

BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
Corning Natural Gas Corporation

Case 16-G-_____

_____x

**DIRECT TESTIMONY OF
ANN E. BULKLEY
(VICE PRESIDENT OF
CONCENTRIC ENERGY ADVISORS, INC.)**

June 17, 2016

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I. INTRODUCTION AND QUALIFICATIONS

1 **Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS ADDRESS.**

2 A. My name is Ann E. Bulkley. I am a Vice President of Concentric Energy Advisors,
3 Inc. (“Concentric”), located at 293 Boston Post Road West, Suite 500, Marlborough,
4 Massachusetts 01752.

5 **Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS DIRECT TESTIMONY?**

6 A. I am submitting this Direct Testimony before the New York State Public Service
7 Commission (“Commission” or “PSC”) on behalf of Corning Natural Gas
8 Corporation (“Corning Gas” or the “Company”), which is a wholly-owned
9 subsidiary or Corning Natural Gas Holding Corporation (“Holding Company”).

10 **Q. PLEASE DESCRIBE YOUR EXPERIENCE IN THE ENERGY AND UTILITY**
11 **INDUSTRIES.**

12 A. I have approximately 20 years of experience consulting to the energy industry. I
13 have advised numerous energy and utility clients on a wide range of financial and
14 economic issues with primary concentrations in valuation and utility rate matters.
15 Many of these assignments have included the determination of the cost of capital for
16 valuation and ratemaking purposes. I have included my resume and a summary of
17 testimony that I have filed in other proceedings as Appendices A and B.

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

3 A. Concentric provides regulatory, financial, and economic advisory services to a large
4 number of 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; and energy contract negotiations.
8 Our financial advisory activities include: merger, acquisition, and divestiture
9 assignments; due diligence and valuation assignments; project and corporate finance
10 services; and transaction support services. In addition, we provide litigation support
11 services on a wide range of financial and economic issues for clients throughout
12 North America.

II. PURPOSE AND OVERVIEW OF TESTIMONY

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

14 A. The purpose of my Direct Testimony is to present evidence and provide a
15 recommended range for the Company’s cost of equity (sometimes referred to as the
16 “Return on Equity” or “ROE” for rate-setting purposes) and capital structure for
17 Corning Gas, the utility operating subsidiary of Holding Company, as a stand-alone
18 entity. The ROE recommendation that is presented in my Direct Testimony meets
19 the capital attraction standards established in *Hope* and *Bluefield* for Corning Gas on a

1 stand-alone basis. As such, the proxy group that is discussed in Section V of my
2 Direct Testimony is comparable to the risk profile of Corning Gas, the natural gas
3 distribution utility that operates in the State of New York, not the Holding
4 Company, the parent company. My analysis and recommendations are supported by
5 the detailed data presented in Schedules AEB-1 through AEB-17 of Exhibit CNG-
6 12, which, except for Schedule AEB-17 (consisting of material prepared by an
7 authoritative third party), was prepared under my supervision and direction.

8 **Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LED TO YOUR**
9 **ROE RECOMMENDATION.**

10 A. As discussed in more detail in the remainder of my Direct Testimony, it is important
11 to consider the results of several analytical approaches in determining a reasonable
12 recommendation for the Company's ROE. To develop my ROE recommendation, I
13 considered two proxy groups – the Natural Gas Utility Proxy Group, which consists
14 entirely of natural gas distribution companies, recognizing that the Company is a
15 natural gas distribution company, and a Combined Utility Proxy Group that consists
16 of companies that face risk generally comparable to that faced by the Company. The
17 Combined Utility Proxy Group includes both electric utilities and natural gas
18 distribution utilities. I developed a multi-stage Discounted Cash Flow (“DCF”)
19 model and two forms of the Capital Asset Pricing Model (“CAPM”). I weighted the
20 results of the two CAPM analyses equally, and then, for an overall recommendation,
21 weighted the averaged CAPM result and the DCF analysis equally. I have considered

1 the range of results established using both the Natural Gas Proxy Group and the
2 Combined Utility Proxy Group because the Natural Gas Proxy Group, although
3 limited in size, may be more risk comparable to the Company than the Combined
4 Utility Proxy Group.

5 The use of a multi-stage DCF model and two forms of the CAPM is consistent with
6 the approach employed by the Commission in prior cases. While my determination
7 to afford equal weighting of the DCF and CAPM results does not conform to the
8 weighting typically employed in proceedings before the PSC in the past, I explain in
9 this Direct Testimony why placing less emphasis on the DCF model at this time is
10 actually more consistent with the goals of the Recommended Decision issued in the
11 Commission's Generic Finance Proceeding, Case 91-M-0509, which has been relied
12 on by the Commission to establish the ROE formula.

13 **Q. PLEASE SUMMARIZE THE RESULTS OF THE ROE ESTIMATION MODELS THAT**
14 **YOU CONSIDERED IN YOUR ANALYSES.**

15 A. The results of my analyses are summarized in Table 1 for both proxy groups.

1

Table 1: Summary of Analytical Results

Natural Gas Proxy Group			
	Low	Mean	High
DCF	8.44%	8.69%	8.96%
Mean CAPM	10.96%	11.08%	11.34%
Mean ROE (50/50 weighting)	9.70%	9.91%	10.15%
Size Premium	0.50%	0.50%	0.50%
Range	10.20%	10.41%	10.65%
Combined Utility Proxy Group			
	Low	Mean	High
DCF	8.86%	9.05%	9.27%
Mean CAPM	10.82%	10.94%	11.21%
Mean ROE (50/50 weighting)	9.84%	10.02%	10.24%
Size Premium	0.50%	0.50%	0.50%
Range	10.34%	10.52%	10.74%

2

3 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE APPROPRIATE COST OF**
 4 **EQUITY FOR THE COMPANY?**

5 A. The analyses indicate that the Company's Cost of Equity should be in the range of
 6 10.20 percent to 10.74 percent. Based on my conservative assessment of Corning
 7 Gas's business and financial risk relative to the proxy groups, including a small size
 8 premium, I conclude that a reasonable ROE for the Company is 10.20 percent.

1 **Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE APPROPRIATE RATEMAKING**
2 **CAPITAL STRUCTURE FOR THE COMPANY.**

3 A. The analysis presented in Section IX of my Direct Testimony demonstrates that the
4 Company's requested equity ratio of 50 percent is at the low end of the range of the
5 authorized ratemaking equity ratios and actual equity ratios of the companies in my
6 proxy groups. Therefore, I conclude that the Company's requested equity ratio is
7 conservative.

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

9 A. The remainder of my Direct Testimony is organized as follows:

10 Section III – Discusses the regulatory guidelines and financial
11 considerations pertinent to the development of the Cost of
12 Capital;

13 Section IV – Briefly discusses the current capital market conditions and
14 the effect of those conditions on the Company's cost of
15 equity;

16 Section V – Explains my selection of the proxy groups of electric and gas
17 distribution utilities used to develop my analytical results;

18 Section VI – Explains my analyses and the analytical bases for my ROE
19 recommendation;

20 Section VII– Summarizes the specific regulatory and business risks that
21 have a direct bearing on the Company's cost of equity;

22 Section VIII – Explains our proposed ROE Adjustment Mechanism;

23 Section IX – Provides an analysis of the capital structures of the proxy
24 companies and forms the basis for my recommended capital
25 structure; and

26 Section X – Summarizes my conclusions and recommendations.

**III. REGULATORY GUIDELINES AND FINANCIAL
CONSIDERATIONS**

1 **Q. PLEASE DESCRIBE THE GUIDING PRINCIPLES TO BE USED IN ESTABLISHING THE**
2 **COST OF CAPITAL FOR A REGULATED UTILITY.**

3 A. The United States Supreme Court’s precedent-setting *Hope* and *Bluefield* cases
4 established the standards for determining the reasonableness of a utility’s allowed
5 ROE. Among the standards established by the Court in those cases are: (1)
6 consistency with the returns on equity investments in other businesses having similar
7 or comparable risks; (2) adequacy of the return to support credit quality and access
8 to capital; and (3) that the methodology used to arrive at a fair return is not
9 controlling, only that the end result leads to just and reasonable rates.¹
10 Based on those standards, the Commission’s order in this case should provide the
11 Company with the opportunity to earn a ROE that is (1) adequate to attract capital at
12 reasonable terms, thereby enabling it to continue to provide safe, reliable service; (2)
13 sufficient to support the financial soundness of the Company’s operations; and (3)
14 commensurate with returns on equity investments in enterprises having comparable
15 risks. The authorized ROE should enable the Company to finance capital
16 expenditures at reasonable rates and maintain its financial flexibility over the period
17 during which rates are expected to remain in effect.

¹ Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 (1944) (“Hope”);
Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia,
262 U.S. 679 (1923) (“Bluefield”).

1 **Q. HAS THE COMMISSION CONDUCTED A PROCEEDING TO REVIEW THE STANDARD**
2 **FOR ESTIMATING THE COST OF CAPITAL FOR A REGULATED UTILITY?**

3 A. Yes. On August 21, 1991, the PSC issued an Order establishing a proceeding
4 commonly referred to as the Generic Finance Proceeding (“GFP”) to review the
5 PSC’s then-current methodology for estimating the cost of equity and to examine
6 various alternatives.²

7 **Q. PLEASE PROVIDE A BRIEF SUMMARY OF THE PURPOSE OF THE GFP.**

8 A. The GFP was initiated because the Commission recognized that the DCF method
9 was particularly sensitive to interest rate fluctuations and was producing returns far
10 below the returns produced by other methodologies.³ The Commission’s goal in
11 opening the GFP was to eliminate controversy around ROE calculations and
12 attempt to find common ground on contentious issues by developing a consensus
13 approach for setting utility equity returns. The Commission examined whether there
14 should be greater consistency in rate of return determinations from company to
15 company, such that differences in authorized returns could be directly attributed to
16 differences in risk between companies. In addition, the Commission examined
17 whether its historical primary reliance on DCF-based ROE determinations continued
18 to provide fair returns.⁴ The Commission’s inquiry considered the merits of a

² Case 91-M-0509, Proceeding on Motion of the Commission to Consider Financial and Regulatory Policies for New York State Utilities, Recommended Decision, (issued July 19, 1994) (“Generic Finance RD”), at 2.

³ *Ibid.*

⁴ *Ibid.*, at 13-14.

1 generic process to reduce redundancy in litigating equity returns, and sought a
2 robust, but standardized approach to setting ROE such that allowed returns were
3 commensurate with the risk of the individual company and would not be skewed by
4 the shortcomings of a single methodology.

5 **Q. PLEASE DESCRIBE THE CONCLUSIONS OUTLINED IN THE RECOMMENDED**
6 **DECISION OF THE GFP.**

7 A. Ultimately, the Recommended Decision (“RD”) concluded that the Commission
8 should implement a generic process for setting returns, based on proxy groups (not
9 company-specific data), and that reliance on the DCF method should be replaced
10 with a combination of the DCF and CAPM methodologies. The RD proposed to
11 use as a preferred convention, a respective 2/3 – 1/3 weighting on the results of the
12 DCF and CAPM analyses. The RD recognized that the CAPM “should figure
13 prominently in the analysis” because this methodology provides fundamental
14 information on interest rates and the returns required by equity investors as a result
15 of changes in interest rates. At that time, the CAPM was not accorded the same
16 level of prominence as the DCF analysis, given that the former had previously only
17 been used as a check.⁵ However, while the RD recognized that there was a benefit to
18 establishing an “operating norm” with respect to weighting the results of the DCF
19 and CAPM in setting the ROE, it also recognized that there may be good reason to

⁵ *Ibid.*, at 27.

1 adjust either the weightings of the DCF and CAPM models or to rely on different
2 ROE estimation models. Specifically, the RD provides the following guidance:

3 In either an annual-proceeding to determine a rate of return or
4 in individual proceedings, the 2/3 DCF and 1/3 CAPM
5 convention should be the presumption, but as Multiple
6 Intervenors suggest, parties would not be barred from
7 introducing new methods or different weightings. Such parties,
8 however, would have the burden of convincing other parties and
9 the Commission of the relevance or superiority of their
10 proposals.⁶

11 To establish the “operating norm,” the RD recommended specific forms of the
12 ROE estimation models – a two-stage DCF approach and a Traditional and Zero
13 Beta CAPM. In the DCF model, the first-stage growth was determined by the
14 implied growth rate in Value Line dividend forecasts for four- to six-years in the
15 future. The second growth rate began with the end of the four- to six-year period of
16 the first stage and extended infinitely. The second stage included what is termed an
17 SV adjustment for external growth through additional equity issuances.⁷ The CAPM
18 result was proposed to be based on the average of the Traditional and Zero-Beta
19 forms of the model.⁸ Dividend yields in the DCF analysis and the risk-free bond
20 yields in the CAPM analyses were based on six months of yield data.⁹ Equity ratios
21 were capped at the upper end of the levels necessary to maintain an “A” bond

⁶ *Ibid.*
⁷ *Ibid.*, at 21.
⁸ *Ibid.*, at 24.
⁹ *Ibid.*, at 26.

1 rating.¹⁰ Although the GFP RD was never formally adopted by the Commission, it
2 has served as a touchstone for the Commission's ROE determinations for the past
3 20 years, as the Commission's ROE determinations have used the template
4 advocated in the RD.

5 **Q. DOES THE ANALYSIS PRESENTED IN THE REMAINDER OF YOUR DIRECT**
6 **TESTIMONY MEET THE INTENTIONS OF THE GFP RD?**

7 A. Yes, it does. As discussed in greater detail in Section VI, the methodologies that I
8 have applied to estimate the cost of equity for Corning Gas are consistent with
9 Commission precedent since the RD in the GFP. Moreover, the models used in my
10 analysis extend the principles advanced in the RD in the GFP to best practices in
11 financial analysis and current capital market conditions, as was contemplated in the
12 RD.

13 Specifically, I rely on the weighted results of DCF and CAPM analyses. In
14 developing these ROE estimation models, I rely on proxy groups of risk-comparable
15 companies as discussed in Section V. I have used both the DCF and CAPM
16 methodologies to estimate the return on equity. The multi-stage DCF model that I
17 relied on is consistent with the methodology the Commission has relied on in that it
18 allows growth rates to vary over time. Consistent with the fundamental principles
19 upheld by the Commission, I have applied two versions of the CAPM: Traditional
20 and Zero Beta. Finally, consistent with the principles of the GFP, to reduce the

¹⁰ *Ibid.*, at 43.

1 volatility associated with the reliance on any one model, I arrived at my ROE
2 recommendation by weighting the results of the DCF and CAPM.

3 **Q. DO THE PRINCIPLES AND INTENTIONS OF THE RD IN THE GFP REQUIRE**
4 **ADHERENCE TO A STATIC FORMULA?**

5 A. No. The GFP and RD did not require rote adherence to a static formula. The
6 Commission's decision to open the GFP and the subsequent RD promoted the same
7 principles and intentions as are in practice today. The Commission recognized that
8 the ROE estimation models were not providing results that were reasonable and
9 reflective of the risks of the individual companies involved in rate proceedings.
10 Therefore, the Commission sought to reexamine the methodologies relied on and to
11 restructure its process in order to achieve a more reasonable result.

12 The RD recognized the benefit of using multiple approaches for setting ROE and
13 although it found benefits to a preferred convention for setting ROE, it did not bar
14 parties from introducing new cost of capital estimation methods or weightings. The
15 RD specifically recognized that there may be circumstances where departure from
16 the weightings that were established at that time would be warranted. Capital market
17 conditions vary widely over time, and each ROE methodology currently considered
18 by the Commission (DCF and CAPM) may be affected differently by those
19 conditions. The effect of these conditions on the cost of equity must be assessed
20 and interpreted by the practitioner to determine if their effects are directionally
21 appropriate and are of a reasonable magnitude. Accordingly, it is incumbent on the

1 practitioner to review the results of the analyses and exercise judgment as to how to
2 weight those results in the overall ROE determination. The RD demonstrates that
3 there was some uncertainty around the weighting of the DCF and CAPM
4 methodologies, and therefore the RD indicates a willingness to revisit the proposed
5 weightings in the future. It is particularly fitting that the Commission, which is
6 seeking to update the traditional utility regulatory model with new, innovative
7 approaches suitable to current industry circumstances in the New York Reforming
8 the Energy Vision (“NY REV”) efforts, Case 14-M-0101, consider the integrity of
9 the intent and principles of the RD and demonstrate the flexibility to adapt the
10 weightings of each methodology to the applicable capital market conditions.

11 **Q. IS FLEXIBILITY OF APPROACH AND JUDGMENT IMPORTANT TO ROE**
12 **DETERMINATION?**

13 A. Yes, it is. When faced with the task of estimating the cost of equity, analysts benefit
14 from gathering and evaluating as much relevant data (both quantitative and
15 qualitative) as can be reasonably considered. Analysts and academics understand that
16 ROE models are tools to be used in the ROE estimation process, and that strict
17 adherence to any single approach, or the specific results of any single approach, can
18 lead to flawed conclusions. No model can exactly pinpoint the correct return on
19 equity; rather, each model brings its own perspective and set of inputs that inform
20 the ROE estimate. That position is consistent with the *Hope* finding that “[u]nder

1 the statutory standard of ‘just and reasonable,’ it is the result reached, not the
2 method employed, which is controlling.’¹¹

3 Although each model brings a different perspective, each model also has its own
4 inherent weaknesses and should not be relied upon individually without
5 corroboration from other approaches. Changes to assumptions as a result of
6 changes in economic and capital market conditions could have widely varying
7 impacts on the results of the various analyses.

8 Regardless of which analyses are performed to estimate the investor’s required ROE,
9 the analyst must apply judgment to assess the reasonableness of results and to
10 determine the best weighting to apply to results under prevailing capital market
11 conditions. No one model can reliably and consistently estimate the cost of capital
12 that meets the fairness standard of *Hope* and *Bluefield* in all market conditions.

IV. CAPITAL MARKET CONDITIONS

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

14 A. The ROE estimation models rely on market data that is either specific to the proxy
15 group, in the case of the DCF model, or the expectations of market risk, in the case
16 of the CAPM. The results of the ROE estimation models can be affected by market
17 conditions that are present at the time the analysis is performed. While the ROE
18 that is established in a rate proceeding is intended to be forward looking, the
19 practitioner uses current and projected market data, specifically stock prices,

¹¹ Hope, 320 U.S. at 602.

1 dividends, growth rates and interest rates in the ROE estimation models to estimate
2 the required return for the subject company. It is important to consider whether the
3 assumptions relied on in the current market or the projected data relied upon are
4 sustainable over the period that the recommended ROE would be in effect. If
5 investors do not expect current market conditions to be sustained in the future, it is
6 possible that the ROE estimation models will not provide an accurate estimate of
7 investors' required return, during the rate period.

