

Before the Public Service Commission

CENTRAL HUDSON GAS AND ELECTRIC CORPORATION

Direct Testimony

of

ANN E. BULKLEY

**(SENIOR VICE PRESIDENT OF
CONCENTRIC ENERGY ADVISORS, INC.)**

Dated: July 28, 2017

Testimony of Ann E. Bulkley

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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 Senior Vice President of Concentric Energy
3 Advisors, Inc. (“Concentric”), located at 293 Boston Post Road West, Suite 500,
4 Marlborough, Massachusetts 01752.

5 **Q. On whose behalf are you submitting this Direct Testimony?**

6 A. I am submitting this Direct Testimony on behalf of Central Hudson Gas &
7 Electric Corporation (“Central Hudson” or the “Company”), which is a wholly-
8 owned subsidiary of Fortis, Inc. (“Fortis”). My Direct Testimony is part of the
9 Company’s rate case filing before the New York State Public Service
10 Commission (“Commission” or “PSC”).

11 **Q. Please describe your experience in the energy and utility 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
16 for ratemaking and valuation purposes. I have included my resume and a
17 summary of testimony that I have filed in other proceedings as Attachment A.

1 **Q. Please describe Concentric’s activities in energy and utility engagements.**

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

12

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 recommendation for the Company’s cost of equity (sometimes referred to as the
16 return on equity or “ROE”) and to assess the reasonableness of the Company’s
17 proposed capital structure for rate-setting purposes for its electric and gas
18 distribution utility operations. My analysis and recommendations are supported

1 by the data presented in Exhibits __ (AEB-1) through __ (AEB-14) that were
2 prepared by me or under my direction.

3 **Q. Please provide a brief overview of the analyses that led to your ROE**
4 **recommendation.**

5 A. As discussed in more detail below, it is important to consider the results of several
6 analytical approaches in estimating the cost of equity. To establish my ROE
7 recommendation, I developed a proxy group of companies that are combination
8 electric and gas utilities that face investment risk generally comparable to that of
9 Central Hudson. I developed a multi-stage Discounted Cash Flow (“DCF”)
10 model and two forms of the Capital Asset Pricing Model (“CAPM”). I weighted
11 the results of the two CAPM analyses equally, and then, for an overall
12 recommendation, I equally weighted the averaged CAPM result and the multi-
13 stage DCF analysis.

14 The use of a multi-stage DCF model and two forms of the CAPM is consistent
15 with the approach employed by the Commission in prior cases. While my equal
16 weighting of the DCF and CAPM results does not conform to the weighting that
17 has been used in proceedings before the NYPSC in the past 20 years, I explain
18 why placing less emphasis on the DCF model at this time is consistent with the
19 goals of the Recommended Decision issued in the Generic Finance Proceeding.¹

¹ Case 91-M-0509 is the docket in which the ROE framework was established that the Commission has generally relied on in subsequent decisions since the issuance of the Recommended Decision.

1 **Q. Please summarize the results of the ROE estimation models that you**
 2 **considered in your analyses.**

3 A. As noted above, I considered the results of the multi-stage form of the DCF model
 4 and two versions of the CAPM. The results of my analyses are summarized in
 5 Table 1.

6 **Table 1: Summary of Analytical Results²**

	Low	Mean	High
Multi-Stage DCF	8.92%	9.12%	9.35%
Mean CAPM	10.59%	10.72%	10.94%
Mean ROE (50:50 weighting)	9.76%	9.92%	10.15%
Mean ROE (2/3:1/3 weighting)	9.48%	9.66%	9.88%
FERC DCF Methodology	9.21%	9.39%	9.56%

7
 8 The DCF results in Table 1 reflect the results of the models using low, average
 9 and high growth rate assumptions. The range of results for the CAPM is based on
 10 three interest rate scenarios: a historical average; a five-quarter projection; and a
 11 long-term projection. As discussed in more detail in the remainder of my
 12 testimony, the DCF model results are currently under-estimating the cost of equity
 13 due to the low interest rate environment and the correspondingly low dividend
 14 yields for utility stocks. While it is difficult to adjust the DCF model to reflect
 15 expected market conditions, the assumptions used in the CAPM can be adjusted
 16 to reflect projected interest rates over the rate period. Due to the unsustainably

² See Exhibit AEB-1 and AEB-4.

1 low dividend yields, investors' expectations for rising interest rates, and the
2 flexibility of the CAPM to adjust for these changing market conditions, it is
3 appropriate to weight the results of the DCF and CAPM models equally.

4 **Q. What are your conclusions regarding the appropriate cost of equity for**
5 **Central Hudson?**

6 A. Based on the quantitative and qualitative analyses discussed throughout my Direct
7 Testimony and an equal weighting of the DCF and CAPM results, I conclude that
8 the appropriate ROE is within the range of 9.48 percent and 10.15 percent. The
9 Company is requesting an ROE of 9.50 percent, which is at the low end of the
10 range of reasonableness and is a conservative estimate of the investor-required
11 ROE. Based on my assessment of the business and financial risks of Central
12 Hudson relative to the proxy group, the Company's requested ROE is reasonable,
13 if not conservative.

14 **Q. Please summarize your analysis of the appropriate ratemaking capital**
15 **structure for the Company.**

16 A. The Company's requested equity ratio of 50.00 percent is below the mean equity
17 ratio of 53.68 percent for the operating utility companies in my proxy group over
18 the last four years. Therefore, I conclude that the Company's requested equity
19 ratio is reasonable, if not conservative.

1 **Q. How is the remainder of your Direct Testimony organized?**

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

3 Section III – Discusses the regulatory guidelines pertinent to the
4 development of the cost of capital;

5 Section IV – Discusses the current and prospective conditions in capital
6 markets and the effect of those conditions on the
7 Company’s cost of equity;

8 Section V - Explains my selection of the proxy group of electric and
9 gas distribution utilities used to develop my analyses;

10 Section VI – Explains my analyses and the analytical bases for my ROE
11 recommendation;

12 Section VII – Summarizes the business and regulatory risks of Central
13 Hudson relative to the proxy group companies;

14 Section VIII – Provides an assessment of the Company’s proposed capital
15 structure;

16 Section IX – Provides an assessment of the effect of a multi-year rate
17 plan on the authorized ROE; and

18 Section X – Summarizes my conclusions and recommendations.

19

III. REGULATORY GUIDELINES

1 **Q. Please describe the guiding principles to be used in establishing the cost of**
2 **capital for a regulated utility.**

3 A. The United States Supreme Court's *Hope* and *Bluefield* cases established the
4 standards for determining the reasonableness of a utility's allowed ROE. Among
5 the standards established by the Court in those cases are:

6 (1) Comparable return standard: consistency with the returns on equity
7 investments in other businesses having similar or comparable risks;

8 (2) Financial integrity standard: adequacy of the return to support credit
9 quality; and

10 (3) Capital attraction standard: adequacy of the return to provide the
11 company access to capital on reasonable terms.

12 The *Hope* decision is also based on an understanding that the means of arriving at
13 a fair return are not controlling, only that the end result leads to just and
14 reasonable rates.³

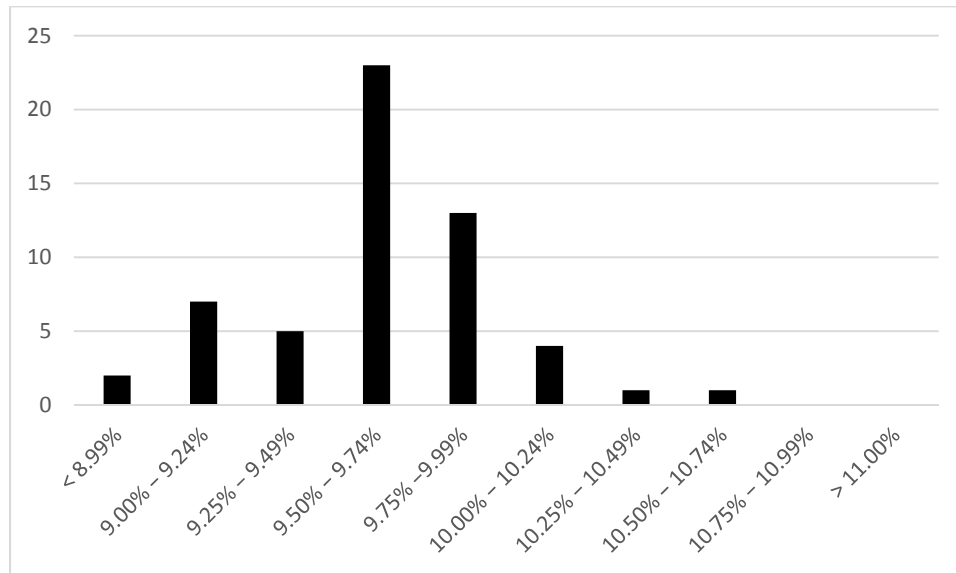
15 In summary, the authorized ROE should enable the Company to finance capital
16 expenditures at reasonable rates and maintain its financial integrity over the
17 period during which rates are expected to remain in effect.

³ *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. How can the Commission assess whether the allowed ROE for Central**
 2 **Hudson satisfies the Comparable Return Standard?**

3 A. The best measure of whether the Commission’s authorized ROE for Central
 4 Hudson satisfies the comparable return standard is to compare it with recently
 5 authorized returns on equity for electric distribution utilities and gas distribution
 6 companies in other jurisdictions excluding New York, as shown in Chart 1.

7 **Chart 1: Authorized ROE – Electric and Gas Utilities – 2015-2017⁴**



8
 9
 10 As shown in Chart 1 the vast majority (40 out of 56, or approximately 71 percent)
 11 of authorized ROEs during this period for electric distribution utilities and gas
 12 distribution companies nationwide have been within a range from 9.50 percent to
 13 10.24 percent. While the majority of regulatory jurisdictions across the country

⁴ Source: Regulatory Research Associates.

1 have consistently authorized ROEs well above 9.00 percent, the last 13 New York
2 settlement agreements have resulted in an ROE of 9.00 percent, and the most
3 recent litigated rate case in New York resulted in an authorized ROE of 8.70
4 percent for National Fuel Gas. As discussed in more detail in Section VII, there
5 are not significant differences in the business, regulatory and financial risks of
6 Central Hudson (or other New York utilities) that would account for the large
7 differential in the authorized ROE as compared with the nationwide range of
8 returns.

9 **Q. Has the Commission conducted a proceeding to review the standard for**
10 **estimating the cost of equity for a regulated utility?**

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

15 **Q. Why did the Commission initiate the GFP and what was its purpose?**

16 A. The GFP was initiated because the Commission recognized that the DCF method
17 was particularly sensitive to interest rate fluctuations and was producing returns
18 far below those of other methodologies.⁶ The Commission’s goal in opening the
19 GFP was to reduce controversy around ROE calculations and to attempt to find

⁵ 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), at 2.

⁶ *Id.*

1 common ground on contentious issues by developing a consensus approach for
2 setting utility equity returns.

3 The Commission examined whether there should be greater consistency in rate of
4 return determinations from company to company, such that differences in
5 authorized returns could be directly attributed to differences in risk between
6 companies. In addition, the Commission examined whether its historical reliance
7 on the DCF method continued to provide fair returns.⁷ The Commission’s inquiry
8 considered the merits of a generic process to reduce redundancy in litigating
9 equity returns, and sought a robust, but standardized, approach to setting ROE
10 such that allowed returns were commensurate with the risk of the individual
11 company and would not be skewed by the shortcomings of a single methodology.

12 **Q. What conclusions were outlined in the Recommended Decision of the GFP?**

13 A. Ultimately, the Recommended Decision (“RD”) concluded that the Commission
14 should implement a generic process for setting equity returns, based on proxy
15 groups (not company-specific data), and that sole reliance on the DCF method
16 should be replaced with a combination of the DCF and CAPM methods. The RD
17 proposed, as a preferred convention, a respective 2/3 – 1/3 weighting of the
18 results of the DCF and CAPM analyses. The RD recognized that the CAPM
19 “should figure prominently in the analysis” because this methodology considers
20 fundamental information on interest rates and the returns required by equity

⁷ *Id.*, at 13-14.

1 investors based on changes in interest rates. At that time, the CAPM was not
2 accorded the same level of prominence as the DCF analysis, given that the former
3 had previously been used only as a check.⁸

4 While the RD recognized that there was a benefit to establishing an “operating
5 norm” with respect to weighting the results of the DCF and CAPM method, it also
6 recognized that there may be good reason to either adjust the weightings of the
7 DCF and CAPM methods or to rely on different ROE estimation models.

8 Specifically, the RD provided the following guidance:

9 In either an annual-proceeding to determine a rate of return or
10 in individual proceedings, the 2/3 DCF and 1/3 CAPM
11 convention should be the presumption, but as Multiple
12 Intervenors suggest, parties would not be barred from
13 introducing new methods or different weightings. Such
14 parties, however, would have the burden of convincing other
15 parties and the Commission of the relevance or superiority of
16 their proposals.⁹
17

18 To establish the “operating norm,” the RD recommended specific forms of the
19 ROE estimation models – a two-stage DCF approach and a Traditional and Zero
20 Beta CAPM. Although the GFP RD was never formally adopted by the
21 Commission, it has served as a touchstone for the Commission’s ROE
22 determinations for the past 20 years.

⁸ *Id.*, at 27.

⁹ *Id.*

1 **Q. Does your ROE analysis meet the intentions of the GFP RD?**

2 A. Yes. As discussed in greater detail in Section VI, the methodologies that I have
3 applied to estimate the cost of equity for Central Hudson are consistent with
4 Commission precedent since the RD in the GFP. Moreover, the models used in
5 my analysis extend the principles advanced in the RD to best practices in financial
6 analysis and current capital market conditions, as was contemplated in the RD.
7 Specifically, I rely on the weighted results of the DCF and CAPM methods to
8 estimate the return on equity for a proxy group of risk-comparable companies.
9 My multi-stage DCF model is consistent with the methodology the Commission
10 has relied on in that it allows growth rates to vary over time. As discussed in
11 more detail in Section VI, I have adjusted the multi-stage DCF model to rely on
12 market measures of long-term growth rather than the internal growth rate
13 calculation that has typically been relied on by the Department of Public Service
14 Staff (“Staff”). Consistent with the fundamental principles applied by the
15 Commission, I have applied two versions of the CAPM: Traditional and Zero
16 Beta. Finally, because of the effect of capital market conditions on the
17 assumptions used in the DCF model, my ROE recommendation is based on an
18 equal weighting of the DCF and CAPM results. The use of both the DCF and
19 CAPM models in setting the ROE is consistent with the principles of the GFP and
20 the Commission’s precedent.

1 **Q. Do the principles and intentions of the RD in the GFP require adherence to a**
2 **static formula?**

3 A. No. The GFP RD does not require rote adherence to a static formula. The
4 Commission's decision to open the GFP and the subsequent RD promoted the
5 same principles and intentions as are in practice today. The Commission
6 recognized that the DCF model was not providing reasonable results compared
7 with other methodologies due to conditions in financial markets. Further, the
8 results were not reflective of the risks of the individual companies involved in rate
9 proceedings. Therefore, the Commission sought to re-examine the methodologies
10 relied on and to restructure the process to achieve a more reasonable result.

11 The RD recognized the benefit of using multiple approaches for setting ROE.
12 Although it found benefits to a preferred convention for setting ROE, it did not
13 prohibit parties from introducing new cost of capital estimation methods or
14 weightings. The RD specifically recognized that there may be circumstances
15 under which departures from the weightings that were established at that time
16 would be warranted, and that it may be reasonable to consider the results of other
17 methodologies.

