

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

* * * * *

RE: IN THE MATTER OF ADVICE)
LETTER NO. 912-GAS FILED BY)
PUBLIC SERVICE COMPANY OF)
COLORADO TO REVISE ITS) PROCEEDING NO. 17AL-_____G
COLORADO PUC NO. 6-GAS TARIFF)
TO IMPLEMENT A GENERAL RATE)
SCHEDULE ADJUSTMENT AND)
OTHER RATE CHANGES EFFECTIVE)
ON 30-DAYS NOTICE.)

DIRECT TESTIMONY AND ATTACHMENTS OF JOHN J. REED

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

June 2, 2017

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SUMMARY OF THE DIRECT TESTIMONY OF JOHN J. REED

1 Mr. John J. Reed is Chairman and Chief Executive Officer of Concentric Energy
2 Advisors, Inc. (“Concentric”) and CE Capital, Inc. In that capacity, Mr. Reed provides
3 regulatory policy and regulatory economics support to energy and utility clients and
4 expert testimony on regulatory, economic, and financial matters, including cost of
5 capital, before the Federal Energy Regulatory Commission (“FERC”), Canadian
6 regulatory agencies, state utility regulatory agencies, various state and federal courts,
7 and arbitration panels in the United States and Canada.

8 In his Direct Testimony, Mr. Reed presents evidence and provides the Colorado
9 Public Utilities Commission (“Commission”) with a recommendation regarding Public
10 Service Company of Colorado’s (“Public Service” or the “Company”) requested return
11 on equity (“ROE”) for its natural gas utility operations, and provides an assessment of
12 the reasonableness of the capital structure to be used for ratemaking purposes. In order

1 to develop his ROE recommendation, Mr. Reed applies the Constant Growth
2 Discounted Cash Flow (“DCF”) model, the Multi-Stage DCF Model, the Capital Asset
3 Pricing Model (“CAPM”), and the Bond Yield Plus Risk Premium approach to a proxy
4 group of combination gas and electric utilities that are risk-comparable to Public
5 Service.

6 Given the effect of capital market conditions on the results of the DCF models,
7 Mr. Reed’s recommendation gives weight to both the results of the DCF models and the
8 CAPM analysis. Mr. Reed recommends that the Commission approve an authorized
9 ROE for Public Service of 10.00 percent, which is within a range of cost of equity results
10 from 9.50 percent to 10.50 percent. Mr. Reed’s recommendation also takes into
11 consideration the company-specific business risks of Public Service, especially the
12 Company’s elevated level of capital expenditures and the absence of volumetric risk
13 protection for the gas distribution operations, as well as flotation costs associated with
14 issuing common equity. In addition, Mr. Reed recommends that the Commission
15 approve an ROE adjustment mechanism in Years 2 and 3 of the proposed Multi-Year
16 Rate Plan, under which the authorized ROE for Public Service would be adjusted based
17 on changes in the Moody’s A-rated utility bond yield multiplied by an adjustment factor
18 that reflects the relationship between interest rates and equity costs.

19 Mr. Reed also discusses Public Service’s proposed regulated capital structure as
20 presented by Ms. Mary P. Schell. He compares Public Service’s proposed capital
21 structure to the capital structures of his proxy group companies and concludes that the
22 Company’s proposed capital structure for ratemaking purposes is reasonable.

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

<u>Acronym/Defined Term</u>	<u>Meaning</u>
ALJ	Administrative Law Judge
California PUC	California Public Utilities Commission
CAPM	Capital Asset Pricing Model
CEO	Chief Executive Officer
Commission	Colorado Public Utilities Commission
Concentric	Concentric Energy Advisors, Inc.
CPI	Consumer Price Index
DCF	Discounted Cash Flow
EIA	Energy Information Administration
EPS	Earnings Per Share
FERC	Federal Energy Regulatory Commission
FOMC	Federal Open Market Committee
GDP	Gross Domestic Product
MYP	Multi-Year Rate Plan
OEB	Ontario Energy Board
O&M	Operating and Maintenance
PEG	Pacific Economics Group Research
P/E	Price-to-Earnings
Public Service or the Company	Public Service Company of Colorado
ROE	Return on Equity (or Cost of Equity)
ROR	Rate of Return

<u>Acronym/Defined Term</u>	<u>Meaning</u>
S&P	Standard and Poor's
U.S.	United States
Xcel Energy	Xcel Energy, Inc.

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I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John J. Reed. I am Chairman and Chief Executive Officer (“CEO”) of Concentric Energy Advisors, Inc. (“Concentric”) and CE Capital, Inc. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this Testimony on behalf of Public Service Company of Colorado (“Public Service” or the “Company”), a Colorado corporation and wholly-owned subsidiary of Xcel Energy, Inc. (“Xcel Energy”). Xcel Energy is a registered holding company that owns several electric and natural gas utility operating

1 companies, a regulated natural gas pipeline company, and three transmission
2 service companies.¹

3 **Q. PLEASE DESCRIBE YOUR BACKGROUND AND PROFESSIONAL**
4 **EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.**

5 A. I have more than 40 years of experience in the energy industry and have worked
6 as an executive in, and consultant and economist to, the energy industry. Over
7 the past 28 years, I have directed the energy consulting services of Concentric,
8 Navigant Consulting, and Reed Consulting Group. I have served as Vice
9 Chairman and Co-CEO of the nation's largest publicly-traded consulting firm and
10 as Chief Economist for the nation's largest gas utility. I have provided regulatory
11 policy and regulatory economics support to more than 100 energy and utility
12 clients and have provided expert testimony on regulatory, economic, and
13 financial matters on more than 200 occasions before the FERC, Canadian
14 regulatory agencies, state utility regulatory agencies, various state and federal
15 courts, and before arbitration panels in the United States and Canada. My
16 background is presented in more detail in Attachment JJR-1.

¹ Xcel Energy is the parent company of four utility operating companies: Public Service, Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation; and Southwestern Public Service Company, a New Mexico corporation. Xcel Energy's natural gas pipeline company is WestGas Interstate, Inc. Through a subsidiary company, Xcel Energy Transmission Holding Company, LLC, Xcel Energy also owns three transmission-only operating companies: Xcel Energy Southwest Transmission Company, LLC; Xcel Energy Transmission Development Company, LLC; and Xcel Energy West Transmission Company, LLC, all of which are either currently regulated by the Federal Energy Regulatory Commission ("FERC") or expected to be regulated by FERC.

1 **Q. PLEASE DESCRIBE CONCENTRIC'S ACTIVITIES IN ENERGY AND UTILITY**
2 **ENGAGEMENTS.**

3 A. Concentric provides financial and economic advisory services to many and
4 various energy and utility clients across North America. Our regulatory,
5 economic, and market analysis services include utility ratemaking and regulatory
6 advisory services; energy market assessments; market entry and exit analysis;
7 corporate and business unit strategy development; demand forecasting; resource
8 planning; and energy contract negotiations. Our financial advisory activities
9 include buy- and sell-side merger, acquisition, and divestiture assignments; due
10 diligence and valuation assignments; project and corporate finance services; and
11 transaction support services. In addition, we provide litigation support services on
12 a wide range of financial and economic issues on behalf of clients throughout
13 North America.

1 **II. PURPOSE AND OVERVIEW OF TESTIMONY**

2 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

3 A. The purpose of my Direct Testimony is to present evidence and provide a
4 recommendation regarding Public Service’s return on equity (“ROE” or “cost of
5 equity”) for its gas distribution operations and to assess the reasonableness of its
6 proposed capital structure to be used for ratemaking purposes, as discussed in
7 the Direct Testimony of Company witness Mary P. Schell. My analyses and
8 recommendations are supported by the data presented in Attachments JJR-2
9 through JJR-11, which were prepared by me or under my supervision.

10 **Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSIS THAT LED TO**
11 **YOUR ROE RECOMMENDATION.**

12 A. In developing my ROE recommendation, I applied the Constant Growth and
13 Multi-Stage forms of the Discounted Cash Flow (“DCF”) model, the Capital Asset
14 Pricing Model (“CAPM”), and the Bond Yield Plus Risk Premium approach. In
15 addition to these analyses, my recommendation also considers the flotation costs
16 associated with issuing common equity, as well as the following business and
17 financial risks: (1) the elevated level of Public Service’s projected capital
18 expenditure program through 2021; (2) the regulatory risk associated with the
19 Commission’s traditional reliance on a historical test year for the Company’s gas
20 distribution operations and the lack of protection against volumetric risk for the
21 Company’s gas distribution business; (3) the risk that market conditions will affect
22 the cost of capital during the Company’s proposed Multi-Year Rate Plan (“MYP”);
23 and (4) the results of the benchmarking analysis showing that the Company’s

1 gas distribution business is projected to achieve top quartile performance on non-
2 fuel Operating and Maintenance (“O&M”) expenses during the Multi-Year Rate
3 Plan. Although I did not make any specific adjustments to my ROE estimates for
4 business and financial risk or for management performance, I considered these
5 factors in aggregate when determining where Public Service’s ROE should fall
6 within the range of analytical results. Finally, I compared the Company’s
7 proposed capital structure, which is composed of 55.25 percent common equity
8 and 44.75 percent long-term debt, with the capital structures of the utility
9 operating company subsidiaries of the proxy group companies.

10 **Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?**

11 A. The remainder of my Direct Testimony is organized in eight sections. Section III
12 provides a summary of my analyses and conclusions. Section IV reviews the
13 regulatory guidelines pertinent to the development of the cost of capital. Section
14 V discusses the current and prospective capital market conditions and the effect
15 of those conditions on Public Service’s cost of equity. Section VI explains my
16 selection of a proxy group of combination electric and gas utilities. Section VII
17 describes my analyses and the analytical basis for the recommendation of the
18 appropriate ROE for Public Service. Section VIII provides a discussion of specific
19 business and financial risks that have a direct bearing on the ROE to be
20 authorized for Public Service in this case. Section IX discusses Public Service’s
21 capital structure as compared with the capital structures of the utility operating
22 company subsidiaries of the proxy group companies. Section X presents my
23 conclusions and recommendations.

1 **III. SUMMARY OF ANALYSES AND CONCLUSIONS**

2 **Q. PLEASE SUMMARIZE THE KEY FACTORS CONSIDERED IN YOUR**
3 **ANALYSES AND UPON WHICH YOU BASE YOUR RECOMMENDED ROE.**

4 A. My analyses and recommendations considered the following:

- 5 • the United States (“U.S.”) Supreme Court’s *Hope* and *Bluefield* decisions,²
6 which established the standards for determining a fair and reasonable
7 authorized return on equity, including consistency of the authorized return
8 with other businesses having similar risk, adequacy of the return to ensure
9 access to capital and support credit quality, and the necessity for the end
10 result to lead to just and reasonable rates;
- 11 • the effect of current and prospective capital market conditions on the ROE
12 estimation models and on investors’ return requirements; and
- 13 • Public Service’s business risks relative to the proxy group companies and
14 the implications of those risks in arriving at the appropriate ROE.

15 **Q. PLEASE EXPLAIN HOW YOU CONSIDERED THOSE FACTORS.**

16 A. I have relied on several analytical approaches to estimate Public Service’s cost
17 of equity based on a proxy group of publicly-traded companies. As shown in
18 Table JJR-D-1, those ROE estimation models produce a wide range of results.

² *Bluefield Waterworks & Improvement Co., v. Pub. Serv. Comm’n of West Virginia*, 262 U.S. 679, 692-93 (1923); *Fed. Power Comm’n v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944).

