

**STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION**

Docket No. DG 20-105

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty
Distribution Service Rate Case

REBUTTAL TESTIMONY

OF

JOHN COCHRANE

April 29, 2021



THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION AND BACKGROUND	1
II.	PURPOSE AND OVERVIEW OF TESTIMONY	1
III.	ISSUES COMMON TO STAFF AND OCA ROE TESTIMONY	3
IV.	RESPONSE TO STAFF ROE TESTIMONY	17
V.	RESPONSE TO OCA ROE TESTIMONY.....	28
VI.	CONCLUSIONS AND RECOMMENDATIONS.....	34

ATTACHMENTS

Attachment	Title
JC-1	Response to OCA Data Request 3-1

1 **I. INTRODUCTION AND BACKGROUND**

2 **Q. Please state your full name, position, and business address.**

3 A. My name is John Cochrane. I am a Senior Managing Director and head of the Power &
4 Utilities practice at FTI Consulting, Inc. (“FTI”). My business address is 200 State St,
5 9th Floor, Boston, Massachusetts.

6 **Q. On whose behalf are you submitting testimony?**

7 A. I am submitting testimony on behalf of Liberty Utilities (EnergyNorth Natural Gas) Corp.
8 d/b/a Liberty (“EnergyNorth” or “the Company”).

9 **Q. Have you previously submitted testimony in this proceeding?**

10 A. Yes. I submitted testimony as part of the Company’s July 31, 2020, filing for an increase
11 in distribution rates. My educational background, professional background, and
12 qualifications are contained in that prior testimony.

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

14 **Q. What is the purpose of your testimony?**

15 A. The purpose of my testimony is to respond to the direct testimony of Dr. Pradip
16 Chattopadhyay, who appears on behalf of the New Hampshire Office of Consumer
17 Advocate (“OCA”), and the direct testimony of Dr. J. Randall Woolridge, who appears
18 on behalf of the New Hampshire Public Utilities Commission Staff (“Staff”), regarding
19 EnergyNorth’s proposed Return on Equity (“ROE”) and capital structure.

1 **Q. Please summarize your conclusions regarding the authorized ROE for the**
2 **Company.**

3 A. For reasons I discuss in detail later in my testimony, I conclude that the arguments
4 proposed by Dr. Woolridge and Dr. Chattopadhyay are seriously flawed and that
5 acceptance of their recommendations would result in the establishment of an authorized
6 ROE for EnergyNorth that is significantly below industry standards relevant to gas
7 utilities in New Hampshire or anywhere else in the United States. I also conclude that
8 my original recommended ROE range of 9.94% to 11.20% and point estimate of 10.51%
9 for EnergyNorth are each reasonable. Finally, I continue to find that the capital structure
10 as described in the joint testimony of Messrs. Simek and Sosnick, which consists of
11 50.15% common equity and 49.85% debt, is reasonable and consistent with other utility
12 companies.

13 **Q. How is the remainder of your testimony organized?**

14 A. The remainder of my testimony is organized as follows:

- 15 • Section III responds to five issues common to testimony of Staff and the OCA
16 regarding the recommended return on common equity;
- 17 • Section IV addresses certain items specific to Staff testimony on ROE and capital
18 structure;
- 19 • Section V discusses concerns with the inputs, proxy group, and CAPM
20 methodologies in the OCA's testimony;
- 21 • Section VI summarizes my conclusions and recommendations.

1 **III. ISSUES COMMON TO STAFF AND OCA ROE TESTIMONY**

2 **Q. Please identify the issues common to the testimony of Dr. Chattopadhyay and the**
3 **testimony of Dr. Woolridge.**

4 A. There are five main areas common to both testimonies that I will address in my rebuttal
5 testimony: low return on equity estimates; the impacts from the COVID pandemic;
6 market-to-book analyses; the assessment of flotation costs; and the small size premium.

7 Low ROEs

8 **Q. Why is it important to establish authorized ROEs that are consistent with industry**
9 **standards?**

10 A. The purpose of allowing a regulated utility to earn a fair return is so that it can attract the
11 capital required for the safe and efficient operation of its utility system. EnergyNorth,
12 like every other utility, must compete for investors' capital, and investors weigh the risks
13 of the investments they make against the returns they can earn. This is the reason why
14 ROEs are analyzed based on a proxy group of similarly situated companies with
15 comparable risk profiles. If the Commission was to establish an authorized ROE at a
16 level inconsistent with industry standards, particularly at a level below the ROEs
17 authorized for other utility companies in the country and one of the lowest ROEs
18 authorized in the last 40 years, the Company would be placed at a severe disadvantage in
19 its ability to attract capital.