18 Capital market conditions vary widely over time, and each of the ROE estimation
19 methodologies (*e.g.*, DCF and CAPM) may be affected differently by those
20 conditions. Accordingly, it is incumbent on the analyst to review the results of
21 the analyses and exercise judgment as to how to weight those results in the overall

1 ROE determination. The RD demonstrates that there was some uncertainty
2 around the weighting of the DCF and CAPM methods, and the RD indicates a
3 willingness to revisit the appropriate weightings in the future.¹⁰

4 **Q. Has the Commission continued to consider modifications to its regulatory**
5 **approach as industry and market conditions have changed?**

6 A. Yes. For example, in its current New York Reforming the Energy Vision (“NY
7 REV”) docket, Case 14-M-0101, the Commission is considering ways to update
8 the traditional utility regulatory model with new, innovative approaches suitable
9 to current industry circumstances. Likewise, it is equally appropriate for the
10 Commission to consider whether the approach used to estimate the cost of equity
11 continues to satisfy the intent and principles of the RD under current capital
12 market conditions and whether the returns produced by that approach meet the
13 requirements of *Hope* and *Bluefield*.

14 The Commission has also demonstrated flexibility in modifying the inputs and
15 assumptions to the financial models used to estimate the cost of equity as market
16 conditions change. For example, in its decision in Case 06-E-1433, the
17 Commission changed its calculation of the market return used in the estimation of
18 the market risk premium in the CAPM. Specifically, the Commission recognized
19 that historical returns published by Ibbotson were stale and less reliable and
20 therefore began relying on projected returns published by Merrill Lynch. In that

¹⁰ Case 91-M-0509, Recommended Decision, at 27.

1 same case, the Commission recognized that six-month average stock prices could
2 be “stale.”¹¹ Currently, the Commission’s methodology relies on three-month
3 average stock prices. These types of changes demonstrate that the Commission
4 has been willing to consider modifications to the ROE estimation methodology to
5 reflect changes in market conditions.

6 Finally, it is important to note that the Commission decision in Case 06-E-1433
7 did not state that it would never consider changing the weights on the ROE
8 estimation methodologies. Rather, the Commission’s conclusion at that time,
9 nearly ten years ago, was that it was “not *now* inclined to deviate from our long-
10 held view that the CAPM should not be entitled to more than one-third of the
11 weight.”¹² The Commission explicitly left open the possibility that there could be
12 a point in the future when it would be appropriate to consider such a change.

13 **Q. What was Staff’s position in the GFP regarding the reasonableness of the**
14 **traditional DCF analysis?**

15 A. In the GFP, Staff recognized that the volatility in the Commission’s returns was
16 related to reliance on the DCF model and that the DCF analysis produced lower
17 returns when stocks are selling above book value. Specifically, the GFP RD
18 noted:

¹¹ Case 06-E-1433, at 11.

¹² *Id.*, at 15 (emphasis added).

1 Staff, too, contends that the volatility of the Commission’s
2 returns over past periods justifies relying on a multi-method
3 approach. Staff argues that reliance on traditional DCF
4 analysis produces reasonable results over time, *but that at any*
5 *specific time it could produce (and in the past has produced)*
6 *inconsistent results.* Further, staff says that the DCF approach
7 tends to produce returns higher than necessary when stocks are
8 selling below book, and lower than necessary when stocks are
9 selling above book. *In staff’s view, DCF-based results are in*
10 *no way superior to those obtained using other methods, even*
11 *though the DCF, on average, has been unbiased over time.*¹³
12

13 **Q. Has Staff acknowledged in recent rate case proceedings that the DCF model**
14 **may not be producing reasonable results under current market conditions?**

15 A. Yes. For example, in Case 16-G-0369, the Staff Finance Panel explained that
16 recent market conditions such as Britain’s exit from the European Union as well
17 as longer-term market conditions, such as the Federal Reserve’s decision to “go
18 slow” in raising interest rates, have resulted in an increase in the price of utility
19 stocks, as investors search for safe investments.¹⁴ Staff recognized that these
20 conditions have affected the ROE estimation models, and proposed as an
21 alternative that the Commission address this issue by moving from reliance on the
22 midpoint result of the DCF analysis to the average DCF result. In addition, Staff
23 offered the Commission three additional options for estimating the ROE: 1) do
24 not update the analysis from the March 2016 data, due to current market
25 distortions; 2) adjust the averaging period to rely on a longer period of historical

¹³ GFP RD, at 25 (emphasis added).

¹⁴ Prepared Testimony of Staff Finance Panel, at 54-55.

1 data, and 3) rely on a construct similar to the FERC methodology for estimating
2 the ROE.¹⁵

3 While this testimony demonstrates that Staff recognizes the effect of market
4 conditions on the results of the DCF model, the proposed adjustment does nothing
5 to better reflect investors' expectations about market conditions during the period
6 that the rates established in this case will be in effect because it continues to rely
7 on the same weighting of the results from a DCF approach that Staff readily
8 admits may not be functioning optimally, at this time.

9 **Q. Why do you believe that current conditions in capital markets support**
10 **reconsideration of the weight placed on the DCF and CAPM methodologies?**

11 A. When the RD was issued in the GFP in 1991, one of the primary concerns
12 identified by the Commission was that the low interest rate environment was
13 causing the DCF model to understate investors' return requirements.¹⁶ The
14 Commission also noted that there was nothing sacrosanct about the DCF return on
15 equity analysis.¹⁷ The average daily yield on 30-year Treasury bonds in 1991 was
16 8.14 percent, whereas the average daily yield on 30-year Treasuries in the first
17 five months of 2017 has been 3.00 percent. If the interest rate environment in
18 1991 was sufficient reason for the GFP RD to conclude that placing one-third
19 weight on the CAPM results was appropriate, then the current interest rate

¹⁵ *Id.*, at 55-59.

¹⁶ 1994 N.Y. PUC Lexis 141, *37.

¹⁷ *Id.*

1 environment should provide sufficient basis for the Commission to conclude that
2 the weighting of the DCF and CAPM methodologies should be modified again in
3 this case.

4 **Q. Why is flexibility of approach and informed judgment important to ROE**
5 **determination?**

6 A. When faced with the task of estimating the cost of equity, analysts benefit from
7 gathering and evaluating as much relevant data (both quantitative and qualitative)
8 as can be reasonably analyzed. Analysts and academics understand that ROE
9 models are tools to be used in the ROE estimation process, and that strict
10 adherence to any single approach, or the specific results of any single approach,
11 can lead to flawed conclusions. No model can exactly pinpoint the correct return
12 on equity; rather, each model brings its own perspective and set of inputs that
13 inform the ROE estimate. Recall the *Hope* finding that “[u]nder the statutory
14 standard of ‘just and reasonable,’ it is the result reached, not the method
15 employed, which is controlling.”¹⁸

16 Although each model brings a different perspective, each model also has its own
17 inherent weaknesses and should not be relied upon individually without
18 corroboration from other approaches. Changes to assumptions due to changes in
19 economic conditions could have widely divergent impacts on the results of the
20 various analyses. Regardless of which analyses are performed to estimate the

¹⁸ *Hope*, 320 U.S., at 602.

1 investor's required ROE, the analyst must apply informed judgment to assess the
2 reasonableness of results and to determine the best weighting to apply under
3 prevailing capital market conditions. No one model can reliably and consistently
4 estimate the cost of capital that meets the fairness standard of *Hope* and *Bluefield*
5 in all market conditions.
6

IV. CAPITAL MARKET CONDITIONS

7 **Q. Why is it important to analyze capital market conditions?**

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

1 estimation models will not provide an accurate estimate of investors' required
2 return during that rate period.

3 **Q. What factors are affecting the cost of equity for regulated utilities in the**
4 **current and prospective capital markets?**

5 A. The cost of equity for regulated utility companies is being affected by several
6 factors in the current and prospective capital markets, including: (1) the current
7 low interest rate environment and the corresponding effect on valuations and
8 dividend yields of utility stocks relative to historical levels; and (2) the market's
9 expectation for higher interest rates. In this section, I discuss each of these factors
10 and how it affects the models used to estimate the cost of equity for regulated
11 utilities.

12 **Q. How has the Federal Reserve's monetary policy affected capital markets in**
13 **recent years?**

14 A. Extraordinary and persistent federal intervention in capital markets artificially
15 lowered government bond yields after the Great Recession of 2008-09, as the
16 Federal Open Market Committee ("FOMC") used monetary policy (both
17 reductions in short-term interest rates and purchases of Treasury bonds and
18 mortgage-backed securities) to stimulate the U.S. economy. Low or zero returns
19 on short-term government bonds have forced yield-seeking investors into longer-
20 term instruments, bidding up prices and reducing yields on those investments. As
21 investors have moved along the risk spectrum in search of yields that meet their

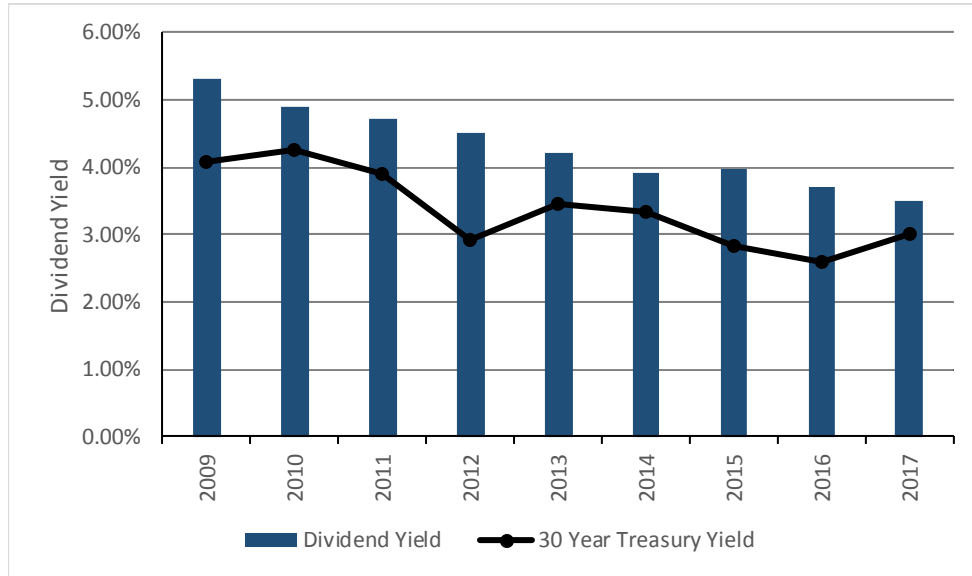
1 return requirements, there has been increased demand for dividend-paying
2 equities, such as gas and electric utility stocks.

3 **Q. How has the period of abnormally low interest rates affected the valuations
4 and dividend yields of utility shares?**

5 A. The Federal Reserve's accommodative monetary policy has caused investors to
6 seek alternatives to the historically low interest rates available on Treasury bonds.
7 This search for higher yield has driven the share prices for many common stocks,
8 especially dividend-paying stocks such as utilities, higher while the dividend
9 yields (which are computed by dividing the dividend payment by the stock price)
10 have decreased to levels well below the historical average. As shown in Chart 2
11 since the Federal Reserve intervened to stabilize financial markets and support the
12 economic recovery after the Great Recession of 2008-09, Treasury bond yields
13 and utility dividend yields have both declined. Specifically, Treasury bond yields
14 have decreased by approximately 100 basis points since 2009, and utility dividend
15 yields have decreased by approximately 180 basis points over this same period.

1

Chart 2: Dividend Yields for Utility Stocks



2

3

4 **Q. How are higher stock valuations and lower dividend yields for utility**
 5 **companies affecting the results of the DCF model?**

6 **A.** In the current market environment, the DCF model results are being distorted by
 7 the historically low level of interest rates and the higher valuation of utility stocks.

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

9 We continue to believe that most equities in this industry are
 10 expensively priced. Historically, electric utility stocks have
 11 traded at a discount to the market because utilities generally
 12 don't grow fast. Last year, however, several stocks had price-
 13 earnings ratios that were at or even above the broader market.
 14 And many of these issues have recent prices within their 2020-
 15 2022 Target Price Range. The industry's average dividend
 16 yield is 3.6%.¹⁹

17

¹⁹ Value Line Investment Survey, Electric Utility (East) Industry, February 17, 2017, at 138.

1 Equity analysts at UBS have also noted that gas distributors are experiencing
2 similarly high valuations and low dividend yields as compared to historical levels:

3 Gas LDCs continue to support high multiples even as interest
4 rates have increased. The 10-yr Treasury is currently yielding
5 2.48%, the last time rates were at this level was August 2014
6 when the multiple [for gas LDCs] was 19.8X vs. 21.4X today.
7 We believe a higher multiple is supported by the mid to high
8 single digit earnings growth expected that is supported by
9 pipeline replacement, but think the multiple also includes a
10 premium for the potential for additional M&A in the sector.²⁰

11 ***

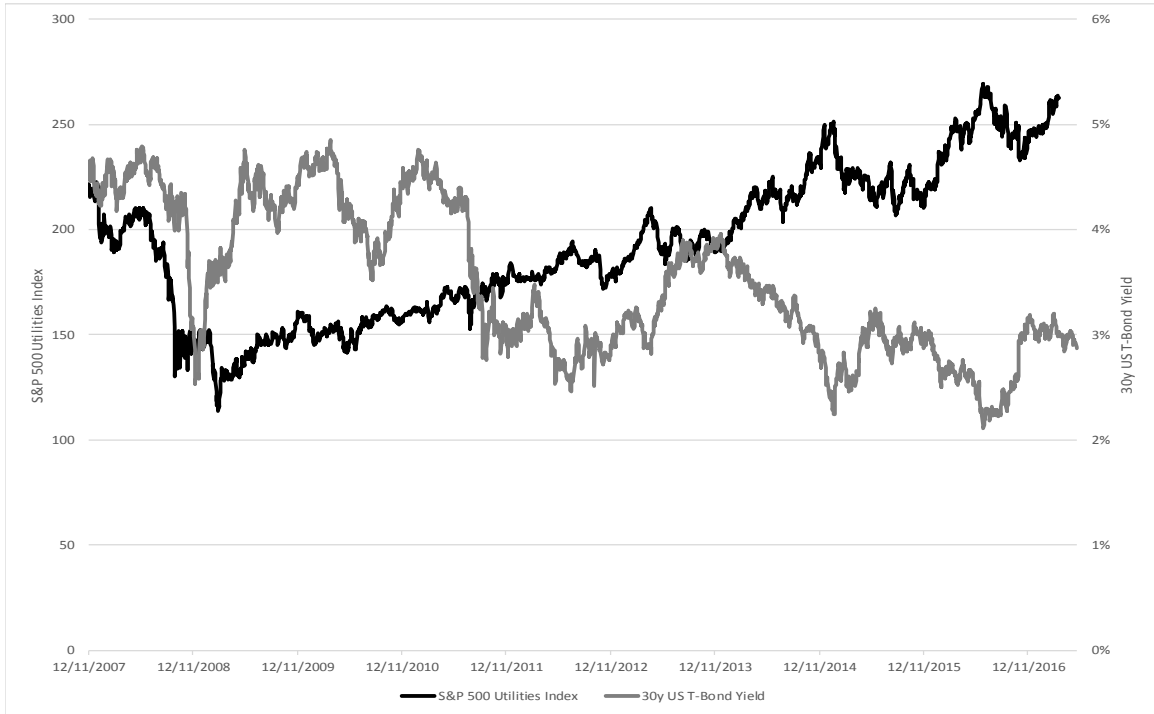
12 Gas LDCs continue to trade at a higher average multiple than
13 Electric Utilities and both are trading higher than their
14 historical averages. We note that both are off their July 2016
15 peaks when the 10-yr Treasury hit a near-term trough. Figure
16 2 shows that on a NTM P/E basis, Gas LDCs historically trade
17 12.5% above electric utilities, but are currently trading at a
18 20.5% premium.²¹

19
20 To assess how low interest rates are affecting the dividend yields for utility
21 stocks, I compared the Standard & Poor's ("S&P") Utilities index to the yield on
22 the 30-year Treasury bond since 2007. As shown in Chart 3, the S&P Utilities
23 index has increased steadily as yields on 30-year Treasury bonds have declined in
24 response to federal monetary policy.

²⁰ UBS Global Research, "Gas Distribution: Valuation Refresh – Still Trading at Premiums," March 14, 2017, at 2.

²¹ *Id.*, at 3.