1

Table JJR-D-1: Summary of Analytical Results³

	Mean Low	Mean	Mean High
DCF Analyses – 90-day Average Stock Price			
Constant Growth DCF	8.63%	9.51%	10.57%
Multi-Stage DCF	9.06%	9.41%	9.86%
Risk Premium Analyses			
	Current Risk-Free Rate (3.06%)	2017-2018 Projected Risk- Free Rate (3.52%)	2018-2022 Projected Risk-Free Rate (4.20%)
CAPM – Value Line Beta	10.14%	10.27%	10.47%
Bond Yield + Risk Premium	9.76%	9.97%	10.27%
Other Considerations			
Flotation Costs	0.10%		

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My conclusion as to where, within that range of results, Public Service’s cost of equity falls is based on the Company’s business and financial risk relative to the proxy group. Although the companies in my proxy group are generally comparable to Public Service, the Company faces higher risk than the proxy group companies in several important ways. In order for Public Service to compete for capital on reasonable terms, those additional risk factors should be reflected in the Company’s authorized ROE.

³ The table presents the DCF results based on 90-day average stock prices. Attachments JJR-3 and JJR-4 also present results based on 30-day and 180-day average stock prices which are similar to the 90-day results.

1 **Q. PLEASE SUMMARIZE THE ROE ESTIMATION MODELS THAT YOU**
2 **CONSIDERED TO ESTABLISH THE RANGE OF ROES FOR PUBLIC**
3 **SERVICE.**

4 A. I considered the results of two forms of the DCF model: the Constant Growth
5 DCF and the Multi-Stage DCF. As discussed in more detail in Section V of my
6 testimony, current and recent historical market conditions have affected the
7 inputs and assumptions of the ROE estimation models. In particular, the current
8 results of the DCF model are unduly depressed due to the low interest rate
9 environment, which has suppressed dividend yields on utility stocks. In addition
10 to the results of the DCF model, I have also considered two risk premium
11 approaches: a forward-looking CAPM analysis and a Bond Yield Plus Risk
12 Premium methodology.

13 The Constant Growth DCF model is producing individual company results
14 as low as 6.66 percent (Avista Corp.).⁴ The mean low Constant Growth DCF
15 results of 8.63 percent are below an acceptable range of returns for a gas
16 distribution utility and below any authorized ROE for a gas distribution utility in
17 the U.S. since at least 1980.⁵ Based on prospective market conditions and the
18 inverse relationship between the market risk premium and interest rates, I
19 conclude that the mean low DCF results do not provide a sufficient risk premium
20 to compensate equity investors for the residual risks of ownership, including the

⁴ See Attachment JJR-3, using 90-day average stock price.

⁵ Source: Regulatory Research Associates.

1 risk that they have the lowest claim on the assets and income of Public Service.
2 Conversely, the mean high Constant Growth DCF results of 10.57 percent are
3 not materially different than the upper end of recent allowed returns for gas
4 distributors (e.g., 10.55 percent for Atlanta Gas Light).

5 Although I have concerns about the results produced by the DCF model,
6 my ROE recommendation considers the range between the mean and mean-
7 high results of the DCF models, a forward-looking CAPM analysis, and a Bond
8 Yield Plus Risk Premium analysis. I also consider company-specific risk factors,
9 flotation costs and current and prospective capital market conditions.

10 **Q. WHAT IS YOUR CONCLUSION REGARDING THE APPROPRIATE**
11 **AUTHORIZED ROE FOR PUBLIC SERVICE IN THIS PROCEEDING?**

12 A. A reasonable range of ROE estimates for Public Service is from 9.50 percent to
13 10.50 percent. Within that range, I believe that an ROE of 10.00 percent is
14 appropriate. The required ROE should be a forward-looking estimate; therefore,
15 the analyses supporting my recommendation rely on forward-looking inputs and
16 assumptions (e.g., projected growth rates in the DCF model, forecasted risk-free
17 rate and Market Risk Premium in the CAPM analysis, etc.) and take into
18 consideration capital market conditions, including the effect of the current low
19 interest rate environment on utility stock valuations and dividend yields, the
20 uncertainty associated with global economic events, and the rising interest rate
21 environment.

1 **IV. REGULATORY GUIDELINES**

2 **Q. PLEASE DESCRIBE THE PRINCIPLES THAT GUIDE THE ESTABLISHMENT**
3 **OF THE COST OF CAPITAL FOR A REGULATED UTILITY.**

4 A. The U.S. Supreme Court's precedent-setting *Hope* and *Bluefield* cases
5 established the standards for determining the fairness or reasonableness of a
6 utility's authorized ROE. Among the standards established by the Court in those
7 cases are: (1) consistency with other businesses having similar or comparable
8 risks; (2) adequacy of the return to support credit quality and access to capital;
9 and (3) the principle that the specific means of arriving at a fair return are not
10 important, only that the end result leads to just and reasonable rates.⁶

11 **Q. HAS THE COLORADO PUBLIC UTILITIES COMMISSION ("COMMISSION")**
12 **PROVIDED SIMILAR GUIDANCE IN ESTABLISHING THE APPROPRIATE**
13 **RETURN ON COMMON EQUITY?**

14 A. Yes. The Commission follows the precedents of the *Hope* and *Bluefield* cases
15 and acknowledges that utility investors are entitled to a fair and reasonable
16 return. In a recent Order, the Commission stated:

17 To be consistent with sound regulatory economics and the
18 standards set forth by the Supreme Court in the *Bluefield* and *Hope*
19 cases, a utility's allowed ROE should be: (i) similar to that of other
20 financially sound businesses having similar or comparable risk, (ii)
21 sufficient to ensure confidence in the financial integrity of the utility,
22 and (iii) adequate to maintain and support the credit of the utility,
23 thereby enabling it to attract, on a reasonable cost basis, the funds

⁶ *Bluefield*, 262 U.S. at 692-93; *Hope*, 320 U.S. at 603.

1 necessary to satisfy its capital requirements so that it can meet the
2 obligation to provide adequate and reliable service to the public.⁷

3 **Q. WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE**
4 **OPPORTUNITY TO EARN A RETURN THAT IS ADEQUATE TO ATTRACT**
5 **EQUITY CAPITAL AT REASONABLE TERMS?**

6 A. A return that is adequate to attract capital at reasonable terms enables Public
7 Service to provide safe, reliable gas distribution service while maintaining its
8 financial integrity. That return should be commensurate with returns required by
9 investors elsewhere in the market for investments of equivalent risk. If it is lower,
10 debt and equity investors will seek alternative investment opportunities for which
11 the expected return reflects the perceived risks, thereby impairing Public
12 Service's ability to attract capital at reasonable cost.

13 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING REGULATORY**
14 **GUIDELINES?**

15 A. The ratemaking process is premised on the principle that, in order for investors
16 and companies to commit the capital needed to provide safe and reliable utility
17 services, a utility must have the opportunity to recover the return of, and the
18 market-required return on, its invested capital. Because utility operations are
19 capital-intensive, regulatory decisions should enable the utility to attract capital at
20 reasonable terms; doing so balances the long-term interests of the utility and its
21 ratepayers. The financial community carefully monitors the current and expected

⁷ Proceeding Nos. 11AL-382E and 11AL-387E, Decision No. C11-1373, at para. 87.

1 financial condition of utility companies, and the regulatory framework in which
2 they operate. In that respect, the regulatory framework is one of the most
3 important factors in both debt and equity investors' assessments of risk. The
4 Commission's order in this proceeding, therefore, should establish rates that
5 provide Public Service with the opportunity to earn an ROE that is: (1) adequate
6 to attract capital at reasonable terms; (2) sufficient to ensure its financial integrity;
7 and (3) commensurate with returns on investments in enterprises with similar
8 risk. To the extent Public Service is authorized the opportunity to earn its market-
9 based cost of capital, the proper balance is achieved between customers' and
10 shareholders' interests.

1 **V. CAPITAL MARKET CONDITIONS**

2 **Q. WHY IS IT IMPORTANT TO ANALYZE CAPITAL MARKET CONDITIONS?**

3 A. The ROE estimation models rely on market data that are either specific to the
4 proxy group, in the case of the DCF model, or the expectations of market risk, in
5 the case of the CAPM. The results of the ROE estimation models can be affected
6 by prevailing market conditions at the time the analysis is performed. While the
7 ROE that is established in a rate proceeding is intended to be forward-looking,
8 current and projected market data, specifically stock prices, dividends, growth
9 rates and interest rates are used in the ROE estimation models to estimate the
10 required return for the subject company. It is important to consider whether the
11 assumptions relied on in the current market or the projected data are sustainable
12 over the period that the recommended ROE would be in effect. If investors do not
13 expect current market conditions to be sustained in the future, it is possible that
14 the ROE estimation models will not provide an accurate estimate of investors'
15 required return during that rate period.

16 **Q. WHAT FACTORS AFFECT THE COST OF EQUITY FOR REGULATED**
17 **UTILITIES IN THE CURRENT AND PROSPECTIVE CAPITAL MARKETS?**

18 A. The cost of equity for regulated utility companies is being affected by several
19 factors in the current and prospective capital markets, including: (1) the current
20 low interest rate environment and the corresponding effect on valuations and
21 dividend yields of utility stocks relative to historical levels; and (2) the market's
22 expectation for higher interest rates. In this section, I discuss each of these

1 factors and how it affects the models used to estimate the cost of equity for
2 regulated utilities.

3 **Q. HOW HAS THE FEDERAL RESERVE'S MONETARY POLICY AFFECTED**
4 **CAPITAL MARKETS IN RECENT YEARS?**

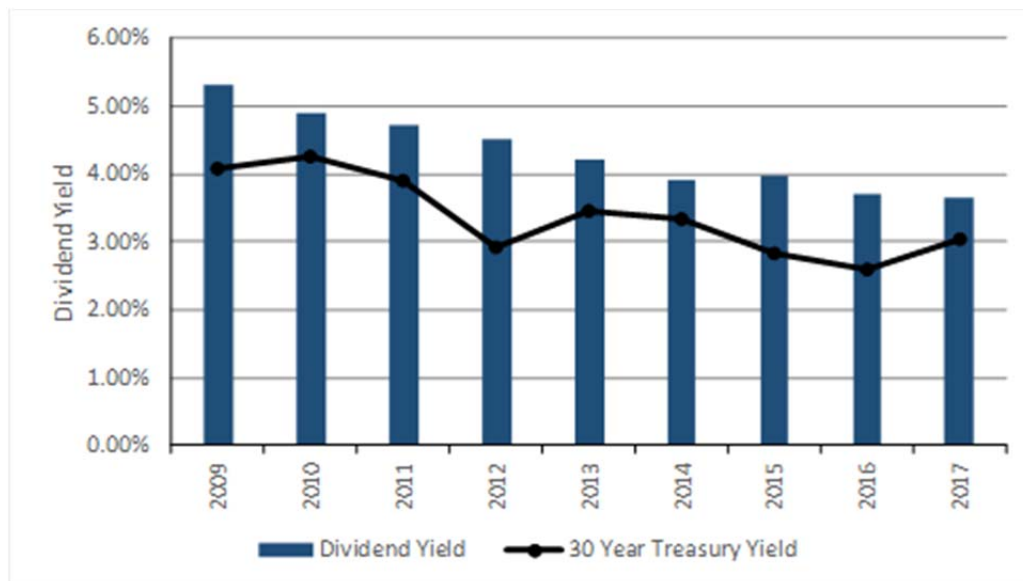
5 A. Extraordinary and persistent federal intervention in capital markets lowered
6 government bond yields after the Great Recession of 2008-09, as the Federal
7 Open Market Committee ("FOMC") used monetary policy (both reductions in
8 short-term interest rates and purchases of Treasury bonds and mortgage-backed
9 securities) to stimulate the U.S. economy. As a result of very low returns on
10 short-term government bonds, yield-seeking investors have diverted into longer-
11 term instruments, bidding up prices and reducing yields on those investments. As
12 investors have moved along the risk spectrum in search of yields that meet their
13 return requirements, there has been increased demand for dividend-paying
14 equities, such as gas and electric utility stocks.