1 **Q. What are the ROE recommendations and ranges proposed by Drs. Chattopadhyay**
2 **and Woolridge?**

3 A. Dr. Chattopadhyay recommends an ROE of 8.90% within a range of 8.80% and 9.00%.¹

4 Dr. Woolridge recommends an ROE of 9.00% within a range of 7.60% and 9.00%.²

5 **Q. Are these proposed ROEs in line with recent industry standards?**

6 A. No, they are not.

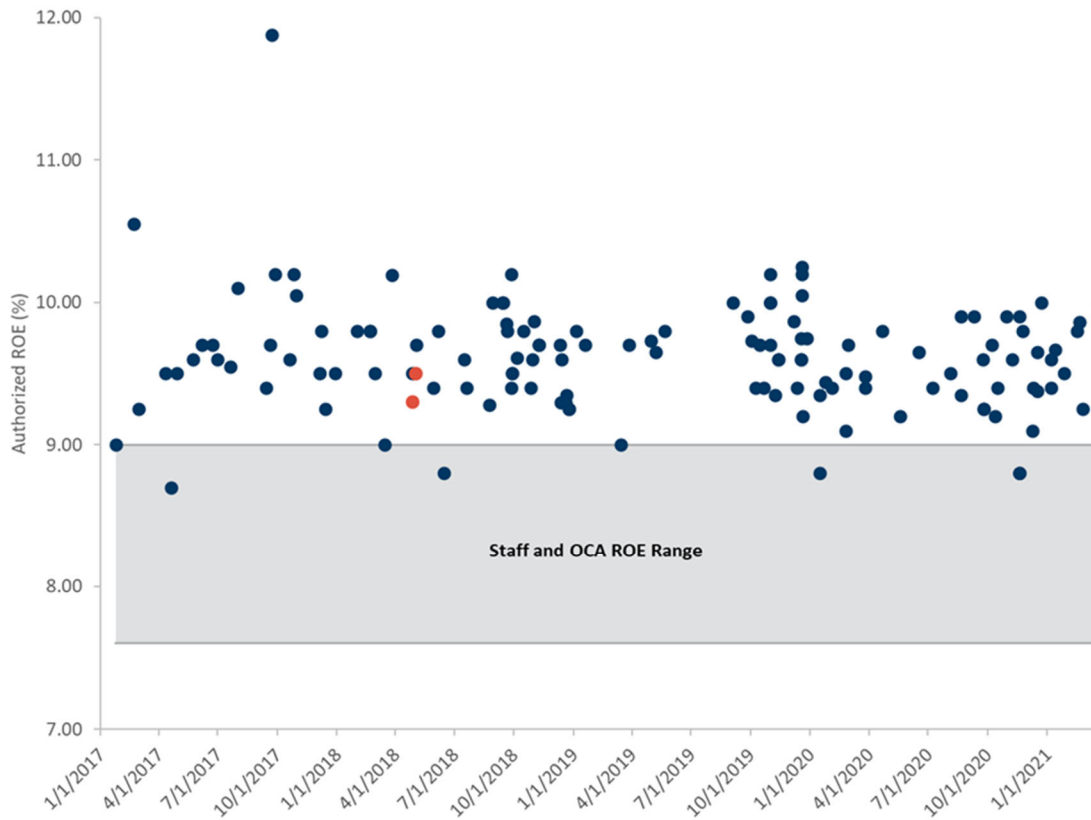
7 **Q. To what extent are their proposed ROEs out of line with recent industry standards?**

8 A. Their recommendations are very much an outlier. Drs. Woolridge and Chattopadhyay
9 propose to set EnergyNorth's ROE at a level that would make it among the five lowest
10 approved ROEs in the industry in the last five years. Since 2017, there have been 136
11 state commission approved ROEs for natural gas distribution utilities, 128 of which or
12 over 94% have been above 9.00% and only four of which have been below 9.00%. In
13 addition, the lower end of Dr. Woolridge's range, 7.6%, is more than 100 basis points
14 lower than any approved ROE in the last 30 years. Over this period, ROEs ranged from
15 8.7% to 11.88% with an average of 9.62%. Figure 1 below shows the authorized returns
16 of natural gas distribution utilities since 2017.

¹ New Hampshire Public Utilities Commission, Docket No. DG 20-105, Direct Testimony of Dr. Pradip Chattopadhyay, March 18, 2021 ("Chattopadhyay Testimony") at page 7.

² New Hampshire Public Utilities Commission, Docket No. DG 20-105, Direct Testimony of Dr. J. Randall Woolridge, March 18, 2021 ("Woolridge Testimony") at page 4.