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



2

3 **Q. What evidence is there that the Federal Reserve’s accommodative monetary**
4 **policy has created and continues to create anomalous conditions in capital**
5 **markets?**

6 A. Over the last several years, members of the Federal Reserve have acknowledged
7 that monetary policy has created abnormal capital market conditions. In
8 September 2014, the Federal Reserve announced its plan to “normalize” monetary
9 policy by, among other things, reducing its portfolio to minimize the effect of its
10 holdings on “the allocation of credit across sectors of the economy.”²² In March
11 2015, Dr. Stanley Fischer, Vice Chair of the Federal Reserve, further

²² Federal Open Market Committee, Policy Normalization Principles and Plans, September 16, 2014.

1 acknowledged the abnormal economic conditions created by the actions of the
2 Federal Reserve and highlighted the intentions of the Federal Reserve to return to
3 normal market dynamics:

4 Beginning the normalization of policy will be a significant
5 step toward the restoration of the economy's normal
6 dynamics, allowing monetary policy to respond to shocks
7 without recourse to unconventional tools.²³
8

9 **Q. Have regulators in other jurisdictions recently responded to the historically**
10 **low dividend yields for utility companies and the corresponding effect on the**
11 **DCF model?**

12 A. Yes. Understanding the important role that dividend yields play in the DCF
13 model, the Federal Energy Regulatory Commission ("FERC") recently
14 determined that anomalous capital market conditions have caused the DCF model
15 to understate equity costs for regulated utilities, at this time. In Opinion No. 531,
16 the FERC noted:

17 There is 'model risk' associated with the excessive reliance or
18 mechanical application of a model when the surrounding
19 conditions are outside of the normal range. 'Model risk' is the
20 risk that a theoretical model that is used to value real world
21 transactions fails to predict or represent the real phenomenon
22 that is being modeled.²⁴

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

²⁴ FERC Docket No. EL11-66-001, Opinion No. 531, footnote 286. While Opinion No. 531 was recently remanded to the FERC by the D.C. Circuit Court, that decision did not question the finding by the FERC that capital market conditions were anomalous. United States Court of Appeals for the District of Columbia Circuit, No. 15-118, April 14, 2017, at pp. 29-21.

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

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

Though the Commission noted certain economic conditions in Opinion No. 531, the principle argument was based on low interest rates and bond yields, conditions that persisted throughout the study period. Consequently, we find that capital market conditions are still anomalous as described above...²⁵

Because the evidence in this proceeding indicates that capital markets continue to reflect the type of unusual conditions that the Commission identified in Opinion No. 531, we remain concerned that a mechanical application of the DCF methodology would result in a return inconsistent with *Hope* and *Bluefield*.²⁶

²⁵ FERC Docket No. EL14-12-002, Opinion No. 551, at para 121.
²⁶ *Id.*, at para 122.

1 As the Commission found in Opinion No. 531, under these
2 circumstances, we have less confidence that the midpoint of
3 the zone of reasonableness in this proceeding accurately
4 reflects the equity returns necessary to meet the *Hope* and
5 *Bluefield* capital attraction standards. We therefore find it
6 necessary and reasonable to consider additional record
7 evidence, including evidence of alternative methodologies...²⁷
8

9 **Q. What evidence is there that the interest rate environment is shifting?**

10 A. Based on stronger conditions in employment markets, a relatively stable inflation
11 rate, steady economic growth, and increased household spending, at the March
12 and June 2017 meetings the Federal Reserve again raised the short term
13 borrowing rate by 25 basis points. Since December 2015 the Federal Reserve has
14 increased interest rates four times, bringing the federal funds rate to the range of
15 1.00 percent to 1.25 percent. The Federal Reserve has indicated that it intends
16 gradual increases in the federal funds rate over time.²⁸

17 Yields on U.S. Treasury bonds have also been increasing since July 2016. For
18 example, the 3-month average yield on 30-year Treasury bonds as of May 31,
19 2017 was 3.00 percent, whereas the 3-month average yield on 30-year Treasury
20 bonds at the time of Central Hudson's last rate case decision on June 17, 2015
21 was 2.79 percent. This 21 basis point increase in Treasury yields since the
22 Company's previous ROE determination is further evidence that capital costs are
23 increasing. The 30-year Treasury bond yield is projected to increase to 3.48

²⁷ *Id.*

²⁸ FOMC, Federal Reserve press release, June 14, 2017.

1 percent by the third quarter of 2018.²⁹

2 **Q. What is the financial market's perspective on the future path of interest**
3 **rates?**

4 A. According to the July 2017 issue of Blue Chip Financial Forecasts, 94 percent of
5 those surveyed expect the Federal Reserve will raise short-term interest rates
6 again in 2017, with most expecting the next move to come at either the September
7 or December 2017 meetings.³⁰ In response to the question regarding the amount
8 of the additional increase in short-term interest rates by the Federal Reserve in
9 2017, 85 percent of those surveyed expect an additional increase of 25 basis
10 points and 9 percent expect an additional increase of 50 basis points.³¹ In
11 response to the same question for 2018, 22 percent of those surveyed expect the
12 Federal Reserve to increase interest rates by 50 basis points, 44 percent expect an
13 increase of 75 basis points, and 30 percent expect an increase of 100 basis
14 points.³²

15 **Q. What effect do rising interest rates have on the cost of equity?**

16 A. As interest rates continue to increase, the cost of equity for the proxy companies
17 using the DCF model is likely to be a conservative estimate of investors' required
18 return because the dividend yield is calculated based on stock prices when interest
19 rates were substantially lower. As such, rising interest rates support the selection

²⁹ Blue Chip Financial Forecasts, Vol. 36, Issue No. 6, June 1, 2017.

³⁰ Blue Chip Financial Forecasts, Vol. 36, Issue No. 7, July 1, 2017.

³¹ *Id.*

³² *Id.*

1 of a return toward the upper end of a reasonable range of ROE estimates that are
2 based on current market data. Alternatively, my CAPM analysis includes
3 estimated returns based on both current and near-term projected interest rates.

4 **Q. What conclusions do you draw from your analysis of capital market**
5 **conditions?**

6 A. My main conclusion is that the recently low interest rate environment and
7 expectations for merger activity has driven dividend yields to historically low and
8 likely unsustainable levels, thereby causing the DCF model to understate the
9 forward-looking equity return requirements. Therefore, it is important to also
10 place weight on the results of other financial models, such as the CAPM analyses.
11 While interest rates have been low for several years, recent events have
12 demonstrated that the Federal Reserve is moving toward less accommodative
13 monetary policy in 2017 and 2018. In addition, the current three-month average of
14 30-year Treasury bond yields is 21 basis points higher than when Central
15 Hudson's previous rate case decision was issued in June 2015.

16 In summary, market participants and analysts are expecting a change from the
17 recent low interest rate environment. Higher interest rates indicate that it is
18 reasonable to believe that the cost of capital for utilities such as Central Hudson is
19 increasing. Consistent with the FERC's approach, it is appropriate for the
20 Commission to also consider the results of Risk Premium based models such as
21 the CAPM in establishing the authorized ROE in this proceeding.

1

V. PROXY GROUP SELECTION

2 **Q. Why have you used a group of proxy companies to determine the cost of**
3 **equity for Central Hudson?**

4 A. The focus of my Direct Testimony is on estimating the cost of equity for Central
5 Hudson’s rate-regulated electric and natural gas distribution operations in New
6 York. Because ROE is a market-based concept and because Central Hudson is
7 not publicly-traded, it is necessary to establish a group of companies that is both
8 publicly-traded and comparable to the Company in certain fundamental business
9 and financial respects to serve as the “proxy” in the ROE estimation process. The
10 proxy companies used in my analyses all possess operating and business risks that
11 are substantially comparable to Central Hudson and thus provide a reasonable
12 basis for the derivation and assessment of the Company’s ROE.

13 **Q. Has the Commission also relied on proxy groups to estimate the cost of**
14 **equity for regulated utilities?**

15 A. Yes. Since the RD in the GFP,³³ the Commission has consistently endorsed the
16 use of proxy groups to estimate the cost of equity for regulated utilities. Because
17 proxy companies are now commonly used as the basis for estimating the utility
18 cost of equity, the primary objective of the screening process is to establish a

³³ GFP RD at 133-134.

1 group of companies that is as comparable as possible to the Company with respect
2 to fundamental business and financial risks. The careful selection of a risk-
3 appropriate comparison group serves to mitigate the extent to which subjective
4 assessments must be applied.

5 **Q. Please provide a summary profile of the Company.**

6 A. Central Hudson's business consists of its regulated electric and natural gas
7 distribution operations in New York State. Central Hudson distributes electricity
8 to approximately 300,000 retail customers and natural gas to approximately
9 80,000 retail customers in New York's Mid-Hudson River Valley.³⁴ Central
10 Hudson's senior unsecured ratings are A2 from Moody's Investors Service
11 ("Moody's"), A- from Standard and Poor's ("S&P"), and A- from Fitch Ratings
12 ("Fitch").³⁵

13 **Q. How did you select the companies in your proxy group?**

14 A. I began with the 40 companies that Value Line classifies as "Electric Utilities,"
15 and I simultaneously applied the following screening criteria to establish a risk-
16 comparable proxy group of companies that are combination electric and gas
17 utilities:

³⁴ Source: SNL Financial, accessed June 5, 2017.

³⁵ Fitch Ratings, April 7, 2017.

- 1 • To ensure that information regarding the proxy group companies is
2 consensus-based, I eliminated companies that are not covered by at least
3 two utility industry equity analysts;
- 4 • I eliminated companies that do not have investment grade corporate credit
5 ratings and/or senior unsecured bond ratings from S&P or Moody's
6 because such companies do not have a similar investment risk profile to
7 that of the Company;
- 8 • I eliminated companies that have not paid regular cash dividends or that
9 have cut their dividend payment in the last three years and companies that
10 do not have positive earnings growth projections from at least one source
11 because such characteristics are incompatible with the DCF model;
- 12 • To ensure that the proxy group consists of companies that are primarily
13 regulated utilities, I eliminated companies that derive less than 70 percent
14 of total operating income from regulated utility operations;
- 15 • To ensure that the proxy group consists of entities with gas utility
16 operations, I eliminated companies that derive less than 10 percent of total
17 operating income from regulated natural gas distribution operations; and
- 18 • I eliminated companies known to be party to a merger, acquisition, or
19 other transformative transaction as such activities may have a temporary
20 effect on such companies' stock prices.

1 **Q. What is the composition of your proxy group?**

2 A. My proxy group consists of the companies in Table 2.

3 **Table 2: Proxy Group**

Company	Ticker
Ameren Corporation	AEE
Avista Corporation	AVA
Black Hills Corporation	BKH
CenterPoint Energy, Inc.	CNP
CMS Energy Corporation	CMS
Consolidated Edison, Inc.	ED
DTE Energy Company	DTE
Northwestern Corporation	NWE
SCANA Corporation	SCG
Sempra Energy	SRE
Vectren Corporation	VVC
Wisconsin Energy Corporation	WEC
Xcel Energy Inc.	XEL

4

5 **Q. Do you believe that your proxy group is sufficiently large?**

6 A. Yes. The analyses performed in estimating the ROE are more likely to be
 7 representative of the subject utility's cost of equity to the extent that the proxy
 8 companies are fundamentally comparable to the subject utility. Because all
 9 analysts use some form of screening process to arrive at a proxy group, that group
 10 is not randomly drawn from a larger population. Consequently, because the group
 11 is not randomly selected, there is no reason to place more reliance on the results
 12 of a larger and more dissimilar proxy group simply to increase the number of
 13 observations.

1 **Q. Why have you screened based on net operating income rather than revenue?**

2 A. The percentage of net operating income derived from regulated operations is more
3 representative of the contribution of that business segment to earnings and the
4 corporation's overall financial position than is revenue. Earnings is the most
5 important factor that investors consider in establishing return requirements and
6 making buy/sell decisions. Furthermore, a significant portion of electric and gas
7 utility company revenue is derived from the costs of purchased fuel, purchased
8 power and purchased gas, which, in most cases, are passed through directly to
9 customers and do not affect earnings or the business risk of the company. This
10 portion of total revenue can fluctuate considerably based on the commodity cost
11 and other inputs. For example, due to variations in commodity costs from 2014
12 through 2016, Central Hudson's commodity costs as a percentage of revenue have
13 fluctuated between 30 percent in 2016 and 42 percent in 2014. As illustrated by
14 this example, relying exclusively on a revenue screen does not provide a clear or
15 necessarily consistent indicator of the contribution of the regulated utility
16 operations to a company's earnings. Net operating income excludes the cost of
17 purchased commodity and therefore more closely represents the contribution of
18 the business segment to earnings.

1 **Q. Has the Commission typically relied on similar screening criteria to develop**
2 **a proxy group for purposes of estimating the ROE?**

3 A. Yes. The screening criteria relied on by the Commission are similar to the criteria
4 that I used to develop my proxy group. The Commission's proxy group is
5 typically composed of a large group of dividend-paying companies with
6 investment grade bond ratings and regulated revenues of at least 70.00 percent
7 that are not engaged in merger-related or corporate restructuring activities.³⁶ For
8 the reasons noted above, these somewhat less selective criteria may result in a
9 proxy group that is less comparable to Central Hudson than the proxy group I
10 have relied on, and therefore may not produce risk-comparable estimates of the
11 cost of equity.

12

VI. COST OF EQUITY ESTIMATION

13 **Q. Please briefly discuss the ROE in the context of the regulated rate of return.**

14 A. The rate of return ("ROR") for a regulated utility is based on its weighted average
15 cost of capital, in which the costs of the individual sources of capital are weighted
16 by their respective percentages of total capitalization of the utility. The ROE
17 included in the ROR is weighted by the percentage of common equity in the
18 regulated utility's capital structure.

³⁶ 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.

1 **Q. How is the required ROE determined?**

2 A. While the cost of debt can be directly observed, the cost of equity is market-based
3 and, therefore, must be estimated based on observable market data. The required
4 ROE is determined by using analytical techniques that rely on market data to
5 quantify investor expectations regarding the range of required equity returns.
6 Informed judgment is applied, based on the results of those analyses, to determine
7 where within the range of results the cost of equity for a company falls. The key
8 consideration in determining the cost of equity is to ensure that the methodologies
9 employed reasonably reflect investors' views of the financial markets, the proxy
10 group companies, and the subject company's risk profile.

11 **Q. What methods did you use to determine the Company's cost of equity?**

12 A. Consistent with Commission precedent, I used the multi-stage DCF model and
13 two forms of the CAPM (i.e., tradition and Zero-beta) as the primary approaches.
14 I also considered the results of the Bond Yield Plus Risk Premium analysis, as
15 well as authorized returns in other jurisdictions as a check on the reasonableness
16 of my DCF and CAPM results. In both forms of the CAPM, I incorporated a
17 forward-looking measure of the Market Risk Premium.

18 **Q. Why is important to use more than one analytical approach?**

19 A. The cost of equity is not directly observable, so it must be estimated based on
20 both quantitative and qualitative information. Several financial models have been
21 developed for purposes of estimating the cost of equity, and each model has

1 inherent strengths and weaknesses. Because each of the models used to estimate
2 the cost of equity are subject to limiting assumptions or other methodological
3 constraints, many finance texts recommend using multiple approaches. For
4 example, Copeland, Koller, and Murrin³⁷ suggest using the CAPM and Arbitrage
5 Pricing Theory model, while Brigham and Gapenski³⁸ recommend the CAPM,
6 DCF, and “bond yield plus risk premium” approaches.

7 **Q. How are current market conditions affecting the results of the DCF and**
8 **CAPM models?**

9 A. As discussed in Section IV, there is concern that “anomalous market conditions”
10 (*i.e.*, low Treasury bond yields) are causing utility stocks to be overvalued,
11 thereby reducing the dividend yields in the DCF model. Consequently, the results
12 of the DCF model are understating the forward-looking cost of equity. The
13 CAPM method offers some balance to the sensitivity of the DCF model to low
14 Treasury bond yields. However, low interest rates also impact the CAPM in two
15 ways: (1) if the risk-free rate is based on historical average yields on Treasury
16 bonds, it understates the forward-looking risk-free rate, and (2) if the market risk
17 premium is based on historical returns on large company stocks minus the current
18 risk free rate, it understates the forward-looking market risk premium. To adjust
19 for these shortcomings, the risk-free rate in the CAPM analysis should also

³⁷ 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.