15 **Q. HOW HAS THE PERIOD OF ABNORMALLY LOW INTEREST RATES**
16 **AFFECTED THE VALUATIONS AND DIVIDEND YIELDS OF UTILITY**
17 **SHARES?**

18 A. The Federal Reserve's accommodative monetary policy has caused investors to
19 seek alternatives to the historically low interest rates available on Treasury
20 bonds. As a result of this search for higher yield, the share prices for many
21 common stocks, especially dividend-paying stocks such as utilities, have been
22 driven higher while the dividend yields have decreased to levels well below the
23 historical average. As shown in Chart JJR-D-1, since the Federal Reserve

1 intervened to stabilize financial markets and support the economic recovery after
2 the Great Recession of 2008-09, Treasury bond yields and utility dividend yields
3 have both declined. Specifically, Treasury bond yields have decreased by
4 approximately 100 basis points since 2009, and utility dividend yields have
5 decreased by more than 160 basis points over this same period.

6 **Chart JJR-D-1: Dividend Yields for Utility Stocks**



7 Similarly, Xcel Energy's average dividend yield has declined from 5.15 percent in
8 2009 to 3.33 percent in 2016.

9 **Q. HOW ARE HIGHER STOCK VALUATIONS AND LOWER DIVIDEND YIELDS**
10 **FOR UTILITY COMPANIES AFFECTING THE RESULTS OF THE DCF**
11 **MODEL?**

12 **A.** During periods of general economic and capital market stability, the DCF model
13 adequately reflects market conditions and investor expectations. However, in the
14 current market environment, the DCF model results are distorted by the

1 historically low level of interest rates and the higher valuation of utility stocks.

2 Value Line recently commented on the low dividend yields and high valuations:

3 We continue to believe that most equities in this industry are
4 expensively priced. Historically, electric utility stocks have traded at
5 a discount to the market because utilities generally don't grow fast.
6 Last year, however, several stocks had price-earnings ratios that
7 were at or even above the broader market. And many of these
8 issues have recent prices within their 2020-2022 Target Price
9 Range. The industry's average dividend yield is 3.6%.⁸

10 Equity analysts have also noted that gas distributors are experiencing high
11 valuations as compared to historical levels, as discussed in a recent UBS report:

12 Gas LDCs continue to support high multiples even as interest rates
13 have increased. The 10-yr Treasury is currently yielding 2.48%, the
14 last time rates were at this level was August 2014 when the multiple
15 [for gas LDCs] was 19.8X vs. 21.4X today. We believe a higher
16 multiple is supported by the mid to high single digit earnings growth
17 expected that is supported by pipeline replacement, but think the
18 multiple also includes a premium for the potential for additional
19 M&A in the sector.⁹

20 Gas LDCs continue to trade at a higher average multiple than
21 Electric Utilities and both are trading higher than their historical
22 averages. We note that both are off their July 2016 peaks when the
23 10-yr Treasury hit a near-term trough. Figure 2 shows that on a
24 NTM P/E basis, Gas LDCs historically trade 12.5% above electric
25 utilities, but are currently trading at a 20.5% premium.¹⁰

26 To assess how low interest rates are affecting the dividend yields for utility
27 stocks, I compared the Standard & Poor's ("S&P") Utilities index to the yield on
28 the 30-year Treasury bond since 2007. As shown in Chart JJR-D-2, the S&P

⁸ Value Line Investment Survey, Electric Utility (East) Industry, February 17, 2017, at 138.

⁹ UBS Global Research, "Gas Distribution: Valuation Refresh – Still Trading at Premiums," March 14, 2017, at 2.

¹⁰ *Ibid*, at 3.

1 Utilities index has increased steadily as yields on 30-year Treasury bonds have
2 declined in response to federal monetary policy.

3 **Chart JJR-D-2: S&P Utilities Index and U.S. Treasury Bond Yields - 2007 – 2017**



4 **Q. WHAT EVIDENCE IS THERE THAT THE FEDERAL RESERVE'S**
5 **ACCOMMODATIVE MONETARY POLICY HAS CREATED AND CONTINUES**
6 **TO CREATE ANOMALOUS CONDITIONS IN CAPITAL MARKETS?**

7 **A.** Members of the Federal Reserve have acknowledged that monetary policy has
8 created abnormal capital market conditions. In September 2014, the Federal
9 Reserve announced its plan to “normalize” monetary policy by, among other

1 things, reducing its portfolio to minimize the effect of its holdings on “the
2 allocation of credit across sectors of the economy.”¹¹ In March 2015, Dr. Stanley
3 Fischer, Vice Chair of the Federal Reserve, further acknowledged the abnormal
4 economic conditions created by the actions of the Federal Reserve and
5 recognized the intentions of the Federal Reserve to return to normal market
6 dynamics:

7 Beginning the normalization of policy will be a significant step
8 toward the restoration of the economy’s normal dynamics, allowing
9 monetary policy to respond to shocks without recourse to
10 unconventional tools.¹²

11 **Q. HOW HAVE REGULATORS IN OTHER JURISDICTIONS RECENTLY**
12 **RESPONDED TO THE HISTORICALLY LOW DIVIDEND YIELDS FOR UTILITY**
13 **COMPANIES AND THE CORRESPONDING EFFECT ON THE DCF MODEL?**

14 A. Understanding the important role that dividend yields play in the DCF model, the
15 FERC recently determined that anomalous capital market conditions have
16 caused the DCF model to understate equity costs for regulated utilities at this
17 time. In Opinion No. 531, issued in June 2014, the FERC noted:

18 There is ‘model risk’ associated with the excessive reliance or
19 mechanical application of a model when the surrounding conditions
20 are outside of the normal range. ‘Model risk’ is the risk that a
21 theoretical model that is used to value real world transactions fails

¹¹ Federal Open Market Committee, Policy Normalization Principles and Plans, September 16, 2014.

¹² Remarks by Stanley Fischer, Vice Chairman of the Board of Governors of the Federal Reserve at the Economics Club of New York, March 23, 2015.

1 to predict or represent the real phenomenon that is being
2 modeled.¹³

3 In Opinion No. 531, the FERC noted that the low interest rates and bond
4 yields that persisted throughout the March 2012 - October 2012 analytical period
5 that was relied on (study period) resulted in anomalous market conditions and
6 recognized the need to move away from the midpoint of the DCF analysis. In that
7 case, the FERC relied on the CAPM and other risk premium methodologies to
8 inform its judgment to set the return above the midpoint of the DCF results.

9 In Opinion No. 551, issued in September 2016, the FERC recognized that
10 those anomalous market conditions continued into the July 2015 - December
11 2015 study period and again concluded that it was necessary to rely on ROE
12 estimation methodologies other than the DCF model to set the appropriate ROE:

13 Though the Commission noted certain economic conditions in
14 Opinion No. 531, the principle argument was based on low interest
15 rates and bond yields, conditions that persisted throughout the
16 study period. Consequently, we find that capital market conditions
17 are still anomalous as described above...¹⁴

18 Because the evidence in this proceeding indicates that capital
19 markets continue to reflect the type of unusual conditions that the
20 Commission identified in Opinion No. 531, we remain concerned
21 that a mechanical application of the DCF methodology would result
22 in a return inconsistent with *Hope* and *Bluefield*.¹⁵

¹³ FERC Docket No. EL11-66-001, Opinion No. 531, footnote 286. While Opinion No. 531 was recently remanded to the FERC by the D.C. Circuit Court, that decision did not question the finding by the FERC that capital market conditions were anomalous.

¹⁴ FERC Docket No. EL14-12-002, Opinion No. 551, at para 121.

¹⁵ *Id.*, at para 122.

1 As the Commission found in Opinion No. 531, under these
2 circumstances, we have less confidence that the midpoint of the
3 zone of reasonableness in this proceeding accurately reflects the
4 equity returns necessary to meet the *Hope* and *Bluefield* capital
5 attraction standards. We therefore find it necessary and reasonable
6 to consider additional record evidence, including evidence of
7 alternative methodologies...¹⁶

8 **Q. WHAT EVIDENCE IS THERE THAT THE INTEREST RATE ENVIRONMENT IS**
9 **SHIFTING?**

10 A. Based on stronger conditions in employment markets, a relatively stable inflation
11 rate, steady economic growth, and increased household spending, at the March
12 2017 meeting the Federal Reserve raised the short term borrowing rate by 25
13 basis points. This marks the third increase since December 2015 and brings the
14 federal funds rate to the range of 0.75 percent to 1.00 percent. As the economy
15 continues to expand, the Federal Reserve is expected to continue increasing
16 short-term interest rates in order to sustain the desired balance between
17 unemployment and consumer price inflation.¹⁷ The Federal Reserve has
18 indicated that it intends to raise short-term interest rates in 25 basis point
19 increments twice more in 2017 and three times in 2018.

20 **Q. WHAT IS THE FINANCIAL MARKET'S PERSPECTIVE ON THE FUTURE**
21 **PATH OF INTEREST RATES?**

22 A. According to the April 2017 issue of Blue Chip Financial Forecasts, 93 percent of
23 those surveyed expect the Federal Reserve will raise short-term interest rates

¹⁶ *Id.*

¹⁷ FOMC, Federal Reserve press release, March 15, 2017.

1 again at either the June or September meetings.¹⁸ In response to the question
2 regarding the amount of the additional increase in interest rates by the Federal
3 Reserve in 2017, 71 percent of those surveyed expect an additional increase of
4 50 basis points, and 22 percent expect an additional increase of 75 basis
5 points.¹⁹ Finally, in response to the question regarding expected increases in
6 interest rates in 2018 by the Federal Reserve, 11 percent of those surveyed
7 expect an increase of 50 basis points, 44 percent expect an increase of 75 basis
8 points, and 40 percent expect an increase of 100 basis points.²⁰

9 **Q. WHAT EFFECT DO RISING INTEREST RATES HAVE ON THE COST OF**
10 **EQUITY?**

11 A. With all other considerations remaining the same, higher interest rates will lead to
12 higher required returns on equity. As such, rising interest rates support the
13 selection of a return toward the upper end of a reasonable range of ROE
14 estimates that are based on current market data. Alternatively, my CAPM
15 analysis includes estimated returns based on both current and near-term
16 projected interest rates.

17 **Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR ANALYSIS OF**
18 **CAPITAL MARKET CONDITIONS?**

19 A. My main conclusion is that the currently low interest rate environment has driven
20 dividend yields to historically low levels for utility shares. The effect of

¹⁸ Blue Chip Financial Forecasts, Vol. 36, Issue No. 4, April 1, 2017.

¹⁹ *Id.*

²⁰ *Id.*

1 accommodative monetary policy by the Federal Reserve is that the DCF model,
2 which reflects unsustainably low dividend yields, is understating the forward-
3 looking equity return requirements.²¹ Therefore, it is important to also consider
4 alternative financial models, such as the CAPM and Risk Premium analyses,
5 together with the DCF results. In addition, the Federal Reserve increased short-
6 term interest rates again in March 2017 and has indicated its intention to
7 continue tightening monetary policy through the remainder of 2017 and in 2018.
8 In summary, market participants and analysts are expecting a change from the
9 recent low interest rate environment. As interest rates increase, it is reasonable
10 to believe that the cost of equity for utilities such as Public Service is also
11 increasing. Further, because Public Service is proposing a forecast test year, the
12 use of forward-looking interest rates is consistent with the time period used to
13 establish the Company's rate base and allowable costs in this proceeding.

²¹ As the Federal Reserve tightens monetary policy and increases interest rates, it is likely utility dividend yields will increase.

