basis for over
19 10 years.³⁶ Questions regarding expected stock and bond returns are also included in the
20 Federal Reserve Bank of Philadelphia’s annual survey of financial forecasters, which is

³⁵ Rajnish Mehra & Edward C. Prescott, The Equity Premium: A Puzzle, J. OF MONETARY ECONS. 145 (1985).

³⁶ DUKE UNIVERSITY, *The CFO Survey* (2020) <https://www.richmondfed.org/cfosurvey>.

1 published as the *Survey of Professional Forecasters*.³⁷ This survey of professional
2 economists has been published for almost 50 years. In addition, Pablo Fernandez
3 conducts annual surveys of financial analysts and companies regarding the equity risk
4 premiums used in their investment and financial decision-making.³⁸

5 **Q. Please provide a summary of the market risk premium studies.**

6 A. Derrig and Orr, Fernandez, and Song completed the most comprehensive reviews of the
7 research on the market risk premium.³⁹ Derrig and Orr's study evaluated the various
8 approaches to estimating market risk premiums, discussed the issues with the alternative
9 approaches, and summarized the findings of the published research on the market risk
10 premium. Fernandez examined four alternative measures of the market risk premium –
11 historical, expected, required, and implied. He also reviewed the major studies of the
12 market risk premium and presented the summary market risk premium results. Song
13 provided an annotated bibliography and highlighted the alternative approaches to
14 estimating the market risk premium.

³⁷ FEDERAL RESERVE BANK OF PHILADELPHIA, *Survey of Professional Forecasters* (Feb. 2020), <https://www.philadelphiafed.org/-/media/research-and-data/real-time-center/survey-of-professional-forecasters/2019/spfq119.pdf?la=en>. The Survey of Professional Forecasters was formerly conducted by the American Statistical Association (ASA) and the National Bureau of Economic Research (NBER) and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

³⁸ Pablo Fernandez, Eduardo Apellániz, & Javier Acín, SURVEY: MARKET RISK PREMIUM AND RISK-FREE RATE USED FOR 81 COUNTRIES IN 2020 (Mar. 25, 2020), IESE Business School Working Paper No. WP-1244-E, Available at SSRN: <https://ssrn.com/abstract=3560869> or <http://dx.doi.org/10.2139/ssrn.3560869>.

³⁹ See Richard Derrig & Elisha Orr, EQUITY RISK PREMIUM: EXPECTATIONS GREAT AND SMALL, Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, (Aug. 28, 2003); Pablo Fernandez, EQUITY PREMIUM: HISTORICAL, EXPECTED, REQUIRED, AND IMPLIED, IESE Business School Working Paper (2007); Zhiyi Song, THE EQUITY RISK PREMIUM: AN ANNOTATED BIBLIOGRAPHY, CFA Institute (2007).

1 Page 5 of Exhibit JRW-9 provides a summary of the results of the primary risk
2 premium studies reviewed by Derrig and Orr, Fernandez, and Song, as well as other more
3 recent studies of the market risk premium. In developing page 5 of Exhibit JRW-9, I have
4 categorized the types of studies as discussed on page 4 of Exhibit JRW-9. I have also
5 included the results of studies of the “Building Blocks” approach to estimating the equity
6 risk premium. The Building Blocks approach is a hybrid approach employing elements of
7 both historical and *ex ante* models.

8 **Q. Please discuss page 5 of Exhibit JRW-9.**

9 A. Page 5 of Exhibit JRW-9 provides a summary of the results of the market risk premium
10 studies that I have reviewed. These include the results of: (1) the various studies of the
11 historical risk premium, (2) *ex ante* market risk premium studies, (3) market risk
12 premium surveys of CFOs, financial forecasters, analysts, companies and academics, and
13 (4) the Building Blocks approach to the market risk premium. There are results reported
14 for over 30 studies, and the median market risk premium of these studies is 4.83 percent.

15 **Q. Please highlight the results of more recent risk premium studies and surveys.**

16 A. The studies cited on page 5 of Exhibit JRW-9 include every market risk premium study
17 and survey I could identify that was published over the past 15 years and that provided a
18 market risk premium estimate. Many of these studies were published prior to the financial
19 crisis that began in 2008. In addition, some of these studies were published in the early
20 2000s at the market peak. It should be noted that many of these studies (as indicated)
21 used data over long periods of time (as long as 50 years of data) and so were not
22 estimating a market risk premium as of a specific point in time (e.g., the year 2001). To
23 assess the effect of the earlier studies on the market risk premium, I have reconstructed

1 page 5 of Exhibit JRW-9 on page 6 of Exhibit JRW-9; however, I have eliminated all
2 studies dated before January 2, 2010. The median market risk premium estimate for this
3 subset of studies is 5.13 percent.

4 **Q. Please summarize the market risk premium studies and surveys.**

5 A. As noted above, there are three approaches to estimating the market risk premium –
6 historic stock and bond returns, *ex ante* or expected returns models, and surveys. The
7 studies on page 6 of Exhibit JRW-9 can be summarized in the following manners:

8 Historic Stock and Bond Returns - Historic stock and bond returns suggest a
9 market risk premium in the 4.40 percent to 6.43 percent range, depending on whether one
10 uses arithmetic or geometric mean returns.

11 Ex Ante Models - Market risk premium studies that use expected or *ex ante* return
12 models indicate a market risk premium in the range of 5.24 percent to 6.75 percent.

13 Surveys - Market risk premiums developed from surveys of analysts, companies,
14 financial professionals, and academics are lower, with a range from 3.36 percent to 5.70
15 percent.

16 **Q. Please highlight the *ex ante* market risk premium studies and surveys that you
17 believe are most timely and relevant.**

18 A. I will highlight several studies/surveys.

19 Pablo Fernandez conducts annual surveys of financial analysts and companies
20 regarding the equity risk premiums used in their investment and financial decision-
21 making.⁴⁰ His survey results are included on pages 5 and 6 of Exhibit JRW-9. The results

⁴⁰ Pablo Fernandez, Vitaly Pershin, and Isabel Fernandez Acín, A Survey: MARKET RISK PREMIUM AND RISK-FREE RATE USED FOR 81 COUNTRIES IN 2020, IESE Business School (Apr. 2020).

1 of his 2020 survey of academics, financial analysts, and companies, which included 4,000
2 responses, indicated a mean market risk premium employed by U.S. analysts and
3 companies of 5.6 percent.⁴¹ His estimated market risk premium for the U.S. has been in
4 the 5.00 percent to 5.60 percent range in recent years.

5 Professor Aswath Damodaran of New York University, a leading expert on
6 valuation and the market risk premium, provides a monthly updated market risk premium
7 based on projected S&P 500 EPS and stock price level and long-term interest rates. His
8 estimated market risk premium, shown graphically in Figure 5, below, for the past 20
9 years, has primarily been in the range of 5.0 percent to 6.0 percent since 2010. As of
10 November 2020, his estimate of the implied market risk premium was 5.35 percent.⁴²

Figure 5
Damodaran Market Risk Premium



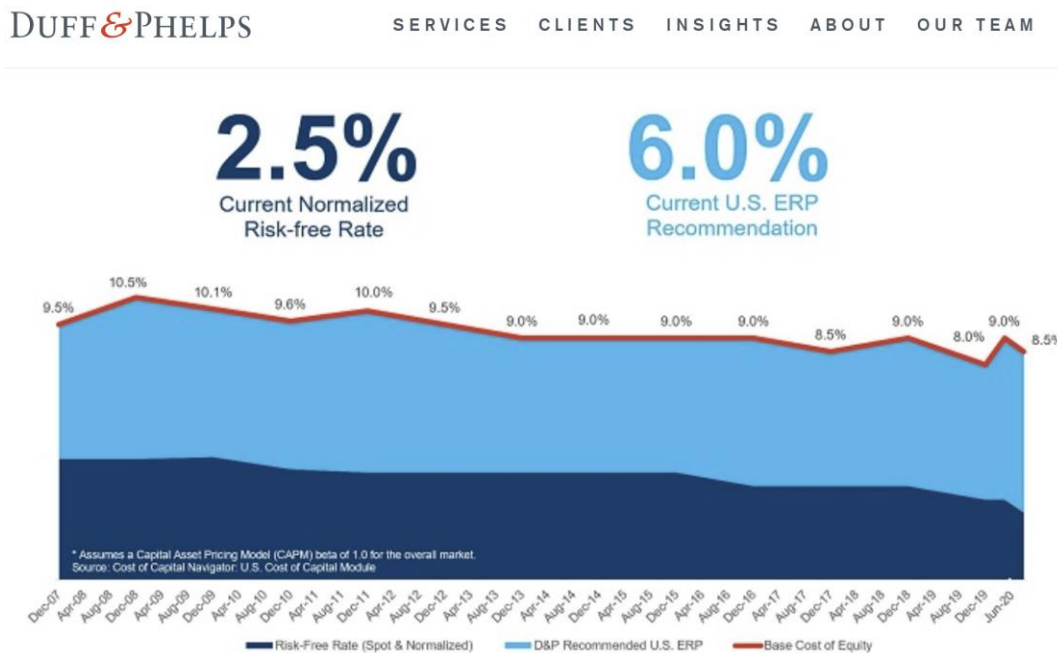
Source: Aswath Damodaran, *Damodaran Online*, N.Y. UNIVERSITY, <http://pages.stern.nyu.edu/~adamodar/> (last visited Nov. 18, 2020).

⁴¹ *Id.* at 3.

⁴² Aswath Damodaran, *Damodaran Online*, N.Y. UNIVERSITY, <http://pages.stern.nyu.edu/~adamodar/> (last visited Nov. 18, 2020).