8 **Q. WHAT FACTORS ARE AFFECTING THE COST OF EQUITY FOR REGULATED
9 UTILITIES IN THE CURRENT AND PROJECTED CAPITAL MARKETS?**

10 A. The cost of equity for regulated utility companies is being affected by several
11 significant factors in the current and projected capital markets. These factors
12 include: (1) the market's expectation for higher interest rates; (2) current low yields
13 on utility stocks; (3) current high valuations on utility shares relative to historical
14 levels; and (4) increasing credit spreads between yields on Treasury bonds and utility
15 bonds. In this section of my Direct Testimony, I will discuss each of these factors
16 and how it affects the Cost of Equity for regulated utilities.

17 **Q. WHAT EFFECT DO RISING INTEREST RATES HAVE ON THE COST OF EQUITY FOR
18 REGULATED UTILITIES?**

19 A. When interest rates are rising, especially after a prolonged period of low interest
20 rates, the calculated cost of equity for the proxy companies using current market data
21 is likely to understate investors' required return. Consequently, rising interest rates

1 support selection of a return toward the upper end of a reasonable range of equity
2 cost rate estimates that are based on current market data. As an alternative, the
3 analyses I present include estimated returns based on near-term projected interest
4 rates.

5 **Q. WHAT IS THE EXPECTED TIMING OF AN INCREASE IN SHORT-TERM INTEREST**
6 **RATES BY THE FEDERAL RESERVE?**

7 A. In mid-December 2015 the Federal Reserve announced the first increase in short-
8 term interest rates since the financial market collapse in 2008. In its accompanying
9 statement, the Federal Reserve indicated that further increases in short-term interest
10 rates would be gradual as the economy strengthens and inflation rises from
11 undesirably low levels. In April 2016, the Federal Reserve indicated that global
12 economic and financial market developments continued to pose risks and inflation
13 remained below the 2 percent target level. Therefore, the Federal Reserve did not
14 adjust short-term interest rates. Rather, the Federal Reserve indicated it expects
15 gradual increases in the federal funds rate. In addition to the stated expectations of
16 the FOMC, market analysts are expecting increases in interest rates in the short and
17 medium term. The April 2016 issue of Blue Chip Financial Forecast surveyed
18 market participants concerning their views regarding the timing of possible future
19 increases in short-term rates by the Federal Reserve. Blue Chip reports that 86
20 percent of those surveyed expect the FOMC to announce an increase in rates at the

1 June 2016 meeting.¹² Goldman Sachs has also suggested that the Federal Reserve
2 will need to increase rates at its originally projected four times in 2016 due to an
3 increase in core inflation.¹³

4 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF HIGHER INTEREST**
5 **RATES FOR NATURAL GAS DISTRIBUTION COMPANIES SUCH AS THE COMPANY?**

6 A. Many income-oriented investors hold utility stocks for their dividend yields. During
7 periods in which interest rates are expected to increase, the dividend yields of utility
8 stocks become less attractive for income-oriented investors relative to bond yields,
9 placing pressure on utility share prices relative to the broader market. The potential
10 for rising interest rates during the period that Corning Gas's rates will be in effect,
11 indicates that the calculated cost of equity for the proxy companies, using any
12 estimation technique that relies on discounted cash flows, is likely to lag investors'
13 required return. Consequently, a consensus expectation of rising interest rates
14 supports selection of a return for Corning Gas at the higher end of the range of
15 results for the DCF model.

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

18 A. The ROE that is established in this proceeding is intended to reflect investors'
19 required return over the forward-looking period during which the established rates

¹² Blue Chip Financial Forecasts, Vol. 35, No. 4, April 1, 2016, at 2.

¹³ Goldman: Global Coordinated Easing Won't Last, and the Fed will need to Hike Rates Four Times in 2016, Bloomberg Business, March 21, 2016.

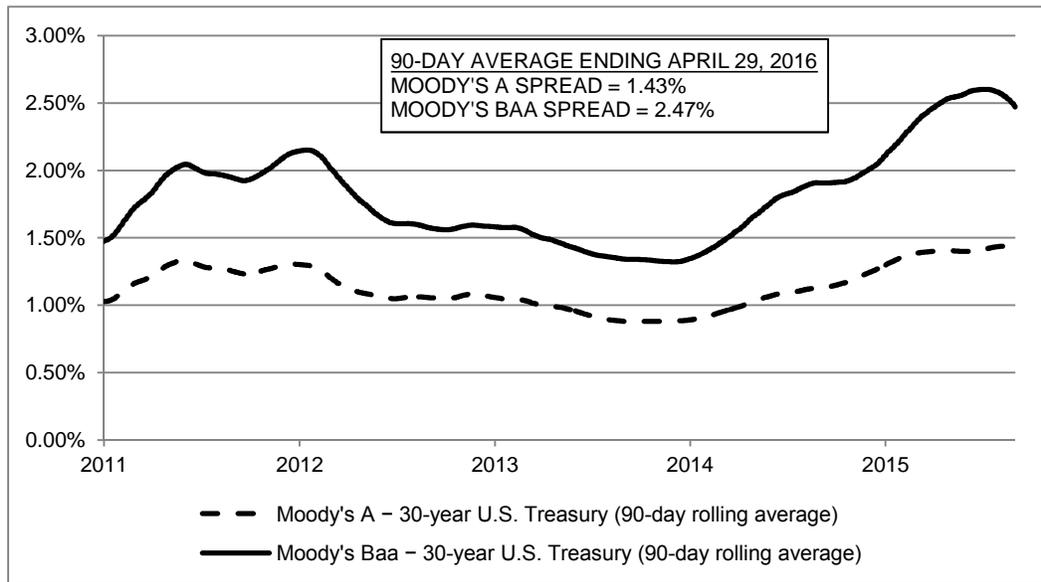
1 will be in effect. The Federal Reserve's Quantitative Easing program resulted in
2 lower interest rates on government bonds and higher asset prices for many common
3 stocks. Public utility companies experienced higher valuations over the past several
4 years, as investors sought higher returns and more attractive yields than were being
5 offered by Treasury bonds. Consequently, the current share price of many utility
6 stocks has increased to levels above Value Line's target price for the 2018-2020
7 period, while the dividend yield of those same utility stocks has declined to unusually
8 low levels. While Federal market intervention reduced interest rates on government
9 bonds over the last several years, interest rates are expected to rise over the period
10 when the rates that are established for the Company in this proceeding will be in
11 effect. Therefore, in addition to considering the recent historical level of interest
12 rates, it is also appropriate to consider market expectations for interest rates in
13 setting the forward-looking ROE.

14 **Q. ARE THERE INDICATIONS THAT INVESTOR RISK SENTIMENT IS INCREASING IN**
15 **FINANCIAL MARKETS?**

16 A. Yes. Even as Treasury bond yields have remained relatively low in 2015 and the first
17 quarter of 2016, yields on corporate and utility bonds have increased steadily.
18 Consequently, as shown on Chart 1, credit spreads between Treasury bonds and
19 utility bonds have increased substantially since the 2012 Joint Proposal established a

1 9.5 percent ROE.¹⁴ In particular, the spread between Baa-rated utility debt and
2 Treasury bonds is now 247 basis points, an increase of 99 basis points since the 2012
3 Rate Order. Incremental credit spreads are a widely-recognized measure of investor
4 risk sentiment. Wider credit spreads indicate that investors are requiring a higher
5 premium (*i.e.*, a higher interest rate) to compensate them for the higher risk
6 associated with longer-term or lower-rated debt instruments.

7 **Chart 1: Credit Spreads for Moody's A- and Baa-rated Utility Bonds**



8

¹⁴ In Case 11-G-0280 Staff's analysis of the ROE was based on financial data for the three months ending August 31, 2011.

1 **Q. HAVE YOU CONDUCTED ANY ANALYSIS OF INVESTOR RISK SENTIMENT AS**
 2 **COMPARED WITH THE MARKET CONDITIONS AT THE TIME OF CORNING GAS'S**
 3 **2012 JOINT PROPOSAL APPROVED IN CASE 11-G-0280?**

4 A. Yes. I compared the average credit spreads between various government and
 5 corporate bonds as of April 29, 2016 to the average spreads as of August, 2011, the
 6 date that was used to develop the 2016 and 2017 Settlement ROE. As shown in
 7 Table 2: Credit Spreads, the average credit spreads as of April 29, 2016 were 40 to 99
 8 basis points higher than in August, 2011.

9 **Table 2: Credit Spreads**

Bond Yields	Current Credit Spreads 4/29/2016	08/2011 Corning Gas 2012 Rate Order
Moody's Baa-rated - Moody's A-rated Utility Bond	1.04%	0.45%
Moody's Baa-rated Utility Bond – 30-year U.S. Treasury	2.47%	1.48%
Moody's A-rated Utility Bond – 30-year U.S. Treasury	1.43%	1.03%

10
 11 In particular, the spread between the Moody's Baa-rated utility bond index and the
 12 Moody's A-rated utility bond index has increased from 45 basis points at the time the
 13 Commission last established Corning Gas's ROE to 104 basis points as of April 29,
 14 2016. Similarly, the spread between the Moody's Baa-rated utility bond index and
 15 the 30-year Treasury yield has increased from 148 basis points to 247 basis points,

1 and the spread between the Moody's A-rated utility bond index and the 30-year
2 Treasury yield has increased from 103 basis points to 143 basis points. These wider
3 credit spreads are an indication of higher risk sentiment among utility bond
4 investors, despite lower yields on U.S. Treasury bonds. It is reasonable to reflect
5 higher investor risk sentiment through a higher cost of equity.

6 **Q. WHAT DO CREDIT SPREADS INDICATE ABOUT THE MARKET?**

7 A. Higher credit spreads are an indication that bond investors are becoming more
8 concerned about future economic conditions and the ability of corporations to
9 withstand any downturn that may occur in the economy. The Wall Street Journal
10 reported on the trend toward higher credit spreads as follows:

11 The U.S. corporate bond market is starting to flash caution
12 signals about the broader economy. The difference in yield,
13 called the "spread," between bonds from America's strongest
14 companies and ultrasafe U.S. Treasury securities has been
15 steadily increasing, a trend that in the past has foreshadowed
16 economic problems. Wider spreads mean that investors want
17 more yield relative to Treasuries to own bonds from U.S.
18 companies. It can signal that investors are less confident about
19 companies' business prospects and financial health, though other
20 factors likely also are at play. Spreads in investment-grade
21 corporate bonds – debt from companies rated triple-B minus or
22 higher – are on track to increase for the second year in a row,
23 according to Barclays data. That would be the first time since
24 the financial crisis in 2007 and 2008 that spreads widened in two
25 consecutive years.

26 ***

27 Investors and analysts say they are closely watching the action to
28 determine whether trouble is brewing once again. Concerns are
29 growing about companies' ability to pay back the massive debt

1 load taken on in recent years, as ultralow interest rates spurred
2 corporate finance chiefs to sell record amounts of debt.¹⁵

3 **Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE EFFECT OF CAPITAL MARKET**
4 **CONDITIONS ON THE COST OF EQUITY?**

5 A. Against this backdrop of rising interest rates, widening credit spreads, and higher
6 investor risk sentiment, the cost of capital for all companies, including regulated
7 utilities, has increased. As such, the ROE for Corning Gas should be based on
8 market conditions that are expected during the period that the rates set in this
9 proceeding will be in effect, not based on the low interest rate environment of the
10 past few years.

11 **Q. WHAT OVERALL CONCLUSIONS DO YOU DRAW FROM YOUR ANALYSIS OF CAPITAL**
12 **MARKET CONDITIONS?**

13 A. Because the utility sector has been trading at higher price multiples than the historical
14 range, it is important to consider whether or not those multiples and relationships
15 will remain constant over time, as is assumed in the DCF model. Furthermore, since
16 interest rates are projected to increase substantially, it is important to reflect that
17 expectation in the specification of the CAPM and other risk premium models.

¹⁵ “U.S. Bonds Flash a Warning Sign,” The Wall Street Journal, September 28, 2015, at C1.

V. PROXY GROUP SELECTION

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

3 A. In this proceeding, we are focused on estimating the cost of equity for the
4 Company's rate-regulated, natural gas distribution utility operations in New York.
5 Because ROE is a market-based concept and the Company is not publicly traded, it
6 is necessary to establish a group of companies that is both publicly traded and
7 comparable to Corning Gas in certain fundamental business and financial respects to
8 serve as proxies in the ROE estimation process. The proxy companies used in my
9 analyses all possess a set of operating and risk characteristics that are substantially
10 comparable to the Company and thus provide a reasonable basis for the derivation
11 and assessment of the Company's ROE.

12 In utility rate proceedings before the Commission over the past 20 years (since the
13 RD in the GFP),¹⁶ the Commission has endorsed the use of proxy groups for the
14 purpose of determining utility ROEs. Because proxy companies are now commonly
15 used as the basis for estimating the utility cost of equity, the primary objective of the
16 screening process is to establish a group of companies that is as comparable as
17 possible to the subject company with respect to fundamental financial and business
18 risks. While the determination of an appropriate ROE necessarily requires a degree
19 of informed judgment, the careful selection of a risk-comparable proxy group serves

¹⁶ Generic Finance RD, at 133-134.

1 to mitigate the extent to which subjective assessments must be applied.

2 **Q. PLEASE PROVIDE A SUMMARY PROFILE OF THE COMPANY.**

3 A. The Company distributes natural gas or provides natural gas transportation services
4 to approximately 15,000 customers in Corning, Hammondsport and Virgil, New
5 York.¹⁷

6 **Q. HOW DID YOU SELECT THE COMPANIES INCLUDED IN YOUR PROXY GROUPS?**

7 A. Because Corning Gas is a natural gas distribution company, it is appropriate to
8 establish a proxy group that recognizes the risks of natural gas distribution
9 operations. Therefore, the initial proxy group selected is from the universe of
10 companies that Value Line classifies as “Natural Gas Distribution Companies”,
11 which is currently composed of 11 companies. In order to establish a risk-
12 comparable proxy group, I applied similar criteria to those relied on by the
13 Commission in prior cases:

- 14 • I eliminated companies that are not covered by at least two utility industry
15 equity analysts;
- 16 • I eliminated companies that do not have investment grade corporate credit
17 ratings and/or senior unsecured bond ratings from S&P and Moody’s
18 because such companies do not have a similar investment risk profile to that
19 of the Company;

¹⁷ Corning Natural Gas, SEC Form 10-K for the fiscal year ended December 31, 2015, at 8-9.

1 **Q. IS A PROXY GROUP OF SEVEN COMPANIES A REASONABLE SIZE TO ESTIMATE THE**
2 **COST OF EQUITY?**

3 A. While I recognize that the Natural Gas Proxy Group is somewhat limited in size,
4 because the Company is a natural gas distribution utility, the Natural Gas Proxy
5 Group may be more risk comparable to the Company than a proxy group that
6 includes other regulated entities. However, I am aware that the Commission has
7 historically relied on proxy groups generally composed of electric utilities even for
8 the purposes of establishing the ROE for a natural gas distribution utility. In
9 recognition of that practice, I also considered a proxy group composed of companies
10 that Value Line classifies as “Electric Utilities” and “Natural Gas Distribution
11 Companies.” That combined group includes 56 domestic U.S. utilities. I
12 simultaneously applied the following screening criteria to establish a risk-comparable
13 Combined Utility Proxy Group that includes electric utility companies with natural
14 gas operations and natural gas distribution companies:

- 15 • I eliminated companies that are not covered by at least two utility industry
16 equity analysts;
- 17 • I eliminated companies that do not have investment grade corporate credit
18 ratings and/or senior unsecured bond ratings from S&P and Moody’s;
- 19 • I eliminated companies that have not paid regular dividends or do not have
20 positive earnings growth projections from at least one source;

- 1 • To ensure that the proxy group consists of companies that are primarily
2 regulated utilities, I eliminated companies with less than 70 percent of total
3 operating income derived from regulated utility operations;
- 4 • To ensure that the proxy group consists of entities with gas utility operations,
5 I eliminated companies that derive less than 10 percent of total regulated
6 operating income from regulated natural gas distribution operations; and
- 7 • I eliminated companies known to be party to a merger, acquisition, or other
8 transformational transaction.

1 **Q. WHAT IS THE COMPOSITION OF YOUR COMBINED UTILITY PROXY GROUP?**

2 A. My Combined Utility Proxy Group consists of the 19 companies in Table 4.

3 **Table 4: Combined Utility Proxy Group**

Company	Ticker
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
Atmos Energy Corporation	ATO
Avista Corporation	AVA
CenterPoint Energy, Inc.	CNP
CMS Energy Corporation	CMS
Consolidated Edison, Inc.	ED
DTE Energy Company	DTE
New Jersey Resources Corporation	NJR
Northwest Natural Gas Company	NWN
NorthWestern Corporation	NWE
SCANA Corporation	SCG
Sempra Energy	SRE
South Jersey Industries, Inc.	SJI
Southwest Gas Corporation	SWX
Spire, Inc.	SR
Vectren Corporation	VVC
WGL Holdings, Inc.	WGL
Xcel Energy Inc.	XEL

4

5 **Q. WHY DO YOU BELIEVE THAT NET OPERATING INCOME IS AN APPROPRIATE**
6 **SCREENING CRITERION?**

7 A. In establishing my proxy group, I relied on the percentage of net operating income
8 derived from regulated operations instead of the percentage of total revenue derived
9 from regulated operations because net operating income is more representative of
10 the contribution of that business segment to earnings and the corporation's overall

1 financial position. Specifically, a significant portion of gas and electric utility
2 company revenue is derived from the costs of purchased gas, purchased fuel, and
3 purchased power, which, in most cases, are recoverable through tracking
4 mechanisms and do not, therefore, contribute to earnings. Furthermore, this portion
5 of total revenue can fluctuate considerably based on the cost of gas and other inputs.
6 Therefore, relying on a revenue screen does not provide a clear or necessarily
7 consistent indicator of the contribution of the regulated utility operations to a
8 company's earnings, which are most the important consideration for equity investors.
9 Net operating income excludes the cost of purchased commodity, and therefore
10 more closely represents the contribution of the business segment to earnings.