1 **VI. PROXY GROUP SELECTION**

2 **Q. WHY HAVE YOU USED A GROUP OF PROXY COMPANIES TO ESTIMATE**
3 **THE COST OF EQUITY FOR PUBLIC SERVICE?**

4 A. In this proceeding, I am estimating the cost of equity for Public Service, a
5 rate-regulated subsidiary of Xcel Energy. Since the ROE is a market-based
6 concept, and given the fact that Public Service's operations do not make up the
7 entirety of a publicly-traded entity, it is necessary to establish a group of
8 companies that is both publicly traded and comparable to Public Service in
9 certain fundamental business and financial respects to serve as its "proxy" for
10 purposes of the ROE estimation process.

11 Even if Public Service's regulated gas distribution operations made up the
12 entirety of a publicly-traded entity, it is possible that transitory events could bias
13 its market value in one way or another over a given period of time. A significant
14 benefit of using a proxy group is that it mitigates the effects of anomalous events
15 that may be associated with any one company. The proxy companies used in my
16 analyses all possess a set of operating and financial risk characteristics that are
17 substantially comparable to Public Service, and, therefore, provide a reasonable
18 basis for deriving the appropriate ROE for the Company.

19 **Q. PLEASE PROVIDE A BRIEF PROFILE OF PUBLIC SERVICE.**

20 A. Public Service is a wholly-owned subsidiary of Xcel Energy that provides electric
21 generation, transmission, and distribution services to approximately 1.45 million

1 retail customers and gas distribution service to approximately 1.37 million retail
2 customers primarily in eastern Colorado.²² Public Service accounts for
3 approximately 35 to 45 percent of Xcel Energy's consolidated net income.²³
4 Public Service's current credit ratings on senior unsecured debt are: (1) S&P A-
5 (Outlook: Stable); (2) Moody's Investor's Service A3 (Outlook: Stable); and (3)
6 Fitch Ratings A- (Outlook: Stable).²⁴

7 **Q. HOW DID YOU SELECT THE COMPANIES INCLUDED IN YOUR PROXY**
8 **GROUP?**

9 A. I began with the group of 43 domestic U.S. utilities that Value Line classifies as
10 Electric Utilities, and I simultaneously applied the following screening criteria to
11 select a group of combination gas and electric utility companies that:

- 12 • Are covered by at least two utility industry analysts;
- 13 • Have positive long-term earnings growth forecasts from at least two
14 sources;
- 15 • Pay quarterly cash dividends that have not been reduced in the last three
16 years because companies that do not pay dividends cannot be analyzed
17 using the DCF model;
- 18 • Have investment grade long-term issuer ratings from S&P and/or Moody's;
- 19 • Own regulated generation assets that are in rate base;
- 20 • Derive more than 70 percent of total operating income from regulated
21 utility operations;

²² Public Service Company of Colorado, SEC Form 10-K, filed February 2017, at 11 and 14.

²³ *Ibid*, at 5.

²⁴ Source: SNL Financial, accessed April 7, 2017.

- 1 • Derive more than 50 percent of regulated operating income from electric
2 utility operations;
- 3 • Derive more than 10 percent of regulated operating income from gas
4 distribution operations; and
- 5 • Are not engaged in mergers or other transformative transactions during
6 the analytical period (180 days).

7 **Q. DID YOU INCLUDE XCEL ENERGY IN YOUR ANALYSIS?**

8 A. No. In order to avoid the circular logic that otherwise would occur, it is my
9 practice to exclude the subject company, or its parent holding company, from the
10 proxy group.

11 **Q. WHAT IS THE COMPOSITION OF YOUR PROXY GROUP?**

12 A. The screening criteria discussed above result in a proxy group consisting of the
13 combination electric and gas companies shown in Table JJR-D-2:

14 **Table JJR-D-2: Proxy Group**

Company	Ticker
Ameren Corporation	AEE
Avista Corporation	AVA
Black Hills Corporation	BKH
CMS Energy	CMS
DTE Energy	DTE
NorthWestern Corporation	NWE
SCANA Corporation	SCG
Sempra Energy	SRE
WEC Energy Group	WEC

15 Attachment JJR-2 provides the results of my proxy group screening analysis. As
16 shown in that Attachment, like Public Service, each of the companies in my proxy
17 group has an investment grade credit rating between A- and BBB from S&P,
18 which indicates that the company has similar financial risk characteristics as

1 Public Service. In addition, the proxy group companies derive the vast majority of
2 their operating income (i.e., approximately 93 percent on average) from regulated
3 utility operations, making them comparable to Public Service on that risk factor.
4 Lastly, each of the proxy group companies owns generation assets in rate base,
5 which is an important similarity to Public Service. I excluded two companies from
6 my proxy group that are combination gas and electric utilities, but that own very
7 limited regulated generation assets: Consolidated Edison, Inc. and Public Service
8 Enterprise Group Incorporated.

9 **Q. WHY HAVE YOU SELECTED COMBINATION ELECTRIC AND GAS**
10 **UTILITIES IN YOUR PROXY GROUP?**

11 A. The Commission has traditionally relied on combination electric and gas utilities
12 to establish the proxy group for Public Service. This is because Public Service
13 operates as a combination electric and gas utility and is viewed by investors as a
14 combination company. In particular, Public Service raises capital as a
15 combination company, and does not issue separate debt or equity for the electric
16 and gas operations. In addition, the business and financial risks of Public Service
17 are comparable to those of a combination electric and gas utility. As shown in
18 Table JJR-D-3, the proxy group of combination gas and electric companies
19 derive a similar percentage of revenues and operating income from gas
20 distribution as Public Service, which makes them risk comparable to the
21 Company in terms of business mix.

1

Table JJR-D-3: Proxy Group 2016 Gas Percentages²⁵

Company	Gas Revenue	Gas Operating Income
Ameren Corporation	14%	12%
Avista Corporation	31%	21%
Black Hills Corporation	56%	48%
CMS Energy	28%	25%
DTE Energy	20%	19%
NorthWestern Corp	20%	12%
SCANA Corporation	23%	13%
Sempra Energy	49%	43%
WEC Energy Group	38%	34%
Proxy Group Avg.	31%	25%
Public Service Company	24%	16%

2 For these reasons, a proxy group consisting of combination electric and
3 gas utilities is most risk comparable to Public Service and is what investors use
4 to establish their return requirements for the Company.

²⁵ Source: United States Securities and Exchange Commission, 2016 Form 10-K for each company.

1 **VII. COST OF EQUITY ESTIMATION**

2 **Q. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF THE**
3 **REGULATED RATE OF RETURN (“ROR”).**

4 A. The overall ROR for a regulated utility is based on its weighted average cost of
5 capital, in which the costs of the individual sources of capital are weighted by
6 their respective book values. While the costs of debt and preferred stock can be
7 directly observed, the cost of equity is market-based and, therefore, must be
8 estimated based on observable market data.

9 **Q. HOW IS THE REQUIRED ROE DETERMINED?**

10 A. The required ROE is estimated by using multiple analytical techniques that rely
11 on market data to quantify investors’ return requirements, adjusted for certain
12 incremental costs and risks. Quantitative models produce a range of reasonable
13 results from which the market-required ROE is selected. That selection must be
14 based on a comprehensive review of relevant data and information, and does not
15 necessarily lend itself to a strict mathematical solution. The key consideration in
16 determining the cost of equity is to ensure that the methodologies employed
17 reasonably reflect investors’ views of the financial markets in general and of the
18 subject company (in the context of the proxy group) in particular.

19 **Q. WHAT METHODS DID YOU USE TO ESTIMATE PUBLIC SERVICE’S COST**
20 **OF EQUITY?**

21 A. I considered the results of two forms of the DCF model and the CAPM analysis,
22 corroborated by the Bond Yield Plus Risk Premium methodology. I believe that a

1 reasonable ROE estimate considers alternative methodologies, observable
2 market data, and the reasonableness of their individual and collective results.

3 **Q. WHY IS IT IMPORTANT TO USE MORE THAN ONE ANALYTICAL**
4 **APPROACH?**

5 A. It is important to use more than one analytical approach because the cost of
6 equity is not directly observable, and, therefore, it must be estimated based on
7 both quantitative and qualitative information. When estimating the cost of equity,
8 analysts and investors are inclined to gather and evaluate as much relevant data
9 as can be reasonably analyzed. A number of models have been developed to
10 estimate the cost of equity. Analysts and academics understand that ROE
11 models are tools to be used in the ROE estimation process, and that strict
12 adherence to any single approach, or the results of any single approach, can
13 lead to flawed or irrelevant conclusions. Consistent with the *Hope* finding, it is the
14 analytical result, not the methodology, which is controlling in arriving at ROE
15 determinations.

16 **A. Constant Growth DCF Model**

17 **Q. ARE DCF MODELS WIDELY USED TO ESTIMATE THE ROE FOR**
18 **REGULATED UTILITIES?**

19 A. Yes. DCF models are widely used in regulatory proceedings and have sound
20 theoretical bases, although neither the DCF model nor any other model can be
21 applied without considerable judgment in the selection of data and the
22 interpretation of results. As discussed in Section V of my Direct Testimony, the
23 currently high valuations and low dividend yields for utility companies and the

1 expectation that those high valuations and low dividend yields are not
2 sustainable are creating concerns among analysts and regulators that the DCF
3 model is understating the cost of equity at this time.

4 **Q. PLEASE DESCRIBE THE DCF APPROACH.**

5 A. The DCF approach is based on the theory that a stock's current price represents
6 the present value of all expected future cash flows. In its most general form, the
7 DCF model is expressed as follows:

$$8 \quad P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \dots + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

9 Where P_0 represents the current stock price, $D_1 \dots D_\infty$ are all expected
10 future dividends, and k is the discount rate, or required ROE. Equation [1] is a
11 standard present value calculation that can be simplified and rearranged into the
12 following form:

$$13 \quad k = \frac{D_0(1+g)}{P_0} + g \quad [2]$$

14 Equation [2] is often referred to as the Constant Growth DCF model in
15 which the first term is the expected dividend yield and the second term is the
16 expected long-term growth rate.

17 **Q. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH**
18 **DCF MODEL?**

19 A. The Constant Growth DCF model requires the following assumptions: (1) a
20 constant growth rate for earnings and dividends; (2) a stable dividend payout
21 ratio; (3) a constant price-to-earnings ("P/E") ratio; and (4) a discount rate greater

1 than the expected growth rate. To the extent any of these assumptions is
2 violated, considered judgment and/or specific adjustments should be applied to
3 the results.

4 **Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND YIELD**
5 **IN YOUR CONSTANT GROWTH DCF MODEL?**

6 A. The dividend yield in my Constant Growth DCF model is based on the proxy
7 companies' current annual dividend and average closing stock prices over the
8 30-, 90-, and 180-trading days ended March 31, 2017. In my summary tables, I
9 have presented the DCF results using 90-day average stock prices as
10 representative of the investor-required return.

11 **Q. DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO**
12 **ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?**

13 A. Yes. Since utility companies tend to increase their quarterly dividends at different
14 times throughout the year, it is reasonable to assume that dividend increases will
15 be evenly distributed over calendar quarters. Given that assumption, it is
16 reasonable to apply one-half of the expected annual dividend growth rate for
17 purposes of calculating the expected dividend yield component of the DCF
18 model. This adjustment ensures that the expected first year dividend yield is, on
19 average, representative of the coming twelve-month period, and does not
20 overstate the aggregated dividends to be paid during that time.

1 **Q. WHY IS IT IMPORTANT TO SELECT APPROPRIATE MEASURES OF LONG-**
2 **TERM GROWTH IN APPLYING THE DCF MODEL?**

3 A. In its Constant Growth form, the DCF model (i.e., Equation [2]) assumes a single
4 long-term growth rate in perpetuity. In order to reduce the long-term growth rate
5 to a single measure, one must assume that the dividend payout ratio remains
6 constant and that Earnings Per Share (“EPS”), dividends per share, and book
7 value per share all grow at the same constant rate. Over the long run, dividend
8 growth can only be sustained by earnings growth. Earnings growth rates tend to
9 be least influenced by capital allocation decisions that companies may make in
10 response to near-term changes in the business environment. Since such
11 decisions may directly affect near-term dividend payout ratios, estimates of
12 earnings growth are more indicative of long-term investor expectations than are
13 dividend or book value growth estimates.