1 Duff & Phelps, an investment advisory firm, provides recommendations for the
 2 normalized risk-free interest rate and market risk premiums to be used in calculating the
 3 cost of capital data. Its recommendations over the 2008–2020 time periods are shown on
 4 page 7 of Exhibit JRW-9 and are shown graphically in Figure 6. Over the past decade,
 5 Duff & Phelps’ recommended normalized risk-free interest rates have been in the 2.50
 6 percent to 4.00 percent and market risk premiums have been in the 5.0 percent to 6.0
 7 percent range. Most recently, in the wake of the novel coronavirus in 2020, Duff &
 8 Phelps decreased its recommended normalized risk-free interest rate from 3.0 percent to
 9 2.50 percent and increased its market risk premium from 5.00 percent to 6.00 percent.⁴³

Figure 6
Duff & Phelps
Normalized Risk-Free Rate and Market Risk Premium Recommendations
2007-2020



Source: <https://www.duffandphelps.com/insights/publications/cost-of-capital>

⁴³ Duff & Phelps, *U.S. Equity Risk Premium Recommendation* (June 30, 2020) <https://www.duffandphelps.com/insights/publications/cost-of-capital>.

1 **Q. Given these results, what market risk premium are you using in your CAPM?**

2 A. The studies on page 6 of Exhibit JRW-9, and more importantly, the more timely and
 3 relevant studies just cited, suggest that the appropriate market risk premium in the U.S. is
 4 in the 4.0 percent to 6.0 percent range. I will use an expected market risk premium of
 5 6.00 percent, which is in the upper end of the range, as the market risk premium. I gave
 6 most weight to the market risk premium estimates of Duff & Phelps, KPMG, the
 7 Fernandez survey, and Damodaran. This is a conservatively high estimate of the market
 8 risk premium considering the many studies and surveys of the market risk premium.

9 **Q. What equity cost rate is indicated by your CAPM analysis?**

10 A. The results of my CAPM study for the proxy group are summarized on page 1 of Exhibit
 11 JRW-9 and in Table 3 below.

Table 3
CAPM-Derived Equity Cost Rate/ROE

$$K = (R_f) + \beta * [E(R_m) - (R_f)]$$

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Gas Proxy Group	2.50%	0.80	6.0%	7.3%

12 For the Gas Proxy Group, the risk-free rate of 2.50 percent plus the product of the beta of
 13 0.80 times the equity risk premium of 6.0 percent results in a 7.3 percent equity cost rate.

D. Equity Cost Rate Summary

1 **Q. Please summarize the results of your equity cost rate studies.**

2 A. My DCF and CAPM analyses for the Gas Proxy Group indicate equity cost rates of 9.00
3 percent and 7.30 percent, respectively.

Table 4
ROEs Derived from DCF and CAPM Models

	DCF	CAPM
Gas Proxy Group	9.00%	7.30%

4 **Q. Given these results, what is your primary estimated equity cost rate for the group?**

5 A. I conclude that the appropriate equity cost rate for companies in the Gas Proxy Group is
6 in the 7.30 percent to 9.00 percent range. However, since I rely primarily on the DCF
7 approach, and Cascade's risk level is at the high-end on the Gas Proxy Group, I will use
8 9.00 percent as my recommended equity cost rate for the Company.

9 **Q. Please indicate why your equity cost rate recommendation is appropriate for the gas**
10 **distribution operations of the company.**

11 A. There are a number of reasons why an equity cost rate of 9.00 percent is appropriate and
12 fair for the Company in this case:

13 (1) As shown on page 1 of Exhibit JRW-6, capital costs for utilities, as indicated by
14 long-term utility bond yields, are at historically low levels. In addition, given low
15 inflationary expectations and slow global economic growth, interest rates are
16 likely to remain at low levels for some time.

17 (2) As shown on page 4 of Exhibit JRW-6, the gas distribution industry is among the
18 lowest risk industries in the U.S. as measured by beta. Most notably, the betas for
19 gas companies have been declining in recent years, which indicates the risk of the

1 industry has declined. Overall, the cost of equity capital for this industry is the
2 lowest in the U.S., according to the CAPM.

3 (3) To be conservative, I have recommended an equity cost rate at the high end of the
4 range of my ROE outcomes.

5 (4) The mean authorized ROEs for gas distribution companies have declined from
6 9.94 percent in 2012, to 9.68 percent in 2013, 9.78 percent in 2014, 9.60 percent
7 in 2015, 9.50 percent in 2016, 9.72 percent in 2017, 9.59 percent in 2018, 9.71
8 percent in 2019, and 9.45 percent in the first three quarters of 2020, according to
9 Regulatory Research Associates.⁴⁴ In my opinion, authorized ROEs have lagged
10 behind capital market cost rates, or in other words, authorized ROEs have been
11 slow to reflect low capital market cost rates. However, the trend has been towards
12 lower ROEs and the norm now is below 10 percent. Hence, I believe that my
13 recommended ROE reflects our present historically low capital cost rates, and
14 these low capital cost rates are finally being recognized as the norm by state
15 utility regulatory commissions.

16 **Q. Do you believe that your 9.00 percent roe recommendation meets the *Hope* and**
17 ***Bluefield* standards?**

18 A. Yes, I do. As previously noted, according to the *Hope* and *Bluefield* decisions, returns on
19 capital should be: (1) comparable to returns investors expect to earn on other investments
20 of similar risk; (2) sufficient to assure confidence in the company's financial integrity;
21 and (3) adequate to maintain and support the company's credit and to attract capital. As

⁴⁴ S&P Global Market Intelligence, Regulatory Research Associates, *Regulatory Focus*, 2019.

1 shown on page 3 of Exhibit JRW-6, gas distribution companies have been earning ROEs
2 in the range of 8.0 percent to 9.0 percent. With such a ROE, gas companies such as those
3 in the proxy group have strong investment grade credit ratings, their stocks have been
4 selling at about 2.0 times book value, and they have been raising abundant amounts of
5 capital. While my recommendation is below the average authorized ROEs for gas
6 distribution companies, it reflects the record low levels of interest rates and capital costs.
7 Therefore, I do believe that my ROE recommendation meets the criteria established in the
8 *Hope* and *Bluefield* decisions.

V. CRITIQUE OF CASCADE'S RATE OF RETURN TESTIMONY

9 **Q. Please review the Company's proposed rate of return.**

10 A. Cascade witness Ms. Tammy J. Nygard recommends a capital structure consisting of
11 49.60 percent total debt and 50.40 percent common equity, and debt cost rate of 4.745
12 percent. Cascade witness Ms. Ann E. Bulkley has recommended a common equity cost
13 rate of 10.30 percent for Cascade. The Company's overall proposed rate of return is 7.544
14 percent.

15 **Q. What are the primary areas of disagreement in estimating the rate of return or cost
16 of capital in this proceeding?**

17 A. As reviewed above, the primary issues related to the Company's rate of return include the
18 following: (1) Capital Structure; (2) the Disconnect Between the Results of Ms.
19 Bulkley's ROE Studies and her 10.3 percent ROE Recommendation; (3) DCF Approach;
20 (5) CAPM Approach; (6) Alternative Risk Premium Model; and (7) Expected Earnings

1 Approach: and (8) Other Factors including the Company's capital expenditures, regulator
2 risk, small size, and flotation costs.

3 The capital structure, capital market conditions, and the disconnect between Ms.
4 Bulkeley's studies and her recommendation were previously discussed. The other items are
5 discussed below.

6 **Q. Please review Ms. Bulkeley's equity cost rate approaches and results.**

7 A. Ms. Bulkeley has developed a proxy group of gas distribution companies and employs DCF,
8 CAPM, Bond Yield Risk Premium (BYRP), and Expected Earnings equity cost rate
9 approaches. Ms. Bulkeley's equity cost rate estimates for Cascade are summarized on page
10 2 Exhibit JRW-10. Based on these figures, she concludes that the appropriate equity cost
11 rate is 10.3 percent for Cascade's gas distribution operations.

A. DCF Approach

12 **Q. Please summarize Ms. Bulkeley's DCF estimates.**

13 A. On pages 45-50 of her testimony and in Schedule 3,⁴⁵ Ms. Bulkeley develops an equity cost
14 rate by applying the DCF model to her gas group. Ms. Bulkeley's DCF results are
15 summarized on page 2 of Exhibit JRW-10. In the traditional DCF approach, the equity cost
16 rate is the sum of the dividend yield and expected growth. Ms. Bulkeley uses three dividend
17 yield measures (30, 90, and 180 days) in her DCF models. In her constant-growth DCF
18 models, Ms. Bulkeley has relied on the forecasted EPS growth rates of Zacks, Yahoo
19 Finance, and *Value Line*. The average of the median DCF results, as reported by Ms.

⁴⁵ Direct Testimony of Anne E. Bulkeley, Exh. AEB-1T at 45-50; Exh. AEB-2 (Schedule 3).

1 Bulkley, is 9.49 percent for her gas group.

2 **Q. What are the errors in Ms. Bulkley's DCF analyses?**

3 A. The primary issues in Ms. Bulkley's DCF analyses are: (1) she has exclusively used the
4 overly optimistic and upwardly biased EPS growth rate forecasts of Wall Street analysts
5 and *Value Line* and ignores other growth rate measures such as the dividend growth rate
6 and sustainable growth; (2) she has combined abnormally high *Value Line* projected
7 EPSs for her proxy companies, computed from an out-of-date, three-year base period,
8 with three-to-five-year projected growth rates of First Call and Zacks, skewing higher her
9 measurement of growth; and (3) she has claimed that the DCF results underestimate the
10 market-determined cost of equity capital due to high utility stock valuations and low
11 dividend yields. These issues are discussed below.