11 **Q. PLEASE PROVIDE AN EXAMPLE OF A COMPANY THAT HAS BEEN INCLUDED IN**
12 **THE PROXY GROUP BECAUSE NET OPERATING INCOME WAS USED INSTEAD OF**
13 **TOTAL REVENUE AS A SCREENING CRITERION.**

14 A. New Jersey Resources ("NJR") would have been excluded from the Combined
15 Utilities Proxy Group and the Natural Gas Proxy Group if the percentage of total
16 revenue from regulated operations were used as a screening criterion instead of the
17 percentage of net operating income from regulated operations. NJR has an Energy
18 Service segment that provides unregulated, wholesale natural gas to customers
19 including natural gas distribution companies, industrial companies and electric

1 generators in the U.S. and Canada.¹⁸ In 2015, the Energy Service segment had
2 operating revenues of approximately \$1.9 billion.¹⁹ When compared to NJR's total
3 operating revenue of approximately \$2.7 billion, it is clear that NJR's percentage of
4 revenue derived from regulated operations would not meet the revenue screening
5 criterion.²⁰ However, Energy Service's 2015 operating revenue consisted of \$1.8
6 billion in natural gas purchases.²¹ Therefore, the Energy Service segment does not
7 represent a large percentage of NJR's net operating income. As discussed above, net
8 operating income is the more appropriate screening criterion because it better
9 approximates a business segment's contribution to earnings and the corporation's
10 overall financial position. NJR operates a large natural gas distribution system in
11 New Jersey and is generally regarded as a gas distribution company. The Energy
12 Services segment of NJR accounts for a large percentage of the company's operating
13 revenue, but a small percentage of net operating income. NJR's regulated operations
14 contribute a larger portion to the company's earnings, and therefore NJR should be
15 included in the Combined Utility Proxy Group and the Natural Gas Proxy Group.

16 **Q. DO YOU BELIEVE THAT THE 19 COMPANIES IN YOUR COMBINED UTILITY**
17 **PROXY GROUP CONSTITUTES A SUFFICIENTLY LARGE PROXY GROUP?**

18 A. Yes, I do. The analyses performed in estimating the ROE are more likely to be
19 representative of the subject utility's cost of equity to the extent that the chosen

¹⁸ New Jersey Resource Corporation 2015 Form 10-K, at 10.

¹⁹ *Ibid.*, at 45.

²⁰ *Ibid.*, at 68.

²¹ *Ibid.*, at 46.

1 proxy companies are fundamentally risk comparable to the subject utility. Because
2 all analysts use some form of screening process to arrive at a proxy group, the group,
3 by definition, is not randomly drawn from a larger population. Consequently, there
4 is no reason to place more reliance on the quantitative results of a larger and more
5 dissimilar proxy group simply by virtue of the resulting larger number of
6 observations.

7 **Q. HAS THE COMMISSION TYPICALLY RELIED ON SIMILAR SCREENING CRITERIA**
8 **WHEN ESTIMATING THE ROE?**

9 A. Yes. The Commission has typically relied on screening criteria that are similar to
10 those that I have used to develop my proxy groups. The proxy group that is typically
11 relied on by the Commission is composed of a large group of dividend-paying
12 companies with investment grade bond ratings and regulated revenues of at least 70
13 percent that are not party to merger-related or corporate restructuring activities.²²
14 For the reasons noted above, a proxy group developed based on these somewhat less
15 selective criteria may be less comparable to the Company than the two proxy groups
16 I have relied on and therefore may not produce appropriate estimates of the
17 investors' required ROE for the Company.

²² See, e.g., Case 13-E-0030, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service, Testimony of Craig E. Henry, at 14-16.

VI. COST OF EQUITY ESTIMATION

1 **Q. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF THE REGULATED**
2 **RATE OF RETURN.**

3 A. The rate of return (“ROR”) for a regulated utility is based on its weighted average
4 cost of capital, in which the costs of the individual sources of capital are weighted by
5 their respective percentages of total capitalization of the utility. The ROE included
6 in the ROR is weighted by the percentage of common equity in the regulated utility’s
7 capital structure.

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

9 A. While the cost of debt can be directly observed, the cost of equity and the required
10 ROE are market-based and, therefore, must be estimated based on observable
11 market data. The required ROE is determined by using one or more analytical
12 techniques that rely on market data to quantify investor expectations regarding the
13 range of required equity returns. Informed judgment is applied, based on the results
14 of those analyses, to determine where within the range of results the cost of equity
15 for a company falls. The key consideration in determining the cost of equity is to
16 ensure that the methodologies employed reasonably reflect investors’ views of the
17 financial markets, the proxy group companies, and the subject company’s risk
18 profile.

1 **Q. WHAT METHODS DID YOU USE TO ESTIMATE THE COMPANY'S COST OF EQUITY?**

2 A. Consistent with Commission precedent, I used the DCF model and CAPM as my
3 primary approaches. In establishing my recommended ROE, I relied on a multi-
4 stage form of the DCF model, and, consistent with the Commission's stated
5 preference, I used both the traditional form of the CAPM, as well as the Zero-Beta
6 form of that model. In both forms of the CAPM, I incorporated a forward-looking
7 measure of the Market Risk Premium.

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

9 A. Because the cost of equity is not directly observable, it must be estimated based on
10 both quantitative and qualitative information. When faced with the task of
11 estimating the cost of equity, analysts and investors are inclined to gather and
12 evaluate as much relevant data as reasonably can be analyzed. A number of models
13 have been developed to estimate the cost of equity, and I use multiple approaches to
14 estimate the cost of equity. As a practical matter, however, all of the models
15 available for estimating the cost of equity are subject to limiting assumptions or other
16 methodological constraints. Consequently, many well-regarded finance texts
17 recommend using multiple approaches when estimating the cost of equity. For
18 example, Copeland, Koller, and Murrin²³ suggest using the CAPM and Arbitrage

²³ Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd Ed. (New York: McKinsey & Company, Inc., 2000), at 214.

1 Pricing Theory model, while Brigham and Gapenski²⁴ recommend the CAPM, DCF,
2 and “bond yield plus risk premium” approaches.²⁵

3 **Q. HOW ARE CURRENT MARKET CONDITIONS AFFECTING THE RESULTS OF THE**
4 **DCF AND CAPM MODELS?**

5 A. The U.S. economy is experiencing an unprecedented period of low interest rates.
6 Low interest rates, and the effects of the investor “flight to quality” can be seen in
7 high utility share valuations relative to historical levels and relative to the broader
8 market, and in widening credit spreads. Higher utility stock valuations produce
9 lower dividend yields and result in lower cost of equity estimates from a DCF
10 analysis. Low interest rates also impact the CAPM in two ways: (1) the risk free rate
11 is lower, and (2) because the market risk premium is a function of interest rates, (*i.e.*,
12 it is the return on the broad stock market less the risk free interest rate), the risk
13 premium should move higher when interest rates are lower. Often, however, the
14 estimate of the market risk premium may not fully capture changes in interest rates.
15 It is important in periods of abnormally low interest rates to rely on a market risk
16 premium that is responsive to changes in the level of interest rates such as a forward-
17 looking market risk premium. Market risk premiums based on long-term historical

²⁴ Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

²⁵ While it has historically been my practice to present the results of a bond yield plus risk premium approach in the context of estimating a reasonable ROE, I have not done so in this case to limit the number of contested issues. However, I have relied on this methodology for the purposes of calculating a stay-out premium. As shown in Schedule AEB-12 the results of this analysis support a range of returns between 9.50 percent and 10.31 percent.

1 averages are unresponsive to movements in interest rates and would likely understate
2 the market risk premium and, accordingly, the cost of equity.

3 **Q. ARE CURRENT MARKET CONDITIONS EXPECTED TO BE SUSTAINED FOR THE**
4 **LONG TERM?**

5 A. As discussed in Section IV of my testimony, interest rates are at or near the very
6 lowest levels in decades and are expected to increase during the period when the
7 rates that are authorized in this case will be in effect. The long-term historical
8 relationship between interest rates on Treasury bonds and utility returns has been
9 positive, suggesting that the expectation of rising interest rates would also result in an
10 increase in the expected utility equity costs. Consequently, I have accounted for the
11 likelihood of interest rates rising during the period when rates will be in effect in my
12 CAPM analyses by calculating estimated returns based on near-term projected
13 interest rates.

14 **Q. HOW HAVE RECENT MARKET CONDITIONS AFFECTED THE ASSUMPTIONS USED**
15 **IN THE DCF MODEL?**

16 A. The currently high price-to-earnings (“P/E”) ratios for utility stocks have the effect
17 of depressing the expected return in the DCF model. Because the multi-stage DCF
18 model solves for the return required on the projected earnings stream at the current
19 stock price, if market participants believe that stock prices are not sustainable, as is
20 the case in the current market, the DCF model will tend to underestimate the cost of
21 equity.

1 In its commentary on the electric utility industry, Value Line reported that many
2 companies are currently trading at share prices near or exceeding their four- to six-
3 year price targets. Furthermore, Value Line recently cautioned investors about
4 electric utility stock prices:

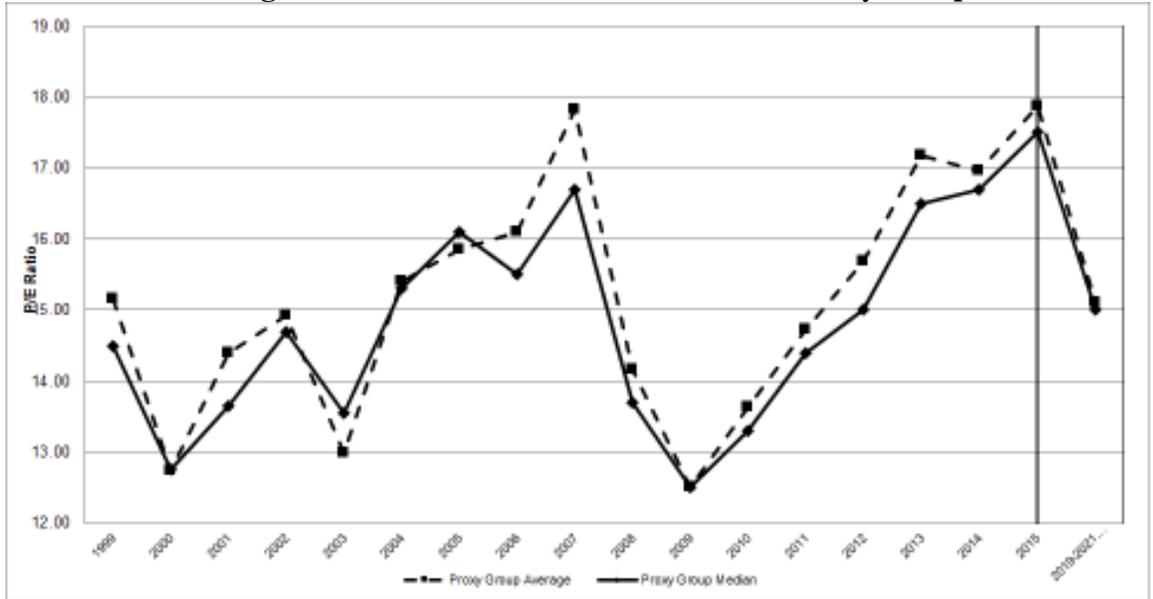
5 Most utilities are trading within their 2019-2021 Target Price
6 Range, and some are trading near the upper end of this range.
7 This indicates that these stocks are expensively priced. The
8 average dividend yield of electric utility stocks is now 3.6%,
9 which is low by historical standards.²⁶

10 Chart 2 summarizes the average historical and projected P/E ratios for the proxy
11 companies calculated using data from Bloomberg Professional and Value Line. As
12 shown in Chart 2, the average P/E ratio for the proxy companies was higher at the
13 end of 2015 than the average projected P/E ratio for the group for the period from
14 2018-2020. This is important because the multi-stage DCF model is calculating the
15 return on equity based on a potentially unsustainably high P/E ratio. All else equal,
16 if P/E ratios for utilities decline, similar to Value Line's projections, the ROE results
17 from the DCF model would be higher.

²⁶ Value Line Electric Utility (Central) Industry, March 18, 2016, at 901.

1

Chart 2: Average Historical P/E Ratios for Combined Proxy Group



2

3 Q.

VALUE LINE HAS OBSERVED THAT DIVIDEND YIELDS ARE LOW RELATIVE TO HISTORICAL STANDARDS. WHY IS THIS RELEVANT IN ESTIMATING THE ROE IN THIS CASE?

4

5

6 A.

The ROE that is established in this case is intended to be a forward-looking ROE that Corning Gas will be authorized to earn over some future rate period. The analysis that is used to set that return is based on current data for the proxy companies. It is important to understand how market conditions affect the assumptions used in the DCF and CAPM and ultimately the results of those models. As noted by Value line, electric utility stock prices are high, making the dividend yields low on a historical basis. Relying on lower dividend yields in the DCF model will result in a lower estimated ROE from that model, holding all other assumptions constant. To the extent that low dividend yields are not expected to be representative

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1 of market conditions over the period that this ROE will be in effect, then the DCF
2 model may be understating the market required ROE.

3 **Q. ARE YOU AWARE OF ANY OTHER REGULATORS THAT CONSIDERED THE**
4 **EFFECTIVENESS OF THE TRADITIONAL ROE ESTIMATION MODELS BASED ON**
5 **CHANGING MARKET CONDITIONS?**

6 A. Yes, I am. The Surface Transportation Board (“STB”), which regulates the U.S.
7 railroad industry, began evaluating the effectiveness of the constant growth DCF
8 model in September 2006. The STB instituted a broad rulemaking to obtain public
9 comment on the most appropriate methodology to use for estimating the ROE for
10 railroads. In January 2008, the STB replaced the constant growth DCF model with
11 the CAPM, with the expectation that the CAPM would produce more accurate
12 estimates of the industry’s cost of capital. In January 2009, as a result of its
13 exploration of the various forms of ROE estimation models and the review of public
14 comments on the merits and shortcomings of each of the models, the STB issued a
15 decision modifying its sole reliance on the CAPM to include an equal weighting of
16 the CAPM and the multi-stage DCF results. In reaching this decision, the STB
17 concluded that:

18 Indeed, if our exploration of this issue has revealed nothing else,
19 it has shown that there is no single simple or correct way to
20 estimate the cost of equity for the railroad industry, and
21 countless reasonable options are available. Both the CAPM and
22 the multi-stage DCF models we propose to use have strengths
23 and weaknesses, and both take different paths to estimate the
24 same illusory figure. By using an average of the results produced

1 by both models, we harness the strengths of both models while
2 minimizing their respective weaknesses.²⁷

3 This decision supports that it is appropriate to consider the results of various
4 financial models to estimate the cost of equity within the context of capital market
5 conditions, and that the appropriate method(s) can evolve over time as market
6 conditions change. As discussed earlier in my Direct Testimony, the Commission
7 came to a similar conclusion when it opened the GFP to assess whether the results
8 of the DCF model were being distorted by low interest rates.

9 **Q. IS IT RELEVANT THAT THE STB DOES NOT REGULATE THE ENERGY INDUSTRY?**

10 A. No. The STB decision is an opinion on the appropriate methodologies to consider
11 in estimating the ROE, and therefore it is relevant regardless of the industry. The
12 STB decision describes the rigorous analysis and the methodologies that a regulatory
13 body used to review financial models and to select the most appropriate models in
14 the context of capital market conditions in order to estimate the cost of equity. In
15 summary, as the STB decision points out, the models used to estimate the ROE are
16 used by the investment community for all types of investments, and therefore it is
17 not important that the STB does not regulate energy companies. Rather, what is
18 important is that the methodologies used reflect what investors consider in
19 establishing their return requirements.

²⁷ Surface Transportation Board, Use of a multi-stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Capital, Decision STB Ex Parte No. 664 (Sub-No. 1), released January 28, 2009, at 15.

1 **Q. ARE THERE OTHER REGULATORY AGENCIES THAT HAVE RECOGNIZED THAT**
2 **THE DCF MODELS ARE CURRENTLY UNDERSTATING THE COST OF EQUITY?**

3 A. Yes. Recently, in Opinion No. 531, the Federal Energy Regulatory Commission
4 (“FERC”) recognized that the inputs to the DCF model have been affected by
5 anomalous market conditions and therefore, for the first time, is considering the use
6 of other ROE estimation models.

7 [W]e also understand that any DCF analysis may be affected by
8 potentially unrepresentative financial inputs to the DCF formula,
9 including those produced by historically anomalous capital
10 market conditions. Therefore, while the DCF model remains
11 the Commission’s preferred approach to determining allowed
12 rate of return, the Commission may consider the extent to which
13 economic anomalies may have affected the reliability of DCF
14 analyses in determining where to set a public utility’s ROE
15 within the range of reasonable returns established by the two-
16 step constant growth DCF methodology.²⁸

17 **Q. HAS FERC PROVIDED ANY GUIDANCE ON HOW IT WILL ADDRESS THE**
18 **ANOMALOUS CONDITIONS IN THE MARKET THAT AFFECT THE ASSUMPTIONS**
19 **USED IN THE DCF MODEL?**

20 A. Yes, FERC has traditionally relied on the midpoint or median of the range of results
21 from the DCF model, which it refers to as the “zone of reasonableness” (defined by
22 the low and high estimates making up the range). In Opinion No. 531, FERC
23 indicated that it will look at other ROE estimation methodologies to inform its
24 judgment as to where, within the zone of reasonableness, the ROE should be set. In

²⁸ 147 FERC ¶ 61,234, para. 41.

1 particular, FERC found risk premium-based approaches informative, including the
2 CAPM.

3 We are concerned that market conditions in the record are
4 anomalous, thereby making it more difficult to determine the
5 return necessary for public utilities to attract capital. In these
6 circumstances, we have less confidence that the midpoint of the
7 zone of reasonableness established in this proceeding accurately
8 reflects the equity returns necessary to meet the *Hope* and
9 *Bluefield* capital attraction standards. We find it is necessary and
10 reasonable to consider additional record evidence, including
11 evidence of alternative benchmark methodologies and state
12 commission-approved ROEs, to gain insight into the potential
13 impacts of these unusual capital market conditions on the
14 appropriateness of using the resulting midpoint.²⁹

15 The NETOs [New England Transmission Owners] presented
16 five alternative benchmark methodologies in this proceeding:
17 risk premium analysis, the CAPM, comparison of electric ROEs
18 with natural gas pipeline ROEs, comparison of electric utility
19 DCF results with non-utility DCF results, and expected earnings
20 analysis. Of those five, we find the risk premium analysis, the
21 CAPM, and expected earnings analyses informative, and each
22 produces a midpoint (or median) ROE higher than the midpoint
23 of our DCF analysis here. In considering these other
24 methodologies, we do not depart from our use of the DCF
25 methodology; rather, we use the record evidence to inform the
26 just and reasonable placement of the ROE within the zone of
27 reasonableness established in the record by the DCF
28 methodology.³⁰

29 [W]e conclude that a mechanical application of the DCF
30 methodology with the use of the midpoint here would result in
31 an ROE that does not satisfy the requirements of *Hope* and
32 *Bluefield*.³¹

²⁹ *Ibid.*, para. 145.

³⁰ *Ibid.*, para. 146.

³¹ *Ibid.*, para. 142.

1 The FERC's decision supports my conclusion that because the results of the DCF
2 model have been affected by anomalous market conditions, in setting the appropriate
3 ROE, it is important to more heavily weight the results of other ROE estimation
4 models, particularly the CAPM.