³⁸ Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994), at 341.

1 consider projected yields on Treasury bonds, and the market risk premium should
2 be based on a forward-looking computation of the expected return on the total
3 market less the risk-free rate. Market risk premiums based on long-term historical
4 averages are unresponsive to movements in interest rates and would likely
5 understate the market risk premium and, accordingly, the cost of equity.

6 **Q. What are your conclusions about the results of the DCF and CAPM models?**

7 A. The results of both models have been affected by market conditions and, with
8 traditional data inputs, both models tend to underestimate the current cost of
9 equity. The DCF model is less reliable in current market conditions because
10 dividend yields for utilities are low and not expected to remain at current levels.
11 As discussed previously, UBS recently commented on the trading multiples for
12 the gas LDCs and electric utilities and noted the relationship to utility stock prices
13 and low yields on Treasury bonds. Value Line also notes that average dividend
14 yields are low by historical standards and that the majority of the electric utility
15 equities are trading at, and in a few cases above, their 2020-2022 target price
16 range.³⁹ Therefore, as the FOMC continues to increase interest rates, it is
17 reasonable to expect that currently high stock prices and correspondingly low
18 dividend yields would not be sustained.

19 The results from the CAPM are also affected by the current artificially low yields
20 on Treasury bonds. Relying exclusively on artificially low interest rates, when

³⁹ Value Line Electric Utility (Central) Industry report, June 16, 2017.

1 the FOMC has demonstrated through its policy that interest rates will be rising is
2 inconsistent with the notion that the estimation of the cost of equity is forward-
3 looking. The use of projected yields on Treasury bonds in the CAPM produces
4 returns that are more reflective of the market conditions that investors expect
5 during the period that the Company's rates will be in effect. Therefore, properly
6 specified, the CAPM is a more reliable model in current market conditions than
7 the DCF. Given the sensitivity of each model to market conditions and
8 considering the expectation for changes in those conditions in the near term, it is
9 appropriate to equally weight the results of the DCF and CAPM models.

10

11 **A. DISCOUNTED CASH FLOW MODEL**12 **Q. Please describe the DCF approach.**

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

$$16 \quad P_0 = \frac{D_1}{(1+r)^1} + \frac{D_2}{(1+r)^2} + \dots + \frac{D_n}{(1+r)^n} \quad [1]$$

17 Where P_0 represents the current market stock price, $D_1 \dots D_n$ are all expected
18 future dividends, and r is the discount rate, or required ROE. As discussed below,
19 I have not included the constant growth form of the DCF model, but instead have
20 focused on a multi-stage form of the DCF model.

1 **Q. Please generally describe the DCF model you relied on.**

2 A. The multi-stage DCF model is an extension of the constant growth form that
3 enables the analyst to specify growth rates over multiple stages. As with the
4 constant growth form of the DCF model, the multi-stage form defines the cost of
5 equity as the discount rate that sets the current price equal to the discounted value
6 of future cash flows. A multi-stage DCF model addresses the possibility that
7 mean five-year growth rates may not be reasonable in perpetuity and that payout
8 ratios could vary over time.

9 **Q. Please describe the structure of the multi-stage DCF model.**

10 A. The multi-stage DCF model that I have used sets the proxy company's current
11 stock price equal to the present value of future cash flows received over three time
12 periods. In all three periods, cash flows are equal to the annual dividend
13 payments that stockholders receive. The first period is a short-term growth period
14 that consists of the first five years; the second period is a transition period from
15 the short-term growth rate to the long-term growth rate that occurs over five years
16 (*i.e.*, years six through 10); and the third period is a long-term growth period that
17 begins in year 11 and continues in perpetuity. The ROE is then calculated as the
18 rate of return that results from the initial stock investment and the dividend
19 payments over the analytical period.

1 **Q. Has the Commission relied on a multi-stage DCF model in prior cases?**

2 A. Yes, the Commission has relied on a two-stage form of the DCF model in prior
3 cases.⁴⁰ The two-stage model that the Commission has relied on and the multi-
4 stage model that I rely on both define the cost of equity as the discount rate that
5 sets the current stock price equal to the discounted value of future cash flows that
6 are expressed as projected dividends. Both models project dividends using
7 growth rates over multiple periods.

8 **Q. Is the multi-stage form of the DCF model consistent with the intent of the**
9 **two-stage model relied upon by the Commission?**

10 A. Yes. Both the construction of the multi-stage model and the underlying
11 assumptions are consistent with the two-stage model relied upon by the
12 Commission. The constant growth DCF model assumes the expected growth rate
13 will be constant in perpetuity. The multi-stage forms of the DCF model, including
14 both the two-stage model that the Commission has relied upon and the multi-stage
15 form of the model that is relied on in my analysis, recognize short and long-term
16 growth prospects.

⁴⁰ 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 **Q. Does the multi-stage form of the DCF model offer improvements over the**
2 **two-stage model traditionally relied upon by the Commission?**

3 A. Yes. The general form of the two-stage model relied upon by the Commission
4 involves a near-term growth stage based on projected dividends and a long-term
5 growth stage employing an estimated long-term growth rate in dividends.⁴¹ The
6 Commission's application of a two-stage DCF assumes that a company's growth
7 abruptly shifts to a long-run growth state after the initial five-year period. In
8 contrast, the multi-stage model relies on growth rates over three periods, as
9 described above. The multi-stage form of the DCF model provides for a gradual
10 transition to a company's expected long-term growth, whereas the two-stage DCF
11 model assumes the transition from short to long-term growth occurs in one year.

12 **Q. What market data did you use to calculate the current stock price in your**
13 **DCF model?**

14 A. The stock prices that I relied on in my DCF model are based on the average
15 market closing prices for the proxy companies over the three months ended May
16 31, 2017.

⁴¹ See, for example, 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 **Q. What growth rates did you rely on in the multi-stage DCF model?**

2 A. As shown in Exhibit __ (AEB-1), I began with the current annualized dividend as
3 of May 31, 2017 for each proxy group company. In the first stage of the model,
4 the current annualized dividend is escalated based on the average of the three-to
5 five-year earnings growth estimates reported by First Call, Zacks, and Value Line.
6 For the third stage of the model, I relied on long-term projected growth in Gross
7 Domestic Product (“GDP”). The second stage growth rate is a transition from the
8 first stage growth rate to the long-term growth rate on a geometric average basis.

9 **Q. Why do you believe that earnings growth rates are the appropriate growth**
10 **rates in the DCF model?**

11 A. Earnings are the fundamental driver of a company’s ability to pay dividends;
12 therefore, earnings growth is the appropriate measure of a company’s long-term
13 growth. In contrast, changes in a company’s dividend payments are based on
14 management decisions related to cash management and other factors. For
15 example, a company may decide to retain certain earnings rather than include
16 those earnings in a dividend issuance. Therefore, dividend growth rates are less
17 likely than earnings growth rates to reflect investor perceptions of a company’s
18 growth prospects.

1 **Q. Is there support for the use of analysts' earnings growth estimates in the**
2 **DCF model?**

3 A. Yes, there is significant academic support for the use of analysts' earnings growth
4 rates. In addition, the majority of the data that are publicly available to investors
5 sets forth analysts' projections of earnings growth rates. Value Line is the only
6 publication I am aware of that provides projected dividend growth rates.

7 **Q. Please summarize the academic research on growth rates and stock**
8 **valuation.**

9 A. The relationship between various growth rates and stock valuation metrics has
10 been the subject of much academic research. Many published articles specifically
11 support the use of analysts' earnings growth projections in the DCF model in
12 general, as well as for a method of calculating the expected market risk premium.
13 While this article is focused on the calculation of the CAPM, Dr. Robert Harris
14 demonstrates that financial analysts rely on earnings forecasts (referred to in the
15 article as "FAF") and the use of a constant growth DCF formula to estimate the
16 expected market risk premium.⁴² Dr. Harris made the following observations:

17 [...] a growing body of knowledge shows that analysts'
18 earnings forecasts are indeed reflected in stock prices. Such
19 studies typically employ a consensus measure of FAF
20 calculated as a simple average of forecasts by individual
21 analysts.⁴³

⁴² Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return*, Financial Management, Spring 1986, at 66.

⁴³ *Id.*, at 59.

1
2 Given the demonstrated relationship of FAF to equity prices
3 and the direct theoretical appeal of expectational data, it is no
4 surprise that FAF have been used in conjunction with DCF
5 models to estimate equity return requirements.⁴⁴
6

7 Dr. Harris's work demonstrates that analysts rely on earnings as the appropriate
8 measure of growth in the DCF model.

9 Professors Carleton and Vander Weide also performed a study to determine
10 whether projected earnings growth rates are superior to historical measures of
11 growth in the implementation of the DCF model.⁴⁵ Although the purpose of that
12 study was to "investigate what growth expectation is embodied in the firm's
13 current stock price,"⁴⁶ the authors clearly indicate the importance of earnings
14 projections in the context of the DCF model., concluding that:

15 [...] our studies affirm the superiority of analysts' forecasts
16 over simple historical growth extrapolations in the stock price
17 formation process. Indirectly, this finding lends support to the
18 use of valuation models whose input includes expected growth
19 rates.⁴⁷
20

21 Similarly, Harris and Marston presented "estimates of shareholder required rates
22 of return and risk premia which are derived using forward-looking analysts'

⁴⁴ *Id.*, at 60.

⁴⁵ James H. Vander Weide, Willard T. Carleton, *Investor growth expectations: Analysts vs. history*, The Journal of Portfolio Management, Spring 1988.

⁴⁶ *Id.*, at 78.

⁴⁷ *Id.*, at 82.

1 growth forecasts.”⁴⁸ In addition to other findings, Harris and Marston reported
2 that,

3 [...] in addition to fitting the theoretical requirement of being
4 forward-looking, the utilization of analysts’ forecasts in
5 estimating return requirements provides reasonable empirical
6 results that can be useful in practical applications.⁴⁹
7

8 The Carleton and Vander Weide study was updated to determine whether the
9 finding that analysts’ earnings growth forecasts are relevant in the stock valuation
10 process still holds. The results of that updated study continued to demonstrate the
11 importance of analysts’ earnings forecasts, including the application of those
12 forecasts to utility companies.⁵⁰ Similarly, Brigham, Shome and Vinson noted
13 that “evidence in the current literature indicates that (1) analysts’ forecasts are
14 superior to forecasts based solely on time series data; and (2) investors do rely on
15 analysts’ forecasts.”⁵¹

16 **Q. What is your opinion of the Commission’s historical reliance on dividend per
17 share growth rates during the initial five-year term of its Two-Stage DCF?**

18 A. Sole reliance on Value Line projections of dividend per share growth is not
19 appropriate for several reasons. First, the use of only dividend growth rates

⁴⁸ Robert S. Harris, Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts’ Growth Forecasts*, Financial Management, Summer 1992.

⁴⁹ *Id.*, at 63.

⁵⁰ Advanced Research Center, *Investor Growth Expectations*, Summer, 2004.

⁵¹ *The Risk Premium Approach to Measuring a Utility’s Cost of Equity*, Financial Management, Spring 1985.

1 ignores the substantial body of academic research demonstrating that earnings
2 growth rates are the most relevant factor in stock price valuation.⁵² Second,
3 projections of dividend growth, which would not include growth in retained
4 earnings, only measure a portion of a company's growth. Therefore, earnings
5 growth projections are more complete estimates of total company growth than
6 projected dividend growth rates. Finally, Value Line's 4-6 year projections are
7 not consensus estimates, but reflect the viewpoint of a single analyst. Therefore,
8 the Commission's models, which have historically relied only on projected
9 dividend per share growth rates from Value Line, reflect the growth expectations
10 of a single analyst in the first stage of the model. In contrast, there are several
11 consensus estimates of projected earnings per share growth rates that are publicly
12 available and widely used by investors, including Zacks Investment Research and
13 Thomson First Call. Each of these consensus forecasts considers the growth
14 expectations for each company based on the expectations of multiple analysts. It
15 is not reasonable to exclude these timely and widely-available sources of
16 information from the analysis when these real-time sources have become the more
17 common data points relied on by investors.

⁵² The Recommended Decision ("RD") in the GFP 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 (RD at 9).

1 **Q. How did you calculate the long-term GDP growth rate?**

2 A. As shown in Exhibit __ (AEB-2), the long-term growth rate of 5.50 percent is
3 based on the real GDP growth rate of 3.22 percent from 1929 through 2016,⁵³ and
4 a projected inflation rate of 2.20 percent. The projected rate of inflation is based
5 on three measures: (1) the average long-term projected growth rate in the
6 Consumer Price Index (“CPI”) of 2.20 percent, as reported by Blue Chip
7 Financial Forecasts;⁵⁴ (2) the compound annual growth rate of the CPI for all
8 urban consumers for 2027-2050 of 2.36 percent as projected by the Energy
9 Information Administration (“EIA”) in the Annual Energy Outlook 2017; and (3)
10 the compound annual growth rate of the GDP chain-type price index for 2027-
11 2050 of 2.06 percent, also reported by the EIA in the Annual Energy Outlook
12 2017.⁵⁵

13 **Q. Why is the long-term GDP growth rate a reasonable estimate of long-term**
14 **growth in the multi-stage DCF model?**

15 A. Long-term estimates of GDP growth are commonly used in regulatory
16 proceedings as a proxy for the long-term growth rate in the multi-stage DCF
17 analysis. That application is based on the common theoretical assumption that,
18 over the long-run, all companies in the economy will tend to grow at the same
19 constant rate. That assumption is designed to address the uncertainty associated

⁵³ U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, Table 1.1.6, May 26, 2017.

⁵⁴ Blue Chip Financial Forecasts, Vol. 36, No. 6, June 1, 2017, at 14.

⁵⁵ U.S. Energy Information Administration, Annual Energy Outlook 2017, Table 20.

1 with estimating individual company growth rates over very long time horizons
2 and is not meant to suggest that company growth rates in the economy will indeed
3 converge in practice over any given period.

4 **Q. Is your calculation of GDP growth consistent with the way in which other**
5 **analysts' compute estimates of long-term GDP growth?**

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

10 Growth in real GDP (with only a few exceptions) has been
11 reasonably stable over time; therefore, its historical
12 performance is a good estimate of expected long-term future
13 performance. By combining the inflation estimate with the
14 real growth rate estimate, a long-term estimate of nominal
15 growth is formed.⁵⁶
16

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

⁵⁶ Ibbotson and Associates, *Stocks, Bonds, Bills and Inflation, 1926-2012, 2013 Valuation Yearbook*, at 52.

1 The 87-year period starting with 1926 is representative of
2 what can happen: it includes high and low returns, volatile and
3 quiet markets, war and peace, inflation and deflation, and
4 prosperity and depression. Restricting attention to a shorter
5 historical period underestimates the amount of change that
6 could occur in a long future period. Finally, because historical
7 event-types (not specific events) tend to repeat themselves,
8 long-run capital market return studies can reveal a great deal
9 about the future. Investors probably expect “unusual” events
10 to occur from time to time, and their return expectations
11 reflect this.⁵⁷

12 **Q. How does your estimate of long-term GDP growth compare with investor**
13 **expectations of long-term utility industry growth rates?**

14 A. The Commission has traditionally relied on Bank of America Merrill Lynch’s
15 (“BAML”) market return calculations in estimating a company’s ROE using the
16 CAPM. Exhibit __ (AEB-3) includes the relevant pages from the BAML
17 *Quantitative Profiles* reports for March 2017 through May 2017. BAML derives
18 the Implied Return using a multi-stage Dividend Discount Model (“DDM”). As
19 shown in Exhibit __ (AEB-3), the March, April and May Implied Returns for the
20 utility industry were 9.40 percent, 9.70 percent and 9.60 percent, respectively,
21 which produces an average Implied Return of approximately 9.60 percent.⁵⁸ For
22 those same months, the average dividend yield for the utility industry was 3.50
23 percent.⁵⁹ Because the total return consists of capital appreciation (*i.e.*, growth)

⁵⁷ *Id.*, at 59.