14 **Q. WHAT SOURCES OF LONG-TERM GROWTH RATES DID YOU RELY ON IN**
15 **YOUR CONSTANT GROWTH DCF MODEL?**

16 A. My Constant Growth DCF model incorporates three sources of long-term growth
17 rates: (1) consensus long-term earnings growth estimates from Zacks Investment
18 Research; (2) consensus long-term earnings growth estimates from Thomson
19 First Call (provided by Yahoo! Finance); and (3) long-term earnings growth
20 estimates from Value Line.

1 **B. Multi-Stage DCF Model**

2 **Q. WHAT OTHER FORMS OF THE DCF MODEL HAVE YOU CONSIDERED?**

3 A. In order to address some of the limiting assumptions underlying the Constant
4 Growth form of the DCF model, I also considered the results of a Multi-Stage
5 form of the DCF model. As with the Constant Growth DCF model, the Multi-Stage
6 form defines the cost of equity as the discount rate that sets the current price
7 equal to the discounted value of future cash flows.

8 **Q. HAS THE COMMISSION INDICATED A PREFERENCE FOR THE RESULTS
9 OF THE MULTI-STAGE DCF MODEL IN RECENT YEARS?**

10 A. Yes, the Commission has referred to the Multi-Stage DCF model as its preferred
11 methodology in rate case decisions since 2012. While I agree that the Multi-
12 Stage DCF model is a commonly-used method among investors and regulators,
13 it is important to consider whether any model used to estimate the ROE is
14 producing reliable results at a given point in time. This can be accomplished by
15 comparing the individual and collective results of the various models used to
16 estimate the cost of equity, and by evaluating whether the inputs and
17 assumptions of the models are being affected by conditions in capital markets or
18 the economy.

19 **Q. WHAT ARE THE BENEFITS OF USING A MULTI-STAGE MODEL?**

20 A. The Multi-Stage DCF model, which is an extension of the Constant Growth form,
21 enables the analyst to specify different growth rates over multiple stages. The
22 Multi-Stage DCF model allows for a gradual transition from the first-stage growth

1 rate to the long-term growth rate, thereby avoiding the unrealistic assumption that
2 growth changes abruptly between the first and final stages.

3 **Q. PLEASE GENERALLY DESCRIBE THE STRUCTURE OF YOUR MULTI-**
4 **STAGE DCF MODEL.**

5 A. The Multi-Stage DCF model sets a company's current stock price equal to the
6 present value of future cash flows received over three "stages." In all three
7 stages, cash flows are equal to the annual dividend payments that stockholders
8 receive. Stage One is a short-term growth period that consists of the first five
9 years; Stage Two is a transition period from the short-term growth rate to the
10 long-term growth rate (i.e., years six through 24²⁶); and Stage Three is a long-
11 term growth period that begins in year 25 and continues in perpetuity (i.e., year
12 200). The ROE is then calculated as the rate of return that results from the initial
13 stock investment and the dividend payments over the analytical period.

14 **Q. PLEASE SUMMARIZE THE EPS GROWTH RATES USED IN YOUR MULTI-**
15 **STAGE DCF MODEL.**

16 A. As shown in Attachment JJR-4, I began with the current annualized dividend as
17 of March 31, 2017 for each proxy group company. In the first stage of the model,
18 the current annualized dividend is escalated based on the average of the three-to
19 five-year earnings growth estimates reported by Thomson First Call, Zacks, and
20 Value Line. For the third stage, I relied on long-term projected growth in Gross

²⁶ This transition period is consistent with the Multi-Stage DCF model that the Commission relied on in Proceeding No. 16AL-0326E for Black Hills Corp.'s electric utility operations.

1 Domestic Product (“GDP”). The second stage growth rate is a transition from the
2 first stage growth rate to the long-term growth rate on a geometric average basis.

3 **Q. HOW DID YOU CALCULATE THE LONG-TERM GDP GROWTH RATE?**

4 A. As shown in Attachment JJR-5, the long-term growth rate of 5.51 percent is
5 based on real GDP growth rate of 3.22 percent from 1929 through 2016,²⁷ and a
6 projected inflation rate of 2.21 percent. The projected inflation rate is based on
7 three measures: (1) the average long-term projected growth rate in the
8 Consumer Price Index (“CPI”) of 2.30 percent;²⁸ (2) the compound annual growth
9 rate of the CPI for all urban consumers for 2027-2040 of 2.33 percent as
10 projected by the Energy Information Administration (“EIA”); and (3) the
11 compound annual growth rate of the GDP chain-type price index for 2027-2040
12 of 2.01 percent, also reported by the EIA.²⁹

13 **Q. DO THE ASSUMPTIONS USED IN THE MULTI-STAGE DCF MODEL**
14 **ADDRESS THE EFFECT OF LOW DIVIDEND YIELDS ON THE DCF**
15 **RESULTS?**

16 A. No, they do not. While the Multi-Stage DCF model provides for changes in
17 growth over time, it does not address the abnormally low dividend yields for utility
18 stocks and the effect of those low dividend yields on the DCF model, specifically
19 the understated ROEs that result from the use of these assumptions. For that

²⁷ U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, Table 1.1.1, March 31, 2017.

²⁸ Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016, at 14.

²⁹ U.S. Energy Information Administration, Annual Energy Outlook 2017, Table 20, Macroeconomic Indicators.

1 reason, I have also considered the results of alternative risk-premium based
2 methodologies, which I will discuss after explaining flotation costs.

3 **Q. HAVE YOU CONSIDERED THE RESULTS OF ANY OTHER DCF ANALYSES?**

4 A. Yes, because of analysts' views that utility stocks may currently be at
5 unsustainably high prices due to current market conditions, I have also
6 considered the results of a projected Constant Growth DCF model. This DCF
7 analysis relies on Value Line's projected average stock prices and dividends for
8 the period from 2020 - 2022 and the five-year projected EPS growth rates. The
9 projected Constant Growth DCF analysis produces mean results of 10.16
10 percent, as compared to 90-day average Constant Growth DCF result of 9.51
11 percent. This analysis confirms my concern that under current market conditions
12 the Constant Growth DCF analysis understates the true cost of equity.

13 **C. Flotation Costs**

14 **Q. WHAT ARE FLOTATION COSTS?**

15 A. Flotation costs are the costs associated with the sale of new issues of common
16 stock. These costs include out-of-pocket expenditures for preparation, filing,
17 underwriting, and other issuance costs.

18 **Q. ARE FLOTATION COSTS PART OF THE UTILITY'S INVESTED COSTS OR
19 ITS EXPENSES?**

20 A. Flotation costs are part of the invested costs of the utility, which are properly
21 reflected on the balance sheet under "paid in capital." They are not current
22 expenses, and, therefore, are not reflected on the income statement. Rather, like
23 investments in rate base or the issuance costs of long-term debt, flotation costs

1 are incurred over time. As a result, the majority of a utility's flotation cost is
2 incurred prior to the test year, but remains part of the cost structure that exists
3 during the test year and beyond. As such, these costs should be recovered
4 through the allowed ROE. To the extent a company is denied the opportunity to
5 recover prudently-incurred flotation costs, actual returns will fall short of expected
6 (or required) returns, thereby diminishing a company's ability to attract adequate
7 capital on reasonable terms.

8 **Q. IS THE NEED TO CONSIDER FLOTATION COSTS ELIMINATED BECAUSE**
9 **PUBLIC SERVICE IS A WHOLLY-OWNED SUBSIDIARY OF XCEL ENERGY?**

10 A. No. Although Public Service is a wholly-owned subsidiary of Xcel Energy, it is
11 appropriate to consider flotation costs for two reasons. First, a substantial portion
12 of Public Service's paid-in equity is the result of prior public issuances of
13 common stock made by Public Service at a time when Public Service was itself a
14 publicly-traded entity. Second, wholly-owned subsidiaries receive equity capital
15 from their parent and provide returns on the capital that roll up to the parent,
16 which is designated to attract and raise capital based upon the returns of those
17 subsidiaries. To deny recovery of issuance costs associated with the capital that
18 is invested in the subsidiaries ultimately penalizes the investors that fund the
19 utility operations and inhibits the utility's ability to obtain new equity capital at a
20 reasonable cost. This is particularly important for Public Service because it is
21 planning significant capital expenditures in the near term.

1 **Q. DOES IT MATTER WHETHER XCEL ENERGY HAS IMMEDIATE PLANS TO**
2 **ISSUE COMMON EQUITY OR HAS RECENTLY ISSUED COMMON EQUITY?**

3 A. No. Flotation cost recovery is appropriate regardless of whether an issuance
4 occurs during, or is planned for, the test year because failure to allow recovery of
5 flotation costs may deny Public Service the opportunity to earn its authorized cost
6 of equity in the future.

7 **Q. IS THE NEED TO CONSIDER FLOTATION COSTS RECOGNIZED BY THE**
8 **ACADEMIC AND FINANCIAL COMMUNITIES?**

9 A. Yes. The academic and financial communities recognize the need to reimburse
10 investors for equity issuance costs in the same spirit that they recognize that
11 investors should be reimbursed for the costs of issuing debt. This treatment is
12 consistent with the philosophy of a fair rate of return. According to Dr. Shannon
13 Pratt:

14 Flotation costs occur when new issues of stock or debt are sold to
15 the public. The firm usually incurs several kinds of flotation or
16 transaction costs, which reduce the actual proceeds received by
17 the firm. Some of these are direct out-of-pocket outlays, such as
18 fees paid to underwriters, legal expenses, and prospectus
19 preparation costs. Because of this reduction in proceeds, the firm's
20 required returns on these proceeds equate to a higher return to
21 compensate for the additional costs. Flotation costs can be
22 accounted for either by amortizing the cost, thus reducing the cash
23 flow to discount, or by incorporating the cost into the cost of capital.
24 Because flotation costs are not typically applied to operating cash
25 flow, one must incorporate them into the cost of capital.³⁰

³⁰ Shannon P. Pratt, Cost of Capital Estimation and Applications, Second Edition at 220-221.

1 **Q. HOW DID YOU CALCULATE THE FLOTATION COSTS FOR PUBLIC**
2 **SERVICE?**

3 A. My flotation cost calculation was based on the equity issuance costs that were
4 incurred by Xcel Energy and the proxy group companies in their two most recent
5 common equity issuances. Based on the issuance costs shown in Attachment
6 JJR-6, flotation costs for Public Service are approximately 0.10 percent (i.e., 10
7 basis points).

8 **Q. DID YOU MAKE AN EXPLICIT ADJUSTMENT TO YOUR DCF RESULTS FOR**
9 **FLOTATION COSTS?**

10 A. No, I did not. Rather, I considered flotation costs along with company-specific
11 business and financial risks in determining where within the range of reasonable
12 results the ROE for the Company should be set.

13 **D. Discounted Cash Flow Results**

14 **Q. PLEASE SUMMARIZE THE RESULTS OF YOUR DCF ANALYSES.**

15 A. The results of my Constant Growth and Multi-Stage DCF analyses using 90-day
16 average stock prices are summarized in Table JJR-D-4.

1

Table JJR-D-4: Summary of DCF Results³¹

	Mean Low	Mean	Mean High
Constant Growth DCF	8.63%	9.51%	10.57%
Multi-Stage DCF	9.06%	9.41%	9.86%

2

As shown in Table JJR-D-4, the Constant Growth DCF analysis using the 90-day average dividend yield produces a range of results from 8.63 percent to 10.57 percent. The Multi-Stage DCF analysis using the 90-day average dividend yield produces a range of results from 9.06 percent to 9.86 percent.