1. Analysts' EPS Growth Rate Forecasts

12 **Q. Please discuss Ms. Bulkley's exclusive reliance on the projected growth rates of Wall
13 Street analysts and *Value Line*.**

14 A. It seems highly unlikely that investors today would rely exclusively on the EPS growth
15 rate forecasts of Wall Street analysts and ignore other growth rate measures in arriving at
16 their expected growth rates for equity investments. As I previously indicated, the
17 appropriate growth rate in the DCF model is the dividend growth rate, not the earnings
18 growth rate. Hence, consideration must be given to other indicators of growth, including
19 historical prospective dividend growth, internal growth, as well as projected earnings
20 growth. In addition, a recent study by Lacina, Lee, and Xu (2011) has shown that
21 analysts' long-term earnings growth rate forecasts are not more accurate at forecasting

1 future earnings than naïve random walk forecasts of future earnings.⁴⁶ As such, the
2 weight given to analysts' projected EPS growth rates should be limited. Finally, and most
3 significantly, it is well known that the long-term EPS growth rate forecasts of Wall Street
4 securities analysts are overly optimistic and upwardly biased.⁴⁷ Hence, using solely these
5 EPS growth rates as a DCF growth rate produces an overstated equity cost rate. A recent
6 study by Easton and Sommers (2007) found that optimism in analysts' earnings growth
7 rate forecasts leads to an upward bias in estimates of the cost of equity capital of almost
8 3.0 percentage points.⁴⁸ Therefore, exclusive reliance on these forecasts for a DCF
9 growth rate results in failure of one the basic inputs in the equation. In addition, as noted
10 above, a study by Szakmary, Conover, and Lancaster (2008) discovered the three-to-five-
11 year EPS growth rate forecasts of *Value Line* to be significantly higher than the EPS
12 growth rates that these companies subsequently achieved.⁴⁹

13 **Q. Have changes in regulations affecting Wall Street analysts and their research impacted**
14 **the upward bias in their projected EPS growth rates?**

15 A. No. A number of the studies I have cited above demonstrate that the upward bias has
16 continued despite changes in regulations and reporting requirements over the past two
17 decades. This observation is highlighted by a 2010 McKinsey study entitled "Equity

⁴⁶ 8 M. Lacina, B. Lee & Z. Xu, ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING at 77-101 (Kenneth D. Lawrence, Ronald K. Klimberg eds., Emerald Group Publishing Ltd., 2011).

⁴⁷ See references in n.20.

⁴⁸ P. Easton & G. Sommers, *Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts*, 45(5) J. OF ACCT. RES. 983-1015 (2007).

⁴⁹ A. Szakmary, C. Conover, & C. Lancaster, *An Examination of Value Line's Long-Term Projections*, J. OF BANKING & FIN., 820-833 (May 2008).

1 Analysts: Still Too Bullish,” which involved a study of the accuracy of analysts’ long-
2 term EPS growth rate forecasts. The authors conclude that after a decade of stricter
3 regulation, analysts’ long-term earnings forecasts continue to be excessively optimistic.
4 They made the following observation:⁵⁰

5 Alas, a recently completed update of our work only reinforces this view—
6 despite a series of rules and regulations, dating to the last decade, that were
7 intended to improve the quality of the analysts’ long-term earnings
8 forecasts, restore investor confidence in them, and prevent conflicts of
9 interest. For executives, many of whom go to great lengths to satisfy Wall
10 Street’s expectations in their financial reporting and long-term strategic
11 moves, this is a cautionary tale worth remembering. This pattern confirms
12 our earlier findings that analysts typically lag behind events in revising their
13 forecasts to reflect new economic conditions. When economic growth
14 accelerates, the size of the forecast error declines; when economic growth
15 slows, it increases. So as economic growth cycles up and down, the actual
16 earnings S&P 500 companies report occasionally coincide with the
17 analysts’ forecasts, as they did, for example, in 1988, from 1994 to 1997,
18 and from 2003 to 2006. *Moreover, analysts have been persistently*
19 *overoptimistic for the past 25 years, with estimates ranging from 10 to 12*
20 *percent a year, compared with actual earnings growth of 6 percent. Over*
21 *this time frame, actual earnings growth surpassed forecasts in only two*
22 *instances, both during the earnings recovery following a recession. On*
23 *average, analysts’ forecasts have been almost 100 percent too high.*

24 This is the same observation made in a *Bloomberg Businessweek* article.⁵¹ The author
25 concluded: “***The bottom line:*** *Despite reforms intended to improve Wall Street research,*
26 *stock analysts seem to be promoting an overly rosy view of profit prospects.”*

27 **Q. Are the EPS growth rate forecasts of value line also overly optimistic and upwardly**
28 **biased?**

29 **A.** Yes. A study by Szakmary, Conover, and Lancaster (2008) evaluated the accuracy of

⁵⁰ Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, *Equity Analysts, Still Too Bullish*, MCKINSEY ON FINANCE, Spring 2010, at 14-17 (emphasis added).

⁵¹ Roben Farzad, *For Analysts, Things Are Always Looking Up*, BLOOMBERG BUSINESSWEEK (June 10, 2010), <https://www.bloomberg.com/news/articles/2010-06-10/for-analysts-things-are-always-looking-up>.

1 *Value Line*'s three-to-five-year EPS growth rate forecasts using companies in the Dow
2 Jones Industrial Average over a 30-year time period and found these forecasted EPS growth
3 rates to be significantly higher than the EPS growth rates that these companies
4 subsequently achieved. The authors concluded that *Value Line*'s forecasts of earnings per
5 share growth rates were "strikingly overoptimistic."⁵²

2. *Value Line* Projected EPS Growth Rate

6 **Q. Please discuss Ms. Bulkley's DCF growth rate.**

7 A. Table 5 shows Ms. Bulkley's DCF growth rates from Yahoo, Zacks, and *Value Line*. The
8 Yahoo and Zacks growth rates are the average of analysts' three-to-five-year projected
9 growth rates compiled by Yahoo and Zacks. *Value Line* uses a different approach in
10 estimating projected growth. *Value Line* projects growth from a three-year base period –
11 2016–2018 – to a projected three-year period for the period 2023–2025. Using this
12 approach, the three-year based period can have a significant impact on the *Value Line*
13 growth rate if this base period includes years with abnormally high or low earnings. For
14 most of the seven proxy companies, the *Value Line* projected EPS growth rates are larger
15 than the average of the Yahoo and Zacks growth rates, and especially so for Northwest
16 Natural Gas Co. ("NWN").

⁵² A. Szakmary, C. Conover, & C. Lancaster, *An Examination of Value Line's Long-Term Projections*, J. OF BANKING & FIN., 820-833 (May 2008).

Table 5
Ms. Bulkley’s DCF Growth Rates

Company	<i>Value Line</i>	Yahoo	Zacks
Atmos Energy Corporation	7.00%	7.50%	7.20%
New Jersey Resources Corporation	2.50%	6.00%	6.00%
Northwest Natural Gas Company	22.50%	3.75%	NA%
ONE Gas Inc.	7.00%	5.00%	5.50%
South Jersey Industries, Inc.	9.50%	10.20%	10.20%
Southwest Gas Corporation	8.00%	8.20%	6.00%
Spire, Inc.	5.50%	4.65%	4.80%
Average	8.86%	6.47%	6.62%

Data Source: Bulkley Schedule 4.

1 **Q. What skews *Value Line*’s growth rates?**

2 A. *Value Line*’s data includes a projected EPS growth rate of 22.5 percent for NWN as
 3 shown in Table 5; by any measure, NWN’s data is an outlier. Panel A of Table 6 shows
 4 that *Value Line* included a 22.5 percent growth rate for a three-year base period – 2016–
 5 2018 – to project growth for three-year period of 2023–2025. Panel B of Table 6 shows
 6 that NWN’s base period includes 2016, 2017, and 2018 EPS figures of \$2.12, -\$1.94, and
 7 \$2.33. The *Value Line* projected EPS growth rate of 22.5 percent for NWN is the
 8 compounded annual growth rate for the three-year historical period of 2016, 2017, and
 9 2018, which shows an average EPS of \$0.84, to the projected EPS of \$3.50 for the
 10 projected period of 2023–2025. The actual growth rate is 22.7 percent over the seven-
 11 year period, but *Value Line* reports 22.5 percent since it averages growth rates to the
 12 nearest one-half percent.

Table 6
NWN’s *Value Line* Projected EPS Growth Rate
Panel A

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est’d ‘16-’18 to ‘23-’25
Revenues	-4.5%	-3.0%	2.5%
“Cash Flow”	-3.0%	-5.5%	8.0%
Earnings	-10.5%	-18.0%	22.5%
Dividends	2.5%	1.0%	.5%
Book Value	2.0%	--	1.5%

Panel B

NWN	2016	2017	2018	2019	2020	2023-25
Earnings Per Share	2.12	-1.94	2.33	2.10	2.40	3.50
3 Year Base and Projected Periods	<u>2016-18</u>					<u>2023-25</u>
Base and Projected EPS Figures	0.84					3.50
Base Period to Projected Period Growth Rate			22.7%			

Source: *See* Exhibit JRW-10 at 4.

1 **Q. Please summarize the impact of combining the different projected eps growth rates**
 2 **on Ms. Bulkley’s DCF results.**

3 A. The impact of combining the EPS growth rates from Zacks and Yahoo and *Value Line*
 4 inflates Ms. Bulkley’s DCF results. Meanwhile, the *Value Line* growth rates are, on
 5 average, 200 points higher than the Yahoo and Zacks projected growth rates because they
 6 do not measure growth from the present but from a historical (and stale) time period.⁵³

3. The DCF Model and the Cost of Equity Capital

7 **Q. Please discuss Ms. Bulkley’s claim that the DCF model understates the cost of equity**
 8 **capital.**

9 A. On page 48 of her testimony, Ms. Bulkley makes the claim that using current utility stock
 10 valuations and low dividend yields will underestimate the market-determined ROE using
 11 the DCF model.