⁵⁸ Bank of America Merrill Lynch, *Quantitative Profiles*, March 9, 2017, at 56; April 7, 2017, at 56; and May 10, 2017, at 57.

⁵⁹ *Id.*

1 and dividend yield, that data suggest an expected utility growth rate of
2 approximately 6.10 percent, which is considerably higher than the long-term
3 growth estimate of 5.50 percent used in my multi-stage DCF analysis.

4 **Q. How does your estimate of long-term growth differ from the estimate the**
5 **Commission has traditionally relied on?**

6 A. The final stage of both the two-stage DCF model that the Commission has relied
7 on and my multi-stage DCF model extends into the future indefinitely. My long-
8 term growth estimate reflects investors' long-term growth expectations for the
9 period from 2027 through 2050. Therefore, the third stage of my multi-stage
10 DCF model reflects investor growth expectations beginning in the first year of the
11 third stage of the model. In contrast, the growth estimate for the two-stage model
12 that the Commission has typically relied on is based on short-term growth rate
13 forecasts. The use of the sustainable growth rate, calculated using Value Line's
14 published projections, provides an estimate of growth four- to six-years in the
15 future. Relying on the sustainable growth rate in perpetuity in the second stage of
16 a two-stage DCF model does not provide a long-run estimate of growth. Rather,
17 the use of the sustainable growth rate assumes that the short-term estimate for the
18 four- to six-year period from the Value Line report date is sustained in perpetuity.
19 In contrast, the long-term growth rate in my DCF analyses reflects both economic
20 forecasts and market-derived projections of inflation over the longest available
21 time period (30 or more years). Those estimates of long-term inflation

1 expectations are combined with the long-term average historical real GDP growth
2 rate to calculate an expected nominal GDP growth rate. Consequently, the long-
3 term growth estimate in my multi-stage DCF model represents investors' and
4 economists' views of nominal long-term GDP growth well beyond the time
5 horizon reflected in the four- to six-year Value Line sustainable growth estimate
6 relied on by the Commission in prior cases.

7 **Q. Does the use of Value Line data to develop the Sustainable Growth rate**
8 **address concerns about growth rate bias?**

9 A. No. The sustainable growth rate is the sum of retention growth plus an SV
10 factor,⁶⁰ calculated using Value Line data. As such, the sustainable growth rate
11 estimate that the Commission has relied upon is based on a single analyst's
12 viewpoint of a company's projected four- to six-year growth prospects.

13 **Q. Are there other problems with the use of the sustainable growth rate as an**
14 **estimate of long-term growth?**

15 A. Yes. Using the sustainable growth rate to estimate the long-term growth of the
16 company uses a very narrowly-defined set of short-term projections based on
17 Value Line data. Specifically, it relies on the following assumptions: (1)
18 projected dividends for year 2; (2) projected dividends for years 4-6; (3) projected
19 earnings for years 4-6; (4) projected book value for year 2; (5) projected book

⁶⁰ 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 value for years 4-6; (6) current estimate of actual outstanding shares of stock; (7)
2 projected shares of outstanding stock for years 4-6; and (8) current three-month
3 stock price. Each of these assumptions is estimated at most for 6 years into the
4 future. As defined using these assumptions, the sustainable growth rate, which is
5 applied over the long-term in the Commission's two-stage model, does not
6 consider any actual long-term forecasts for the specific company or the economy.

7 **Q. What is your conclusion regarding the methodology typically relied on by the**
8 **Commission to estimate the sustainable growth rate in the two-stage DCF**
9 **model?**

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

1 long-term growth estimates for an electric or natural gas distribution utility or any
2 other company.

3 **Q. Have other regulatory Commissions reconsidered the use of the sustainable**
4 **growth rate in the ROE estimation methodology?**

5 A. Yes. The FERC's long-standing methodology for setting the ROE in utility
6 proceedings was to rely on a single stage DCF model that used two estimates of
7 short-term growth: 1) analysts' estimates of earnings growth, as published by
8 IBES and; 2) the sustainable growth rate, calculated using the $(b*r) + (s*v)$
9 components that are used by this Commission. The FERC acknowledged that the
10 sustainable growth rate is not a measure of long-term growth, but is another
11 estimate of short-term growth similar to analysts' earnings projections.

12 In Opinion No. 531, the FERC determined that it was appropriate to move from a
13 constant growth DCF methodology to a two-stage DCF model for public utility
14 rate cases.⁶¹ In moving to the two-stage DCF, FERC now relies on analysts'
15 estimates of earnings growth in the short-term and a long-term GDP growth rate
16 as the measure of growth in the second stage. The FERC's two-stage model does
17 not rely on a sustainable growth calculation.

18 **Q. What are the results of your DCF analyses?**

19 A. As shown in Exhibit __ (AEB-1), the multi-stage DCF analysis based on a three-
20 month average stock price and a range of near-term growth rate assumptions

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

1 produces a ROE range of 8.92 percent to 9.35 percent. Using the mean growth
2 rates results in an ROE of 9.12 percent.

3 **Q. Does the multi-stage DCF model discussed above address your concern about**
4 **low dividend yields?**

5 A. No. While the multi-stage DCF model provides for changes in growth over time,
6 it does not address the low current dividend yields for utility stocks. As discussed
7 in Section IV, currently low dividend yields are causing the DCF model to
8 understate the cost of equity.

9 **Q. What are your conclusions about the results of the DCF model?**

10 A. The results of the DCF model are currently influenced by the low dividend yields
11 on utility stocks due to the low interest rate environment. As discussed
12 previously, one primary assumption of the DCF model is the dividend yield. To
13 the extent these dividend yields are abnormally low and not sustainable, as
14 suggested by Value Line and UBS, it is important to recognize that the results of
15 the DCF model are understated.

16 **Q. Using the FERC's recent methodology for selecting the appropriate cost of**
17 **equity from the range of DCF results, what would be the DCF estimate?**

18 A. Given the anomalous conditions in capital markets that are causing concern with
19 the results of the DCF model, the FERC has determined that the reasonable cost
20 of equity is the midpoint between the midpoint and high DCF results for the proxy

1 group.⁶² Applying the FERC’s methodology in Opinion Nos. 531-B and 551 to
 2 the range of results produced by my Multi-Stage DCF analysis, the midpoint
 3 between the midpoint and high DCF results is from 9.21 percent to 9.56 percent
 4 using the low, mean, and high growth rate scenarios that were developed for my
 5 the DCF analysis.

6
 7 **B. CAPITAL ASSET PRICING MODEL**

8 **Q. Please briefly describe the Capital Asset Pricing Model.**

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

13
$$k_e = r_f + \beta(r_m - r_f) \quad [2]$$

14 where:

15 k_e = the required market ROE

16 β = 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
 20 In this specification, the term $(r_m - r_f)$ represents the market risk premium. Based

⁶² FERC Opinion No. 531-B, at para. 55; FERC Opinion No. 551, at para. 9.

1 on the theory underlying the CAPM, investors should be concerned only with
2 systematic or non-diversifiable risk because unsystematic risk can be diversified
3 away. Non-diversifiable risk is measured by the Beta coefficient, which is
4 defined as:

$$5 \quad \beta = \frac{\text{Covariance}(r_e, r_m)}{\text{Variance}(r_m)} \quad [3]$$

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

10 **Q. What risk-free rate did you use in your CAPM analysis?**

11 A. I used three estimates of the yield on Treasury bonds: (1) the current three-month
12 average yield on 30-year Treasury bonds (3.00 percent);⁶³ (2) the projected 30-
13 year Treasury yield for 2017-2018 (3.48 percent);⁶⁴ and (3) the projected 30-year
14 Treasury yield for the period 2018-2022 (4.30 percent).⁶⁵

⁶³ Bloomberg Professional.

⁶⁴ Blue Chip Financial Forecasts, Vol. 36, No. 6, June 1, 2017, at 2.

⁶⁵ *Id.*, at 14.

1 **Q. Why did you use the 30-year Treasury bond yield as the risk-free rate in the**
2 **CAPM analysis?**

3 A. In determining the security most relevant to the application of the CAPM, it is
4 important to select the term (or maturity) that best matches the life of the
5 underlying investment. As noted by Morningstar:

6 The traditional thinking regarding the time horizon of the
7 chosen Treasury security is that it should match the time
8 horizon of whatever is being valued... Note that the horizon
9 is a function of the investment, not the investor. If an investor
10 plans to hold stock in a company for only five years, the yield
11 on a five-year Treasury note would not be appropriate since
12 the company will continue to exist beyond those five years.⁶⁶

13 Because utility companies represent long-duration investments, it is appropriate to
14 use yields on long-term Treasury bonds as the risk-free rate component of the
15 CAPM. In my view, the 30-year Treasury bond is the appropriate security for that
16 purpose. Because the cost of capital is intended to be forward-looking, it is
17 appropriate to consider projected measures of interest rates and the market risk
18 premium.

19 **Q. What Beta coefficient did you use in your CAPM model?**

20 A. As shown in Exhibit __ (AEB-6), I used the adjusted Beta coefficients reported by
21 Value Line for each of the proxy group companies. Beta is adjusted to account
22 for the tendency of the regression equation to understate the variability of lower

⁶⁶ Morningstar Inc., Ibbotson SBBBI 2013 Valuation Yearbook, at 44.

1 risk companies such as utilities. In the remainder of my testimony, any references
2 to Beta are to the adjusted Beta from Value Line.

3 **Q. Please describe your estimate of the market risk premium used in your**
4 **CAPM.**

5 A. The estimated market risk premium is based on the expected total return on the
6 S&P 500 Index less the 30-year Treasury bond yield. The expected total return
7 on the S&P 500 Index is calculated using a DCF model for all companies in the
8 index based on market capitalization-weighted growth rates and dividend yields.
9 The market risk premium implied by each of the three Treasury yields discussed
10 above is used in the CAPM analysis.

11 **Q. Is your calculation of the market risk premium consistent with the**
12 **methodology relied upon in previous cases before the Commission?**

13 A. Yes. The Commission previously has relied upon the calculation of a forward-
14 looking market risk premium, based on the difference between the estimated
15 forward-looking required market return for the S&P 500, as provided by BAML,
16 and the risk-free rate.⁶⁷ As a practical matter, the approach that I have relied on
17 in developing the market risk premium estimate discussed above (*see also* Exhibit
18 __ (AEB-5) are consistent with the principles the Commission has traditionally
19 relied on.

⁶⁷ See *e.g.*, 2011 O&R Rate Order, at 77.

1 **Q. Have other Commissions relied on estimates of the Market Risk Premium**
 2 **that are consistent with the approach you have relied on?**

3 A. Yes. The CAPM methodology that was considered by the FERC in Order Nos.
 4 531 and 551, both relied on a market risk premium that was estimated using the
 5 expected return on the S&P 500, calculated using a constant growth DCF model.⁶⁸

6 **Q. Did you consider another form of the CAPM?**

7 A. Yes. In prior proceedings, the Commission has also relied upon the Zero-Beta
 8 CAPM (the form of which is sometimes referred to as the “Empirical CAPM”⁶⁹)
 9 in estimating the cost of equity. The Zero-Beta CAPM calculates the product of
 10 the Beta coefficient and the market risk premium and applies a weight of 75.00
 11 percent to that result. The model then applies a 25.00 percent weight to the
 12 market risk premium, without any effect from the Beta coefficient. The results of
 13 the two calculations are summed, along with the risk-free rate, to produce the
 14 Zero-Beta CAPM result, as noted in Equation [4] below:

15
$$k_e = r_f + 0.75\beta(r_m - r_f) + 0.25(r_m - r_f) \quad [4]$$

16 where:

17 k_e = the required market ROE

18 β = Beta coefficient of an individual security

19 r_f = the risk-free rate of return

⁶⁸ FERC Order No. 531-B, at para. 109-113.

⁶⁹ See e.g., Roger A. Morin, New Regulatory Finance, Public Utilities Reports, Inc., 2006, at 189.

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

2

3 The Zero-Beta form of the CAPM addresses the tendency of the “traditional”
4 CAPM to underestimate the cost of equity for companies with low Beta
5 coefficients such as regulated utilities. The Zero-Beta CAPM is not redundant to
6 the use of adjusted Betas; rather, it recognizes the results of academic research
7 indicating that the risk-return relationship is different (flatter) than estimated by
8 the CAPM, and that the CAPM underestimates the “alpha,” or the constant return
9 term.⁷⁰

10 As with the CAPM, my application of the Zero-Beta CAPM uses the forward-
11 looking market risk premium estimates, the three yields on 30-year Treasury
12 securities noted earlier as the risk-free rate, and the Value Line Beta coefficients.
13 Exhibit __ (AEB-4) shows the CAPM results for the proxy group. The traditional
14 CAPM results range from 10.19 percent to 10.59 percent. The Zero-Beta CAPM
15 results range from 10.99 percent to 11.29 percent. The range established by an
16 equal weighting of the traditional CAPM and the Zero-Beta CAPM is 10.59
17 percent to 10.94 percent, with a mean of 10.75 percent.⁷¹

18

⁷⁰ *Id.*, at 191.

⁷¹ The CAPM range is developed by averaging the traditional CAPM and Zero-Beta CAPM results for each of the three scenarios presented in Exhibit __ (AEB-4).

C. WEIGHTED AVERAGE RESULTS

Q. Please summarize the results of your analysis.

A. Table 3 summarizes the analytical approaches that I have considered in my analysis. Based on an equal weighting of the multi-stage DCF and mean CAPM results, the ROE range is 9.76 percent to 10.15 percent. Using the Commission’s weighting of 2/3 DCF and 1/3 CAPM, the ROE range is from 9.48 percent to 9.88 percent. In addition, the results of the FERC approach in Opinion Nos. 531-B and 551 indicate that the appropriate ROE for Central Hudson is in a range from 9.21 percent to 9.56 percent.

Table 3: Summary of Analytical Results⁷²

	Low	Mean	High
Multi-Stage DCF	8.92%	9.12%	9.35%
Mean CAPM	10.59%	10.72%	10.94%
Mean ROE (50:50 weighting)	9.76%	9.92%	10.15%
Mean ROE (2/3:1/3 weighting)	9.48%	9.66%	9.88%
FERC DCF Methodology	9.21%	9.39%	9.56%

As discussed throughout my testimony, the DCF results are under-estimating the cost of equity due to the relatively low dividend yields experienced in recent market conditions. Therefore, I have considered two alternative approaches to estimating the appropriate ROE. First, I have weighted the DCF and CAPM

⁷² The DCF results presented in Table 3 reflect the results of the models using low, average and high growth rate assumptions. The range of results for the CAPM is based on three interest rate scenarios, a historical average, a six-quarter projection and a long-term projection.

1 results equally, recognizing that it is difficult to adjust the DCF model to reflect
2 expected market conditions, whereas the assumptions used in the CAPM can be
3 adjusted to reflect projected interest rates over the rate period. Second, I have
4 applied the FERC's methodology for adjusting the ROE by moving to the
5 midpoint of the upper end of the range of DCF results.

6 **Q. What was the Commission's reasoning for developing its weighting of the**
7 **DCF and CAPM methodologies in the RD?**

8 A. At the time of the RD, the Commission did not have a significant amount of
9 experience with the CAPM. The RD noted that the Commission had historically
10 used the CAPM as a check on its DCF results, and was somewhat undecided as to
11 "how far the Commission should go in elevating the status of CAPM."⁷³ The RD
12 opted for a gradual transition towards the CAPM, ultimately settling on a 1/3
13 weighting, indicating that "proposals have simply not shown that the CAPM
14 should be raised all at once to parity with the DCF analysis in the setting of
15 returns on equity."⁷⁴ To the extent that this was a consideration in the RD's
16 weighting determination, the Commission's 25 years of experience with the
17 CAPM since that time provides a sound basis for altering the weighting of the two
18 ROE methodologies.