3

4

5

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Q. HOW DID YOU CALCULATE THE RANGE OF RESULTS FOR THE CONSTANT GROWTH AND MULTI-STAGE DCF MODELS?

7

8

A. I calculated the mean low result for both DCF models using the lowest growth rate (i.e., the lowest of the Thomson First Call, Zacks, and Value Line earnings growth rates) for each of the proxy group companies. Thus, the mean low result reflects the lowest expected DCF result for the proxy group. I used a similar approach to calculate the mean high results, using the highest growth rate for each proxy group company. The mean results were calculated using the average growth rates from all sources.

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Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF MODELS?

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A. As discussed previously, one primary assumption of the DCF models is a constant P/E ratio. That assumption is heavily influenced by the market price of

18

³¹ DCF results in the table are based on 90-day average stock prices. Attachments JJR-3 and JJR-4 also present results based on 30-day and 180-day average stock prices which are similar to the 90-day results.

1 utility stocks. To the extent that utility valuations are high and may not be
2 sustainable, it is important to consider the results of the DCF models with
3 caution. The average dividend yield for the proxy group companies has declined
4 from 5.5 percent in 2001 to 2.6 percent in 2016 due to the stock price
5 appreciation, as enabled by the significant decline in interest rates. The dividend
6 yield on the 90-day average Constant Growth DCF analysis is 3.35 percent,
7 which is significantly below the average dividend yield for combined electric and
8 gas utilities over the last 15 years.

9 **Q. HAS THE FERC RECOGNIZED THAT THE DCF MODELS ARE CURRENTLY**
10 **UNDERSTATING INVESTORS' REQUIRED COST OF EQUITY?**

11 A. Yes. As discussed in Section V of my Direct Testimony, the FERC has
12 recognized that the inputs to the DCF model have been affected by anomalous
13 market conditions and, therefore has also considered the results of other ROE
14 estimation models.

15 [W]e also understand that any DCF analysis may be affected by
16 potentially unrepresentative financial inputs to the DCF formula,
17 including those produced by historically anomalous capital market
18 conditions. Therefore, while the DCF model remains the
19 Commission's preferred approach to determining allowed ROR, the
20 Commission may consider the extent to which economic anomalies
21 may have affected the reliability of DCF analyses in determining
22 where to set a public utility's ROE within the range of reasonable
23 returns established by the two-step constant growth DCF
24 methodology.³²

³² Coakley v. Bangor Hydro-Electric Co., 147 FERC ¶¶ 61,234, at P 41 (2014).

1 The FERC's decision supports my conclusion that, because the results of the
2 DCF models are being affected by anomalous market conditions, it is important
3 to also consider the results of other ROE estimation models.

4 **E. CAPM Analysis**

5 **Q. PLEASE BRIEFLY DESCRIBE THE CAPITAL ASSET PRICING MODEL.**

6 A. The CAPM is a risk premium approach that estimates the cost of equity for a
7 given security as a function of a risk-free return plus a risk premium to
8 compensate investors for the non-diversifiable or "systematic" risk of that
9 security. Systematic risk is the risk inherent in the entire market or market
10 segment. This form of risk cannot be diversified away using a portfolio of assets.
11 Non-systematic risk is the risk of a specific company that can be mitigated
12 through portfolio optimization.

13 The CAPM is defined by four components, each of which must
14 theoretically be a forward-looking estimate:

1
$$K_e = r_f + \beta(r_m - r_f) \quad [3]$$

2 Where:

3 K_e = the required market ROE;

4 β = Beta coefficient of an individual security;

5 r_f = the risk-free ROR; and

6 r_m = the required return on the market as a whole.

7 In this specification, the term $(r_m - r_f)$ represents the Market Risk Premium.

8 According to the theory underlying the CAPM, since unsystematic risk can be

9 diversified away, investors should only be concerned with systematic risk.

10 Systematic risk is measured by Beta. Beta is a measure of the volatility of a

11 security as compared to the market as a whole. Beta is defined as:

$$\beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [4]$$

12 The variance of the market return (i.e., Variance (r_m)) is a measure of the

13 uncertainty of the general market. The covariance between the return on a

14 specific security and the general market (i.e., Covariance (r_e, r_m)) reflects the

15 extent to which the return on that security will respond to a given change in the

16 general market return. Thus, Beta represents the risk of the security relative to

17 the general market.

1 **Q. WHAT RISK-FREE RATE DID YOU USE IN YOUR CAPM ANALYSIS?**

2 A. I relied on three sources for my estimate of the risk-free rate: (1) the current
3 30-day average yield on 30-year U.S. Treasury bonds (i.e., 3.06 percent);³³ (2)
4 the projected 30-year U.S. Treasury bond yield for 2017 through 2018 (i.e., 3.52
5 percent);³⁴ and (3) the projected 30-year U.S. Treasury bond yield for 2018
6 through 2022 (i.e., 4.20 percent).³⁵

7 **Q. WHAT BETA COEFFICIENTS DID YOU USE IN YOUR CAPM ANALYSIS?**

8 A. As shown in Attachment JJR-7, I used the average Beta coefficients for the proxy
9 group companies as reported by Value Line. Value Line's calculation is based on
10 five years of weekly returns relative to the New York Stock Exchange Composite
11 Index.

12 **Q. HOW DID YOU ESTIMATE THE MARKET RISK PREMIUM IN THE CAPM?**

13 A. I estimated the Market Risk Premium based on the expected total return on the
14 S&P 500 Index less the 30-year Treasury bond yield. The expected total return
15 on the S&P 500 Index is calculated using the Constant Growth DCF model for
16 the companies in the S&P 500 Index. As shown in Attachment JJR-8, based on
17 an estimated dividend yield of 2.03 percent and a long-term earnings growth rate
18 of 10.95 percent, the estimated required market return for the S&P 500 Index is
19 13.09 percent. The implied Market Risk Premiums over the current and projected

³³ Bloomberg Professional, as of March 31, 2017.

³⁴ Blue Chip Financial Forecasts, Vol. 36, No. 4, April 1, 2017, at 2.

³⁵ Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016, at 14.

1 yields on the 30-year U.S. Treasury bond range from 8.89 percent to 10.02
2 percent.

3 **Q. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSIS?**

4 A. As shown in Table JJR-D-5 (see also Attachment JJR-8), my CAPM analysis
5 produces a range of returns from 10.14 percent to 10.47 percent, depending on
6 the risk-free rate, with an average CAPM estimate of 10.29 percent.

7 **Table JJR-D-5: Forward-Looking CAPM Results**

Current Risk Free Rate (3.06%)	10.14%
2017-2018 Projected Risk Free Rate (3.52%)	10.27%
2018-2022 Projected Risk Free Rate (4.20%)	10.47%
Mean Result	10.29%

1 **F. Bond Yield Plus Risk Premium Analysis**

2 **Q. PLEASE DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH**
3 **YOU EMPLOYED.**

4 A. In general terms, this approach is based on the fundamental principle that equity
5 investors bear the residual risk associated with ownership and, therefore, require
6 a premium over the return they would have earned as a bondholder. That is,
7 since returns to equity holders are more risky than returns to bondholders, equity
8 investors must be compensated to bear that risk. Risk premium approaches
9 estimate the cost of equity as the sum of the equity risk premium and the yield on
10 a particular class of bonds. In my analysis, I used actual authorized returns for
11 gas distribution companies as the historical measure of the cost of equity to
12 determine the risk premium.

13 **Q. ARE THERE OTHER CONSIDERATIONS THAT SHOULD BE ADDRESSED IN**
14 **CONDUCTING THIS ANALYSIS?**

15 A. Yes. Both academic literature and market evidence indicate that the equity risk
16 premium (as used in this approach) is inversely related to the level of interest
17 rates. That is, as interest rates increase (decrease), the equity risk premium
18 decreases (increases). Consequently, the analysis should: (1) reflect the inverse
19 relationship between interest rates and the equity risk premium; and (2) be based
20 on current and expected market conditions. Such an analysis can be developed
21 based on a regression of the risk premium as a function of U.S. Treasury bond
22 yields. If we let authorized ROEs for gas distribution companies serve as the
23 measure of required equity returns and define the yield on the long-term U.S.

1 Treasury bond as the relevant measure of interest rates, the risk premium is
2 simply the difference between those two points.³⁶

3 **Q. WHAT DID YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS REVEAL?**

4 A. As shown in Chart JJR-D-3, from 1992 through March 2017, there was a strong
5 negative relationship between risk premia and interest rates. To estimate that
6 relationship, I conducted a regression analysis using the following equation:

7
$$RP = a + b(T) \quad [5]$$

8 Where:

9 RP = Risk Premium (difference between allowed ROEs and the yield on
10 30-year U.S. Treasury bonds)

11 a = intercept term

12 b = slope term

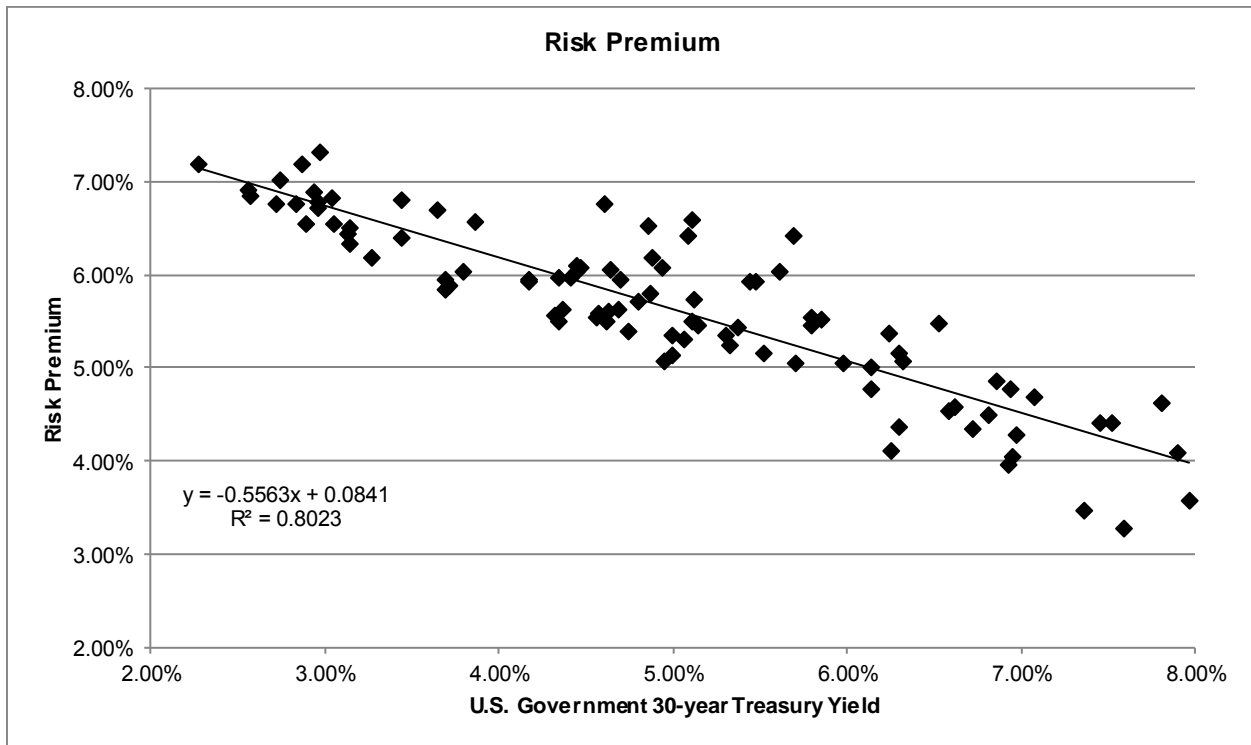
13 T = 30-year U.S. Treasury bond yield

14 Data regarding allowed ROEs were derived from 663 gas utility rate case
15 decisions from 1992 through March 2017 as reported by Regulatory Research
16 Associates. This equation's coefficients were statistically significant at the 99.0
17 percent confidence interval.