12 **Q. What is your response to this claim?**

13 A. Ms. Bulkley’s claim is totally without merit for the following reasons. First, she is saying
 14 that utility stocks are overvalued, and their stock prices will decline in the future (and

⁵³ I have used *Value Line*’s projected growth rates for EPS, DPS, and BVPS. However, due to the different periods of growth that are measured by *Value Line* compared to Yahoo and Zacks, I have analyzed the *Value Line* data separately from the other growth rate data, and I have used the medians of the growth rates for the proxy group to minimize the impact of outliers such as those discussed above.

1 therefore their dividend yield will increase). Hence, Ms. Bulkley presumes that she
2 knows more than investors in the stock market. Second, Ms. Bulkley's CAPM results are
3 highly dependent on her approach to estimating the market risk premium, which as
4 discussed below, includes unreasonably high projections of future earnings growth and
5 stock returns.

B. CAPM Approach

6 **Q. Please discuss Ms. Bulkley's CAPM.**

7 A. On pages 50-56 of her testimony and in Schedule 4,⁵⁴ Ms. Bulkley develops an equity cost
8 rate by applying the CAPM model to her gas proxy group. Ms. Bulkley's DCF results are
9 summarized on page 2 of Exhibit JRW-10. Ms. Bulkley develops an equity cost rate by
10 using not only the traditional CAPM, but also the so-called Empirical CAPM (ECAPM)
11 model for her gas proxy group. The ECAPM is a variant of the traditional CAPM. The
12 CAPM/ECAPM approach requires an estimate of the risk-free interest rate, Beta, and the
13 equity risk premium. Ms. Bulkley uses: (1) current (1.31 percent), near-term projected
14 (1.60 percent), and long-term projected (3.20 percent) 30-year Treasury yields; (2) betas
15 from *Value Line* and Bloomberg; and (3) a market risk premium of 12.14 percent. Based
16 on these figures, she finds CAPM/ECAPM equity cost rates ranging from 8.94 percent to
17 11.90 percent.

18 **Q. What are the errors in Ms. Bulkley's CAPM/ECAPM analyses?**

19 A. The primary errors with Ms. Bulkley's CAPM/ECAPM analyses are: (1) the use of the

⁵⁴ Bulkley, Exh. AEB-2 (Schedule 4 CAPM 1).

1 ECAPM version of the CAPM; (2) the projected risk-free interest rate of 3.2 percent; and
2 (3) the expected market risk premium 12.14 percent. As I explain below, the use of a 12.14
3 percent MRP is a very serious error.

1. ECAPM Approach

4 **Q. What issues have you identified with Ms. Bulkley's ECAPM approach?**

5 A. In addition to the CAPM, Ms. Bulkley has employed a variation of the CAPM, which she
6 calls the "ECAPM." The ECAPM, as popularized by rate of return consultant Dr. Roger
7 Morin, attempts to model the well-known findings of tests of the CAPM that have
8 indicated the Security Market Line (SML) is not as steep as predicted by the CAPM.
9 However, the ECAPM lacks theoretical or empirical basis for some of its assumptions, and
10 as such, the ECAPM is nothing more than an *ad hoc* version of the CAPM. The ECAPM
11 provides for weights that are used to adjust the risk-free rate and market risk premium in
12 applying the ECAPM. Ms. Bulkley uses 0.25 and 0.75 factors to boost the equity risk
13 premium measure, but provides no empirical justification for those figures.

14 Beyond the lack of any theoretical or empirical validation of the ECAPM, there are
15 two errors in Ms. Bulkley's version of the ECAPM. First, I am not aware of any tests of the
16 CAPM that use adjusted betas such as those used by Ms. Bulkley. Second, adjusted betas,
17 which were previously discussed, address the empirical issues with the CAPM because:
18 (1) adjusting low beta stock increases the adjusted beta and CAPM expected return; and
19 (2) adjusting high beta stock decreases the adjusted beta and CAPM expected return.

2. The Projected Risk-Free Interest Rate

20 **Q. Please discuss the base yield of Ms. Bulkley's CAPM/ECAPM analysis.**

1 A. Ms. Bulkley uses a long-term projected risk-free interest rate of 3.2 percent in her
2 CAPM/ECAPM. This figure is about 150 basis points above the current yield on long-
3 term Treasury bonds of 1.5 percent. Investors would not be buying long-term Treasury
4 bonds at their current yields if they expected the yields on these bonds to increase
5 from 100 to 200 basis points in the next year or two. Such a move in interest rates would
6 result in a capital loss of over 20 percent. Investors do not buy long-term Treasury bonds
7 or any other investment if they expect to receive a negative return.

3. Market Risk Premium

8 **Q. Please assess Ms. Bulkley's market risk premium derived from applying the DCF**
9 **model to the S&P 500.**

10 A. A very serious problem with Ms. Bulkley's CAPM analysis is the magnitude of the market
11 (or equity) risk premium, which she uses to produce very high ROE results--as high as 11.90
12 percent⁵⁵. Ms. Bulkley develops an expected market risk premium by: (1) applying the
13 DCF model to the S&P 500 to get an expected market return; and (2) subtracting the risk-
14 free rate of interest. As shown in Table 7, Ms. Bulkley's estimated market return of 13.49
15 percent for the S&P 500 equals the sum of the dividend yield of 2.01 percent and
16 expected EPS growth rate of 11.33 percent. The expected EPS growth rate is the average
17 of the expected EPS growth rates from S&P. The primary error in this approach is Ms.
18 Bulkley's expected DCF growth rate. As previously discussed, the expected EPS growth
19 rates of Wall Street analysts are upwardly biased. In addition, as explained below, the

⁵⁵ See Bulkley, Exh. AEB-2 (Schedule 2).

1 projected growth rate is inconsistent with actual economic and earnings growth rates in
2 the U.S.

3 **Table 7**
4 **Bulkley CAPM Market Risk Premium**

Dividend Yield	2.01%
+ <u>Expected EPS Growth</u>	<u>11.33%</u>
= <u>Expected Market Return</u>	13.49%
- <u>Risk-Free Rate</u>	<u>1.31%</u>
= <u>Market Risk Premium</u>	12.14%

5
6 **Q. Initially, please provide additional insights into the expected stock market return of**
7 **13.49 percent.**

8 A. Simply put, the assumption of a 13.49 percent expected stock market return is excessive
9 and unrealistic. The compounded annual return in the U.S. stock market is about 10
10 percent (9.71% between 1928-2019, according to Damodaran).⁵⁶ Thus, Ms. Bulkley's
11 CAPM results assume that return on the U.S. stock market will be a staggering 40 percent
12 higher in the future than it has been in the past. Ms. Bulkley's extremely high expected
13 stock market return, and her resulting market risk premium and equity cost rate results,
14 are directly related to computing the expected stock market return as the sum of the
15 adjusted dividend yield plus the expected EPS growth rate of 11.33 percent. This is
16 addressed below.

17 **Q. Please once again address the issues with analysts' EPS growth rate forecasts.**

18 A. The key point is that Ms. Bulkley's CAPM market risk premium methodology is based
19 entirely on the concept that analyst projections of companies' three-to-five-year EPS

⁵⁶ Aswarth Damodaran, *Damodaran Online*, N.Y. UNIVERSITY, <http://pages.stern.nyu.edu/~adamodar/> (last visited Nov. 18, 2020).

1 growth rates reflect investors' expected *long-term* EPS growth for those companies.
2 However, this seems highly unrealistic given the published research on these projections.
3 As previously noted, numerous studies have shown that the long-term EPS growth rate
4 forecasts of Wall Street securities analysts are overly optimistic and upwardly biased.⁵⁷
5 Moreover, as discussed above, the Lacina, Lee and Xu study showed that analysts'
6 forecasts of EPS growth over the next three-to-five years earnings are no more accurate
7 than their forecasts of the next single year's EPS growth (and the single year forecasts are
8 notoriously inaccurate). The overly optimistic inaccuracy of analysts' growth rate
9 forecasts leads to an upward bias in equity cost estimates that has been estimated at about
10 300 basis points.⁵⁸

11 **Q. Is Ms. Bulkley's market risk premium of 12.14 percent reflective of the market risk**
12 **premiums found in studies and surveys of the market risk premium?**

13 A. Ms. Bulkley's 12.14 percent figure is well in excess of market risk premiums: (1) found
14 in studies of the market risk premiums by leading academic scholars; (2) produced by
15 analyses of historic stock and bond returns; and (3) found in surveys of financial
16 professionals. Page 6 of Exhibit JRW-9 provides the results of over 30 market risk
17 premiums studies from the past 15 years. Historic stock and bond returns suggest a

⁵⁷ Such studies include: R.D. Harris, *The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts*, J. OF BUS. FIN. & ACCT., 725-55 (June/July 1999); P. DeChow, A. Hutton, and R. Sloan, *The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings*, CONTEMPORARY ACCOUNTING RESEARCH (2000); Louis K. C. Chan, Jason Karceski, & Josef Lakonishok, *The Level and Persistence of Growth Rates*, J. OF FIN., 643-684 (2003); 8 M. Lacina, B. Lee & Z. Xu, ADVANCES IN BUSINESS AND MANAGEMENT FORECASTING at 77-101 (Kenneth D. Lawrence, Ronald K. Klimberg eds., Emerald Group Publishing Ltd., 2011).