5 **Q. WHAT ASSUMPTIONS USED IN THE CAPM HAVE BEEN AFFECTED BY CURRENT**
6 **MARKET CONDITIONS?**

7 A. The CAPM relies on the risk-free rate, the market risk premium and a measure of the
8 relative risk of the proxy group to the market (Beta) to estimate the cost of equity for
9 the proxy group. As discussed previously, the risk-free rate has been low by
10 historical standards as a result of recent federal monetary policy and overall market
11 volatility. As discussed in Section IV, government bond yields are expected to
12 increase in the short term; it is therefore reasonable to rely on the projected yields on
13 Treasury bonds in the CAPM analysis to more appropriately reflect the return on
14 equity during the rate period.

15 **Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF AND CAPM**
16 **MODELS?**

17 A. The results of both models have been affected by market conditions and, with
18 traditional data inputs, have a tendency to underestimate the cost of equity that
19 investors would require over the period that the rates in this case are to be in effect.
20 The DCF model results are currently understated because P/E ratios are high, and
21 are not expected to remain at current levels. When prices are high, the dividend

1 yields in the DCF model are low. If prices are not expected to remain at the
2 currently high levels, then the results of the DCF model using higher than expected
3 prices will tend to understate the required return of equity.

4 The CAPM is affected by the current artificially low yields on Treasury bonds. The
5 expectation that bond yields will not remain at currently low levels means that the
6 expected cost of equity would be higher than is suggested by the CAPM using
7 current yields. The use of projected yields on Treasury bonds results in CAPM
8 estimates that are more reflective of the market conditions that investors expect
9 during the period that the Company's rates will be in effect. Therefore, properly
10 specified, the CAPM is a more reliable model in current market conditions than the
11 DCF. Given the sensitivity of each of these models to market conditions, it is
12 appropriate to provide equal weight to the results of the DCF and CAPM models at
13 this time.

14 **Q. PLEASE COMPARE THE METHODOLOGIES THAT YOU RELY ON WITH THE**
15 **METHODOLOGIES THAT THE COMMISSION HAS TYPICALLY RELIED ON IN PRIOR**
16 **CASES.**

17 A. Prior to the GFP, the Commission relied on company-specific return calculations
18 using only the DCF methodology. The RD of the GFP acknowledged that the
19 previously relied on DCF methodology had been volatile and was very sensitive to

1 fluctuations in interest rates.³² As a result, the RD suggested that the Commission
2 move to a generic process for estimating the rate of return using a proxy group-
3 based analysis, instead of a company-specific computation, relying on both the DCF
4 and CAPM methodologies.³³

5 The methodologies that I have applied to estimate the cost of equity are consistent
6 with Commission precedent since the RD in the GFP. I rely on a proxy group of
7 risk-comparable companies. I have used both the DCF and CAPM methodologies
8 to estimate the cost of equity. The specific form of the DCF model that I relied on
9 meets all objectives of the Commission in that it is a multi-stage form of the DCF
10 that allows growth rates to vary over time.

11 The CAPM analyses I rely on are also consistent with the fundamental principles
12 upheld by the Commission. I have applied two versions of the CAPM: Traditional
13 and Zero Beta. The Traditional CAPM determines the cost of equity by adding the
14 risk-free rate to the proxy group beta times the market risk premium. The specific
15 assumptions used in my CAPM are forward-looking, relying on a projected market
16 risk premium and forward-looking interest rates. The Zero Beta CAPM is used as an
17 alternative that accounts for the fact that the CAPM tends to underestimate the
18 ROE for companies with a Beta less than 1.0 while overstating the ROE for
19 companies with a Beta greater than 1.0. Both of these CAPM variants have been
20 relied on by the Commission in past rate proceedings.

³² Generic Finance RD, at 13-14.

³³ *Ibid.*, at 27.

1 Finally, consistent with the principles of the GFP, to avoid over-reliance on any one
2 model, I arrived at my ROE recommendation by equally weighting the results of the
3 DCF and CAPM. In summary, the models used in my analysis are fundamentally
4 consistent with the principles that the Commission has relied on in prior rate cases
5 and the RD in the GFP. Moreover, the models used in my analysis are robust and
6 extend the principles advanced in the RD in the GFP to best practices in financial
7 analysis and current capital market conditions.

8 **A. DISCOUNTED CASH FLOW MODEL**

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

11 A. Yes. DCF models are widely used in regulatory proceedings and have sound
12 theoretical bases, although neither the DCF model nor any other model can be
13 applied without considerable judgment in the selection of data and the interpretation
14 of results. The Commission has used the results of the DCF model as one of the
15 measures of the cost of equity in prior cases.

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

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

20
$$= \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \dots + \frac{D_n}{(1+r)^n} [1]$$

21 Where P_0 represents the current market stock price, $D_1 \dots D_n$ are all expected future

1 dividends, and r is the discount rate, or required ROE. As discussed in more detail
2 below, I have not included the constant growth form of the DCF model, but instead
3 have focused on a multi-stage form of the DCF model.

4 **1) Stock Prices used in the DCF Model**

5 **Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE CURRENT STOCK PRICE**
6 **IN YOUR DCF MODEL?**

7 A. The stock prices that I relied on in my DCF model are based on the average market
8 closing prices for the proxy companies' shares over the three months ended April 29,
9 2016.

10 **2) Multi-Stage DCF Model**

11 **Q. PLEASE GENERALLY DESCRIBE THE DCF MODEL YOU RELIED ON.**

12 A. The multi-stage DCF model is an extension of the constant growth form that
13 enables the analyst to specify growth rates over multiple stages. As with the constant
14 growth form of the DCF model, the multi-stage form defines the cost of equity as
15 the discount rate that sets the current price equal to the discounted value of future
16 cash flows. A multi-stage DCF model addresses the possibility that mean five-year
17 growth rates may not be reasonable in perpetuity.

18 **Q. PLEASE DESCRIBE THE STRUCTURE OF YOUR MULTI-STAGE DCF MODEL.**

19 A. My multi-stage DCF model sets the subject company's current stock price equal to
20 the present value of future cash flows received over three time periods. In all three
21 periods, cash flows are equal to the annual dividend payments that stockholders

1 receive. The first period is a short-term growth period that consists of the first five
2 years; the second period is a transition period from the short-term growth rate to the
3 long-term growth rate that occurs over five years (*i.e.*, years six through 10); and the
4 third period is a long-term growth period that begins in year 11 and continues in
5 perpetuity. The ROE is then calculated as the rate of return that results from the
6 initial stock investment and the dividend payments over the analytical period.

7 **Q. HAS THE COMMISSION RELIED ON A MULTI-STAGE DCF MODEL IN PRIOR**
8 **CASES?**

9 A. Yes, the Commission has relied on a two-stage form of the DCF model in prior
10 cases.³⁴ The two-stage model that the Commission has relied on and the multi-stage
11 model that I rely on both define the cost of equity as the discount rate that sets the
12 current stock price equal to the discounted value of future cash flows, expressed as
13 projected dividends. Both models project dividends using growth rates over multiple
14 periods.

15 **Q. IS THE MULTI-STAGE FORM OF THE DCF MODEL CONSISTENT WITH THE**
16 **INTENT OF THE TWO-STAGE MODEL RELIED UPON BY THE COMMISSION?**

17 A. Yes. Both the construction of the multi-stage model and the underlying assumptions
18 are consistent with the two-stage model relied upon by the Commission. The
19 constant growth DCF model assumes the expected growth rate will remain constant

³⁴ See Case 10-E-0362, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service, Order Establishing Rates for Electric Service, (issued June 17, 2011) (“2011 O&R Rate Order”), at 68-69.

1 in perpetuity. The multi-stage forms of the DCF model, including both the two-stage
2 model that the Commission has relied upon and the multi-stage form of the model
3 that is relied on in my analysis, recognize short and long-term growth prospects.

4 **Q. DOES THE MULTI-STAGE FORM OF THE DCF MODEL OFFER IMPROVEMENTS**
5 **OVER THE TWO-STAGE MODEL TRADITIONALLY RELIED UPON BY THE**
6 **COMMISSION?**

7 A. Yes. The general form of the two-stage model relied upon by the Commission
8 involves a near-term growth stage based on projected dividends and a long-term
9 growth stage employing an estimated long-term growth rate in dividends.³⁵ The
10 Commission's application of a two-stage DCF model assumes that a company's
11 growth abruptly shifts to a long-run growth rate after the initial five-year period. In
12 contrast, the multi-stage model relies on growth rates over three periods. In Stage I
13 (years one through five) dividends are increased based on analysts' estimates of
14 earnings growth rates. Stage II is a transitional stage where the earnings growth rates
15 are gradually transitioned over a five-year period (years six through ten) to the long-
16 run sustainable growth rate that is used in the third stage. Stage III relies on a long-
17 term GDP growth rate beginning in year 11 through year 200. The multi-stage form
18 of the DCF model provides for a transition to a company's expected long-term

³⁵ See generally Case 10-E-0362, Case 06-E-1433, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc., for Electric Service, Case 08-E-0539, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.

1 growth, whereas the two-stage DCF model assumes the transition from short to
2 long-term growth occurs in one-year.

3 **Q. PLEASE SUMMARIZE THE GROWTH RATES THAT YOU RELIED ON IN THE MULTI-
4 STAGE DCF MODEL.**

5 A. As shown in Schedules AEB-1 and AEB-2, I began with the current annualized
6 dividend as of April 29, 2016 for each proxy group company. In the first stage of
7 the model, the current annualized dividend is escalated based on the average of the
8 three-to five-year earnings growth estimates reported by First Call, Zacks, and Value
9 Line. For the third stage of the model, I relied on long-term projected growth in
10 Gross Domestic Product (“GDP”). The second stage growth rate is a transition
11 from the first stage growth rate to the long-term growth rate on a geometric average
12 basis.

13 **Q. WHY DO YOU BELIEVE THAT EARNINGS GROWTH RATES ARE THE APPROPRIATE
14 GROWTH RATES TO BE RELIED ON IN THE DCF MODEL?**

15 A. Earnings are the fundamental driver of a company’s ability to pay dividends;
16 therefore, earnings growth is the appropriate measure of a company’s long-term
17 growth. In contrast, changes in a company’s dividend payments are based on
18 management decisions related to cash management and other factors. A company
19 may decide to retain earnings rather than pay out a portion of those earnings to
20 shareholders through dividends. Therefore, dividend growth rates are less likely than
21 earnings growth rates to reflect accurately investor perceptions of a company’s

1 growth prospects. For example, the Commission's mandated pipe replacement
2 program has limited payout ratios and forced Corning Natural Gas to retain a higher
3 percentage of earnings to fund these capital expenditures.

4 **Q. IS THERE SUPPORT FOR THE USE OF ANALYSTS' EARNINGS GROWTH ESTIMATES**
5 **IN THE DCF MODEL?**

6 A. Yes, there is significant academic support for the use of analyst growth rates. In
7 addition, the majority of the data that are publicly available to investors sets forth
8 analysts' projections of earnings growth rates.

9 **Q. PLEASE SUMMARIZE THE ACADEMIC RESEARCH ON GROWTH RATES AND STOCK**
10 **VALUATION.**

11 A. The relationship between various growth rates and stock valuation metrics has been
12 the subject of much academic research. Many published articles specifically support
13 the use of analysts' earnings growth projections in the DCF model in general, as well
14 as for a method of calculating the expected market risk premium in particular. Dr.
15 Robert Harris, for example, demonstrated that financial analysts' earnings forecasts
16 (referred to in the article as "FAF") in a constant growth DCF formula are an
17 appropriate method of calculating the expected market risk premium.³⁶ Dr. Harris
18 made the following observations:

19 [..] a growing body of knowledge shows that analysts' earnings
20 forecasts are indeed reflected in stock prices. Such studies

³⁶ Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Financial Management, Spring 1986, at 66.

1 typically employ a consensus measure of FAF calculated as a
2 simple average of forecasts by individual analysts.³⁷

3 *****

4 Given the demonstrated relationship of FAF to equity prices and
5 the direct theoretical appeal of expectational data, it is no
6 surprise that FAF have been used in conjunction with DCF
7 models to estimate equity return requirements.³⁸

8 Professors Carleton and Vander Weide also performed a study to determine whether
9 projected earnings growth rates are superior to historical measures of growth in the
10 implementation of the DCF model.³⁹ Although the purpose of that study was to
11 “investigate what growth expectation is embodied in the firm’s current stock
12 price,”⁴⁰the authors clearly indicate the importance of earnings projections in the
13 context of the DCF model. Professors Carleton and Vander Weide concluded that:

14 [...] our studies affirm the superiority of analysts’ forecasts over
15 simple historical growth extrapolations in the stock price
16 formation process. Indirectly, this finding lends support to the
17 use of valuation models whose input includes expected growth
18 rates.⁴¹

19 Similarly, Harris and Marston presented “estimates of shareholder required rates of
20 return and risk premia which are derived using forward-looking analysts’ growth
21 forecasts.”⁴² In addition to other findings, Harris and Marston reported that,

³⁷ *Ibid.*, at 59.

³⁸ *Ibid.*, at 60.

³⁹ James H. Vander Weide, Willard T. Carleton, Investor growth expectations: Analysts vs. history, The Journal of Portfolio Management, Spring, 1988.

⁴⁰ *Ibid.*, at 78.

⁴¹ *Ibid.*, at 82.

⁴² Robert S. Harris, Felicia C. Marston, Estimating Shareholder Risk Premia Using Analysts’ Growth Forecasts, Financial Management, Summer, 1992.

1 [...] in addition to fitting the theoretical requirement of being
2 forward-looking, the utilization of analysts' forecasts in
3 estimating return requirements provides reasonable empirical
4 results that can be useful in practical applications.⁴³

5 The Carleton and Vander Weide study was updated to determine whether the finding
6 that analysts' earnings growth forecasts are relevant in the stock valuation process
7 still holds. The results of that updated study continued to demonstrate the
8 importance of analysts' earnings forecasts, including the application of those
9 forecasts to utility companies.⁴⁴ Similarly, Brigham, Shome and Vinson noted that
10 "evidence in the current literature indicates that (1) analysts' forecasts are superior to
11 forecasts based solely on time series data; and (2) investors do rely on analysts'
12 forecasts."⁴⁵

13 **Q. WHAT IS YOUR OPINION OF THE COMMISSION'S HISTORICAL RELIANCE ON**
14 **DIVIDEND PER SHARE GROWTH RATES DURING THE INITIAL FIVE-YEAR TERM OF**
15 **ITS TWO STAGE DCF MODEL?**

16 A. There are several reasons why sole reliance on Value Line projections of dividend
17 per share growth is not appropriate. First, as discussed above, the use of only
18 dividend growth rates ignores the academic research demonstrating that earnings

⁴³ *Ibid.*, at 63.

⁴⁴ Advanced Research Center, Investor Growth Expectations, Summer, 2004.

⁴⁵ The Risk Premium Approach to Measuring a Utility's Cost of Equity, Financial Management, Spring, 1985.

1 growth rates are most relevant in stock price valuation.⁴⁶ Second, projections of
2 dividend growth, which would not include growth in retained earnings, only measure
3 a portion of the growth experienced by the company. Projections of earnings
4 growth are more complete estimates of total company growth than projected
5 dividend growth rates, as dividend growth rates are based on management discretion.
6 For example, due to Corning Gas's Commission-mandated pipe replacement
7 program, the Company has been forced to retain a relatively high percentage of
8 earnings to fund that program, thereby limiting the Company's payout ratios.
9 Finally, Value Line's 4-6 year projections are not consensus estimates, but reflect the
10 viewpoint of a single analyst. Therefore, the Commission's models, which have
11 historically relied only on projected dividend per share growth rates from Value Line,
12 are limited in that they reflect the growth expectations of a single analyst in the first
13 stage of the model. In contrast, there are several consensus estimates of projected
14 earnings per share growth rates that are publicly available and widely used by
15 investors, including Zacks Investment Research and Thomson Reuters (published on
16 Yahoo Finance). Each of these consensus forecasts considers the growth
17 expectations for each company based on the expectations of multiple analysts.

⁴⁶ The Generic Finance RD indicates that the Telecommunications Group, which included Commission Staff, supported the use of earnings per share growth in the DCF models employed to estimate the ROE (Generic Finance RD at 9).

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

2 A. As shown in Schedule AEB-3, the long-term growth rate of 5.36 percent is based on
3 the real GDP growth rate of 3.24 percent from 1929 through 2015,⁴⁷ and a projected
4 inflation rate of 2.05 percent. The rate of inflation of 2.05 percent is based on three
5 measures: (1) the average long-term projected growth rate in the Consumer Price
6 Index (“CPI”) of 2.20 percent, as reported by Blue Chip Financial Forecasts;⁴⁸ (2) the
7 compound annual growth rate of the CPI for all urban consumers for 2025-2040 of
8 2.11 percent as projected by the Energy Information Administration (“EIA”) in the
9 Annual Energy Outlook 2015; and (3) the compound annual growth rate of the
10 GDP chain-type price index for 2025-2040 of 1.85 percent, also reported by the
11 EIA.⁴⁹

12 **Q. WHY IS THE LONG-TERM GDP GROWTH RATE A REASONABLE ESTIMATE OF**
13 **LONG-TERM GROWTH IN YOUR MULTI-STAGE DCF MODEL?**

14 A. In regulatory proceedings, long-term estimates of GDP growth are commonly used
15 as a proxy for the long-term growth in proxy group company dividends in multi-
16 stage DCF analyses. That application is based on the common theoretical
17 assumption that, over the long-run, all companies in the economy will tend to grow
18 at the same constant rate. That assumption is designed to address the uncertainty
19 associated with estimating individual company growth rates over very long time

⁴⁷ U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, Table 1.1.6, February 26, 2016.

⁴⁸ Blue Chip Financial Forecasts, Vol. 34, No.12, December 1, 2015, at 14.

⁴⁹ U.S. Energy Information Administration, Annual Energy Outlook 2015, Table 20.

1 horizons and is not meant to act as a prediction that company growth rates in the
2 economy will indeed converge in practice over any given period.

3 **Q. IS YOUR CALCULATION OF GDP GROWTH CONSISTENT WITH ANALYSTS’**
4 **ESTIMATES OF LONG-TERM GDP GROWTH?**

5 A. Yes. Investors understand that the U.S. economy goes through cycles of growth and
6 contraction. Therefore, it is appropriate to consider the longest time period possible
7 to measure historical real growth in GDP. This view is consistent with
8 Morningstar’s explanation about measuring GDP growth:

9 Growth in real GDP (with only a few exceptions) has been
10 reasonably stable over time; therefore, its historical performance
11 is a good estimate of expected long-term future performance.
12 By combining the inflation estimate with the real growth rate
13 estimate, a long-term estimate of nominal growth is formed⁵⁰

14 Furthermore, Morningstar supports the use of a long-term historical data:

15 The 87-year period starting with 1926 is representative of what
16 can happen: it includes high and low returns, volatile and quiet
17 markets, war and peace, inflation and deflation, and prosperity
18 and depression. Restricting attention to a shorter historical
19 period underestimates the amount of change that could occur in
20 a long future period. Finally, because historical event-types (not
21 specific events) tend to repeat themselves, long-run capital
22 market return studies can reveal a great deal about the future.
23 Investors probably expect “unusual” events to occur from time
24 to time, and their return expectations reflect this.⁵¹

⁵⁰ Ibbotson and Associates, Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook, at 52.