³⁶ See e.g., S. Keith Berry, Interest Rate Risk and Utility Risk Premia during 1982-93, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates. See also Robert S. Harris, Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return, Financial Management, Spring 1986, at 66.

1

Chart JJR-D-3: Risk Premium Results



2

As shown in Attachment JJR-9, based on the 30-day average of the 30-year U.S. Treasury bond yield as of March 31, 2017 (i.e., 3.06 percent), the risk premium would be 6.70 percent, resulting in an estimated ROE of 9.76 percent. Based on the near-term (2017-2018) projections of the 30-year U.S. Treasury bond yield (i.e., 3.52 percent), the risk premium would be 6.45 percent, resulting in an estimated ROE of 9.97 percent. Based on longer-term (2018-2022) projections of the 30-year U.S. Treasury bond yield (i.e., 4.20 percent), the risk premium would be 6.07 percent, resulting in an estimated ROE of 10.27 percent.

10

Q. HOW DO THE RESULTS OF THE BOND YIELD RISK PREMIUM ANALYSIS INFORM YOUR RECOMMENDED ROE FOR PUBLIC SERVICE?

11

12

A. The results of the Bond Yield Risk Premium analysis support my view that the

13

DCF model is understating investors' return requirements under current market

1 conditions. For that reason, I believe the results of the Bond Yield Risk Premium
2 analysis support selection of an authorized ROE higher than the mean DCF
3 results for the proxy group.

1 **VIII. BUSINESS RISKS**

2 **Q. DO THE MEAN DCF, CAPM, AND RISK PREMIUM RESULTS FOR THE**
3 **PROXY GROUP PROVIDE AN APPROPRIATE ESTIMATE OF THE COST OF**
4 **EQUITY FOR PUBLIC SERVICE?**

5 A. No. These results provide only a range of the appropriate estimate of Public
6 Service's cost of equity. Several additional factors must be considered when
7 determining where the Company's cost of equity falls within the range of results.
8 These risk factors, discussed below, should be considered with respect to their
9 overall effect on Public Service's risk profile relative to the proxy group.

10 **A. Risks Associated with Public Service's Capital Expenditures**

11 **Q. PLEASE SUMMARIZE PUBLIC SERVICE'S PROJECTED CAPITAL**
12 **EXPENDITURES.**

13 A. Public Service's current projections include approximately \$6.6 billion in capital
14 investments for the period from 2017-2021, including significant investment in
15 gas pipeline infrastructure, wind generation, and electric transmission and
16 distribution operations.

17 **Q. HOW IS PUBLIC SERVICE'S RISK PROFILE AFFECTED BY ITS**
18 **SUBSTANTIAL CAPITAL EXPENDITURE PROGRAM?**

19 A. As with any utility faced with substantial capital expenditures, Public Service's
20 risk profile is adversely affected in two significant and related ways: (1) the
21 heightened level of investment increases the risk of under recovery, or delayed

1 recovery, of the invested capital; and (2) an inadequate return would put
2 downward pressure on key credit metrics.

3 **Q. DO CREDIT RATING AGENCIES RECOGNIZE THE RISKS ASSOCIATED**
4 **WITH INCREASED CAPITAL EXPENDITURES?**

5 A. Yes. To the extent that Public Service's rates do not permit it to recover its full
6 cost of doing business, the Company will face increased recovery risk and thus
7 increased pressure on its credit metrics. In an August 2016 report, S&P explains
8 the importance of regulatory support for large capital projects:

9 When applicable, a jurisdiction's willingness to support large capital
10 projects with cash during construction is an important aspect of our
11 analysis. This is especially true when the project represents a major
12 addition to rate base and entails long lead times and technological
13 risks that make it susceptible to construction delays. Broad support
14 for all capital spending is the most credit-sustaining. Support for
15 only specific types of capital spending, such as specific
16 environmental projects or system integrity plans, is less so, but still
17 favorable for creditors. Allowance of a cash return on construction
18 work-in-progress or similar ratemaking methods historically were
19 extraordinary measures for use in unusual circumstances, but when
20 construction costs are rising, cash flow support could be crucial to
21 maintain credit quality through the spending program. Even more
22 favorable are those jurisdictions that present an opportunity for a
23 higher return on capital projects as an incentive to investors.³⁷

³⁷ S&P Global Ratings, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

1 **Q. HAVE RATING AGENCIES COMMENTED SPECIFICALLY ON THE RISK**
2 **ASSOCIATED WITH THE ELEVATED LEVEL OF PUBLIC SERVICE'S**
3 **PLANNED CAPITAL EXPENDITURES?**

4 A. Yes, both Moody's and S&P have observed that elevated capital expenditure
5 levels at Public Service over the next five years place pressure on the
6 Company's cash flows and credit metrics. For example, in the section of its
7 August 2016 ratings report titled "Credit Challenges," Moody's comments: "2016-
8 2020 capital investments will remain elevated and could expose the utility's cash
9 flows to some regulatory lag in the absence of new riders."³⁸

10 **Q. IS THERE EVIDENCE THAT PUBLIC SERVICE HAS BEEN UNABLE TO**
11 **EARN ITS AUTHORIZED RETURN ON EQUITY FOR THE GAS**
12 **DISTRIBUTION BUSINESS IN RECENT YEARS?**

13 A. Yes, there is. As shown in Table JJR-D-6, Public Service's gas distribution
14 business has failed to earn its authorized ROE in every year since 2010. On
15 average, the Company's gas distribution business has under-earned its
16 authorized ROE by almost 220 basis points annually over this seven-year period,
17 and by more than 300 basis points in 2016.

³⁸ Moody's Investors Service, Credit Opinion: Public Service Company of Colorado, August 11, 2016, at 2.

1

Table JJR-D-6: Earned vs. Authorized ROE – Gas Distribution

	EARNED ROE	AUTHORIZED ROE
2016	6.47%	9.50%
2015	6.04%	9.50%
2014	7.59%	9.72%
2013	9.01%	9.72%
2012	7.23%	10.10%
2011	8.78%	10.10%
2010	9.16%	10.25%
Average	7.75%	9.84%

2 The data demonstrates that earnings attrition has been persistent and significant
3 at Public Service’s gas distribution business despite frequent rate case filings
4 and the implementation of the PSIA rider, which allows the Company to recover
5 costs for pipeline safety and integrity through a tracking mechanism.

6 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF PUBLIC**
7 **SERVICE’S CAPITAL SPENDING PROGRAM ON ITS RISK PROFILE?**

8 A. Public Service’s projected level of capital expenditures over the next five years is
9 significant, and timely cost recovery is needed to maintain the Company’s credit
10 metrics at a level consistent with the current credit ratings. It also is clear that the
11 financial community recognizes the additional risks associated with substantial
12 capital expenditures. In my view, continued access to capital on reasonable
13 terms is required and supports an authorized ROE for the Company above the
14 proxy group mean.

1 **B. Risk Assessment**

2 **Q. HAVE YOU PERFORMED AN ANALYSIS OF THE LEVEL OF REGULATORY**
3 **PROTECTION THAT PUBLIC SERVICE RECEIVES AS COMPARED TO THE**
4 **PROXY GROUP COMPANIES?**

5 A. Yes. I have conducted an analysis of the regulatory protections that are in place
6 for Public Service compared with those for the operating utility companies held
7 by the proxy group companies. The results of my analysis are presented in
8 Attachment JJR-10. Specifically, I examined the following factors that affect the
9 business risk of Public Service and the proxy group companies: (1) test year
10 convention; (2) revenue decoupling; and (3) capital cost recovery.

11 As shown in Attachment JJR-10, 54 percent of the operating companies
12 (i.e., 22 out of 41) in the proxy group provide service in jurisdictions that allow the
13 use of a fully or partially forecast test year. Although Colorado statute allows for
14 the use of a forecast test year, Public Service's gas distribution rates have
15 traditionally been based on a historical test year adjusted for known and
16 measurable changes.³⁹ All of the regulated utility operating companies held by
17 the proxy group are allowed to pass through fuel and purchased power costs
18 directly to customers, so that the utility does not incur any risk associated with
19 commodity costs or purchased power costs. It is important to recognize that fuel
20 and purchased power costs typically account for 50 to 60 percent of the total

³⁹ Public Service is proposing a Multi-Year Rate Plan based on forecasted costs for 2018, 2019, and 2020.

1 operating costs for a regulated utility. Further, 50 percent of the operating utilities
2 (both gas and electric) held by the proxy group (i.e., 20 out of 40) have revenue
3 decoupling mechanisms or weather normalization adjustment clauses that allow
4 them to break the link between customer usage and revenues. Although an
5 Administrative Law Judge (“ALJ”) recently issued a Recommended Decision
6 approving an electric decoupling mechanism for Public Service, the Company
7 does not have volumetric risk protection for its gas distribution operations.⁴⁰
8 Finally, like Public Service, 48 percent of the operating utilities held by the proxy
9 group (i.e., 19 out of 40) have capital cost tracking mechanisms that allow them
10 to recover capital investments that are placed into service between rate cases.

11 **Q. BASED ON THESE ANALYSES, WHAT IS YOUR CONCLUSION REGARDING**
12 **THE LEVEL OF REGULATORY RISK FOR PUBLIC SERVICE RELATIVE TO**
13 **THAT OF THE PROXY GROUP COMPANIES?**

14 A. As shown in Attachment JJR-10, Public Service has comparable regulatory risk
15 as the proxy group companies in terms of recovering fuel and purchased power
16 costs and recovering certain capital costs through a tracking mechanism.
17 However, Public Service’s gas distribution business has higher regulatory risk

⁴⁰ The electric decoupling mechanism was approved by the ALJ in Docket No. 16A-0546E. My understanding is that Public Service has filed a request for Rehearing, Reargument, and Reconsideration to appeal the portion of the ALJ’s decision that includes both sales and new customer growth in the methodology. If the decoupling mechanism is approved as described in the ALJ’s recommended decision, the Company’s revenue requirement will not change regardless of whether new customer growth occurs between rate cases. This limitation could increase the risk that the Company will not be able to earn its authorized ROE.

1 than the proxy group because the Company does not have revenue protection
2 against volumetric risk and if the Company's gas distribution rates are based on
3 a historical test year rather than the proposed MYP. For these reasons, my
4 conclusion is that Public Service has somewhat higher regulatory risk than the
5 proxy group, which supports an authorized ROE above the proxy group mean.

6 **C. Multi-Year Rate Plan**

7 **Q. HOW DOES PUBLIC SERVICE'S PROPOSAL TO IMPLEMENT A MYP IN**
8 **THIS PROCEEDING AFFECT THE COMPANY'S AUTHORIZED ROE?**

9 A. As discussed in the testimony of Company witness Scott Brockett, Public Service
10 is proposing to implement a MYP with a term of three years for the gas
11 distribution business. Given the current low interest rate environment and
12 investor expectations for increases in interest rates over the next few years, the
13 proposed MYP creates a degree of incremental risk for equity investors if the
14 authorized ROE is fixed. To address this incremental risk, regulatory bodies often
15 approve a mechanism to index the authorized ROE over the term of a MYP.

16 **Q. PLEASE EXPLAIN HOW SUCH AN INDEX MIGHT BE DESIGNED.**

17 A. In order to mitigate the risk associated with changes in interest rates, the
18 authorized ROE can be indexed to changes in government or corporate bond
19 yields from year to year. In this situation, I recommend a symmetrical adjustment
20 mechanism under which the authorized ROE for Public Service is adjusted in the
21 second and third years of the MYP based on a formula that considers the change
22 in the yield on the Moody's A-rated utility bond index multiplied by a coefficient

1 that reflects the dampened relationship between interest rates and equity returns.
2 There would also be a deadband of +/- 25 basis points around the bond yield, so
3 that small fluctuations in interest rates would not lead to a change in the
4 authorized ROE; once the bond yield changes by more than 25 basis points, the
5 adjustment mechanism becomes operative.