⁵⁸ Peter D. Easton & Gregory A. Sommers, *Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts*, 45 J. OF ACCT. RES. 983-1015 (2007).

1 market risk premium in the 4.40-6.43 percent range, depending on whether one uses
2 arithmetic or geometric mean returns. There have been many studies using expected
3 return (also called *ex ante*) models, and their market risk premiums results vary from as
4 low as 5.24 percent to as high as 6.0 percent. Finally, the market risk premiums
5 developed from surveys of analysts, companies, financial professionals, and academics
6 suggest even potentially lower market risk premiums, in a range from 3.36 percent to
7 6.75 percent. The bottom line is that there is no support in historic return data, surveys,
8 academic studies, or reports for investment firms for a market risk premium as high as the
9 12.14 percent used by Ms. Bulkley.

10 **Q. Is a projected EPS growth rate of 11.33 percent, which Ms. Bulkley uses to compute**
11 **her market risk premium of 12.14 percent, reasonable given the projected growth in**
12 **U.S. GDP?**

13 A. No. Beyond my previous discussion of the upwardly biased nature of analysts' projected
14 earnings per share (EPS) growth rates, a long-term EPS growth rate of 11.33 percent is
15 inconsistent with both historic and projected economic and earnings growth in the U.S for
16 several reasons.

17 First, long-term EPS and economic growth is about one-half of Ms. Bulkley's
18 projected EPS growth rate of 11.33 percent. Second, long-term EPS and GDP growth are
19 directly linked. And third, more recent trends in GDP growth, as well as projections of
20 GDP growth, suggest slower economic and earnings growth in the near future, during the
21 period when the rates from this case will be effective.

22 Long-Term Historic EPS and GDP Growth have been in the 6 -7 percent Range - I
23 performed a study of the growth in nominal GDP, S&P 500 stock price appreciation, and

1 S&P 500 EPS and dividends per share (DPS) growth since 1960. The results are provided
2 on page 1 of Exhibit JRW-11, and a summary is shown in Table 8, below.

3 **Table 8**
4 **GDP, S&P 500 Stock Price, EPS, and DPS Growth Percent**
5 **1960-Present**

Nominal GDP	6.43
S&P 500 Stock Price	7.05
S&P 500 EPS	6.87
S&P 500 DPS	5.91
Average	6.43

6
7 The results show that the historical long-run growth rates for GDP, S&P EPS, and
8 S&P DPS are in the 6 percent to 7 percent range. By comparison, Ms. Bulkley's long-
9 run growth rate projection of 11.33 percent is at best overstated. These estimates suggest
10 that companies in the U.S. would be expected to: (1) increase their growth rate of EPS
11 by more than 50 percent in the future, and (2) maintain that growth indefinitely in an
12 economy that is currently expected to grow at about one-third of Ms. Bulkley's projected
13 growth rates.

14 There is a Direct Link Between Long-Term EPS and GDP Growth - The results in
15 Exhibit JRW-11 and Table 6 show that historically there has been a close link between
16 long-term EPS and GDP growth rates. Brad Cornell of the California Institute of
17 Technology published a study on GDP growth, earnings growth, and equity returns. He
18 finds that long-term EPS growth in the U.S. is directly related to GDP growth, with GDP
19 growth providing an upward limit on EPS growth. In addition, he finds that long-term

1 stock returns are determined by long-term earnings growth.⁵⁹ He concludes with the
2 following observations:⁶⁰

3 The long-run performance of equity investments is fundamentally linked to
4 growth in earnings. Earnings growth, in turn, depends on growth in real
5 GDP. This article demonstrates that both theoretical research and empirical
6 research in development economics suggest relatively strict limits on future
7 growth. In particular, real GDP growth in excess of 3 percent in the long
8 run is highly unlikely in the developed world. In light of ongoing dilution
9 in earnings per share, this finding implies that investors should anticipate
10 real returns on U.S. common stocks to average no more than about 4–5
11 percent in real terms.

12 The Trend and Projections Indicate Slower GDP Growth in the Future - The

13 components of nominal GDP growth are real GDP growth and inflation. Page 3 of Exhibit
14 JRW-11 shows annual real GDP growth rate over the 1961 to 2019 time period. Real
15 GDP growth has gradually declined from the 5.0 percent to 6.0 percent range in the
16 1960s to the 2.0 percent to 3.0 percent range during the most recent five-year period. The
17 second component of nominal GDP growth is inflation. Page 4 of Exhibit JRW-11 shows
18 inflation as measured by the annual growth rate in the Consumer Price Index (CPI) over
19 the 1961 to 2019 time period. The large increase in prices from the late 1960s to the early
20 1980s is readily evident. Equally evident is the rapid decline in inflation during the 1980s
21 as inflation declined from above 10 to about four percent. Since that time, inflation has
22 gradually declined and has been in the 2.0 percent range or below over the past five
23 years.

⁵⁹ Bradford Cornell, *Economic Growth and Equity Investing*, FIN. ANALYSTS J. 63 (Jan. – Feb. 2010).

⁶⁰ Bradford Cornell, “Economic Growth and Equity Investing,” *Financial Analysts Journal* (January- February 2010), p. 63.

1 of 4.2 percent for the period 2019–2050.⁶² The Congressional Budget Office (CBO), in
2 its forecasts for the period 2019 to 2029, projects a nominal GDP growth rate of 3.8
3 percent.⁶³ Finally, the Social Security Administration (SSA), in its Annual OASDI
4 Report, provides a projection of nominal GDP from 2020–2095.⁶⁴ SSA’s projected
5 growth GDP growth rate over this period is 4.1 percent. Overall, these forecasts suggest
6 long-term GDP growth rate in the 4.0–4.3 percent range. The trends and projections
7 indicating slower GDP growth make Ms. Bulkley’s market risk premium of 12.14
8 percent, which is computed by using a growth rate of 11.33 percent from analysts’ EPS
9 growth projections, look even more unrealistic. Simply stated, Ms. Bulkley’s projected
10 EPS growth rate of 11.33 percent is almost three times projected GDP growth.

11 **Q. What are the fundamental factors that have led to the decline in prospective GDP**
12 **growth?**

13 A. As addressed in a study by the consulting firm McKinsey & Co., two factors drive real
14 GDP growth over time: (1) the number of workers in the economy (employment); and
15 (2) the productivity of those workers (usually defined as output per hour).⁶⁵ According to
16 McKinsey, population and productivity growth, which grew at compound annual rates of
17 1.7 and 1.8 percent, respectively, drove real GDP growth over the past 50 years,.

⁶² U.S. Energy Information Administration, *Annual Energy Outlook 2020*, Table: Macroeconomic Indicators..

⁶³ Congressional Budget Office, *The 2020 Long-Term Budget Outlook*, June 25, 2020.

⁶⁴ Social Security Administration, *2020 Annual Report of the Board of Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) Program*, Table VI.G4, (July 1, 2020), The 4.1% growth rate is the growth in projected GDP from \$22,341 trillion in 2020 to \$450,425 trillion in 2095.

⁶⁵ McKinsey & Co., *Can Long-Term Growth be Saved?*, MCKINSEY GLOBAL INSTITUTE Jan. 2015.

1 However, global economic growth is projected to slow significantly in the years
2 to come. The primary factor leading to the decline is slow growth in employment
3 (working-age population), which results from slower population growth and longer life
4 expectancy. McKinsey estimates that employment growth will slow to 0.3 percent over
5 the next 50 years. They conclude that even if productivity remains at the rapid rate of the
6 past 50 years of 1.8 percent, real GDP growth will fall by 40 to 2.1 percent.

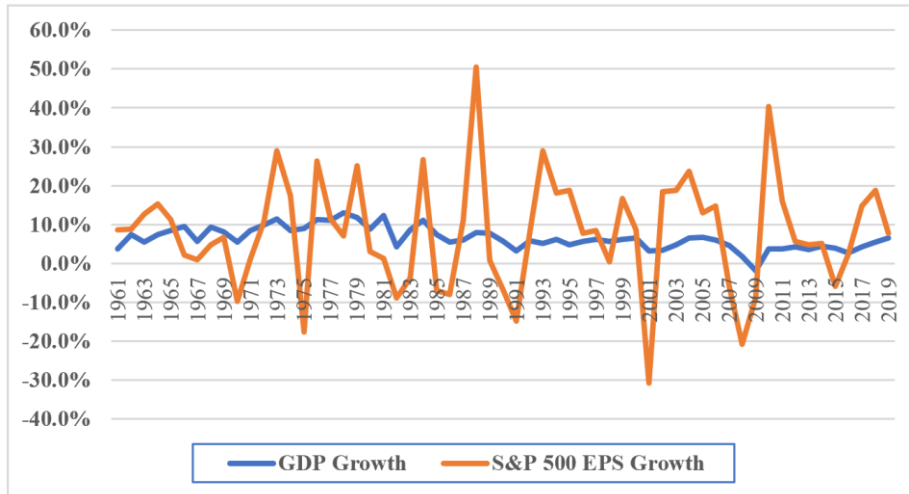
7 **Q. Please provide more insights into the relationship between S&P 500 EPS and GDP**
8 **growth.**

9 A. Figure 7 shows the average annual growth rates for GDP and the S&P 500 EPS since
10 1960. The one very apparent difference between the two is that the S&P 500 EPS growth
11 rates are much more volatile than the GDP growth rates, when compared using the
12 relatively short, and somewhat arbitrary, annual conventions used in these data.⁶⁶
13 Volatility aside, however, it is clear that over the medium to long run, S&P 500 EPS
14 growth does not outpace GDP growth.