⁷³ RD, at 27.

⁷⁴ *Id.*

1 **Q. Please summarize your conclusion regarding the relative weighting of the**
2 **CAPM and DCF results.**

3 A. While the RD proposed the 2/3 weighting on the DCF, the weightings and
4 methodologies used to estimate the ROE were left open for additional
5 consideration in future rate proceedings. Since then, the Commission has
6 employed the CAPM as one component of the formula used to develop ROE
7 estimates. There does not appear to be any reason to infer that the Commission
8 has less confidence in the results of the CAPM than those of the DCF. The
9 conditions that warranted the Commission's GFP inquiry and the subsequent RD
10 in the early 1990s exist again today with DCF results considerably lower than
11 those from other models, such as the CAPM, as well as returns authorized in other
12 jurisdictions. Finally, to the extent that dividend yields are low relative to
13 historical levels and could increase as yields on government bonds rise, the DCF
14 model is likely to underestimate the cost of equity. Therefore, it is reasonable to
15 apply equal weighting to the DCF and CAPM methods when determining the
16 ROE for Central Hudson.

17 **Q. Are the assumptions used in the CAPM less reliable than the assumptions**
18 **used in the DCF model?**

19 A. Not necessarily. As discussed previously, the CAPM relies on a risk-free rate,
20 Beta and the MRP. The risk-free rate is readily observable and can be projected
21 for the forward-looking period. Beta is estimated using the historical relationship

1 between the risk of the stock and the overall market. Finally, the market risk
2 premium, while not observable, can be estimated for the forward-looking period.
3 My testimony discusses how the dividend yield has been affected by market
4 conditions and therefore, while this assumption may be easy to calculate using
5 historical data, it is not representative of forward-looking market conditions.
6 Therefore, while the CAPM is often criticized as relying on unobservable
7 assumptions, currently the dividend yield in the DCF model is not reflective of
8 projected market conditions.

9

10 **D. RISK PREMIUM ANALYSIS**

11 **Q. Did you consider any other analyses to corroborate the reasonableness of the**
12 **DCF and CAPM results?**

13 A. Yes, I also considered the results of a Bond Yield Plus Risk Premium analysis. In
14 general terms, this approach is based on the fundamental principle that equity
15 investors bear the residual risk associated with ownership and, therefore, require a
16 premium over the return they would have earned as a bondholder. That is, since
17 returns to equity holders have been greater risk than returns to bondholders,
18 equity investors must be compensated to bear that risk. Risk premium approaches
19 estimate the cost of equity as the sum of the equity risk premium and the yield on
20 a particular class of bonds. In my analysis, I used actual authorized returns for

1 electric utility companies as the historical measure of the cost of equity to
2 determine the risk premium.

3 **Q. Are there other considerations that should be addressed in conducting the**
4 **Risk Premium analysis?**

5 A. Yes. Both academic literature and market evidence indicate that the equity risk
6 premium (as used in this approach) is inversely related to the level of interest
7 rates. That is, as interest rates increase (decrease), the equity risk premium
8 decreases (increases). Consequently, the analysis should: (1) reflect the inverse
9 relationship between interest rates and the equity risk premium; and (2) be based
10 on current and expected market conditions. Such an analysis can be developed
11 based on a regression of the risk premium as a function of U.S. Treasury bond
12 yields. If we let authorized ROEs for electric utility companies serve as the
13 measure of required equity returns and define the yield on the long-term U.S.
14 Treasury bond as the relevant measure of interest rates, the risk premium is
15 simply the difference between those two points.⁷⁵

⁷⁵ See e.g., S. Keith Berry, Interest Rate Risk and Utility Risk Premia during 1982-93, *Managerial and Decision Economics*, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates. See also Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return*, *Financial Management*, Spring 1986, at 66.

1 **Q. What did your Bond Yield Plus Risk Premium analysis reveal?**

2 A. As shown in Chart 4, from 1990 through May 2017, there was a strong negative
3 relationship between risk premia and interest rates. To estimate that relationship,
4 I conducted a regression analysis using the following equation:

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

6 Where:

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

9 a = intercept term

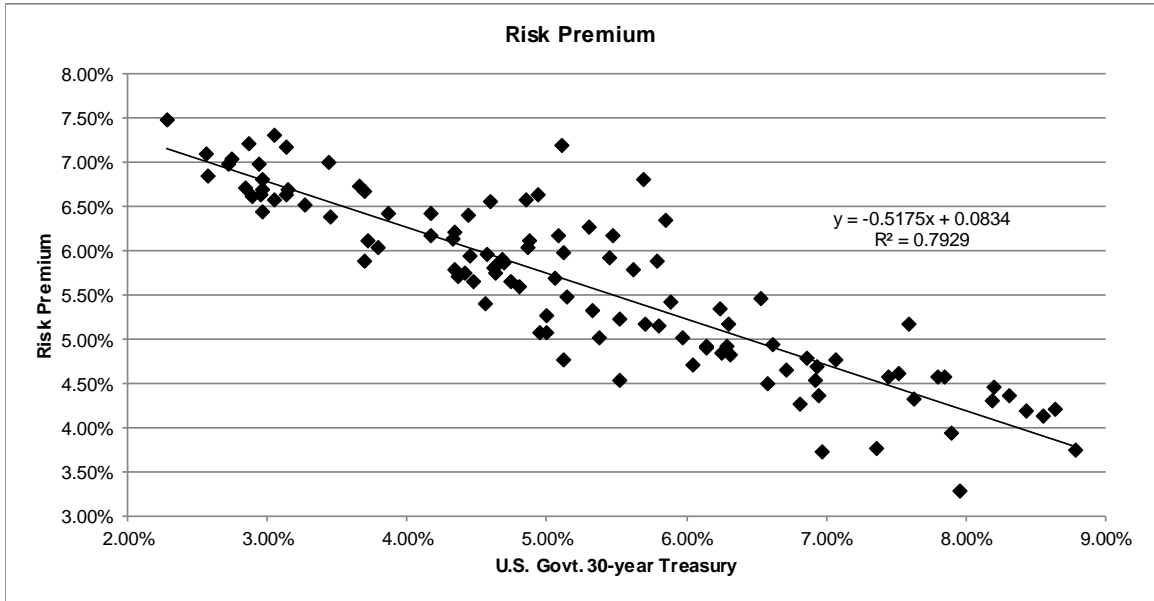
10 b = slope term

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

12 Data regarding allowed ROEs were derived from 766 electric utility rate case
13 decisions from 1990 through May 2017 as reported by RRA. This equation's
14 coefficients were statistically significant at the 99.00 percent confidence interval.

1

Chart 4: Risk Premium Results



2

3

4 As shown in Exhibit ____ (AEB-7), based on the current three-month average of
 5 the 30-year U.S. Treasury bond yield (*i.e.*, 3.00 percent), the risk premium would
 6 be 6.79 percent, resulting in an estimated ROE of 9.79 percent. Based on the
 7 near-term (2017-2018) projections of the 30-year U.S. Treasury bond yield (*i.e.*,
 8 3.48 percent), the risk premium would be 6.54 percent, resulting in an estimated
 9 ROE of 10.02 percent. Based on longer-term (2019-2023) projections of the 30-
 10 year U.S. Treasury bond yield (*i.e.*, 4.30 percent), the risk premium would be 6.11
 11 percent, resulting in an estimated ROE of 10.41 percent.

1 **Q. How did the results of the Bond Yield Risk Premium analysis inform your**
2 **recommended ROE for Central Hudson?**

3 A. Although I did not rely specifically on the results of the Bond Yield Risk
4 Premium analysis in determining my recommended ROE for Central Hudson, the
5 results of this analysis provide support for my view that the DCF model is
6 currently understating investors' return requirements. Consistent with the way in
7 which the FERC has utilized the Risk Premium analysis to establish the return on
8 equity from within the range of reasonableness, I conclude that the results of the
9 Bond Yield Risk Premium analysis support selection of an authorized ROE in the
10 upper half of the range of DCF results.

11

VII. REGULATORY AND BUSINESS RISKS

12 A. RISK ASSESSMENT

13 **Q. Have you performed an analysis of the level of regulatory support that**
14 **Central Hudson receives in New York as compared to the proxy group**
15 **companies?**

16 A. Yes. I conducted an analysis of the regulatory protections that are in place for
17 Central Hudson compared with those for the operating utility companies held by
18 the proxy group companies. The results of my analysis are presented in Exhibit
19 ____ (AEB-8). Specifically, I examined the following factors that affect the

1 business risk of Central Hudson and the proxy group companies: (1) test year
2 convention; (2) fuel cost recovery; (3) revenue decoupling; and (4) capital cost
3 recovery.

4 As shown in Exhibit ____ (AEB-8), the majority of the operating companies (*i.e.*,
5 38 out of 67) in the proxy group provide service in jurisdictions that allow the use
6 of a fully or partially forecast test year. Moreover, the average authorized ROE
7 for companies with a fully forecast test year is 9.68 percent, while the average
8 authorized ROE for companies that use an historic test year is 9.91 percent. All
9 of the operating companies held by the proxy group are allowed to pass through
10 fuel costs and purchased power costs directly to customers, so that the utility does
11 not incur any risk associated with fuel or purchased power costs. It is important
12 to recognize that fuel and purchased power costs typically account for 50 – 60
13 percent of the total operating costs for a regulated utility. Like Central Hudson,
14 52 percent of the operating utilities held by the proxy group (*i.e.*, 35 out of 67)
15 have revenue decoupling mechanisms or weather normalization adjustment
16 clauses that allow them to break the link between customer usage and revenues.
17 Finally, approximately two thirds of the operating utilities held by the proxy
18 group (45 out of 67) have capital cost recovery mechanisms that allow them to
19 recover capital investments that are placed into service between rate cases.

20 I also compared the authorized ROE to the earned ROE of the operating utilities
21 held by the proxy group companies for which earned ROE data is readily

1 available. The purpose of this assessment is to determine whether the operating
2 utilities have earned their authorized return, thereby suggesting that those utilities
3 have regulatory protections that mitigate regulatory lag and permit timely cost
4 recovery. As shown in Exhibit ___ (AEB-9), for the period from 2013-2016, the
5 average authorized ROE for the operating utilities held by the proxy group has
6 been in the range of 9.82 percent to 10.18 percent, while the average earned ROE
7 for that period has been in the range from 9.74 percent to 10.21 percent.

8 **Q. Based on these analyses, what is your conclusion regarding the level of**
9 **regulatory support for Central Hudson relative to that of the proxy group**
10 **companies?**

11 A. My conclusion is that Central Hudson has comparable regulatory protection to the
12 proxy group companies. While the Commission has been a leader in
13 implementing mechanisms that reduce the business risk of regulated utilities in
14 New York, many other jurisdictions have taken similar steps in more recent years.
15 A November 2015 report published by the Edison Electric Institute indicates that
16 more and more jurisdictions have moved toward the use of forecast test years
17 since the 2013 survey⁷⁶; fuel cost recovery mechanisms have been ubiquitous for

⁷⁶ Edison Electric Institute, “Alternative Regulation for Emerging Utility Challenges: 2015 Update,” prepared by Pacific Economics Group, November 11, 2015, at 32. (EEI report states: “The ranks of US jurisdictions that allow the use of forward test years have swollen and now encompasses about half of the total. Since our 2013 survey, electric utilities in Pennsylvania have successfully used FTYs and utilities in Arkansas and Indiana have received legislative authorization for their use. Forward test years are the norm in Canadian regulation.”)

1 many years; revenue decoupling and weather normalization clauses have been
2 approved in many states, especially where declining usage per customer is a
3 concern⁷⁷; and many states have approved capital tracking mechanisms that
4 reduce the regulatory lag associated with significant investments to enhance
5 reliability, service quality and safety.⁷⁸

6 **Q. Are there other risks to Central Hudson that are specific to New York utility**
7 **regulation?**

8 A. Yes. In addition to the low equity returns that are typically authorized by the
9 Commission for New York’s gas and electric utilities, New York utilities are
10 subject to strictly-enforced customer service quality, electric reliability, and gas
11 safety measures where the utility is required to achieve predetermined
12 performance benchmarks, or be subject to a negative revenue adjustment for any
13 shortfall.

⁷⁷ *Id.*, at 21. (EEI report states: “In the electric utility industry, decoupling has been favored in states that strongly support DSM. Since our 2013 survey, decoupling has been adopted for electric utilities in Connecticut, Maine, Minnesota, and Washington state. Decoupling is the most widespread means of relaxing the revenue/usage link for gas distributors. This reflects the fact that gas distributors often experience declining average use and that this has been driven chiefly by external forces.”)

⁷⁸ *Id.*, at 7. (EEI report states: “It can be see that the precedents are numerous and continue to grow. This is the most widely used Altreg tool in the United States. For electric utilities, trackers for emissions controls, generation capacity, advanced metering infrastructure, and general system modernization have been especially common in recent years. Trackers for gas distributors typically address the cost of replacing old case iron and bare steel mains.”)

1 **Q. Please describe Central Hudson's customer service quality, electric**
2 **reliability, and gas safety measures.**

3 A. Central Hudson is currently subject to 16 customer service quality, electric
4 reliability, and gas safety performance metrics for which negative revenue
5 adjustments could be incurred for specific levels of non-performance. In contrast,
6 there are two incentive programs under which Central Hudson has an opportunity
7 to earn positive revenue adjustments.⁷⁹ As described in the testimony of
8 Company witness Campagiorni, Central Hudson's exposure to negative revenue
9 adjustments and penalties is approximately 10 times its opportunity for positive
10 revenue adjustments. Based on this structure, the service quality mechanisms are
11 asymmetrical overall, with an emphasis on negative revenue adjustments for
12 failure to meet targets.

13 **Q. Do the negative revenue adjustments associated with these performance**
14 **metrics differentiate Central Hudson from the proxy group companies?**

15 A. Yes. Even though the utility regulatory model may be evolving towards incentive
16 regulation as attempts are made to align utility interests with regulatory policy
17 objectives, the addition of rewards and penalties to the utility rate structure
18 remains the exception rather than the rule. Of those jurisdictions that do employ
19 some form of incentive regulation, it is rare for those programs to be based solely

⁷⁹ Cases 14-E-0318 and 14-G-0319, Order Approving Rate Plan, Issued June 17, 2015. See also Appendix O of the Joint Proposal.

1 on penalties, or for those programs to result in financial exposure of the
 2 magnitude faced by Central Hudson.

3 The penalty-heavy structure and the magnitude of the Company’s exposure places
 4 it at greater risk than the proxy companies on average, which provides support for
 5 a cost of equity at the higher end of my range of reasonableness.

6 **Q. Has Central Hudson earned its authorized ROE despite the revenue
 7 adjustments?**

8 A. No, it has not. As shown in Table 4, in 2015 and 2016 Central Hudson’s earned
 9 ROE for the natural gas operations has been significantly below the return
 10 authorized by the Commission. While the electric operation earned its return in
 11 2016, over the two-year period, the earned return for Central Hudson’s electric
 12 operations has been well below the authorized ROE.

13 **Table 4: Comparison of Central Hudson’s Earned v. Authorized ROEs**

	TME 6/30/2016			TME 6/30/2015		
	Authorized ⁸⁰	Earned	Variance	Authorized ⁸¹	Earned	Variance
Electric	9.00%	9.06%	0.06%	9.50%	7.24%	-2.26%
Natural Gas	9.00%	6.96%	-2.04%	9.50%	7.68%	-1.82%

14

⁸⁰ Cases 14-E-0318 and 14-G-0319.

⁸¹ Cases C-09-E-0588 and C-09-G-0589.

1 **Q. Have the other New York Utilities earned their authorized ROEs consistently**
 2 **over this time-period?**

3 A. As shown in Table 5, there is wide variability in the earned ROEs for other New
 4 York utilities. There are instances where the companies have earned more than
 5 the authorized ROE, however there are earnings sharing mechanisms that require
 6 the earnings above a threshold to be shared with customers. In several instances,
 7 however the earned ROEs have been lower than the authorized ROEs.