⁵¹ Ibbotson and Associates, Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook, at 59.

1 **Q. HOW DOES YOUR ESTIMATE OF LONG-TERM GDP GROWTH COMPARE WITH**
2 **INVESTOR EXPECTATIONS OF LONG-TERM UTILITY INDUSTRY GROWTH RATES?**

3 A. The Commission has traditionally relied on Bank of America Merrill Lynch's
4 ("BAML") market return calculations in estimating a company's ROE using the
5 CAPM. Schedule AEB-17 includes the relevant pages from the BAML *Quantitative*
6 *Profiles* reports through May 2016. BAML derives the Implied Return through the
7 use of a multi-stage Dividend Discount Model ("DDM").⁵² As shown in Schedule
8 AEB-17, the February, March and April Implied Returns for the utility industry were
9 9.70 percent, 9.70 percent and 9.40 percent, respectively, which produces an average
10 Implied Return of approximately 9.60 percent.⁵³ For those same months, the
11 dividend yield for the utility industry was 3.5 percent.⁵⁴ Because the total return
12 consists of capital appreciation (*i.e.*, growth) and dividend yield, that data imply a
13 utility growth rate of approximately 6.10 percent, which is considerably higher than
14 the long-term growth estimate of 5.36 percent used in my multi-stage DCF analysis.

15 **Q. HOW DOES YOUR ESTIMATE OF LONG-TERM GROWTH DIFFER FROM THE**
16 **ESTIMATE THAT THE COMMISSION HAS TRADITIONALLY RELIED ON?**

17 A. The final stages of both the two-stage DCF model that the Commission has relied
18 on and my multi-stage DCF model extend into the future indefinitely. My long-term

⁵² Bank of America Merrill Lynch, *Quantitative Profiles*, February 11, 2016, at 9.

⁵³ Bank of America Merrill Lynch, *Quantitative Profiles*, February 11, 2016, at 57. Bank of America Merrill Lynch, *Quantitative Profiles*, March 9, 2016, at 56. Bank of America Merrill Lynch, *Quantitative Profiles*, April 13, 2016, at 56.

⁵⁴ *Ibid.*

1 growth estimate reflects investors' long-term growth expectations for the period
2 from 2025 through 2040. Therefore, the third stage of my multi-stage DCF model
3 reflects investor growth expectations beginning in the first year of the third stage of
4 the model. In contrast, the growth estimate for the two-stage model that the
5 Commission has typically relied on is based on short-term growth rate forecasts.
6 The use of the sustainable growth rate, calculated using Value Line's published
7 projections, provides an estimate of growth four- to six-years in the future. As a
8 result, the use of the sustainable growth rate in perpetuity in the second stage of a
9 two-stage DCF model does not provide a long-run estimate of growth. Rather, the
10 use of the sustainable growth rate assumes that the short-term estimate for the four-
11 to six-year period from the Value Line report date is sustained in perpetuity.
12 In contrast, the long-term growth rate in my multi-stage DCF analyses reflects both
13 economic forecasts and market-derived projections of inflation over the longest
14 available time period (30 or more years). Those estimates of long-term inflation
15 expectations are combined with the long-term average historical real GDP growth
16 rate to calculate an expected nominal GDP growth rate. Consequently, the long-
17 term growth estimate used in my multi-stage DCF model represents investors' and
18 economists' views of nominal long-term GDP growth well beyond the time horizon
19 reflected in the four- to six-year Value Line sustainable growth estimate relied on by
20 the Commission in prior cases.

1 **Q. DOES THE USE OF VALUE LINE DATA TO DEVELOP THE SUSTAINABLE GROWTH**
2 **RATE ADDRESS CONCERNS ABOUT GROWTH RATE BIAS?**

3 A. No. The sustainable growth rate is the sum of retention growth plus an SV factor,⁵⁵
4 calculated using Value Line data. As such, the sustainable growth rate estimate that
5 has been relied on by the Commission is based on a single analyst's viewpoint of a
6 company's projected four-six year growth prospects.

7 **Q. ARE THERE OTHER PROBLEMS WITH THE USE OF THE SUSTAINABLE GROWTH**
8 **RATE AS AN ESTIMATE OF LONG-TERM GROWTH?**

9 A. Yes. The sustainable growth rate calculation uses a very narrowly defined set of
10 short-term projections. The sustainable growth rate, developed using Value Line
11 data, relies on the following assumptions: (1) projected dividends for year 2; (2)
12 projected dividends for years 4-6; (3) projected earnings for years 4-6; (4) projected
13 book value for year 2; (5) projected book value for years 4-6; (6) current estimate of
14 actual outstanding shares of stock; (7) projected shares of outstanding stock for years
15 4-6; and (8) current three-month stock price. Each of these assumptions is estimated
16 at most for six years into the future. As a result, the sustainable growth rate, which is
17 applied over the long-term in the Commission's two-stage model, does not consider
18 any actual long-term forecasts for the specific company or the economy as a whole
19 which is a limitation in the Commission's model.

⁵⁵ Retention growth is the product of the expected earned ROE and the retention ratio (one minus the dividend payout ratio). The SV factor employs an estimate of the market-to-book ratio and the expected expansion rate of outstanding shares of common stock in the future.

1 **Q. WHAT IS YOUR CONCLUSION REGARDING THE METHODOLOGY TYPICALLY**
2 **RELIED ON BY THE COMMISSION TO ESTIMATE THE SUSTAINABLE GROWTH**
3 **RATE?**

4 A. There are several reasons why the Commission's sustainable growth rate should not
5 be relied on in the two-stage DCF model. First, the sustainable growth rate is not a
6 long-term measure of growth and as such should not be applied in perpetuity in the
7 second stage of the model. Second, the exclusive use of Value Line data, which is a
8 single analyst's viewpoint, to establish the sustainable growth rate assumes that
9 investors do not consider any of the other financial information that is widely
10 available when establishing future dividend expectations. Finally, the Commission's
11 sustainable growth rate methodology implicitly assumes that investors establish long-
12 term growth expectations based entirely on short-term, company-specific
13 projections. It is unreasonable to conclude that investors would ignore the
14 expectations of long-term macroeconomic growth in establishing the long-term
15 growth estimates for a natural gas distribution utility or any other company.

16 **Q. HAVE OTHER REGULATORY COMMISSIONS RECENTLY RECONSIDERED THE USE**
17 **OF THE SUSTAINABLE GROWTH RATES IN THE ROE ESTIMATION**
18 **METHODOLOGY?**

19 A. Yes. The FERC's long-standing methodology for setting the ROE in utility
20 proceedings was to rely on a single stage DCF model that used two estimates of
21 short-term growth: 1) analysts' estimates of earnings growth, as published by IBES

1 and 2) the sustainable growth rate, calculated using the $b^*r + s^*v$ components that are
2 used by this Commission. The FERC acknowledged that the sustainable growth rate
3 is not a measure of long-term growth, but is another estimate of short-term growth
4 similar to analysts' earnings projections.

5 In Opinion No. 531, the FERC determined that it was appropriate to move from a
6 constant growth DCF methodology to a two-stage DCF model for public utility rate
7 cases. In moving to the two-stage DCF, FERC now relies on analysts' estimates of
8 earnings growth in the short-term and a long-term GDP growth rate as the measure
9 of growth in the second stage. The FERC's two stage model does not rely on a
10 sustainable growth calculation.⁵⁶

11 **Q. WHAT ARE THE RESULTS OF YOUR DCF ANALYSES?**

12 A. As shown in Schedules AEB-1 and AEB-2, the multi-stage DCF analysis based on a
13 three-month average stock price and a range of near-term growth rate assumptions
14 produces a range of 8.86 percent to 9.27 percent, with a mean ROE of 9.05 percent
15 for the Combined Utility Proxy Group, and a range of 8.44 percent to 8.96 percent
16 with a mean of 8.69 percent for the Natural Gas Proxy Group.

⁵⁶ Opinion No. 531 147 FERC ¶ 61,234 (June 19, 2014).

1 **Q. DOES THE DCF MODEL ADDRESS YOUR CONCERN ABOUT UTILITY**
2 **VALUATIONS?**

3 A. No, it does not. While the multi-stage DCF model provides for changes in growth
4 over time, it does not address the very high current P/E ratios for utility stocks and
5 the effects of those high valuations on the dividend yield in the DCF model.

6 **Q. WHAT ARE YOUR CONCLUSIONS ABOUT THE RESULTS OF THE DCF MODEL?**

7 A. The results of the multi-stage DCF model are currently influenced by the high
8 valuations on utility stocks. As discussed previously, one primary assumption of the
9 DCF model is the dividend yield. That assumption is heavily influenced by the
10 market price of utility stocks. To the extent that these stock prices are inflated, as is
11 suggested by the high P/E ratios and analysts' expectation that those P/E ratios are
12 not sustainable in the short term, it is important to consider the results of the DCF
13 model with caution. Therefore, I have applied equal weighting to the results of the
14 DCF and CAPM.

15 **Q. HAVE YOU QUANTIFIED THE EFFECT THAT THE MARKET'S EXPECTATION FOR**
16 **HIGHER INTEREST RATES HAS ON THE DIVIDEND YIELD COMPONENT OF THE**
17 **DCF MODEL?**

18 A. Yes, I have. Using Value Line projections for dividends and share prices for the
19 period from 2018-2020, I have calculated the projected dividend yields for the
20 companies in my Combined Utility and Natural Gas Proxy Groups. As shown in
21 Schedules AEB-4 and AEB-5, my analysis demonstrates that using the projected

1 dividend yield in the mean multi-stage DCF model results in a 76 basis point increase
2 (*i.e.*, 9.81 percent vs. 9.05 percent shown in Schedule AEB-1) in the return on equity
3 for the Combined Utility Proxy Group and a 56 basis point increase (*i.e.*, 9.25
4 percent vs. 8.69 percent shown in Schedule AEB-2) in the return on equity for the
5 Natural Gas Proxy Group.

6 **B. CAPITAL ASSET PRICING MODEL**

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

8 A. The CAPM is a risk premium approach that estimates the market cost of equity for a
9 given security as a function of a risk-free return plus a risk premium (to compensate
10 investors for the non-diversifiable or “systematic” risk of that security). As shown in
11 Equation [2], the CAPM is defined by four components:

12
$$k_e = r_f + \beta(r_m - r_f) \quad [2]$$

13 where:

14 k_e = the required market ROE

15 β = Beta coefficient of an individual security

16 r_f = the risk-free rate of return

17 r_m = the required return on the market as a whole

18 In this specification, the term $(r_m - r_f)$ represents the market risk premium.
19 According to the theory underlying the CAPM, investors should be concerned only
20 with systematic or non-diversifiable risk because unsystematic risk can be diversified
21 away. Non-diversifiable risk is measured by the Beta coefficient, which is defined as:

1
$$\beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [3]$$

2 The variance of the market return, noted in Equation [3], is a measure of the
3 uncertainty of the general market, and the covariance between the return on a
4 specific security and the market reflects the extent to which the return on that
5 security will respond to a given change in the market return.

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

7 A. I used three estimates of the yield on Treasury bonds: (1) the current three-month
8 average yield on 30-year Treasury bonds (2.64 percent);⁵⁷ (2) the projected 30-year
9 Treasury yield for 2016-2017 (3.22 percent);⁵⁸ and (3) the projected 30-year Treasury
10 yield for the period 2017-2021 (4.50 percent).⁵⁹ In determining the security most
11 relevant to the application of the CAPM, it is important to select the term (or
12 maturity) that best matches the life of the underlying investment. As noted by
13 Morningstar:

14 The traditional thinking regarding the time horizon of the
15 chosen Treasury security is that it should match the time horizon
16 of whatever is being valued... Note that the horizon is a
17 function of the investment, not the investor. If an investor plans
18 to hold stock in a company for only five years, the yield on a
19 five-year Treasury note would not be appropriate since the
20 company will continue to exist beyond those five years.⁶⁰

21 Because utility company assets are long-lived investments, it is appropriate to use

⁵⁷ Bloomberg Professional.

⁵⁸ Aspen Publishers, Blue Chip Financial Forecasts, Vol. 35, No. 2 February 1, 2016, p. 2.

⁵⁹ Aspen Publishers, Blue Chip Financial Forecasts, Vol. 34, No. 12 December 1, 2015, p. 14.

⁶⁰ Morningstar Inc., Ibbotson SBBBI 2013 Valuation Yearbook, at 44.

1 yields on long-term Treasury bonds as the risk-free rate component of the CAPM.
2 In my view, the 30-year Treasury bond is the appropriate security for that purpose.
3 Because the cost of capital is intended to be forward-looking, it is appropriate to
4 consider projected measures of the market risk premium and interest rates.
5 Furthermore, because interest rates are at historically low levels and are projected to
6 increase in the near future, it is important to consider forward-looking estimates of
7 the risk-free rate and the market risk premium in the CAPM analysis.

8 **Q. PLEASE DESCRIBE THE FORWARD-LOOKING MARKET RISK PREMIUM USED IN**
9 **YOUR CAPM.**

10 A. The forward-looking market risk premium is based on the expected return on the
11 S&P 500 Index less the 30-year Treasury bond yield. The expected return on the
12 S&P 500 Index is calculated using a DCF model for all companies in the index based
13 on market capitalization-weighted growth rates and dividend yields. The market risk
14 premium implied by each of the three Treasury yields discussed above is used in the
15 CAPM analysis.

16 **Q. IS YOUR CALCULATION OF THE MARKET RISK PREMIUM CONSISTENT WITH THE**
17 **METHODOLOGY RELIED UPON IN PREVIOUS CASES BEFORE THE COMMISSION?**

18 A. Yes, it is. The Commission previously has relied upon the calculation of a projected
19 market risk premium, based on the difference between the estimated forward-
20 looking required market return for the S&P 500, as provided by BAML, and the risk-

1 free rate.⁶¹ As a practical matter, that approach is consistent with the Market DCF-
2 derived forward-looking market risk premium estimate discussed above (*see also*
3 Schedules AEB-6 and AEB-7).

4 **Q. HAVE OTHER REGULATORY COMMISSIONS ACCEPTED MARKET RISK PREMIUM**
5 **CALCULATIONS USING A SIMILAR METHODOLOGY USED IN SCHEDULES_(AEB-7)**
6 **AND (AEB-8)?**

7 A. Yes. In order 531-B, the FERC agreed that the Market Risk Premium could be
8 estimated as the difference between the expected return on the S&P 500 and the risk
9 free rate.

10 A CAPM analysis is backward-looking if its market risk premium
11 component is determined based on historical, realized returns. A
12 CAPM analysis is forward-looking if its market risk premium
13 component is based on a DCF study of a large segment of the
14 market. In a forward-looking CAPM analysis, the market risk
15 premium is calculated by subtracting the risk-free rate from the result
16 produced by the DCF study.⁶²

17 *****

18 In this proceeding, the NETOs submitted a forward-looking
19 CAPM study, using 30-year Treasury bonds for the risk-free
20 rate, betas published by Value Line, and a market risk premium
21 based on a DCF study of all S&P 500 companies that were
22 paying dividends. The NETOs' CAPM approach is a generally
23 accepted methodology routinely relied upon by investors and,
24 therefore, one appropriately used to corroborate our own
25 analysis. As discussed below, we reject the arguments that the
26 NETOs' CAPM analysis contains flaws that undermine its
27 usefulness as corroborative evidence, in determining whether
28 the midpoint of the zone of reasonableness produced by the
29 Commission's DCF analysis provides the NETOs a return that

⁶¹ See e.g., 2011 O&R Rate Order, at 77.

⁶² 150 FERC ¶ 61,165, Docket Nos. EL11-66-002, Opinion No. 531-B, para. 108.

1 satisfies the requirements of *Hope* and *Bluefield*.⁶³

2 **Q. IS THE MARKET RETURN INFLATED BY THE USE OF A CONSTANT GROWTH**
3 **DCF APPROACH?**

4 A. No, it is not. As discussed by the FERC in Opinion 531, the return on the S&P 500
5 is reasonably measured using the Single Stage DCF Model and Short-term growth
6 rates for the companies that currently comprise the S&P 500. Overtime, the
7 composition of that index will change based on the changes in growth of large
8 companies. Therefore, it is reasonable to assume that the long-term growth of large
9 company stocks is greater than GDP growth.

10 We are also unpersuaded that the growth rate projection in the
11 NETOs' CAPM study was skewed by the NETOs' reliance on
12 analysts' projections of non-utility companies' medium-term
13 earnings growth, or that the study failed to consider that those
14 analysts' estimates reflect unsustainable short-term stock
15 repurchase programs and are not long-term projections. As
16 explained above, the NETOs based their growth rate input on
17 data from IBES, which the Commission has found to be a
18 reliable source of such data. Thus, the time periods used for the
19 growth rate projections in the NETOs' CAPM study are the
20 time periods over which IBES forecasts earnings growth.
21 Petitioners' arguments against the time period on which the
22 NETOs' CAPM analysis is based are, in effect, arguments that
23 IBES data are insufficient in a CAPM study. We disagree. We
24 acknowledge that CAPM analyses may be based on different
25 time periods; however, without more evidence, i.e., a CAPM
26 analysis based on a longer time period, we are not persuaded that
27 the time period on which the NETOs' based their CAPM

⁶³ *Ibid.*, para. 109.

1 analysis undermines the relevance of that analysis in
2 corroborating the results of the Commission’s DCF analysis.⁶⁴

3 Further, the fact that the Commission’s two-step DCF
4 methodology incorporates a long-term growth rate does not
5 necessitate the incorporation of a long-term growth rate in the
6 DCF study the NETOs used to develop the market risk
7 premium for their CAPM analysis. The Commission’s rationale
8 for incorporating a long-term growth rate estimate in DCF
9 analyses for public utilities was that it is often unrealistic and
10 unsustainable for high short-term growth rates to continue in
11 perpetuity. ²³⁶ Under the CAPM model, the market risk
12 premium is based on the difference between the “required return
13 on the overall market” and the risk-free rate. ²³⁷ The required
14 return on the overall market is determined by conducting a DCF
15 study of “a representative market index, such as the Standard &
16 Poor’s 500 Index.”²³⁸ As noted above, the NETOs developed
17 the market risk premium in their CAPM analysis in exactly this
18 way, by conducting a DCF analysis of the dividend-paying
19 companies in the S&P 500 to determine the required return on
20 the overall market. The rationale for incorporating a long-term
21 growth rate estimate in conducting a two-step DCF analysis of a
22 specific group of utilities does not necessarily apply when
23 conducting a DCF study of the companies in the S&P 500. That
24 is because
25 the S&P 500 is regularly updated to include only companies with
26 high market capitalization. While an individual company cannot
27 be expected to sustain high short-term growth rates in
28 perpetuity, the same cannot be said for a stock index like the
29 S&P 500 that is regularly updated to contain only companies
30 with high market capitalization, and the record in this
31 proceeding does not indicate that the growth rate of the S&P
32 500 stock index is unsustainable.⁶⁵

⁶⁴ *Ibid.*, para. 112.