⁶⁶ Timing conventions such as years and quarters are needed for measurement and benchmarking but are somewhat arbitrary. In reality, economic growth and profit accrual occur on continuous bases. A 2014 study evaluated the timing relationship between corporate profits and nominal GDP growth. The authors found that aggregate accounting earnings growth is a leading indicator of the GDP growth with a quarter-ahead forecast horizon. See Yaniv Konchitchki and Panos N. Patatoukas, *Accounting Earnings and Gross Domestic Product*, 57 J. OF ACCT. AND ECON. 76-88 (2014).

1
2
3
4

Figure 7
Average Annual Growth Rates
GDP and S&P 500 EPS
1960-2019



5
6
7

Data Sources: GDPA - <http://research.stlouisfed.org/fred2/series/GDPA/downloaddata>.
S&P EPS - <http://pages.stern.nyu.edu/~adamodar/>

8
9

A fuller understanding of the relationship between GDP and S&P 500 EPS growth requires consideration of several other factors.

10
11
12
13
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17

Corporate Profits are Constrained by GDP – Milton Friedman, the noted economist, warned investors and others not to expect corporate profit growth to sustainably exceed GDP growth, stating, “Beware of predictions that earnings can grow faster than the economy for long periods. When earnings are exceptionally high, they don’t just keep booming.”⁶⁷ Friedman also noted in the same *Fortune* interview that profits must move back down to their traditional share of GDP. In Table 10 below, I show that currently the aggregate net income levels for the S&P 500 companies, using 2019 figures, represent 6.53 percent of nominal GDP.

⁶⁷ Shaun Tully, *Corporate Profits Are Soaring. Here’s Why It Can’t Last*,” FORTUNE (Dec. 7, 2017), <http://fortune.com/2017/12/07/corporate-earnings-profit-boom-end/>.

1 **Table 10**
2 **S&P 500 Aggregate Net Income as a Percent of GDP**

\$ Billion	
Aggregate Net Income for S&P 500	\$1,399.46
2019 Nominal U.S. GDP	\$21,427.10
Net Income/GDP (%)	6.53%

3
4 Data Sources: 2019 Net Income for S&P 500 companies – *Value Line* (March 3, 2020).
5 2019 Nominal GDP – Moody’s - <https://www.economy.com/united-states/nominal-gross-domestic-product>.

6 Short-Term Factors Impact S&P 500 EPS – The growth rates in the S&P 500 EPS
7 and GDP can diverge on a year-to-year basis due to short-term factors that impact S&P
8 500 EPS in a much greater way than GDP. As shown above in Figure 7, S&P EPS
9 growth rates are much more volatile than GDP growth rates. The EPS growth for the
10 S&P 500 companies has been influenced by low labor costs and interest rates, commodity
11 prices, the recovery of different sectors such as the energy and financial sectors, the cut in
12 corporate tax rates, etc. These short-term factors can make it appear that there is a
13 disconnect between the economy and corporate profits.

14 The Differences Between the S&P 500 EPS and GDP – In the last two years, as
15 the EPS for the S&P 500 has grown at a faster rate than U.S. nominal GDP, some have
16 pointed to the differences between the S&P 500 and GDP.⁶⁸ These differences include:

- 17 (a) corporate profits are about two-thirds manufacturing driven, while GDP is two-
18 thirds services driven;

⁶⁸ See the following studies: Burt White and Jeff Buchbinder, *The S&P and GDP are not the Same Thing*, LPL FIN. (Nov. 4, 2014), <https://www.businessinsider.com/sp-is-not-gdp-2014-11>; Matt Comer, *How Do We Have 18.4% Earnings Growth In A 2.58% GDP Economy?*, SEEKING ALPHA, (Apr. 2018), https://seekingalpha.com/article/4164052-18_4-percent-earnings-growth-2_58-percent-gdp-economy; Shaun Tully, *How on Earth Can Profits Grow at 10% in a 2% Economy?*, FORTUNE (July 27, 2017), <http://fortune.com/2017/07/27/profits-economic-growth/>.

1 (b) consumer discretionary spending accounts for a smaller share of S&P 500 profits
2 (15 percent) than of GDP (23 percent);
3 (c) corporate profits are more international-trade driven, while exports minus imports
4 tend to drag on GDP; and
5 (d) S&P 500 EPS is impacted not just by corporate profits but also by share buybacks
6 on the positive side (fewer shares boost EPS) and by share dilution on the
7 negative side (new shares dilute EPS). While these differences may seem
8 significant, the Income Approach to measure GDP includes corporate profits (in
9 addition to employee compensation and taxes on production and imports) and
10 therefore effectively accounts for the first three factors.⁶⁹

11 The bottom line is that despite the intertemporal short-term differences between
12 S&P 500 EPS and nominal GDP growth, the long-term link between corporate profits
13 and GDP is inevitable.

14 **Q. Please provide additional evidence showing that the S&P 500 EPS growth rate that**
15 **Ms. Bulkley uses to compute her market risk premium is unrealistic.**

16 A. Beyond my previous discussion, I have performed the following analysis of S&P 500
17 EPS and GDP growth in Table 11 below. Specifically, I started with the 2019 aggregate
18 net income for the S&P 500 companies and 2019 nominal GDP for the U.S. As shown in
19 Table 10, the aggregate profit for the S&P 500 companies represented 6.53 percent of
20 nominal GDP in 2019. In Table 11, I then projected the aggregate net income level for

⁶⁹ The Income Approach to measuring GDP includes wages, salaries, and supplementary labor income, corporate profits, interest and miscellaneous investment income, farmers' incomes, and income from non-farm unincorporated businesses

1 the S&P 500 companies and GDP as of the year 2050. For the growth rate for the S&P
 2 500 companies, I used Ms. Bulkley’s projected S&P 500 EPS growth rate of 11.33
 3 percent. As a growth rate for nominal GDP, I used the average of the long-term projected
 4 GDP growth rates from SFF, CBO, SSA, and EIA (4.3, 3.8, 4.1, and 4.0 percent), which
 5 is 4.09 percent. The projected 2050 level for the aggregate net income level for the S&P
 6 500 companies is \$38.9 trillion. However, over the same period GDP grows to \$78.7
 7 trillion. As such, if the aggregate net income for the S&P 500 grows in accordance with
 8 the growth rate used by Ms. Bulkley, and if nominal GDP grows at rates projected by
 9 major government agencies, the net income of the S&P 500 companies will represent
 10 growth from 6.53 percent of GDP in 2019 to 52.52 percent of GDP in 2050. Obviously, it
 11 is implausible for the net income of the S&P 500 to become 50 percent of GDP.

Table 11
Projected S&P 500 Earnings and Nominal GDP
2019-2050
S&P 500 Aggregate Net Income as a Percent of GDP

	2019 Value	Growth Rate	No. of Years	2050 Value
Aggregate Net Income for S&P 500	\$1,399.46	11.33%	31	\$ 38,988.72
2018 Nominal U.S. GDP	\$21,427.10	4.09%	31	\$ 74,240.80
Net Income/GDP (%)	6.53%			52.52%

16 Data Sources: 2019 Aggregate Net Income for S&P 500 companies – *Value Line* (Mar. 3, 2020).
 17 2019 Nominal GDP – Moody’s - <https://www.economy.com/united-states/nominal-gross-domestic-product>.
 18 S&P 500 EPS Growth Rate - Ms. Bulkley’s projected S&P 500 growth rate of 11.33%;
 19 Nominal GDP Growth Rate – The average of the long-term projected GDP growth rates from SFF, CBO, SSA,
 20 and EIA (4.3%, 3.8%, 4.0%, and 4.1%).
 21

22 **Q. Please provide a summary analysis on GDP and S&P 500 EPS growth rates.**

23 A. As noted above, the long-term link between corporate profits and GDP is inevitable. The
 24 short-term differences in growth between the two has been highlighted by some notable
 25 market observers, including Warren Buffet, who indicated that corporate profits as a

1 share of GDP tend to go far higher after periods where they are depressed, and then drop
2 sharply after they have been hovering at historically high levels. In a famous 1999
3 *Fortune* article, Mr. Buffet made the following observation:⁷⁰

4 You know, someone once told me that New York has more lawyers than
5 people. I think that's the same fellow who thinks profits will become larger
6 than GDP. When you begin to expect the growth of a component factor to
7 forever outpace that of the aggregate, you get into certain mathematical
8 problems. In my opinion, you have to be wildly optimistic to believe that
9 corporate profits as a percent of GDP can, for any sustained period, hold
10 much above 6%. One thing keeping the percentage down will be
11 competition, which is alive and well. In addition, there's a public-policy
12 point: If corporate investors, in aggregate, are going to eat an ever-growing
13 portion of the American economic pie, some other group will have to settle
14 for a smaller portion. That would justifiably raise political problems – and
15 in my view a major reslicing of the pie just isn't going to happen.

16 In sum, Ms. Bulkley's long-term S&P 500 EPS growth rate of 11.33 percent is
17 grossly overstated and has no basis in economic reality. In the end, the big question remains
18 as to whether corporate profits can grow faster than GDP. The magnitude of Ms. Bulkley's
19 CAPM/ECAPM results rest entirely on her assumption that the EPS for S&P 500
20 companies can grow at 11.33 percent, nearly three times the projected GDP growth rate.
21 Jeremy Siegel, the renowned finance professor at the Wharton School of the University of
22 Pennsylvania, believes that going forward, earnings per share can grow about half a point
23 faster than nominal GDP, or about 5.0 percent, due to the big gains in the technology sector.
24 But, he also believes that sustained EPS growth matching analysts' near-term projections
25 is absurd: "The idea of 8% or 10% or 12% growth is ridiculous. It will not happen."⁷¹

⁷⁰ Carol Loomis, *Mr. Buffet on the Stock Market*, FORTUNE, Nov. 22, 1999, https://money.cnn.com/magazines/fortune/fortune_archive/1999/11/22/269071/.