8 **Table 5: Comparison of Earned v. Authorized ROEs**

Company	Operations	2016			2015		
		Authorized	Earned	Variance	Authorized	Earned	Variance
ConEd	Electric	9.00%	9.66%	0.66%	9.00%	10.16%	1.16%
ConEd	Natural Gas	9.00%	7.83%	-1.17%	9.30%	8.13%	-1.17%
O&R	Electric	9.00%	10.79%	1.79%	9.00%	9.38%	0.38%
O&R	Natural Gas	9.00%	11.21%	2.21%	9.00%	6.14%	-2.86%
NYSEG	Electric				9.00%	7.89%	-1.11%
NYSEG	Natural Gas				9.00%	9.67%	0.67%
RG&E	Electric				9.00%	5.99%	-3.01%
RG&E	Natural Gas				9.00%	4.24%	-4.76%

9

1 **Q. How does this performance compare with the utility operating subsidiaries of**
2 **the proxy companies?**

3 A. As shown in Exhibit AEB-9, on average, the regulated utility subsidiaries of the
4 proxy companies have earned between 96 percent and 102 percent of their
5 authorized ROEs over the period from 2013-2016, with significant variability in
6 the ability to achieve the authorized ROE by company and year. This result is
7 generally consistent with the performance of the New York regulated electric and
8 gas utilities in 2015 and 2016, as summarized in Tables 4 and 5.

9 **Q. Are you aware that Central Hudson is proposing revisions to the existing**
10 **revenue adjustments?**

11 A. Yes. It is my understanding that Central Hudson is proposing to develop a more
12 symmetrical adjustment for customer service and revising certain of the gas safety
13 adjustments to be more focused on measures that are within the Company's
14 control.

15 **Q. Should the proposed changes to the negative revenue adjustments reduce**
16 **Central Hudson's ROE?**

17 A. No. As discussed above, on average over the last two years, Central Hudson has
18 not earned its authorized ROE. The modifications that are being proposed to the
19 revenue adjustments are designed to bring the performance measures to attainable
20 levels and to create symmetry in certain adjustments, providing benefits and
21 penalties based on performance that is within the company's control. The

1 proposal is not risk-mitigating as compared with the proxy companies and
2 therefore should not require a downward adjustment to the ROE.

3 **Q. What is your conclusion with respect to the revenue stabilization and cost**
4 **recovery mechanisms proposed by Central Hudson?**

5 A. My conclusion is that the revenue stabilization mechanisms and cost recovery
6 trackers that have been implemented by the NYPS&C have not reduced volatility of
7 earnings for the electric and gas utilities that it regulates. Furthermore, comparing
8 the earned returns for Central Hudson to the proxy group, as shown in Exhibit
9 __(AEB-9), demonstrates that Central Hudson's earned ROE as a percentage of
10 the authorized ROE is significantly below the proxy group average earned ROE
11 and similar in variability when compared to the performance of individual
12 operating utilities within the proxy group. Based on that comparison, there is no
13 basis for establishing an ROE that is below that which would be appropriate for
14 the regulated utility subsidiaries of the proxy companies. Finally, Central
15 Hudson's proposed adjustments to the revenue penalties should not result in any
16 downward adjustment to the authorized ROE.

17

1 **B. REGULATORY ENVIRONMENT**

2 **Q. Please explain how the regulatory framework affects investors' risk**
3 **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
6 services, the 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
9 the utility to attract capital at reasonable terms, thereby balancing the long-term
10 interests of investors and customers. In that respect, the regulatory framework in
11 which a utility operates is one of the most important factors 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
16 market conditions. From the perspective of debt investors, the authorized return
17 should enable the Company to generate the cash flow needed to meet its near-
18 term financial obligations, make the capital investments needed to maintain and
19 expand its systems, and maintain sufficient levels of liquidity to fund unexpected
20 events. This financial liquidity must be derived not only from internally-
21 generated funds, but also from efficient access to capital markets.

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

8 **Q. Please explain how credit rating agencies consider the regulatory framework**
 9 **in establishing a company's credit rating.**

10 A. Moody's and S&P both consider the overall regulatory framework in establishing
 11 credit ratings. Moody's establishes credit ratings based on four key 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
 15 and earn returns) are based on the regulatory environment such that 50 percent of
 16 Moody's overall assessment of business and financial risk for regulated utilities is

1 based upon the regulatory environment.⁸² Moody's further subdivides the first
2 two factors, Regulatory Framework and the Ability to Recover Costs and Earn
3 Returns, into sub-factors to help "provide more granularity and transparency on
4 the overall regulatory environment, which is the most important consideration for
5 this sector."⁸³

6 With respect to Regulatory Framework, Moody's looks for transparency,
7 predictability, and supportiveness of regulatory commissions.⁸⁴ For the second
8 factor, Ability to Recover Costs and Earn Returns, Moody's evaluates the
9 regulatory elements that directly affect the ability of the utility to generate cash
10 flow and service its debt over time.⁸⁵ Moody's views the ability to recover costs
11 on a timely basis and to attract debt and equity capital as crucial credit
12 considerations noting that "[t]he inability to recover costs...has been one of the
13 greatest drivers of financial stress in this sector."⁸⁶ This is particularly true as
14 utilities are often cash flow negative due to large capital expenditures, so any lack
15 of timely recovery or sufficiency of rates can 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

⁸² Moody's Investor Service, Rating Methodology, Regulated Electric and Gas Utilities, December 23, 2013, at 6.

⁸³ *Id.*, at 3.

⁸⁴ *Id.*, at 9-10.

⁸⁵ *Id.*, at 15.

⁸⁶ *Id.*

1 a utility operates often influence credit quality the most.”⁸⁷ In June 2016, S&P
2 downgraded the credit rating for Central Hudson from “A” to “A-” due to a
3 reduction in the Company’s financial risk profile from “Intermediate” to
4 “Significant”. In explaining the reason for the downgrade, S&P states:
5 “Accordingly, the lower ratings on CHG&E reflects our forward view that most
6 New York State utilities will manage regulatory risk in a generally consistent
7 manner, reducing CHG&E’s previous distinct and sustainable regulatory
8 advantage that differentiated CHG&E from its peers.”⁸⁸

9 **Q. How does the regulatory environment in which a utility operates affect its**
10 **access to and cost of capital?**

11 A. The proportion and cost of debt capital available to utility companies are
12 influenced by the rating agencies’ assessment of the regulatory environment.
13 Moody’s has highlighted the importance of a stable and predictable regulatory
14 environment to a utility’s credit quality, stating that “[b]roadly speaking, the
15 Regulatory Framework is the foundation for how all the decisions that affect
16 utilities are made (including the setting of rates), as well as the predictability and
17 consistency of decision-making provided by that foundation.”⁸⁹

⁸⁷ Standard & Poor’s, *Assessing U.S. Utility Regulatory Environments*, March 11, 2010, at 2.

⁸⁸ S&P Global Ratings, Central Hudson Gas & Electric Corp. Rating Lowered to ‘A-’ on Average Management of Regulatory Risk; Outlook Stable, June 21, 2016, at 2-3.

⁸⁹ *Id.*

1 **Q. Have you conducted any analysis of investors' perceptions of the regulatory**
2 **framework in which the Company operates relative to the proxy group**
3 **companies?**

4 A. Yes. To assess investors' view of the Company's regulatory framework, I
5 considered two different rankings: (1) the S&P business and financial rankings;
6 and (2) S&P's ranking of the credit supportiveness of regulatory jurisdictions.
7 S&P ranks the business risk profile on a six-tier scale from excellent ("1") to
8 vulnerable ("6"). In addition, S&P ranks financial risk profile on a similar scale,
9 from minimal ("1") to highly-leveraged ("6"). I applied that numeric ranking
10 system to the proxy group companies. As shown in Exhibit __ (AEB-10), Central
11 Hudson's business risk profile is Excellent ("1"), which is in line with the proxy
12 group average ranking that was also Excellent ("1.19"). Regarding the financial
13 risk profile, Central Hudson's ranking is Significant ("4"), which means that the
14 Company has higher financial risk than the proxy group average ranking of
15 Intermediate/Significant ("3.59").

16 **Q. How did you conduct your analysis of the S&P credit supportiveness?**

17 A. For credit supportiveness, S&P classifies each regulatory jurisdiction into five
18 categories ranging from "Strong" to "Weak." Within each category, regulatory
19 jurisdictions are ranked according to their credit supportiveness from most credit
20 supportive to least credit supportive. My analysis of the credit supportiveness of
21 the regulatory jurisdictions that the proxy companies operate in, as compared with

1 the Company's regulatory jurisdiction, was similar to the analyses of the S&P
2 business and financial ranking discussed above. I assigned a numerical ranking to
3 each jurisdiction ranked by S&P, from most credit supportive ("1") to least credit
4 supportive ("53"). As shown in Exhibit __ (AEB-11), the proxy group average
5 ranking is 24.66, which would be classified as Strong/Adequate and ranks slightly
6 above average for credit supportiveness, while the New York jurisdictional
7 ranking is 34.00, which is below average in credit supportiveness.

8 **Q. What is your conclusion regarding the regulatory framework in New York as**
9 **compared with the jurisdictions in which the proxy group companies**
10 **operate?**

11 A. The regulatory framework in which a regulated utility provides service is one of
12 the most important consideration for debt and equity investors. Based on my
13 analysis, I conclude that New York's regulatory framework has somewhat greater
14 risk than the jurisdictions in which the proxy group companies provide service.
15 While the differences are not significant, my analysis demonstrates that investors
16 perceive regulation for Central Hudson as slightly below average relative to the
17 proxy group. There is no indication that the business, regulatory and financial
18 risks of Central Hudson (or other New York utilities) are lower than the industry
19 average. As such, the large differential in the authorized ROE in New York as
20 compared with the nationwide range of returns is not supported by the risk
21 assessment.

1 **Q. Have any equity analysts commented on the Commission’s recent decision to**
2 **authorize National Fuel Gas an ROE of 8.70 percent on 42.90 percent equity?**

3 A. Yes. A May 2017 equity analyst report published by Jefferies expresses serious
4 concern with the consequences of low authorized returns on the ability of
5 regulated utilities in New York to attract capital on reasonable terms. The report
6 states:

7 The NY PSC’s authorization of the nation’s lowest gas utility
8 ROE compounds the perceived risks for investment in the
9 state. As NY residents and tax payers, we are alarmed by
10 these developments as considerations such as regulatory risk
11 are central to those with capital when determining whether to
12 invest in NY or elsewhere; utilities with poor regulatory
13 constructs often struggle to attract capital on attractive terms
14 and we fear what a continuation of this trend might mean for
15 NY companies over time.⁹⁰
16

17 **Q. Have any credit rating agencies or equity analysts commented on the impact**
18 **of REV on the risk profile of regulated utilities in New York?**

19 A. Yes, both Moody’s and UBS have commented on the uncertainty related to REV.
20 In the July 2016 report for Central Hudson, Moody’s explains: “While not having
21 an immediate impact to CHG&E’s rating, the plan will most certainly affect the
22 operations of the company over the long-term. We will continue to monitor these
23 developments closely as the specific credit implications of the state’s REV

⁹⁰ Jefferies Equity Research Americas, “National Fuel Gas Company, Tell By My Attitude That I’m Most Definitely...,” May 4, 2017, at 1.

1 initiative develop over time.”⁹¹ UBS also noted that the REV initiatives presented
2 risk related to the strong effort to introduce competition in T&D alternatives.⁹²

3 **Q. Should the implementation of REV initiatives be considered in the**
4 **determination of the Company’s ROE?**

5 A. Yes. The Commission’s implementation of REV initiatives creates uncertainty
6 for investors, which thereby increases regulatory risk for Central Hudson. On
7 balance, the higher risk associated with the ongoing REV proceeding supports an
8 ROE above the proxy group mean.

9
10 **C. CAPITAL EXPENDITURES**

11 **Q. Did you consider any other information regarding the Company’s risks**
12 **relative to the proxy group companies?**

13 A. Yes. I also considered the risk related to the Company’s future capital
14 expenditures as compared with the proxy group.

15 **Q. Please summarize the projected capital expenditures for Central Hudson.**

16 A. The capital expenditure projections for Central Hudson are approximately \$1.079
17 billion for the period from 2017 through 2021. The Company’s program includes
18 significant capital investment in electric and gas infrastructure projects designed
19 to enhance the safety and reliability of its systems.

⁹¹ Moody’s Investors Service Credit Opinion: Central Hudson Gas & Electric Corporation, July 12, 2016, at 3.

⁹² UBS First Read, Consolidated Edison Putting Down the Blast Risk, February 17, 2017, at 2.

1 **Q. Do credit rating agencies recognize the risks associated with significant**
2 **capital expenditures?**

3 A. Yes. From a credit perspective, the additional pressure on cash flows associated
4 with high levels of capital expenditures exerts corresponding pressure on credit
5 metrics and, therefore, credit ratings. A 2016 S&P report noted:

6 When applicable, a jurisdiction's willingness to support large
7 capital projects with cash during construction is an important
8 aspect of our analysis. This is especially true when the project
9 represents a major addition to rate base and entails long lead
10 times and technological risks that make it susceptible to
11 construction delays. Broad support for all capital spending is
12 the most credit-sustaining. Support for only specific types of
13 capital spending, such as specific environmental projects or
14 system integrity plans, is less so, but still favorable for
15 creditors. Allowance of a cash return on construction work-in-
16 progress or similar ratemaking methods historically were
17 extraordinary measures for use in unusual circumstances, but
18 when construction costs are rising, cash flow support could be
19 crucial to maintain credit quality through the spending
20 program. Even more favorable are those jurisdictions that
21 present an opportunity for a higher return on capital projects
22 as an incentive to investors.⁹³
23

24 **Q. Have credit rating agencies commented specifically on the magnitude of**
25 **Central Hudson's projected capital expenditures?**

26 A. Yes. All three rating agencies (i.e., Moody's, S&P, and Fitch) have noted that the
27 Company's capital expenditures are expected to be materially higher over the next
28 five years than in recent years. As discussed in more detail in the Finance Panel

⁹³ S&P Global Ratings, Ratings Direct, "Assessing U.S. Investor-Owned Utility Regulatory Environments," August 10, 2016, at 7.

1 Direct Testimony, the Company was recently downgraded by both Fitch and
2 S&P. In July 2015, Fitch downgraded the Company due to incremental debt
3 financings, extensive capital investment, and an authorized ROE that was
4 significantly lower than the national average at the time of the Company's last
5 rate case.⁹⁴ Recently, Fitch commented on the cash flow risks associated with the
6 elevated level of capital expenditures for Central Hudson as follows:

7 Fitch Ratings projects capex to be in the \$700 million-\$800
8 million range over 2017-2020. By contrast, CHG&E's capex
9 amounted to approximately \$539 million over the previous
10 five years. The high capex requires significant external
11 funding that Fitch anticipates will pressure operating cash
12 flow. Management expects to fund capex using a balanced
13 mix of internally generated funds and short-term and long-
14 term borrowings, in a manner consistent with the authorized
15 regulatory capital mix.⁹⁵

16 The S&P downgrade is also discussed in the Direct Testimony of the Company's
17 Finance Panel. S&P's explanation for the downgrade was based on the risk
18 associated with the multi-year rate plans that were authorized by the Commission.
19 S&P concluded that, while the Company and other utilities previously may have
20 had an advantage over peers in managing regulatory risk, the last rate proceeding
21 and the Commission's decisions for the other New York utilities suggested that

⁹⁴ Fitch Ratings, "Fitch Downgrades Central Hudson's IDR to 'BBB+'; Outlook Revised to Stable," July 2, 2015, at 1.

⁹⁵ Fitch Ratings, Central Hudson Gas & Electric Corp., April 7, 2017, at 1.