⁶⁵ *Ibid.*, para. 113.

1 **Q. WHAT BETA COEFFICIENT DID YOU USE IN YOUR CAPM?**

2 A. Consistent with Commission precedent, I relied on the Beta coefficients reported by
3 Value Line for each of the proxy group companies.

4 **Q. DID YOU CONSIDER ANOTHER FORM OF THE CAPM IN YOUR ANALYSIS?**

5 A. Yes. In prior proceedings, the Commission has also relied upon the Zero-Beta
6 CAPM (the form of which is sometimes referred to as the “Empirical CAPM”⁶⁶) in
7 estimating the cost of equity. The Zero-Beta CAPM calculates the product of the
8 adjusted Beta coefficient and the market risk premium and applies a weight of 75.00
9 percent to that result. The model then applies a 25.00 percent weight to the market
10 risk premium, without any effect from the Beta coefficient. The results of the two
11 calculations are summed, along with the risk-free rate, to produce the Zero-Beta
12 CAPM result, as noted in Equation [4] below:

13
$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \quad [4]$$

14 where:

15 k_e = the required market ROE

16 β = Adjusted Beta coefficient of an individual security

17 r_f = the risk-free rate of return

18 r_m = the required return on the market as a whole

19 In essence, the Zero-Beta form of the CAPM addresses the tendency of the
20 “traditional” CAPM to underestimate the cost of equity for companies with low Beta

⁶⁶ See e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

1 coefficients such as regulated utilities. In that regard, the Zero-Beta CAPM is not
2 redundant to the use of adjusted Betas; rather, it recognizes the results of academic
3 research indicating that the risk-return relationship is different (in essence, flatter)
4 than estimated by the CAPM, and that the CAPM underestimates the “alpha,” or the
5 constant return term.⁶⁷

6 As with the CAPM, my application of the Zero-Beta CAPM uses the forward-
7 looking market risk premium estimates, the three yields on 30-year Treasury
8 securities noted earlier as the risk-free rate, and the Value Line Beta coefficients.
9 Schedules AEB-6 and AEB-7 show the results of the CAPM models for the
10 Combined Utility and Natural Gas Proxy Groups. The traditional CAPM results
11 range from 10.50 percent to 11.09 percent. The Zero-Beta CAPM results range
12 from 11.13 percent to 11.58 percent. The range established by the traditional CAPM
13 and the Zero-Beta CAPM is 10.50 percent to 11.58 percent with a mean of 11.06
14 percent.

15 **C. WEIGHTED AVERAGE RESULTS**

16 **Q. PLEASE SUMMARIZE THE RESULTS OF YOUR ANALYSIS AND YOUR**
17 **RECOMMENDED ROE.**

18 A. As shown in Table 5, I have weighted the DCF and CAPM results equally, resulting
19 in an ROE range of 9.70 percent to 10.24 percent.

⁶⁷ *Ibid.*, at 191.

1

Table 5: Weighted Average Analytical Results

Natural Gas Proxy Group			
	Low	Mean	High
DCF	8.44%	8.69%	8.96%
Mean CAPM	10.96%	11.08%	11.34%
Mean ROE	9.70%	9.91%	10.15%
Combined Utility Proxy Group			
	Low	Mean	High
DCF	8.86%	9.05%	9.27%
Mean CAPM	10.82%	10.94%	11.21%
Mean ROE	9.84%	10.02%	10.24%

2

3 **Q. WHY ARE GFP AND THE RD A RELEVANT CONSIDERATION TODAY?**

4 A. The Commission opened the GFP to address several questions including; should the
 5 Commission’s use of an interest rate sensitive DCF approach to the cost of equity be
 6 modified and what approaches could be substituted. Several parties were involved
 7 and the resulting RD established a recommended framework from which to begin to
 8 address the concerns raised in the process.

9 The RD recognized that the DCF methodology was especially sensitive to
 10 fluctuations in interest rates and that the Commission had asked parties to address
 11 the desirability of continuing to rely on that methodology. The RD also
 12 acknowledged that there was nothing sacrosanct about the DCF analysis and that all
 13 methods had benefits and shortcomings.⁶⁸ Finally, at the time of the GFP, the

⁶⁸ 1994 N.Y. PUC Lexis 141, 39.

1 Commission was concerned about consistency from company to company in the rate
2 of return calculation, noting that differences in returns should be based on
3 “discernible and explanatory differences among utilities.”⁶⁹ It was also observed that
4 using a generic determination methodology would have the benefit of enhancing
5 consistency by eliminating variations in results due to noise in the data or random
6 measurement errors.⁷⁰ The RD also supported the use of multiple methodologies in
7 a generic ROE estimation methodology, noting that DCF-based results are in no way
8 superior to those obtained using other methods.⁷¹ While the RD recommended the
9 2/3 DCF and 1/3 CAPM weighting as an operating norm, it left open consideration
10 of alternative weightings and methodologies. This guidance is consistent with the
11 *Hope* decision, which indicates that the means of arriving at a fair return are not
12 controlling, only that the end result leads to just and reasonable rates. The effect of
13 current market conditions on the results of the ROE estimation models requires the
14 careful review of the “operating norm” that has been relied on by the Commission in
15 the past to establish returns, and appropriate adjustments to ensure fair and equitable
16 treatment of regulated entities.

⁶⁹ *Ibid.*, at 38.

⁷⁰ *Ibid.*, at 39.

⁷¹ 1994 N.Y. PUC Lexis 141, 74.

1 **Q. WHAT WAS THE RATIONALE IN THE RD FOR THE WEIGHTING OF THE DCF AND**
2 **CAPM METHODOLOGIES?**

3 A. At the time of the RD, it does not appear that the Commission had a significant
4 amount of experience with CAPM results. The RD noted that the Commission had
5 historically used the CAPM method as a check on its DCF results, and was
6 somewhat undecided as to “how far the Commission should go in elevating the
7 status of CAPM.”⁷² The RD opted for a gradual transition towards CAPM,
8 ultimately settling on a 1/3 weighting, indicating that “proposals have simply not
9 shown that the CAPM should be raised all at once to parity with the DCF analysis in
10 the setting of returns on equity.”⁷³ To the extent that this was a consideration in the
11 RD’s weighting determination, the Commission’s many years of experience with the
12 CAPM since that time provides a sound basis for altering the weighting of the two
13 ROE methodologies.

14 **Q. HOW HAVE THE RETURNS AUTHORIZED BY THIS COMMISSION CHANGED OVER**
15 **TIME?**

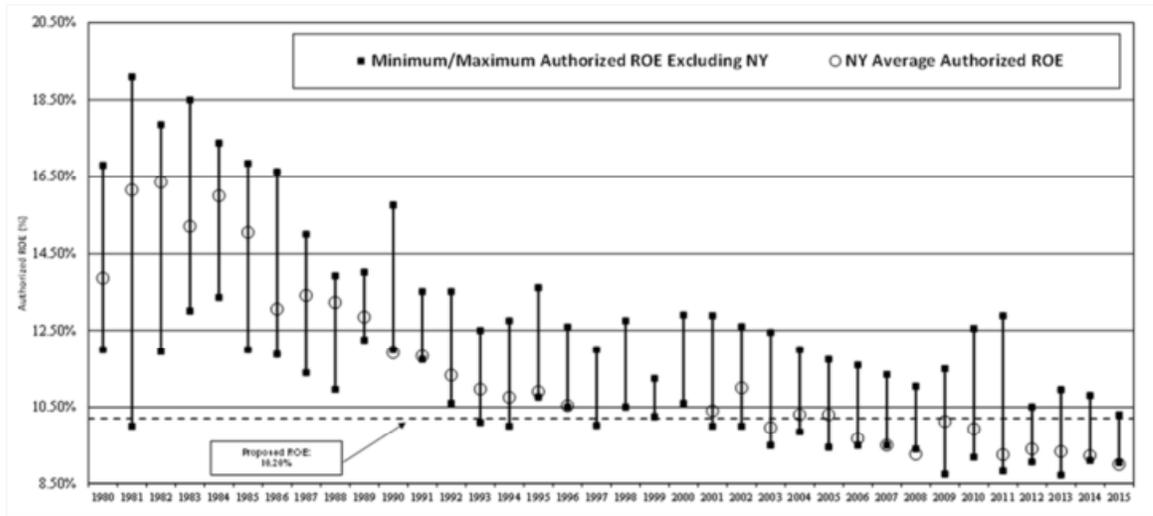
16 A. Chart 3 below provides the range of ROE’s that were authorized for natural gas
17 distribution companies and electric utilities for each year from 1980 to 2015. The
18 average return authorized by this Commission is also noted for each year. Chart 3
19 demonstrates that for the period from 1980 – 1989 the Commission authorized
20 ROEs were within the range established by other jurisdictions’ ROEs. This suggests

⁷² RD at 27.

⁷³ *Ibid.*

1 that an alternative weighting of the DCF and CAPM results is appropriate to achieve
 2 the Commission’s intended results.

3 **Chart 3: Comparison of New York Authorized Returns and Authorized Returns⁷⁴**



4
 5 In 1990-1991, just prior to the GFP, the Commission’s authorized ROEs had fallen
 6 to the bottom of the range established by other state jurisdictions. While the GFP
 7 provided some stability for a few years, the weightings relied on for the DCF and
 8 CAPM have resulted in the Commission authorized ROEs that have again fallen to
 9 the bottom of the range of authorized ROEs.

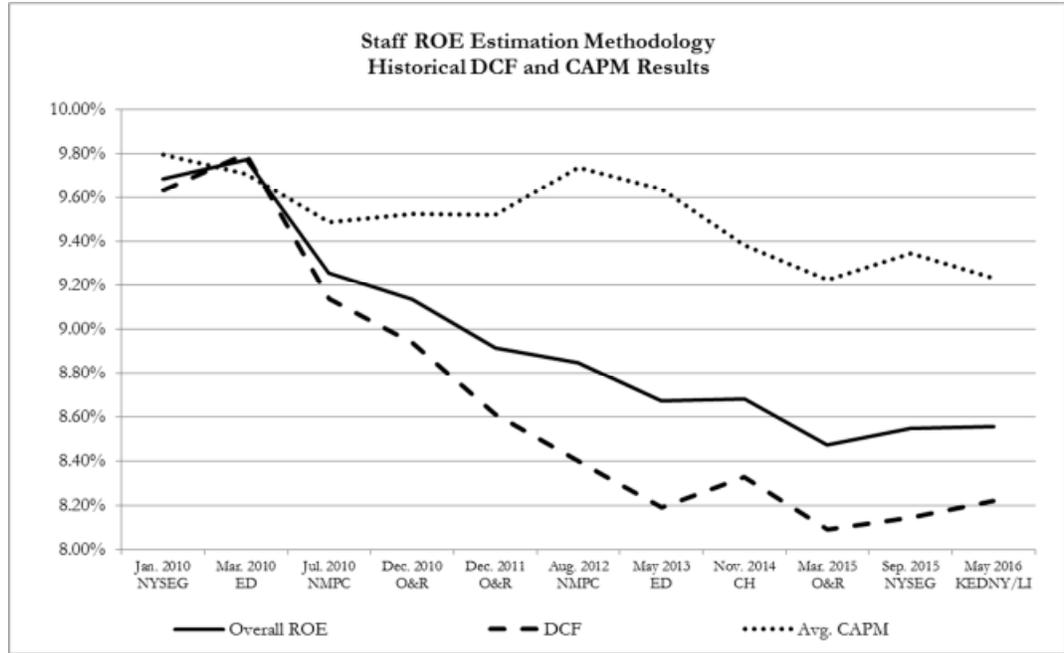
⁷⁴ From 1997-2000, the Commission did not issue an order in a rate case where traditional rate case parameters such as the cost of equity were specifically determined by the Commission and therefore Chart 3 does not show the NY Average Authorized ROE for these years.

1 **Q. HOW HAVE CURRENT MARKET CONDITIONS INFLUENCED YOUR**
2 **RECOMMENDATION TO MOVE TO EQUAL WEIGHTING FOR THE CAPM AND THE**
3 **DCF RESULTS?**

4 A. The RD in the GFP indicates that DCF results at the time the Commission initiated
5 its inquiry were approximately 100 basis points less than the ROE obtained with
6 other approaches. The situation today is more acute, with the DCF estimate more
7 than 140 basis points below the CAPM estimate. Thus, current market conditions
8 demonstrate that the DCF model is susceptible to interest rate and market volatility
9 and produces results today that are significantly lower than the results derived from
10 the CAPM and other risk-premium methodologies. As shown in Chart 4, using the
11 Commission Staff analyses prepared over the past five years, the DCF results have
12 ranged from 8.09 percent to 9.80 percent, while the average CAPM results have been
13 in the range of 9.23 percent to 9.79 percent. In contrast, the results of the CAPM
14 and Zero-Beta CAPM have been much more stable during market conditions over
15 the past five years, indicating a systemic problem with the DCF.

1

Chart 4: Staff Estimation for NY utilities 2010-2016



2

3 **Q. HAVE ANALYSTS COMMENTED ON THE EFFECT OF CURRENT MARKET**
 4 **CONDITIONS ON THE VALUE OF UTILITY STOCKS?**

5 A. Yes. As discussed previously, Value Line indicated that utility stock prices may be
 6 trading at the high end of the three-to-five year target range and noted the market
 7 risks associated with the purchase of dividend-paying stocks. The combination of
 8 high prices for utility stocks today and the effect of rising interest rates on utility
 9 stock prices going forward likely results in an underestimation of the cost of equity
 10 using the DCF model.

1 **Q. PLEASE SUMMARIZE YOUR CONCLUSION REGARDING THE RELATIVE**
2 **WEIGHTING OF THE CAPM AND DCF RESULTS.**

3 A. In the early 1990s the Commission recognized that market conditions had affected
4 the results of the DCF model and through the opening of the GFP, sought
5 alternative methodologies to inform their judgment in setting a reasonable ROE for
6 regulated utilities in New York that was not wholly reliant on the DCF. Throughout
7 the GFP, many alternatives were considered and the benefits and shortcomings of
8 each methodology were identified. The RD summarizes that process and
9 demonstrates that there was no clear preference for the DCF methodology given its
10 volatile history. While the RD proposed the 2/3 weighting on the DCF, the
11 weightings and methodologies used to estimate the ROE were left open for
12 additional consideration in future rate proceedings. Since then, the Commission has
13 employed the CAPM as one component of the formula used to develop ROE
14 estimates. There does not appear to be any reason to infer that the Commission has
15 less confidence in the results of the CAPM than those of the DCF.

16 The concerns that warranted the Commission's GFP inquiry and the subsequent RD
17 in the early 1990s exist today with volatile DCF results that are considerably below
18 the results of other methodologies, the CAPM in particular. To the extent that
19 dividend-paying stocks are "expensively priced" today and could correct to lower
20 levels in the period that rates would be in effect, the DCF model is likely to
21 underestimate the cost of equity. Therefore, it is appropriate for the Commission to

1 reexamine how the market has influenced the assumptions used in the ROE
2 estimation models and to consider recalibrating the weightings in the formula that it
3 has used since the GFP to produce ROE results that are consistent with the *Hope*
4 and *Bluefield* standards. One reasonable approach is to apply equal weighting to the
5 DCF and CAPM methodologies when setting the ROE for Corning Gas.

VII. REGULATORY AND BUSINESS RISKS

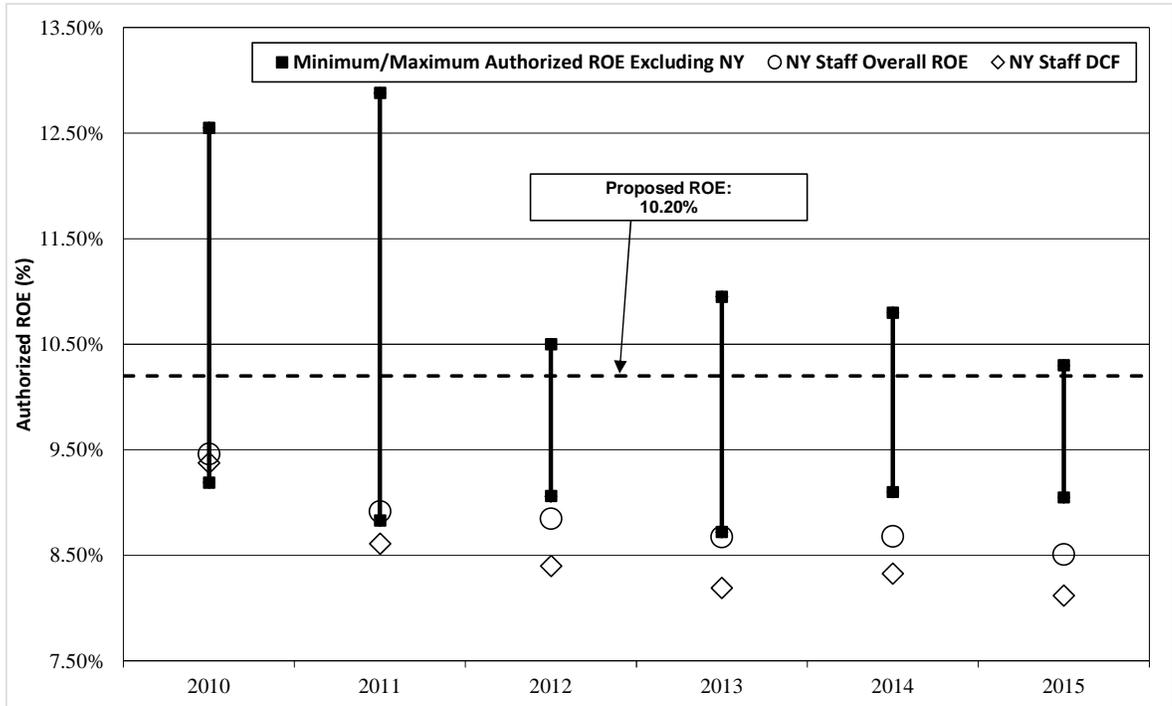
A. NEW YORK ALLOWED ROES AND WEIGHTED ROES

7 **Q. HOW DO THE RETURNS THAT RESULT FROM THE MODEL THAT THE**
8 **COMMISSION HAS TRADITIONALLY RELIED ON COMPARE WITH AUTHORIZED**
9 **RETURNS IN OTHER JURISDICTIONS?**

10 A. Over time, the results of the two-stage DCF model that the Commission has
11 traditionally relied on have significantly reduced the overall authorized ROE for
12 utility operations in New York. Chart 5 shows the range of authorized returns for
13 utilities in other jurisdictions⁷⁵ since January 2010, the results of New York's DCF
14 model, and the overall ROE that resulted from New York's DCF and CAPM
15 models. As shown in Chart 5, the results of New York's DCF model have been
16 below the minimum authorized return in other jurisdictions in all five years since
17 2010, while the result of New York's DCF/CAPM weighting methodology resulted
18 in overall returns that were either below or very close to the minimum authorized
19 return in other jurisdictions.