⁷¹ Shaun Tully, *Corporate Profits Are Soaring. Here's Why It Can't Last*, FORTUNE, Dec. 7, 2017, <http://fortune.com/2017/12/07/corporate-earnings-profit-boom-end/>.

C. Bond Yield Risk Premium Approach (BYRP)

1 **Q. Please review Ms. Bulkley's BYRP approach.**

2 A. On pages 52-6 of her testimony and in Schedule 5,⁷² Ms. Bulkley estimates an equity cost
3 rate using a risk premium (RP) model. She uses the quarterly authorized ROEs for gas
4 distribution companies from Q1 1992 until 2020. Ms. Bulkley develops an equity cost rate
5 by: (1) regressing the authorized returns on equity for gas utility companies on the 30-year
6 Treasury yield; and then (2) adding the risk premium established in (1) to each of her three
7 different 30-year Treasury yields: (a) a current yield of 1.31 percent, (b) a near-term
8 projected yield of 1.60 percent, and (c) a long-term projected yield of 3.20 percent. Ms.
9 Bulkley's RP results are provided in page 2 of Exhibit JRW-10. She reports BYRP equity
10 cost rates ranging from 9.06 percent to 9.86 percent.

11 **Q. What are the errors in Ms. Bulkley's BYRP analysis?**

12 A. The two issues are: (1) the long-term projected (3.20 percent) 30-year Treasury yield; (2)
13 the risk premium.

1. Long-Term Projected Risk-Free Interest Rate

14 **Q. What is the issue with Ms. Bulkley's risk free interest rates?**

15 A. Ms. Bulkley's long-term projected (3.20 percent) 30-year Treasury yield is well above the
16 current 30-year Treasury yield of 1.50 percent. As previously discussed, investors would not
17 be buying 30-year Treasury bonds at current rates if they expected these rate to increase by
18 200 basis points in the next couple years because they would incur significant capital losses.

⁷² Direct Testimony of Anne E. Bulkley, Exh. AEB-1T at 52-56; Exh. AEB-2 (Schedule 5).

1 In addition, as discussed above, economists have been forecasting high interest rates for a
2 decade, and they have been consistently wrong as interest rates have declined and not
3 increased.

2. Risk Premium

4 **Q. What are the issues with Ms. Bulkley's risk premium in the BYRP analysis?**

5 A. There are several problems with this approach for calculating risk premium.

6 First, the methodology produces an inflated measure of the risk premium because it
7 uses historic authorized ROEs and Treasury yields, and the resulting risk premium is applied
8 to projected Treasury yields. Since Treasury yields are always forecasted to increase, the
9 resulting risk premium would be smaller if done correctly, which would be to use projected
10 Treasury yields in the analysis rather than historic Treasury yields.

11 Second, Ms. Bulkley's RP approach is a gauge of *commission* behavior and not
12 *investor* behavior. Capital costs are determined in the marketplace through the financial
13 decisions of investors, and they are reflected in such fundamental factors as dividend
14 yields, expected growth rates, interest rates, and investors' assessment of the risk and
15 expected return of different investments. Regulatory commissions should set ROEs based
16 on capital market data as well as utility- and rate case-specific information, in setting
17 ROEs.

18 Third, since the stocks of gas distribution have been selling above book value for
19 the last decade, it is obvious that the authorized ROEs of state utility commissions are
20 above the returns that investors require, and have been for quite some time.

D. Expected Earnings Approach

1 **Q. Please discuss Ms. Bulkley's expected earnings analysis.**

2 A. On pages 60-2 of her testimony and in Schedule 6,⁷³ Ms. Bulkley estimates equity cost
3 rates of 9.94 percent and 9.74 percent using an approach she calls the Expected Earnings
4 (EE) approach. Her methodology in this approach simply involves using the expected
5 ROE for the companies in the proxy group as estimated by *Value Line*.

6 **Q. Please address the issues with Ms. Bulkley's expected earnings approach.**

7 A. There are a number of significant issues with this so-called Expected Earnings approach.
8 As such, I strongly suggest that the Commission ignore this approach in setting an ROE
9 for Cascade. These issues include:

10 The Expected Earnings Approach Does Not Measure the Market Cost of Equity
11 Capital – First, this is an accounting-based methodology that does not measure investor
12 return requirements. As indicated by Professor Roger Morin, a long-time rate of return
13 witness for utility companies, “More simply, the Comparable (Expected) Earnings
14 standard ignores capital markets. If interest rates go up 2% for example, investor
15 requirements and the cost of equity should increase commensurably, but if regulation is
16 based on accounting returns, no immediate change in equity cost results.”⁷⁴ As such,
17 this method does not measure the market cost of equity capital.

18 Changes in ROE Ratios do not Track Capital Market Conditions - As also noted
19 by Morin:

⁷³ Bulkley, Exh. AEB-1T at 60-62; Exh. AEB-2 (Schedule 6).

⁷⁴ Roger Morin, NEW REGULATORY FINANCE 293 (Pub. Util. Rep. 2006).

1 The denominator of accounting return, book equity, is a historical cost-
2 based concept, which is insensitive to changes in investor return
3 requirements. Only stock market price is sensitive to a change in investor
4 requirements. Investors can only purchase new shares of common stock
5 at current market prices and not at book value.⁷⁵

6 The Expected Earnings Approach is Circular - The ROE ratios for the proxy
7 companies are not determined by competitive market forces, but instead are largely the
8 result of federal and state rate regulation, including the present proceedings.

9 The Proxies' ROEs Reflect Earnings on Business Activities that are not
10 Representative of Cascade's Rate-Regulated Utility Activities - The numerators of the
11 proxy companies' ROEs include earnings from business activities that are riskier and
12 produce more projected earnings per dollar of book investment than does the regulated
13 gas business. These include earnings from unregulated businesses such as merchant
14 generation, construction services, and other energy services.

15 **Q. Finally please discuss the expected earnings approach in light of a study of *Value***
16 ***Line* projected earnings.**

17 A. Ms. Bulkley's EE approach uses *Value Line*'s adjusted forecast for proxy utility ROEs.
18 Hence, the ROE specified by the EE approach is totally dependent on the forecast of one
19 variable (net income/shareholder's equity) by one analyst firm (*Value Line*), with the
20 same single individual authoring most of the *Value Line* reports for the various proxy
21 companies. Neither the Commission nor other parties have assessed the accuracy of these
22 forecasts. However, one study evaluated the *Value Line* forecasts. A study by Szakmary,
23 Conover, and Lancaster evaluated the accuracy of *Value Line*'s three-to-five-year EPS

⁷⁵ *Id.*

1 growth rate forecasts using companies in the Dow Jones Industrial Average over a 30-
2 year time period and found these forecasted EPS growth rates to be significantly higher
3 than the EPS growth rates that these companies subsequently achieved.⁷⁶

4 Szakmary, Conover, and Lancaster (SCL) studied the predicted versus the
5 projected stock returns, sales, profit margins, and earnings per share made by *Value Line*
6 over the 1969 to 2001 time period. *Value Line* projects variables from a three-year base
7 period (e.g., 2012–2014) to a future three-year projected period (e.g., 2016–18). SCL
8 used the 65 stocks included in the Dow Jones Indexes (30 Industrials, 20 Transports and
9 15 Utilities). SCL found that the projected annual stock returns for the Dow Jones stocks
10 were “incredibly overoptimistic” and of no predictive value. The mean annual stock
11 return of 20 percent for the Dow Jones’ stocks *Value Line*’s forecasts was nearly double
12 the realized annual stock return. The authors also found that *Value Line*’s forecasts of
13 earnings per share and profit margins were termed “strikingly overoptimistic.” *Value*
14 *Line*’s forecasts of annual sales were higher than achieved levels, but not statistically
15 significant. SCL concluded that the overly optimistic projected annual stock returns were
16 attributable to *Value Line*’s upwardly biased forecasts of earnings per share and profit
17 margins

18 The SCL results suggest that *Value Line*’s projection of return on equity is
19 upwardly biased. As noted above, the EPS and profit margins as projected by *Value Line*
20 over this 30-year period were termed “strikingly overoptimistic.” This is because *Value*
21 *Line*’s projected earnings is the numerator for their calculation of return on equity (net

⁷⁶ A. Szakmary, C. Conover, & C. Lancaster, *An Examination of Value Line's Long-Term Projections*, J. OF BANKING & FIN. 820-833 (May 2008)..

1 income/book value). Therefore, the EE approach proposed by Ms. Bulkley is based on
2 an upwardly biased measure forecasted by one analyst.

E. Other Factors

3 **Q. What other factors did Ms. Bulkley consider in arriving at her 10.30 percent ROE**
4 **recommendation for the Company?**

5 A. Ms. Bulkley also considers two other factors in arriving at her 10.30 percent ROE
6 recommendation. She claims that Cascade's deserves an increment to its authorized ROE
7 for various risk factors, including its small size, customer concentration, capital
8 expenditures, and regulatory risk. She also contends that Cascade deserves a higher ROE
9 due to flotation costs.

10 **Q. Is Ms. Bulkley correct that the Company deserves a higher ROE due to these**
11 **factors?**

12 A. No. Ms. Bulkley has incorrectly claimed that that these factors are a justification for a
13 higher ROE for Cascade. First, with respect to the risk factors, the Company's small size,
14 customer concentration, capital expenditures, and regulatory risk are all factors
15 considered in the credit-rating process used by major rating agencies. The S&P issuer
16 credit rating for Cascade of BBB+, which is at the low end of range of the Gas Proxy
17 Group.