6 **Q. PLEASE ELABORATE ON HOW THE ROE ADJUSTMENT MECHANISM**
7 **WOULD WORK.**

8 A. In the second and third years of the MYP, the authorized ROE for Public Service
9 would be adjusted based on the change in the 30-day average yield on the
10 Moody's A-rated utility bond index at the time the formula is implemented and the
11 30-day average yield on the Moody's A-rated utility bond index at the end of each
12 12-month period in the MYP. This differential would then be multiplied by the
13 coefficient from my Bond Yield Plus Risk Premium analysis of 0.56 (see
14 Attachment JJR-9) to determine the ROE adjustment in Year 2. The adjustment
15 factor reflects the dampened relationship between interest rates and equity costs;
16 that is, the cost of equity changes less than the change in utility bond yields. For
17 example, under the proposed ROE adjustment mechanism, if interest rates on A-
18 rated utility bonds change by 50 basis points in Year 2 as compared with Year 1,
19 the authorized ROE for Public Service would change by approximately 28 basis
20 points. If bond yields changed by only 20 basis points, there would be no change
21 in the allowed ROE.

1 **Q. WHY ARE YOU PROPOSING TO BASE THE ROE ADJUSTMENT ON**
2 **CHANGES IN UTILITY BOND YIELDS?**

3 A. Government bond yields are heavily influenced by monetary policy and, in recent
4 years, interest rates on government bonds have been artificially reduced as the
5 Federal Reserve has sought to stimulate the U.S. economy by holding
6 government bond yields at extraordinarily low levels. By contrast, the yield on
7 corporate bonds, such as the Moody's A-rated utility bond index, takes into
8 consideration the effect of changes in economic and capital market conditions
9 because it is not controlled by Federal monetary policy. The California Public
10 Utilities Commission ("California PUC") has observed that changes in the utility
11 bond yield are more reflective of changes in the cost of equity for utilities than are
12 changes in the government bond yield. Specifically, the California PUC explains
13 its rationale as follows:

14 The purpose of an interest rate benchmark is to gauge changes in
15 interest rates that also indicate changes in equity costs for utilities.
16 U.S. Treasuries are more sensitive to economic changes and risks
17 in the international capital markets than utility bonds because they
18 are bought and sold globally.

19 However, U.S. utility bonds are generally affected less than
20 Treasuries as a result of major shifts of international capital
21 because a majority of U.S. utility bonds are traded within the U.S.
22 Consistent with our use of utility bond interest rates in ROE, PBR,
23 and MICAM proceedings and desire to use an index that more

1 closely correlates and moves with utility industry risk, utility bonds
2 should be adopted for the CCM [cost of capital mechanism] index.⁴¹

3 For these reasons, I believe the ROE adjustment mechanism for Public Service
4 should be based on changes in utility bond yields.

5 **Q. HAVE SIMILAR ADJUSTMENT MECHANISMS BEEN APPROVED IN OTHER**
6 **JURISDICTIONS?**

7 A. Yes. In 2008, the California PUC adopted an ROE formula that allows for
8 changes in the authorized ROE based on changes in the Moody's utility bond
9 index if interest rates change by more than 100 basis points over a 12-month
10 period. In 2009, the Ontario Energy Board ("OEB") modified its ROE adjustment
11 formula, which had previously been based entirely on changes in government
12 bond yields, to include both changes in government and corporate bond yields.
13 According to a recent report published by OEB Staff, this revised approach has
14 worked as intended since 2009, and has been generally well-received by utilities
15 and stakeholders.⁴²

⁴¹ California Public Utilities Commission, Application 07-05-003, 07-05-007, and 07-05-008, proposed decision of ALJ Galvin, mailed April 29, 2008, at 13.

⁴² Ontario Energy Board, Docket EB-2009-0084, OEB Staff Report, Review of the Cost of capital for Ontario's Utilities, January 14, 2016, at 1.

1 **D. Management Performance Premium**

2 **Q. HAVE YOU CONSIDERED ANY OTHER FACTORS IN YOUR ASSESSMENT**
3 **OF PUBLIC SERVICE'S AUTHORIZED ROE?**

4 A. Yes, I have reviewed the benchmarking analysis performed for Public Service by
5 Pacific Economics Group Research ("PEG"), as well as the Direct Testimony of
6 company witness Mark N. Lowery discussing the PEG benchmarking report.
7 According to PEG's analysis, Public Service's proposed gas distribution non-fuel
8 O&M expenses for the 2018-2020 period are approximately 28 percent below the
9 benchmarks generated by PEG's O&M cost model on average. This represents
10 top quartile performance. Furthermore, Public Service's proposed gas distribution
11 total non-fuel cost is about 16 percent below the benchmarks generated by
12 PEG's total cost model on average. Based on PEG's analysis, Public Service's
13 gas distribution customers stand to benefit from the Company's efficiency and
14 cost containment efforts during the MYP. This superior management
15 performance, which places Public Service in the top quartile for cost performance
16 relative to the peer group used by PEG, supports an authorized ROE for Public
17 Service above the proxy group mean.

1 **IX. CAPITAL STRUCTURE AND PREPAID PENSION ASSETS**

2 **Q. WHAT IS PUBLIC SERVICE'S PROPOSED CAPITAL STRUCTURE?**

3 A. As discussed in the testimony of Company witness Schell, Public Service is
4 proposing to establish a rate-making capital structure comprised of 55.25 percent
5 common equity and 44.75 percent long-term debt. This represents a reduction in
6 the Company's common equity ratio from 56.0 percent.

7 **Q. HAVE YOU ANALYZED THE CAPITAL STRUCTURES OF THE PROXY**
8 **GROUP COMPANIES?**

9 A. Yes. I calculated the mean and median proportions of common equity and long-
10 term debt over the most recent eight quarters for each of the proxy group
11 companies at the utility operating company level. My analysis of the proxy
12 group's utility operating company capital structures is provided in Attachment
13 JJR-11. As shown in that Attachment, the equity ratios for the proxy group have
14 averaged 52.03 percent over the last eight quarters. The average equity ratios for
15 the proxy group range from 47.36 percent to 56.25 percent. Public Service's
16 proposed equity ratio of 55.25 percent is within the range established by the
17 proxy group capital structures.

18 **Q. WHAT IS THE RELATIONSHIP BETWEEN THE AUTHORIZED EQUITY RATIO**
19 **AND THE AUTHORIZED ROE?**

20 A. There is a direct relationship between the authorized equity ratio and the
21 authorized ROE. In particular, the authorized equity ratio is a major indicator of
22 financial risk for a regulated utility such as Public Service. To the extent the

1 authorized equity ratio is reduced, a corresponding increase is necessary in the
2 authorized ROE to compensate investors for the greater financial risk associated
3 with a lower equity ratio.

4 **Q. WHAT IS YOUR CONCLUSION REGARDING PUBLIC SERVICE'S**
5 **PROPOSED CAPITAL STRUCTURE?**

6 A. The proposed equity ratio for Public Service is within the range established by
7 the proxy group. As such, my conclusion is that the Company's proposed capital
8 structure is reasonable.

9 **Q. DO YOU BELIEVE THAT THE COMPANY'S PROPOSAL TO EARN ITS**
10 **WEIGHTED AVERAGE COST OF CAPITAL ON PREPAID PENSION ASSETS**
11 **IS REASONABLE?**

12 A. Yes, I do. As discussed in the Direct Testimony of Company witness Richard R.
13 Schrubbe, the prepaid pension asset was funded with both equity and debt.
14 Therefore, it is reasonable that Public Service be allowed to earn its weighted
15 average cost of capital on the prepaid pension asset, rather than a return equal
16 to the debt cost rate.

1 **X. CONCLUSIONS AND RECOMMENDATION**

2 **Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR ROE FOR PUBLIC**
3 **SERVICE?**

4 A. Based on the various quantitative analyses summarized in Table JJR-D-7 and
5 the qualitative analyses presented in my Direct Testimony, a reasonable range of
6 ROE results for Public Service is from 9.50 percent to 10.50 percent. That range
7 is established based on the results of the DCF and CAPM analyses. As
8 discussed throughout my Direct Testimony, the required ROE should be a
9 forward-looking estimate; therefore, the analyses supporting my recommendation
10 rely on forward-looking inputs and assumptions (e.g., projected earnings growth
11 rates in the DCF model, forecasted risk-free rate and Market Risk Premium in the
12 CAPM analysis, etc.) and take into consideration capital market conditions,
13 including the effect of the current low interest rate environment on utility stock
14 valuations and dividend yields, the uncertainty associated with global economic
15 events, and the rising interest rate environment. Considering the regulatory,
16 business, and financial risks of Public Service compared to the proxy group of
17 combination electric and gas companies, the Company's superior management
18 performance as demonstrated in the PEG report, and the anomalous conditions
19 in capital markets that are causing the DCF models to understate the cost of
20 equity, an ROE of 10.00 percent is just and reasonable.

1

Table JJR-D-7: Summary of Analytical Results

	Mean Low	Mean	Mean High
DCF Results – 90-Day Average Stock Price			
Constant Growth DCF	8.63%	9.51%	10.57%
Multi-Stage DCF	9.06%	9.41%	9.86%
Risk Premium Analyses			
	Current Risk-Free Rate (3.06%)	2017-2018 Projected Risk-Free Rate (3.52%)	2018-2022 Projected Risk-Free Rate (4.20%)
CAPM – Value Line Beta	10.14%	10.27%	10.47%
Bond Yield + Risk Premium	9.76%	9.97%	10.27%
Other Considerations			
Flotation Costs	0.10%		

2

If the Commission approves the proposed MYP for the gas distribution company,

3

I also recommend that it adopt the ROE adjustment mechanism in Years 2 and 3,

4

in order to mitigate the risk associated with changes in interest rates (either up or

5

down) over the term of the MYP.

6 **Q.**

**WHAT IS YOUR CONCLUSION WITH RESPECT TO PUBLIC SERVICE'S
 PROPOSED CAPITAL STRUCTURE?**

7

8 **A.**

My conclusion is that Public Service's proposed capital structure consisting of

9

55.25 percent common equity and 44.75 percent long-term debt is within the

10

range established by the proxy group companies and therefore is reasonable.

11 **Q.**

DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

12 **A.**

Yes.

STATEMENT OF QUALIFICATIONS

John J. Reed

John J. Reed is a financial and economic consultant with more than 40 years of experience in the energy industry. Mr. Reed has also been the CEO of an NASD member securities firm, and Co-CEO of the nation's largest publicly traded management consulting firm (NYSE: NCI). He has provided advisory services in the areas of mergers and acquisitions, asset divestitures and purchases, strategic planning, project finance, corporate valuation, energy market analysis, rate and regulatory matters and energy contract negotiations to clients across North and Central America.

Mr. Reed has provided expert testimony on financial and economic matters, including the cost of capital, on more than 200 occasions before the FERC, Canadian regulatory agencies, state utility regulatory agencies, various state and federal courts, and before arbitration panels in the United States and Canada. Mr. Reed's experience also includes the development and implementation of nuclear, fossil, and hydroelectric generation divestiture programs with an aggregate valuation in excess of \$20 billion.

After graduation from the Wharton School of the University of Pennsylvania, Mr. Reed joined Southern California Gas Company, where he worked in the regulatory and financial groups, leaving the firm as Chief Economist in 1981. He served as executive and consultant with Stone & Webster Management Consulting and R.J. Rudden Associates prior to forming REED

Consulting Group (RCG) in 1988. RCG was acquired by Navigant Consulting in 1997, where Mr. Reed served as an executive until leaving Navigant to join Concentric as Chairman and Chief Executive Officer