⁷⁵ The average authorized returns exclude the returns authorized by the Commission.

1 **Chart 5: Comparison of New York ROE model results and Authorized Returns**



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12

Q. WHAT DOES THIS INFORMATION INDICATE REGARDING THE LEVEL OF ALLOWED ROES IN NEW YORK RELATIVE TO THE RETURNS AUTHORIZED IN OTHER JURISDICTIONS?

A. Over the past several years, the Commission’s authorized ROEs have been well below the national average authorized return on equity. While applying an equal weighting of DCF and CAPM results improves the results of the New York model, the New York model would still underestimate the return on equity as compared with the national average authorized return. Furthermore, as discussed in Section VI of my Testimony, combining a below average authorized ROE resulting from the Commission’s historical weighting with a ratemaking equity ratio at 50 percent

1 results in a weighted average return on equity for New York utilities that is well
2 below the national average over the last several years. I am aware that, in the past,
3 the Commission justified the relatively lower ROEs that it was awarding vis-à-vis
4 other jurisdictions based on New York's inclination to use innovative regulatory
5 mechanisms such as future test years, revenue decoupling and other automatic
6 adjustment clauses. While this may have differentiated the Commission from other
7 jurisdictions in the past, it is no longer the case. For example, a 2013 study by the
8 Brattle Group found the following:

- 9 • Revenue Stabilization. These mechanisms, which include conservation
10 adjustments and decoupling mechanisms, adjust base revenues, without
11 addressing costs, between rate cases. They remove the conflict in the utility
12 promoting efficiency and deal with falling sales from various sources. 27
13 states for electricity and 31 states for natural gas delivery participate in this
14 kind of alternative regulation.⁷⁶
- 15 • Comprehensive Alternative Ratemaking and Timely Recovery. These are
16 ways to move beyond the general rate cases of cost of service regulation and
17 bring into rates future costs from investment projects and other sources. 34
18 states for electricity and 18 states for natural gas delivery have some form of
19 comprehensive alternative regulation. For water, 4 states have been identified

⁷⁶ “Alternative Regulation and Ratemaking Approaches for Water Companies: Supporting the Capital Investment Needs of the 21st Century,” that was prepared for the National Association of Water Companies, (September 30, 2013), at 2.

1 as having some form of comprehensive alternative regulation. In addition a
2 number of states have the positive feature of a future or partially future test
3 year in the traditional general rate case, which is a related, traditional policy
4 that is surveyed, but not included in the count of states above.⁷⁷

5 • Alternative Ratemaking for Capital Expenditures. Distribution System
6 Improvement Charge (“DSIC”) and Capital Expenditure (Capex) Riders are
7 innovative means to collect the costs of standard investments to maintain the
8 integrity of distribution systems. 17 states for electricity and 25 states for
9 natural gas delivery have at least one kind of this alternative regulation. For
10 Water, 15 states have been identified as having these policies.⁷⁸

11 I recognize that New York may have been an early adopter of these types of revenue
12 stability and cost recovery mechanisms, and that in those years, regulation in New
13 York may have resulted in lower business risk for utilities as compared to other state
14 jurisdictions. However, many commissions have now implemented similar
15 programs. Therefore, the regulatory treatment in New York is generally comparable
16 with other jurisdictions and does not justify a lower ROE.

⁷⁷ *Ibid.*, at 2-3.

⁷⁸ *Ibid.*, at 3.

1 **B. REGULATORY RISKS**

2 **Q. PLEASE EXPLAIN HOW THE REGULATORY FRAMEWORK AFFECTS INVESTORS’**
3 **RISK ASSESSMENTS.**

4 A. The ratemaking process is premised on the principle that, for investors and
5 companies to commit the capital needed to provide safe and reliable utility services,
6 the subject utility must have the opportunity to recover invested capital and the
7 market-required return on such capital. Regulatory commissions recognize that
8 because utility operations are capital intensive, regulatory decisions should enable the
9 utility to attract capital at reasonable terms, thereby balancing the long-term interests
10 of investors and customers. In that respect, the regulatory framework in which a
11 utility operates is one of the most important factors considered in both debt and
12 equity investors’ risk assessments.

13 Because investors have many investment alternatives, even within a given market
14 sector, the Company’s authorized return must be adequate on a relative basis to
15 ensure its ability to attract capital under a variety of economic and financial market
16 conditions. From the perspective of debt investors, the authorized return should
17 enable the Company to generate the cash flow needed to meet its near-term financial
18 obligations, make the capital investments needed to maintain and expand its system,
19 and maintain sufficient levels of liquidity to fund unexpected events. This financial
20 liquidity must be derived not only from internally-generated funds, but also from
21 efficient access to capital markets.

1 From the perspective of equity investors, the authorized return must be adequate to
2 provide a risk-comparable return on the equity portion of the Company's capital
3 investments. Because equity investors are the residual claimants on the Company's
4 cash flows (i.e., debt interest must be paid prior to any equity dividends), equity
5 investors are particularly concerned with the regulatory framework in which a utility
6 operates and its effect on future earnings and cash flows.

7 **Q. HOW DO CREDIT RATING AGENCIES CONSIDER THE REGULATORY FRAMEWORK**
8 **IN ESTABLISHING A COMPANY'S CREDIT RATING?**

9 A. S&P and Moody's both consider the overall regulatory framework in establishing
10 credit ratings. In particular, Moody's establishes credit ratings based on four key
11 factors:

12 **Table 6: Moody's Rating Factors**

Factor	Weighting
Regulatory Framework	25%
Ability to Recover Costs and Earn Returns	25%
Diversification	10%
Financial Strength	40%
Total	100%

13
14 Two of these factors (*i.e.*, regulatory framework and the ability to recover costs and
15 earn returns) are based on the regulatory environment such that 50% of Moody's

1 overall assessment of business and financial risk for regulated utilities is based upon
2 the regulatory environment.⁷⁹ Moody's further subdivides the first two factors,
3 regulatory framework and the ability to recover costs and earn authorized returns,
4 into sub-factors to help "provide more granularity and transparency on the overall
5 regulatory environment, which is the most important consideration for this sector."⁸⁰
6 With respect to the regulatory framework, Moody's looks for transparency,
7 predictability, and supportiveness of regulatory commissions.⁸¹ For the second
8 factor, ability to recover costs and earn returns, Moody's evaluates the regulatory
9 elements that directly affect the ability of the utility to generate cash flow and service
10 its debt over time.⁸² Moody's views the ability to recover costs on a timely basis and
11 to attract debt and equity capital as crucial credit considerations noting that "[t]he
12 inability to recover costs...has been one of the greatest drivers of financial stress in
13 this sector."⁸³ This is particularly true as utilities are often cash flow negative due to
14 large capital expenditures, so any lack of timely recovery or sufficiency of rates can
15 strain access to capital markets.
16 S&P has also identified the regulatory environment as an important factor, stating,
17 "we believe the fundamental regulatory environment in the jurisdictions in which a

⁷⁹ Moody's Investor Service, Rating Methodology, Regulated Electric and Gas Utilities, December 23, 2013, at 6.

⁸⁰ *Ibid.*, at 3.

⁸¹ *Ibid.*, at 9-10.

⁸² *Ibid.*, at 15.

⁸³ *Ibid.*

1 utility operates often influence credit quality the most.”⁸⁴

2 **Q. HOW DOES THE REGULATORY ENVIRONMENT IN WHICH A UTILITY OPERATES**
3 **AFFECT ITS ACCESS TO AND COST OF CAPITAL?**

4 A. The proportion and cost of debt capital available to utility companies are influenced
5 by the rating agencies’ assessment of the regulatory environment. Moody’s has
6 highlighted the relevance of a stable and predictable regulatory environment to a
7 utility’s credit quality, stating that “[b]roadly speaking, the Regulatory Framework is
8 the foundation for how all the decisions that affect utilities are made (including the
9 setting of rates), as well as the predictability and consistency of decision-making
10 provided by that foundation.”⁸⁵

11 **Q. PLEASE EXPLAIN HOW YOU USED THE RRA RATINGS TO COMPARE THE**
12 **REGULATORY JURISDICTIONS OF THE PROXY COMPANIES WITH THE COMPANY’S**
13 **REGULATORY JURISDICTION.**

14 A. RRA assigns a ranking for each regulatory jurisdiction from “Above Average/1” to
15 “Below Average/3,” with nine total rankings between these categories. I applied a
16 similar numeric ranking system to the RRA rankings with “Above Average/1”
17 assigned the highest ranking (“9”) and “Below Average/3” assigned the lowest
18 ranking (“1”). As shown on Schedule AEB-8, the New York jurisdictional ranking
19 (“5.0”) was generally consistent with the proxy group average numeric ranking
20 (“5.26”) from RRA.

⁸⁴ Standard & Poor’s, Assessing U.S. Utility Regulatory Environments, March 11, 2010, at 2.

⁸⁵ *Ibid.*

1 **Q. HOW DID YOU CONDUCT YOUR ANALYSIS OF THE S&P CREDIT**
2 **SUPPORTIVENESS?**

3 A. For credit supportiveness, S&P classifies each regulatory jurisdiction into five
4 categories that range from “Strong” to “Weak.” Within each category, regulatory
5 jurisdictions are ranked according to their credit supportiveness from most credit
6 supportive to least credit supportive. For purposes of my analysis, I assigned a
7 numerical ranking to each jurisdiction ranked by S&P, from most credit supportive
8 (“1”) to least credit supportive (“53”). As shown in Schedule AEB-9, the proxy
9 group average ranking was 25.57, which would be classified as Strong/Adequate and
10 rank slightly above average for credit supportiveness, while the New York
11 jurisdictional ranking was 34, which is below average in credit supportiveness.

1 **C. SMALL SIZE RISK**

2 **Q. PLEASE EXPLAIN THE RISK ASSOCIATED WITH SMALL SIZE.**

3 A. Both the financial and academic communities have long accepted the proposition
4 that the Cost of Equity for small firms is subject to a “size effect”. While empirical
5 evidence of the size effect often is based on studies of industries other than regulated
6 utilities, utility analysts also have noted the risk associated with small market
7 capitalizations. Specifically, an analyst for Ibbotson Associates noted:

8 For small utilities, investors face additional obstacles, such as a
9 smaller customer base, limited financial resources, and a lack of
10 diversification across customers, energy sources, and geography.
11 These obstacles imply a higher investor return.⁸⁶

12 **Q. HOW DOES THE SMALLER SIZE OF A UTILITY AFFECT ITS BUSINESS RISK?**

13 A. In general, smaller companies are less able to withstand adverse events that affect
14 their revenues and expenses. The impact of weather variability, the loss of large
15 customers to bypass opportunities, or the destruction of demand as a result of
16 general macroeconomic conditions or fuel price volatility will have a proportionately
17 greater impact on the earnings and cash flow volatility of smaller utilities. Similarly,
18 capital expenditures for non-revenue producing investments, such as system
19 maintenance and replacements, will put proportionately greater pressure on customer
20 costs, potentially leading to customer attrition or demand reduction. Taken together,
21 these risks affect the return required by investors for smaller companies.

⁸⁶ Michael Annin, Equity and the Small-Stock Effect, Public Utilities Fortnightly, October 15, 1995.

1 **Q. HOW DOES CORNING GAS' UTILITY OPERATIONS COMPARE IN SIZE TO THE**
2 **PROXY GROUP COMPANIES?**

3 A. Corning Gas' operations are substantially smaller than the median for the proxy
4 group companies in terms of market capitalization. Schedule AEB-10 provides the
5 actual market capitalization for the proxy group companies and estimates the implied
6 market capitalization for Corning Gas (*i.e.*, the implied market capitalization if
7 Corning Gas' utility operations were a stand-alone publicly-traded entity). To
8 estimate the size of the Company's market capitalization relative to the proxy group,
9 I used the Company's proposed capital structure equity component of \$33.6 million.
10 I then applied the median market-to-book ratio for the proxy group of 1.92 to
11 Corning Gas' implied common equity balance and arrived at an implied market
12 capitalization of approximately \$64.5 million, or 0.88 percent of the median market
13 capitalization for the proxy group.⁸⁷

14 **Q. HOW DID YOU ESTIMATE THE SIZE PREMIUM FOR CORNING GAS?**

15 A. Given this relative size information, it is possible to estimate the impact of size on
16 the ROE for Corning Gas using Morningstar data that estimates the stock risk
17 premia based on the size of a company's market capitalization.⁸⁸ As shown in
18 Schedule AEB-10, the median market capitalization of the proxy group of

⁸⁷ Corning's current market capitalization is \$40 million because of its low market to book compared to the proxy group. Corning's low market to book is the result of a relatively low payout ratio and the continuous need for new equity to fund its systematic pipe replacement. The size premium analysis relies on the Company's projected capitalization rate as of May 2018 is \$66.4 million.

⁸⁸ Morningstar, Inc., Ibbotson SBBI 2015 Classic Yearbook, at Table 7-6.

1 approximately \$7.32 billion corresponds to the fourth decile of the Morningstar
2 market capitalization data.⁸⁹ Based on Morningstar's analysis, that decile corresponds
3 to a size premium of 1.06 percent (*i.e.*, 106 basis points). Corning Gas's implied
4 market capitalization of approximately \$64.8 million falls within the tenth decile,
5 which comprises market capitalization levels up to \$300.73 million and corresponds
6 to a size premium of 5.78 percent (*i.e.*, 578 basis points). The difference between
7 those size premia is 472 basis points (*i.e.*, 5.78 percent minus 1.06 percent).

8 **Q. HAVE YOU CONSIDERED THE SMALLER SIZE OF CORNING GAS IN YOUR**
9 **RECOMMENDED ROE?**

10 A. Yes. I am proposing a small size adjustment of 50 basis points. The size difference
11 between Corning Gas and all of the other proxy companies is such that a 50 basis
12 point adjustment is reasonable.

13 **Q. IS THE USE OF A SMALL SIZE ADJUSTMENT SUPPORTED IN OTHER**
14 **JURISDICTIONS?**

15 A. Yes, it is. In Order 531-B, the FERC recognized the need to adjust for size
16 differences between the New England Transmission Owners and the S&P 500
17 companies.⁹⁰

⁸⁹ Morningstar, Inc., Ibbotson SBBI 2015 Classic Yearbook, at Table 7-5.

⁹⁰ FERC Order 531-B, at 117.

VIII. THREE-YEAR RATE PLAN

1 **Q. DOES THE COMPANY'S PROPOSED THREE-YEAR RATE PLAN HAVE ANY EFFECT**
2 **ON YOUR ROE RECOMMENDATION?**

3 A. Yes. As noted earlier in this testimony, Treasury yields and allowed ROEs are at or
4 near all-time lows largely as the result of the combined effects of the Federal
5 Reserve's monetary policy and a relatively slow economic recovery. As discussed in
6 Section IV of this testimony, interest rates are expected to increase over the course
7 of the three-year rate plan. Based on the Blue Chip Financial Forecast Consensus
8 estimate, the expectation is that the yield on the 30- year Treasury will increase 186
9 basis points from the current yield to 4.50% for the period 2017 to 2021.⁹¹ If those
10 expectations are realized, an ROE established based on economic conditions in 2016
11 will not reflect the investor expected return during the three-year rate period.

12 **Q. HOW DO YOU PROPOSE TO ADJUST THE ROE OVER THE RATE PLAN TO ADDRESS**
13 **EXPECTED CHANGES IN INTEREST RATES?**

14 A. The ROE could be adjusted to reflect the incremental risk of a three year rate plan
15 using two different approaches; a stay-out premium or an automatic adjustment
16 mechanism. Using either methodology the goal is to adjust the ROE to reflect the
17 expected changes in market conditions over the rate period. Based on the
18 expectation that interest rates are more likely to increase than decrease, as a practical

⁹¹ The 30-day average yield on the 30-year U.S. Treasury bond as of April 29, 2016, was 2.64 percent.

1 matter each of these approaches would be expected to establish a positive change to
2 the ROE to reflect changes in interest rates. Absent the use of some type of
3 adjustment, the recommended ROE of 10.20 percent may not provide Corning Gas
4 a return commensurate with the return available on investments of similar risk over
5 the term of the three-year rate plan.

6 **Q. HOW HAS NEW YORK TYPICALLY ESTIMATED A STAY-OUT PREMIUM?**

7 A. The Commission has typically set the measure of the risk and return trade-off using
8 one half of the yield spread between a one-year and three-year Treasury securities.

9 **Q. HOW CAN THE IMPLICATIONS OF A THREE-YEAR RATE PLAN BE BETTER**
10 **REFLECTED IN A STAY-OUT PREMIUM?**

11 A. In addition to the yield spread between the one-year and three-year Treasury
12 securities, it would be important to consider the yield spread between corporate
13 bonds of the same maturities. Using this methodology, the return associated with the
14 stay-out period would include one half of the yield spread between the one-year and
15 three-year Treasuries, as typically considered by the Commission, and the difference
16 in the yield spread between one-year and three-year Treasuries and one-year and
17 three-year corporate bonds.

18 **Q. HAVE YOU CALCULATED THE DIFFERENCE IN THE EXPECTED YIELD ON ONE-**
19 **YEAR AND THREE-YEAR TREASURIES?**

20 A. Schedule AEB-11 provides Federal Reserve data showing weekly yields on both
21 securities over the past six months. On average the yield on three-year Treasury

1 bonds was 51 basis points above the yield on one year debt. Thus, currently investors
2 require a 51 basis point premium over a twelve-month yield in order to lock in a
3 yield for an additional two years. Because this 51 basis point interest differential
4 relates to Treasury securities, the Commission's methodology typically reduces the
5 interest rate differential by 50 percent, which would result in a premium of 25.5 basis
6 points to the authorized ROE for an additional two-year stay-out period.