18 **Q. Please provide additional insights into the so-called small size effect.**

19 A. Ms. Bulkley claims that the Company deserves additional return due to its small size.
20 She justifies the magnitude of the adjustment by referring to Duff & Phelps who
21 computes a so-called size adjustment based on the historical stock market returns for

1 companies based on their size. There are numerous errors in using historical market
2 returns to compute risk premiums. These errors provide inflated estimates of expected
3 risk premiums. Among the errors are survivorship bias (only successful companies
4 survive – poor companies do not) and unattainable return bias (the Ibbotson procedure
5 presumes monthly portfolio rebalancing). The net result is that Ibbotson’s size premiums
6 are poor measures for risk adjustment to account for the size of a utility.

7 Professor Annie Wong has also tested for a company size premium in utilities and
8 concluded that, unlike industrial stocks, utility stocks do not exhibit a significant
9 company size premium.⁷⁷ As explained by Professor Wong, there are several reasons why
10 such a size premium would not be attributable to utilities. Utilities are regulated closely by
11 state and federal agencies and commissions, and hence, their financial performance is
12 monitored on an ongoing basis by both the state and federal governments. In addition,
13 public utilities must gain approval from government entities for common financial
14 transactions such as the sale of securities (or the issuance of debt). Furthermore, unlike for
15 their industrial counterparts, accounting standards and reporting are fairly standardized for
16 public utilities. Finally, a utility’s earnings are predetermined to a certain degree through
17 the ratemaking process in which performance is reviewed by state commissions and other
18 stakeholders. Overall, in terms of regulation, government oversight, performance review,
19 accounting standards, and information disclosure, utilities are much different than
20 industrials, which could account for the lack of a company size premium.

⁷⁷ Annie Wong, *Utility Stocks and the Size Effect: An Empirical Analysis*, J. OF THE MIDWEST FIN. ASS’N, 95-101 (1993).

1 **Q. Please discuss the research on the Company size premium in estimating the equity**
2 **cost rate.**

3 A. As noted, there are errors in using historical market returns to compute risk premiums.
4 With respect to the small firm premium, Richard Roll (1983) found that one-half of the
5 historic return premium for small companies disappears once biases are eliminated and
6 historic returns are properly computed. The error arises from the assumption of monthly
7 portfolio rebalancing and the serial correlation in historic small firm returns.⁷⁸

8 **Q. What other evidence can you provide regarding issues related to the size premium?**

9 A. Professor Damodaran, the New York University valuation guru, provides a thorough
10 analysis of the company size effect, which he terms the small firm or cap premium.
11 Figure 8 traces the small firm premium over the 1927–2014 time period.⁷⁹ Damodaran
12 has studied the issue for years and makes a number of observations on the size premium
13 or effect:

- 14 (1) the effect has largely disappeared since 1980, which is the year the Banz article
15 was published;
- 16 (2) the small firm premium tends to come and go over time;
- 17 (3) the small firm premium tends to be associated with the January effect (small
18 companies only earn abnormal returns in the first two weeks of January);

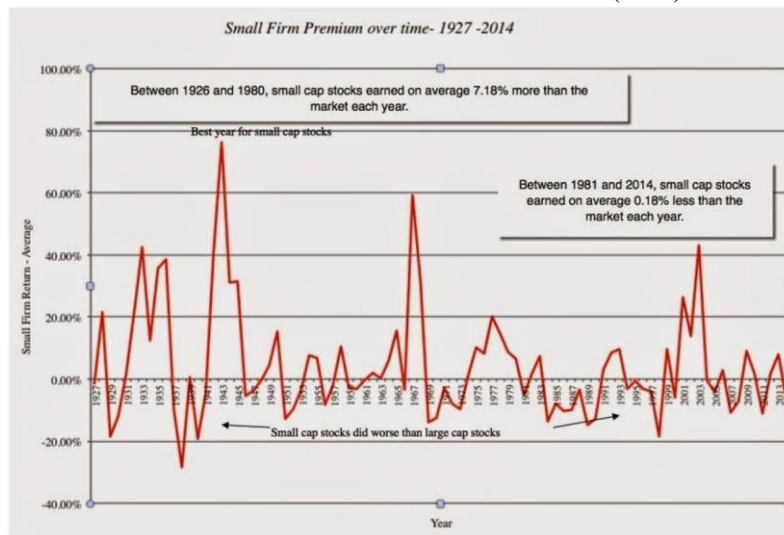
⁷⁸ See Richard Roll, *On Computing Mean Returns and the Small Firm Premium*, J. OF FIN. ECON. 371-86, (1983).

⁷⁹ Aswath Damodaran, *The Small Cap Premium: Where is the Beef*, 34 No. 4 Business Valuation Review 152-157 (2015).

- 1 (4) the small cap premium seems to actually be a microcap premium, as it disappears
2 when companies with market capitalizations below \$5 million are removed;
3 (5) Damodaran does not find a small cap premium when he estimates a small firm
4 required return;
5 (6) he has never used a small cap premium when valuing small companies; and
6 (7) he blames three factors for some analysts' continued use of a small cap premium:
7 (i) intuition (it seems smaller companies should be riskier), (ii) inertia (individuals
8 and institutions are slow to change and to adopt new ideas); and (iii) bias (analysts
9 prefer higher discount rates and lower valuations).

Figure 8
The Small Firm Premium
1927-2014

Source: Aswath Damodaran, *The Small Cap Premium - Where is the Beef*,
34 No. 4 Business Valuation Review 152-157 (2015).



10 **Q. Please summarize your evidence on the small size premium.**

11 A. Ms. Bulkley has claimed that the Company deserves an incremental return due to its
12 small size. Ms. Bulkley has not performed any empirical studies to support her contention

1 that the Company is riskier due to its small size, and she does not point to any
2 independent reports to support her claim. The size effect is usually associated with Duff
3 & Phelps annual stock return study where they compute so-called size premiums based
4 on the historical stock market returns for companies where size is measured by market
5 capitalizations. As discussed above, the existence of a size premium in the stock market
6 in an ongoing debate in investment circles, and many believe that it has disappeared over
7 time. In addition, there is evidence that no such size premium exists for regulated public
8 utilities. As such, the Commission should reject the Company's request to have a ROE
9 adder for its small size in the absence of any study that supports this claim.

10 **Q. Is Ms. Bulkley's consideration of flotation costs appropriate in this case?**

11 A. No. Ms. Bulkley argues that a flotation cost adjustment is appropriate for Cascade. This
12 is erroneous for several reasons:

13 First, she has not identified any flotation costs for Cascade, and therefore, she is
14 arguing for the Company to receive additional revenues in the form of a higher ROE for
15 expenses the Company does not incur.

16 Second, it is commonly argued that a flotation cost adjustment (such as that used
17 by the Company) is necessary to prevent the dilution of the existing shareholders. This is
18 incorrect for several reasons:

- 19 (1) If an equity flotation cost adjustment is similar to a debt flotation cost adjustment,
20 the fact that the market-to-book ratios for gas distribution companies are over
21 2.00X actually suggests that there should be a flotation cost reduction (and not an
22 increase) to the equity cost rate. This is because when (a) a bond is issued at a

1 price in excess of face or book value, and (b) the difference between market price
2 and the book value is greater than the flotation or issuance costs, the cost of that
3 debt is lower than the coupon rate of the debt. The amount by which market
4 values of gas distribution companies are in excess of book values is much greater
5 than flotation costs. Hence, if common stock flotation costs were exactly like
6 bond flotation costs, and one was making an explicit flotation cost adjustment to
7 the cost of common equity, the adjustment would be downward;

8 (2) If a flotation cost adjustment is needed to prevent dilution of existing
9 stockholders' investment, then the reduction of the book value of stockholder
10 investment associated with flotation costs can occur only when a company's stock
11 is selling at a market price at/or below its book value. As noted above, as shown
12 on page 3 of Exhibit JRW-8, gas distribution companies are selling at market
13 prices well in excess of book value, and have been for the last decade. Hence,
14 when new shares are sold, existing shareholders realize an increase in the book
15 value per share of their investment, not a decrease;

16 (3) Flotation costs consist primarily of the underwriting spread or fee and not out-of-
17 pocket expenses. On a per-share basis, the underwriting spread is the difference
18 between the price the investment banker receives from investors and the price the
19 investment banker pays to the company. Therefore, these are not expenses that
20 must be recovered through the regulatory process. Furthermore, the underwriting
21 spread is known to the investors who are buying the new issue of stock, and who
22 are well aware of the difference between the price they are paying to buy the

1 stock and the price that the Company is receiving. The offering price they pay is
2 what matters when investors decide to buy a stock based on its expected return
3 and risk prospects. Therefore, the company is not entitled to an adjustment to the
4 allowed return to account for those costs; and

5 (4) Flotation costs, in the form of the underwriting spread, are a form of a transaction
6 cost in the market. They represent the difference between the price paid by
7 investors and the amount received by the issuing company. Whereas the Company
8 believes that it should be compensated for these transaction costs, it has not
9 accounted for other market transaction costs in determining its cost of equity.
10 Most notably, brokerage fees that investors pay when they buy shares in the open
11 market are another market transaction cost. Brokerage fees increase the effective
12 stock price paid by investors to buy shares. If the Company had included these
13 brokerage fees or transaction costs in its DCF analysis, the higher effective stock
14 prices paid for stocks would lead to lower dividend yields and equity cost rates.
15 This would result in a downward adjustment to their DCF equity cost rate.

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

17 A. Yes.