1 that advantage no longer existed.⁹⁶

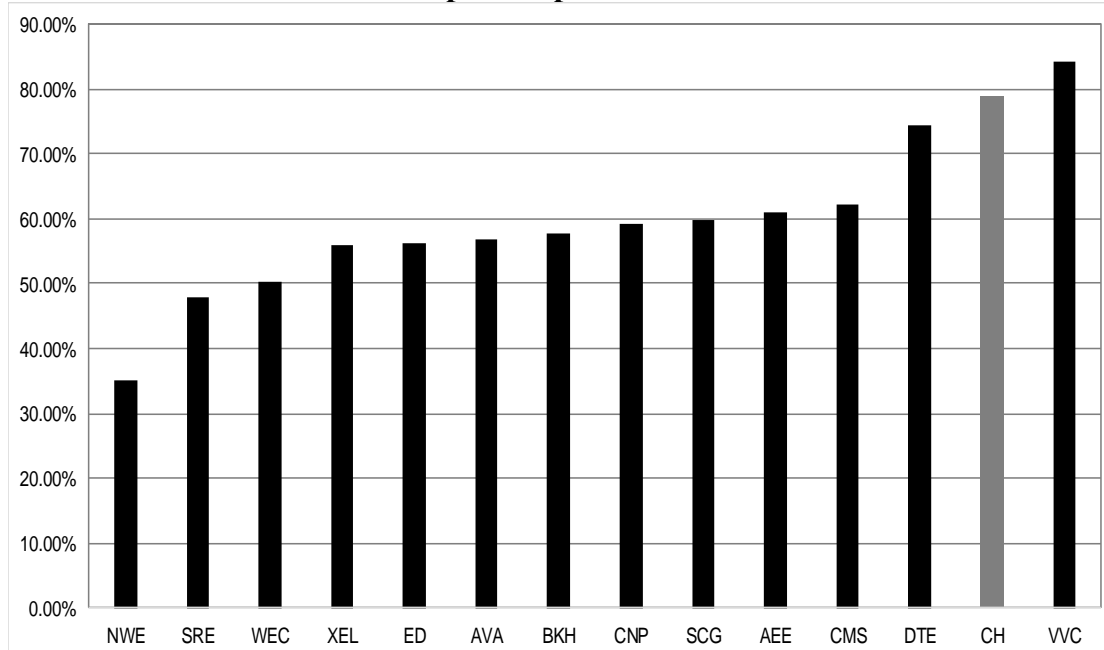
2 **Q. Have you conducted any analysis of the Company’s projected capital**
3 **expenditures relative to the proxy companies?**

4 A. Yes. I compared the ratio of projected capital expenditures from 2017 through
5 2021 to net utility plant as of December 31, 2015, for Central Hudson with each
6 of the proxy group companies. Chart 5 demonstrates that Central Hudson’s ratio
7 of projected capital expenditures to net plant is greater than all but one of the
8 proxy group members. Furthermore, as shown in Exhibit __ (AEB-12), Central
9 Hudson’s planned investment ratio of 78.73 percent is well above the proxy group
10 median of 57.70 percent, suggesting that the Company faces greater risk from its
11 capital program than the typical proxy group member.

⁹⁶ S&P Global Ratings, “Research Update: Central Hudson Gas & Electric Corp. Rating Lowered to ‘A-’ on Average Management of Regulatory Risk; Outlook Stable,” June 21, 2016, at 2-3.

1
2

Chart 5: Capital Expenditures/Net Plant



3
4

5 **Q. What is your conclusion regarding the effect of the projected capital**
6 **expenditure plans on the risk profile of Central Hudson and its cost of**
7 **equity?**

8 A. The Company's capital expenditure requirements as a percentage of net utility
9 plant are higher than all but one of the proxy group companies. This elevated
10 level of capital expenditures relative to the proxy group suggests that the proxy
11 group average return should establish the lower bound for the authorized ROE for
12 Central Hudson.

13

VIII. CAPITAL STRUCTURE

1 **Q. Please summarize the Company's proposed capital structure.**

2 A. Central Hudson is requesting a 50.00 percent common equity ratio for ratemaking
3 purposes, which reflects the Company's actual equity ratio in recent years.

4 **Q. Have you conducted any analysis of the Company's proposed capital
5 structure as compared with the proxy companies?**

6 A. Yes. I have compared Central Hudson's proposed capital structure to the
7 authorized capital structures of the companies in the proxy group for the period
8 from 2013 through 2016. As shown on Exhibit __ (AEB-13), the mean annual
9 equity ratio of the utility subsidiaries of the proxy companies over that period is
10 53.68 percent.

11 **Q. What do you conclude from this analysis?**

12 A. The requested 50.00 percent equity ratio is conservative considering the equity
13 ratios of the proxy companies and the current business and financial risks of
14 Central Hudson, including significant capital investment programs. This analysis
15 shows that the utility operating subsidiaries owned by holding companies with
16 similar business characteristics to Central Hudson have for the last two years
17 maintained average common equity ratios more than four percentage points
18 higher, indicating that Central Hudson will have higher financial risk than the
19 proxy group companies. Therefore, I conclude that the requested equity ratio

1 should be considered a lower bound on the equity ratio that would support the
2 Company's financial integrity.

3 **Q. What is the Commission's policy on determining the authorized equity ratio?**

4 A. The Commission has allowed the use of a stand-alone equity ratio if a utility can
5 demonstrate that the credit rating agencies view that utility's credit on a stand-
6 alone basis independent of its parent. This issue was specifically addressed in the
7 order approving the acquisition of CH Energy by Fortis, Inc., where the
8 Commission stated:

9 With the golden share in place, Central Hudson would be
10 permitted to demonstrate in future rate cases that its
11 standalone capital structure should be used for setting rates.
12 That demonstration would be made by submitting current
13 written evaluations from at least two rating agencies
14 supporting the evaluation of Central Hudson as a separate
15 company, without material adjustments based on risks related
16 to the capital structure and ratings of Fortis.⁹⁷

17
18 **Q. Do the credit rating agencies view Central Hudson's credit on a stand-alone
19 basis?**

20 A. Yes. Both Moody's and S&P review and assess the credit risk profile of the
21 individual utility on a stand-alone basis, and Central Hudson is rated on its own
22 financial merits and business risk profile. The rating agencies point to the strong
23 ring-fencing provisions for the Company as the basis for its stand-alone

⁹⁷ New York Public Service Commission, Case No. 12-M-1092, Order Authorizing Acquisition Subject to Conditions, Issued and Effective June 26, 2013, at 16.

1 evaluation. For example, in recent reports, Moody's notes that Central Hudson
2 has strong ring fencing provisions that protect the stand-alone ratings.

3 The NYPSIC imposed credit supportive ring-fencing
4 provisions as part of its order approving Fortis' acquisition of
5 CHG&E in 2013. Those include the institution of dividend
6 restrictions based on maintenance of the company's equity
7 capitalization and credit rating, the creation of a special
8 preferred share that provides additional protection from
9 bankruptcy, and money pooling restrictions, and stand-alone
10 liquidity requirements that all serve as credit supportive for
11 CHG&E over time.⁹⁸
12

13 Similarly, S&P states:

14 Although the credit rating on CHG&E is the same as that on
15 Fortis, we recognize the insulating measures in place that
16 could allow for CHG&E to be rated up to two notches higher
17 than parent Fortis. These measures include dividend
18 restrictions and a non-consolidation opinion.⁹⁹
19

20 **Q. What do you conclude regarding the credit rating agencies' view of the credit
21 quality of Central Hudson?**

22 A. Rating agencies are very cognizant of the protective ring-fencing measures that
23 the Commission has established for Central Hudson and cite them as the reason
24 why they assess the Company's credit quality on a stand-alone basis. Because
25 there is factual evidence indicating that the two major credit rating agencies view

⁹⁸ Moody's Investors Service Credit Opinion: Central Hudson Gas & Electric Corporation, July 12, 2016, at 4.

⁹⁹ S&P Global Ratings, Central Hudson Gas & Electric Corp. Rating Lowered to A- on Average Management of Regulatory Risk; Outlook Stable, June 21, 2016, at 3.

1 the Company's credit quality on a stand-alone basis, the stand-alone capital
2 structure proposed in this proceeding is appropriate for the purpose of establishing
3 the ROR on rate base.

4 **Q. How will the capital structure and ROE authorized in this proceeding affect**
5 **the Company's access to capital at reasonable rates?**

6 A. The level of earnings authorized by the Commission directly affects the
7 Company's ability to fund its operations with internally-generated funds. Both
8 bond investors and rating agencies expect a significant portion of ongoing capital
9 investments to be financed with internally-generated funds. It also is important to
10 realize that because a utility's investment horizon is very long, investors require
11 the assurance of an authorized return that causes the coverage ratios to satisfy the
12 long-run financing requirements of debt holders. As such, both the ROE and
13 capital structure are very important to debt and equity investors. Furthermore,
14 considering the capital market conditions discussed in Section IV, the authorized
15 ROE and capital structure take on even greater significance.

16 **Q. Does the use of a 50.00 percent equity ratio have any implications for your**
17 **recommendation concerning the Company's ROE?**

18 A. Yes. The average equity ratio of the proxy companies is higher than 50.00
19 percent, which means that all else equal, the proxy companies have lower
20 financial risk than is implied by the 50.00 percent equity ratio proposed by the
21 Company. While moving from an equity ratio of 48.00 percent to 50.00 percent

1 is directionally helpful, this still does not fully close the gap between Central
2 Hudson and the operating utilities held by the proxy group companies. Given the
3 risk differential and the significance of the overall ROE/capital structure
4 determination to the Company's continuing ability to access capital, it is critically
5 important that the Commission establish an equity ratio at least equal to 50.00
6 percent.

IX. MULTI-YEAR RATE PLAN

8 **Q. Would a multi-year rate plan impact your ROE recommendation?**

9 A. Yes. As noted earlier in my Direct Testimony, Treasury yields remain low by
10 historical standards even as the Federal Reserve has moved toward a more neutral
11 monetary policy. Consensus forecasts show that interest rates are expected to
12 increase in the short term. While the current three-month average yield on the 30-
13 year U.S. Treasury bond as of May 31, 2017, was 3.00 percent, the latest Blue
14 Chip Consensus Forecast for the period 2019 to 2023 is 4.30 percent, an increase
15 of approximately 130 basis points. If interest rates were to increase as predicted,
16 an ROE established based on recent historical interest rates would not reflect
17 economic conditions during the term of a multi-year rate plan.

1 **Q. How might the risks of a multi-year rate plan be addressed?**

2 A. The Commission has in many cases approved three-year rate case settlements that
3 often include stay-out premiums. It is my understanding that the Company has
4 provided three years of forecast data in its rate filing. In keeping with
5 Commission precedent, a stay-out premium would reflect the increased risk faced
6 by the Company under a multi-year rate plan.

7 **Q. How has the Commission typically estimated a stay-out premium?**

8 A. The Commission's approach has typically set the measure of the risk and return
9 trade-off using one-half of the yield spread between one-year and three-year
10 Treasury securities.

11 **Q. Have you calculated the difference in the expected yield on one-year and
12 three-year Treasuries?**

13 A. Yes. As shown in Exhibit __ (AEB-14), the average yield spread between one
14 and three-year Treasury bonds for the three months ended May 26, 2017 was 46
15 basis points. The Commission policy has typically been to adjust the ROE by 50
16 percent of the expected change in Treasury bond yields in recognition of the
17 relationship between ROEs and Treasury yields. Using this approach would
18 result in a premium of 23 basis points to the authorized ROE for an additional
19 two-year stay-out period.

1 **Q. Does one half of the yield spread between one-year and three-year Treasuries**
2 **sufficiently reflect the risk to equity investors inherent in a multi-year stay-**
3 **out?**

4 A. No. The stay-out premium associated with a multi-year rate plan should not only
5 compensate investors for changes in the level of interest rates or inflation, but also
6 for the potential risk of under-earning that is introduced by “staying out.” By
7 staying out of rate cases, the utility may not fully recover material amounts of
8 capital expenditures and may be required to absorb losses due to differences
9 between the cost of service established in the rate plan and actual levels of
10 revenue and expense. The premium should compensate the utility and its
11 investors for these additional risks over and above interest rate risk. In the current
12 market environment, there is additional risk that the authorized ROE will be lower
13 than investors’ expectations as interest rates are expected to increase.

14 **Q. What do you propose as the stay-out premium for a three-year rate plan?**

15 A. The ROE proposed by Central Hudson of 9.50 percent will not provide the
16 Company a return commensurate with returns available on investments of similar
17 risk over the term of the multi-year rate plan without an adequate stay-out
18 premium. Based on the analysis discussed above, I recommend that a stay-out
19 premium of 50 basis points is a reasonable, albeit conservative, reflection of the
20 incremental risk to the Company under a multi-year stay-out provision.

21

X. CONCLUSION AND RECOMMENDATION

1 **Q. What is your conclusion regarding a fair return on equity for Central**
2 **Hudson?**

3 A. My recommended ROE considers the results of the DCF and CAPM
4 methodologies, as well as the specific business and financial risks to which the
5 Company is exposed. Based on an equal weighting of the DCF and CAPM
6 results, the range is between 9.76 percent and 10.15 percent. Using the FERC's
7 methodology in Opinion Nos. 531 and 551 results in an ROE of 9.21 percent to
8 9.56 percent. Given these factors, and as shown in Chart 1, the Company's
9 requested ROE of 9.50 percent is reasonable, if not conservative, and should be
10 adopted. Furthermore, if the Commission approves the stay-out period, a
11 premium of 50 basis points should be added to the ROE.

12 **Q. What is your conclusion regarding the Company's proposed common equity**
13 **ratio?**

14 A. Central Hudson's proposed common equity ratio of 50.00 percent for ratemaking
15 purposes is below the mean and median equity ratios for the operating companies
16 held by the proxy group. Further, the Company has substantial ring-fencing
17 provisions in place that insulate the operating utilities from the parent company
18 and support use of Central Hudson's stand-alone equity ratio for ratemaking
19 purposes.

1 **Q. Does this conclude your Direct Testimony?**

2 A. Yes, it does.

Ann E. Bulkley
Senior Vice President

Ms. Bulkley more than 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.

Rate-making

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)

Senior Vice President

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



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Arizona Corporation Commission				
Tucson Electric Power Company	11/15	Tucson Electric Power Company	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
Connecticut Public Utilities Regulatory Authority				
Southern Connecticut Gas Company	06/17	Southern Connecticut Gas Company	Docket No. 17-05-42	Return on Equity
The United Illuminating Company	07/16	The United Illuminating Company	Docket No. 16-06-04	Return on Equity
Federal Energy Regulatory Commission				
Tallgrass Interstate Gas Transmission	10/15	Tallgrass Interstate Gas Transmission	RP16-137	Return on Equity



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
Indiana Utility Regulatory Commission				
Indianapolis Power and Light Company	09/15	Indianapolis Power and Light Company	Cause No. 44576 Cause No. 44602	Fair Value
Indianapolis Power and Light Company	12/16	Indianapolis Power and Light Company	Cause No.44893	Fair Value
Kokomo Gas and Fuel Company	09/10	Kokomo Gas and Fuel Company	Cause No. 43942	Fair Value
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. 44688	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



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE NO.	SUBJECT
New Mexico Public Regulation Commission				
Southwestern Public Service Company	06/15	Southwestern Public Service Company	Case No. -15-001398-UT	Return on Equity
Southwestern Public Service Company	10/15	Southwestern Public Service Company	Case No. -15-00296-UT	Return on Equity
Southwestern Public Service Company	12/16	Southwestern Public Service Company	Case No. – 16-00269-UT	Return on Equity
New York State Department of Public Service				
Corning Natural Gas Corporation	06/16	Corning Natural Gas Corporation	Case No. 16-G-0369	Return on Equity
KeySpan Energy Delivery	01/16	KeySpan Energy Delivery	Case No. 15-G-0059	Return on Equity
National Fuel Gas Company	04/16	National Fuel Gas Company	Case No. 16-G-0257	Return on Equity
New York State Electric and Gas Company	05/15	New York State Electric and Gas Company	Case No. 15-G-0284	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



SPONSOR	DATE	CASE/APPLICANT	DOCKET /CASE No.	SUBJECT
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