7 **Q. HAVE YOU ESTIMATED THE DIFFERENCE IN YIELD SPREAD BETWEEN ONE AND**
8 **THREE YEAR TREASURIES AND CORPORATE BONDS OF THE SAME MATURITIES?**

9 A. Yes. As shown in Schedule AEB-11, the difference in yield spread between one-year
10 and three-year Treasuries and one-year and three-year A rated corporate bonds is
11 approximately 11 basis points.

12 **Q. WHAT DO YOU PROPOSE AS THE STAY-OUT PREMIUM FOR A THREE-YEAR RATE**
13 **PLAN?**

14 A. Based on the analysis discussed above, the stay-out premium would be estimated in
15 two components: 1) 50 percent of the yield spread on the Treasury bonds (one-half
16 of the 51 basis point spread or 25.5 basis points) over the stay-out period, reflecting
17 the effect of the change in interest rates on ROE; and 2) the difference in yield
18 spreads on Treasury bonds and A-rated corporate bonds of 11 basis points, resulting
19 in a stay-out premium of approximately 37 basis points.

1 **Q. WHAT DO YOU PROPOSE AS AN ALTERNATIVE ADJUSTMENT MECHANISM?**

2 A. One approach would be to rely on the historical risk premium between authorized
3 ROEs and the yield on Treasury bonds. Schedule AEB-12 summarizes the results of
4 a risk premium analysis. This approach establishes the relationship between long-
5 term Treasury bond yields and authorized ROEs to estimate the risk premium over
6 Treasury bond yields. As shown in the regression equation presented in Schedule
7 AEB-12, the historical relationship between Treasury bond yields and equity returns
8 indicates that a 100 basis point increase in Treasury bond yields results in an increase
9 in the ROE of 44 basis points. This historical relationship would then form the basis
10 of the ROE adjustment mechanism.

11 **Q. ARE THERE ANY LIMITATIONS IN THE USE OF AN ROE ADJUSTMENT**
12 **MECHANISM?**

13 A. Yes, there are. The Treasury yields for the 21 year study period employed in the
14 linear regression analysis shown in Schedule AEB-12 varied between 2.55 percent
15 and 7.96 percent. If interest rate conditions move markedly outside of these
16 historical bounds, it might be necessary to consider modifications to the ROE
17 adjustment approach.

18 **Q. PLEASE SUMMARIZE YOUR CONCLUSION REGARDING THE EFFECT OF THE**
19 **THREE YEAR RATE PLAN ON THE ROE FOR CORNING GAS.**

20 A. The ROE that is recommended in this proceeding is developed for application for a
21 one-year period. It does not reflect the risks to Corning Gas of setting the ROE in

1 this case for the duration of a three-year period. With the expectation that interest
2 rates are more likely to increase during that three-year period than decrease, it would
3 be imprudent for Corning Gas to establish a 10.20 percent ROE for the duration of
4 the three-year rate plan without some form of compensation for the incremental
5 interest rate risk. Both the stay-out premium and the ROE adjustment mechanism
6 are reasonable approaches to provide Corning Gas with a fair authorized ROE over
7 the duration of the three-year rate plan should economic conditions vary from
8 current market conditions, as expected.

IX. CAPITAL STRUCTURE

9 **Q. PLEASE SUMMARIZE THE COMPANY'S PROPOSED CAPITAL STRUCTURE.**

10 A. Corning Gas is requesting a 50.0 percent equity ratio for ratemaking purposes, which
11 is consistent with recent Commission precedent regarding the authorized capital
12 structure for utilities.⁹²

⁹² See generally Case 14-E-0493, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service, Case 14-G-0494, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Gas Service, Case 14-E-0318, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Central Hudson Gas & Electric Corporation for Electric Service, Case 14-G-0319, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Central Hudson Gas & Electric Corporation for Gas Service, and Case 15-E-0050, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.

1 **Q. HAVE YOU CONDUCTED ANY ANALYSIS OF CORNING GAS'S PROPOSED CAPITAL**
2 **STRUCTURE AS COMPARED WITH THE PROXY COMPANIES?**

3 A. Yes. I have reviewed the authorized capital structures of the regulated utility
4 operating companies in the Combined Utility and Natural Gas Proxy Groups for the
5 period from 2011 through 2015. As shown on Schedules AEB-13 and AEB-14, the
6 mean annual equity ratio of the proxy companies over that period was 54.02 percent
7 for the Combined Utility Group and 56.27 percent for the Natural Gas Proxy
8 Group. It is important to note that over this period, on average, the equity ratios of
9 the regulated operating subsidiaries of the proxy companies have been increasing.
10 For example, the Natural Gas Proxy Group average equity ratio increased from
11 55.99 percent in 2011 to 56.87 percent in 2014.

12 **Q. YOU HAVE SHOWN THAT BOOK EQUITY RATIOS FOR THE OPERATING**
13 **SUBSIDIARIES OF THE PROXY GROUP HOLDING COMPANIES ARE GREATER THAN**
14 **50 PERCENT. ARE THE ACTUAL ALLOWED EQUITY RATIOS FOR THESE ENTITIES**
15 **ALSO GREATER THAN 50 PERCENT?**

16 A. Yes, they are. In fact, allowed equity ratios for the natural gas and electric utility
17 industry are greater than 50 percent. Schedules AEB-15 and AEB-16 show that the
18 average equity ratio most recently allowed is 50.98 percent for the companies in the
19 Combined Utility Proxy Group and 52.42 percent for the companies in the Natural
20 Gas Proxy Group.

1 **Q. SCHEDULES AEB-15 AND AEB-16 INDICATE THAT THE 50.98 PERCENT AND**
2 **52.42 PERCENT EQUITY RATIOS ARE “ADJUSTED” EQUITY RATIOS. PLEASE**
3 **EXPLAIN WHY IT IS NECESSARY TO EMPLOY ADJUSTED EQUITY RATIOS IN YOUR**
4 **ANALYSIS.**

5 A. Unlike most utility commissions that reflect cash flows produced by deferred taxes
6 and other credits as a reduction to rate base, the utility commissions in Arkansas,
7 Florida, Indiana, and Michigan do not reduce rate base but rather include these tax
8 related items as zero or very low cost items in the allowed capital structure.
9 Inclusion of these additional low or no cost capital items will have the impact of
10 reducing both the equity and debt ratios used to establish the rate of return which, in
11 turn, produces results that are not comparable to allowed equity ratios in other states.
12 As such it is necessary to remove the zero cost items to put the debt and equity ratio
13 components of the allowed capital structure on a common basis with all other
14 utilities. Schedules AEB-15 and AEB-16 show how I performed this calculation to
15 adjust equity ratios for the utilities operating in these four states.

16 **Q. WHAT DO YOU CONCLUDE FROM THE ANALYSES EXAMINING THE ALLOWED**
17 **AND BOOK EQUITY RATIOS OF THE COMPANIES IN THE PROXY GROUP?**

18 A. Corning Gas’s request for a 50.0 percent equity ratio is conservative as compared
19 with the allowed ratios of the proxy companies. Utility operating subsidiaries owned
20 by holding companies with business characteristics similar to those of Corning Gas
21 have maintained average common equity ratios that are considerably higher than the

1 50.0 percent equity ratio that the Company is requesting. These higher proxy group
2 equity ratios reflect a level of financial risk that is lower than the financial risk
3 implied by the proposed 50 percent equity ratio for Corning Gas.

4 **Q. DOES THE USE OF A 50.0 PERCENT EQUITY RATIO HAVE ANY IMPLICATIONS FOR**
5 **YOUR RECOMMENDATION CONCERNING THE COMPANY'S ROE?**

6 A. Yes. The average allowed ratio of the proxy companies is higher than 50.0 percent,
7 which means that all else equal, the proxy companies have lower financial risk than is
8 implied by the 50.0 percent equity ratio proposed by the Company. The use of a
9 lower equity ratio than the proxy companies further supports an ROE at the high
10 end of the range of results presented in Table 7 below.

X. CONCLUSION AND RECOMMENDATION

11 **Q. WHAT IS YOUR CONCLUSION REGARDING A FAIR RETURN ON BOOK EQUITY FOR**
12 **CORNING GAS?**

13 A. My recommended return on book equity considers the results of the DCF and
14 CAPM models, summarized in Table 7, and the specific risks to which the Company
15 is exposed. The range established based on an equal weighting of the DCF and
16 CAPM results is between 10.20 percent and 10.74 percent. The Company's
17 requested ROE of 10.20 percent is reasonable, conservative, and should be adopted.

1

Table 7: Summary of Analytical Results

Natural Gas Proxy Group			
	Low	Mean	High
DCF	8.44%	8.69%	8.96%
Mean CAPM	10.96%	11.08%	11.34%
Mean ROE (50/50 weighting)	9.70%	9.91%	10.15%
Size Premium	0.50%	0.50%	0.50%
Range	10.20%	10.41%	10.65%
Combined Utility Proxy Group			
	Low	Mean	High
DCF	8.86%	9.05%	9.27%
Mean CAPM	10.82%	10.94%	11.21%
Mean ROE (50/50 weighting)	9.84%	10.02%	10.24%
Size Premium	0.50%	0.50%	0.50%
Range	10.34%	10.52%	10.74%

2

3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 A. Yes, it does.

**ANN E. BULKLEY
VICE PRESIDENT**

Ms. Bulkley has nearly two decades of management and economic consulting experience in the energy industry. Ms. Bulkley has extensive state and federal regulatory experience on both electric and natural gas issues including rate of return, cost of equity and capital structure issues. Ms. Bulkley has advised clients seeking to acquire utility assets, providing valuation services including an understanding of regulation, market expected returns, and the assessment of utility risk factors. Ms. Bulkley has assisted clients with valuations of public utility and industrial properties for ratemaking, purchase and sale considerations, ad valorem tax assessments, and accounting and financial purposes. In addition, Ms. Bulkley has experience in the areas of contract and business unit valuation, strategic alliances, market restructuring and regulatory and litigation support.

REPRESENTATIVE PROJECT EXPERIENCE

Regulatory Analysis and Ratemaking

Ms. Bulkley has provided a range of advisory services relating to regulatory policy analysis and many aspects of utility ratemaking. Specific services have included: cost of capital and return on equity testimony, cost of service and rate design analysis and testimony, development of ratemaking strategies; development of merchant function exit strategies; analysis and program development to address residual energy supply and/or provider of last resort obligations; stranded costs assessment and recovery; performance-based ratemaking analysis and design; and many aspects of traditional utility ratemaking (e.g., rate design, rate base valuation).

Cost of Capital

Ms. Bulkley has provided expert testimony on the cost of capital testimony before several state regulatory commissions. In addition, Ms. Bulkley has prepared and provided supporting analysis for at least forty Federal and State regulatory proceedings over the past seven years. Ms. Bulkley's expert testimony experience includes:

- Northern States Power Company: Before the North Dakota Public Service Commission, provided expert testimony on the cost of capital for the company's North Dakota electric utility operations.
- WE Energies: Before the Michigan Public Service Commission, provided expert testimony in support of the company's cost of capital for its electric utility operations.
- Atmos Energy: Provided expert testimony in support of the company's return on equity and capital structure before the Public Utilities Commission for the State of Colorado.
- UNS Electric: Provided expert testimony in support of the company's return on equity and capital structure before the Arizona Corporation Commission.

- Portland Natural Gas Transmission: Provided testimony strategy as well as analytical support for cost of capital testimony before the Federal Energy Regulatory Commission.
- In addition to the specific cases listed above, Ms. Bulkley has provided testimony strategy as well as analytical support on cost of capital in several cases in the following states: Arizona, Colorado, Connecticut, Massachusetts, Minnesota, New Mexico, New York, North Carolina, South Carolina, South Dakota, Virginia, and Utah.

Valuation

Ms. Bulkley has provided valuation services to utility clients, unregulated generators and private equity clients for a variety of purposes including ratemaking, fair value, ad valorem tax, litigation and damages, and acquisition. Ms. Bulkley's appraisal practices are consistent with the national standards established by the Uniform Standards of Professional Appraisal practice. In addition, Ms. Bulkley has relied on other simulation based valuation methodologies.

Representative projects/clients have included:

- Northern Indiana Fuel and Light: Provided expert testimony regarding the fair value of the company's natural gas distribution system assets. Valuation relied on cost approach.
- Kokomo Gas: Provided expert testimony regarding the fair value of the company's natural gas distribution system assets. Valuation relied on cost approach.
- Prepared fair value rate base analyses for Northern Indiana Public Service Company for several electric rate proceedings. Valuation approaches used in this project included income, cost and comparable sales approaches.
- Confidential Utility Client: Prepared valuation of fossil and nuclear generation assets for financing purposes for regulated utility client.
- Prepared a valuation of a portfolio of generation assets for a large energy utility to be used for strategic planning purposes. Valuation approach included an income approach, a real options analysis and a risk analysis.
- Assisted clients in the restructuring of NUG contracts through the valuation of the underlying assets. Performed analysis to determine the option value of a plant in a competitively priced electricity market following the settlement of the NUG contract.
- Prepared market valuations of several purchase power contracts for large electric utilities in the sale of purchase power contracts. Assignment included an assessment of the regional power market, analysis of the underlying purchase power contracts, a traditional discounted cash flow valuation approach, as well as a risk analysis. Analyzed bids from potential acquirers using income and risk analysis approached. Prepared an assessment of the credit issues and value at risk for the selling utility.
- Prepared appraisal of a portfolio of generating facilities for a large electric utility to be used for financing purposes.
- Prepared an appraisal of a fleet of fossil generating assets for a large electric utility to establish the value of assets transferred from utility property.
- Conducted due diligence on an electric transmission and distribution system as part of a buy-side due diligence team.

- Provided analytical support for and prepared appraisal reports of generation assets to be used in ad valorem tax disputes.
- Provided analytical support and prepared testimony regarding the valuation of electric distribution system assets in five communities in a condemnation proceeding.
- Valued purchase power agreements in the transfer of assets to a deregulated electric market.

Ratemaking

Ms. Bulkley has assisted several clients with analysis to support investor-owned and municipal utility clients in the preparation of rate cases. Sample engagements include:

- Assisted several investor-owned and municipal clients on cost allocation and rate design issues including the development of expert testimony supporting recommended rate alternatives.
- Worked with Canadian regulatory staff to establish filing requirements for a rate review of a newly regulated electric utility. Analyzed and evaluated rate application. Attended hearings and conducted investigation of rate application for regulatory staff. Prepared, supported and defended recommendations for revenue requirements and rates for the company. Developed rates for gas utility for transportation program and ancillary services.

Strategic and Financial Advisory Services

Ms. Bulkley has assisted several clients across North America with analytically based strategic planning, due diligence and financial advisory services.

Representative projects include:

- Preparation of feasibility studies for bond issuances for municipal and district steam clients.
- Assisted in the development of a generation strategy for an electric utility. Analyzed various NERC regions to identify potential market entry points. Evaluated potential competitors and alliance partners. Assisted in the development of gas and electric price forecasts. Developed a framework for the implementation of a risk management program.
- Assisted clients in identifying potential joint venture opportunities and alliance partners. Contacted interviewed, and evaluated potential alliance candidates based on company-established criteria for several LDCs and marketing companies. Worked with several LDCs and unregulated marketing companies to establish alliances to enter into the retail energy market. Prepared testimony in support of several merger cases and participated in the regulatory process to obtain approval for these mergers.
- Assisted clients in several buy-side due diligence efforts, providing regulatory insight and developing valuation recommendations for acquisitions of both electric and gas properties.

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2002 – Present)

Vice President
Assistant Vice President
Project Manager

Navigant Consulting, Inc. (1995 – 2002)

Project Manager

Cahners Publishing Company (1995)

Economist

EDUCATION

M.A., Economics, Boston University, 1995
B.A., Economics and Finance, Simmons College, 1991
Certified General Appraiser licensed in the Commonwealth of Massachusetts

EXPERT TESTIMONY OF ANN E. BULKLEY

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
Tucson Electric Power	10/15	Tucson Electric Power	Docket No. E-01933A-15-0322	Return on Equity
UNS Electric	12/12	UNS Electric	Docket No. E-04204A-12-0504	Return on Equity
UNS Electric	05/15	UNS Electric	Docket No. E-04204A-15-0142	Return on Equity
Arkansas Public Service Commission				
Arkansas Oklahoma Gas Corporation	10/13	Arkansas Oklahoma Gas Corporation	Docket No. 13-078-U	Return on Equity
Colorado Public Utilities Commission				
Atmos Energy Corporation	05/13	Atmos Energy Corporation	Docket No. 13AL-0496G	Return on Equity
Atmos Energy Corporation	04/14	Atmos Energy Corporation	Docket No. 14AL-0300G	Return on Equity
Atmos Energy Corporation	05/15	Atmos Energy Corporation	Docket No. 15AL-0299G	Return on Equity
Indiana Utility Regulatory Commission				
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Kokomo Gas And Fuel Company	09/10	Kokomo Gas And Fuel Company	Cause No. 43942	Fair Value

SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Northern Indiana Fuel And Light Company, Inc.	09/10	Northern Indiana Fuel And Light Company, Inc.	Cause No. 43943	Fair Value
Northern Indiana Public Service Company	10/15	Northern Indiana Public Service Company	Cause No.	Fair Value
Kansas Corporation Commission				
Atmos Energy Corporation	08/15	Atmos Energy Corporation	Docket No. 16-ATMG-079-RTS	Return on Equity
Massachusetts Department of Public Utilities				
Unitil Corporation	01/04	Fitchburg Gas and Electric	DTE 03-52	Integrated Resource Plan; Gas Demand Forecast
Michigan Public Service Commission				
Wisconsin Electric Power Company	12/11	Wisconsin Electric Power Company	Case No. U-16830	Return on Equity
Michigan Tax Tribunal				
Covert Township	07/14	New Covert Generating Co., LLC.	Docket No. 399578	Valuation of Electric Generation Assets

New Mexico Public Regulation Commission				
Southwestern Public Service	06/15	Southwestern Public Service	C-15-001398-UT	Return on Equity
Southwestern Public Service	10/15	Southwestern Public Service	C-15-00296-UT	Return on Equity
New York State Department of Public Service				
New York State Electric and Gas Company	05/15	New York State Electric and Gas Company	Case No. 15-G-0284	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-	Return on Equity
North Dakota Public Service Commission				
Northern States Power Company	12/10	Northern States Power Company	C-PU-10-657	Return on Equity
Northern States Power Company	12/12	Northern States Power Company	C-PU-12-813	Return on Equity
Oklahoma Corporation Commission				
Arkansas Oklahoma Gas Corporation	01/13	Arkansas Oklahoma Gas Corporation	Cause No. PUD 201200236	Return on Equity
Public Utility Commission of Texas				
Southwestern Public Service Company	01/14	Southwestern Public Service Company	Docket No. 42004	Return on Equity
South Dakota Public Utilities Commission				
Northern States Power Company	06/14	Northern States Power Company	Docket No. EL14-058	Return on Equity