Figure 1. Authorized ROEs for Gas Utilities, January 2017 – Present



Source: Regulatory Research Associates (RRA); S&P Global Market Intelligence

Q. Does your data include decisions made by this Commission?

A. Yes it does. It includes the decisions made by this Commission in Docket Nos. DG 17-070 (Northern Utilities) and DG 17-048 (EnergyNorth) and these are displayed visually by the orange data points above.³

³ The ROE approved in DG 17-070 (Northern Utilities, Inc.) was 9.50% and ROE approved in DG 17-048 (EnergyNorth) was 9.30%.

1 **Q. Have authorized ROEs declined since the Company's last rate case?**

2 A. No, they have not. Since the approval of EnergyNorth's current authorized ROE, the
3 trendline for authorized ROEs for natural gas utilities is slightly positive, but effectively
4 zero (0.002). Additionally, more than 95% (124 out of 130) of the authorized ROEs
5 since May 2017 have been above the ROEs that Drs. Chattopadhyay and Woolridge have
6 recommended.

7 **Q. Is there any reason why certain commissions have approved ROEs under 9.00% in**
8 **recent years?**

9 A. Yes. The only Commission that has approved an ROE under 9.00% in the last 10 years is
10 the New York State Department of Public Service. However, the gas utilities subject to
11 these lower ROEs operate under an Earnings Sharing Mechanism ("ESM") where the
12 mechanism allows the utility to earn above the authorized ROE and share the profits with
13 their customers. These ESMs typically have a "deadband" under which the utility does
14 not have to share their earnings, and all of the utilities which have an authorized ROE
15 under 9.00% have a deadband that allows them to earn above 9.00%.

16 **Q. Could you provide some further historical context on authorized ROEs for natural**
17 **gas distribution utilities?**

18 A. Certainly. Of the 1,522 authorized ROEs for natural gas distribution utilities since 1979
19 reported by RRA, less than 1% (15) have been at or below the high end of the ranges that
20 Drs. Chattopadhyay and Woolridge have recommended.

1 **Q. Has the Commission authorized an ROE at or below 9.00% for a natural gas**
2 **distribution utility?**

3 A. No, it has not. Since 2009, there have been five instances in which this Commission has
4 established an authorized ROE for a natural gas utility, the lowest authorized ROE was
5 9.30%, the Company's current ROE.⁴ Therefore, in recommending a range of 7.60–
6 9.00%, Drs. Chattopadhyay and Woolridge are recommending a lower ROE than the
7 Commission has established for a natural gas utility in recent history and one that would
8 put the decision in the lowest 1% of all natural gas utility ROEs established in the last 40
9 years.

10 Covid Impacts

11 **Q. Do Drs. Chattopadhyay and Woolridge explain what fundamental changes have**
12 **occurred in the utility industry or the New Hampshire economy?**

13 A. Both Dr. Chattopadhyay and Dr. Woolridge discuss the significant changes that have
14 impacted the economy due to the COVID-19 pandemic.

15 **Q. Have natural gas utility authorized ROEs been affected by the COVID-19**
16 **pandemic?**

17 A. It appears that commission authorized ROEs have not been significantly impacted by the
18 events associated with the COVID-19 pandemic. According to Dr. Woolridge's analysis,
19 "...authorized ROEs for utilities also reached record low levels in 2020."⁵ However, the

⁴ Regulatory Research Associates only covers rate cases in which the company has requested a rate change of at least \$5 million or has authorized a rate change of at least \$3 million.

⁵ Woolridge Testimony at page 13.

1 average and median authorized ROEs since the onset of the COVID-19 pandemic (March
2 2020) were 9.55% and 9.60%, respectively. These are not significantly different than the
3 average and median authorized ROEs of natural gas utilities since 2017 of 9.62% and
4 9.60%, respectively.

5 **Q. Did Drs. Chattopadhyay and Woolridge identify uncertainty created as a result of**
6 **the pandemic?**

7 A. Yes. In his testimony, Dr. Chattopadhyay notes in various instances that the natural gas
8 industry (among others) is characterized as being unstable. Specifically, he notes: “From
9 the look at the US economy and the state of the natural gas utility industry (at least as
10 reflected in the OCA’s proxy group), it is evident that gas utilities are not in a stable
11 environment lately.”⁶ Dr. Woolridge, in his analysis, discussed how a “fear index”
12 reached 2.5 times its long-term level during the pandemic.⁷

13 **Q. Do you concur that the recent events given the pandemic have increased uncertainty**
14 **as discussed by Drs. Chattopadhyay and Woolridge?**

15 A. Yes. I also discussed this in my direct testimony and I will restate here that the economic
16 impact of COVID-19 has resulted in increased uncertainty and risk to utility investors.
17 This increased risk resulted in a general increase in the betas for natural gas utilities and

⁶ Chattopadhyay Testimony at page 12.

⁷ Woolridge Testimony at page 14.

1 those in the proxy group.⁸ In addition, I still conclude that the result of this is upward
2 pressure on expected returns.

3 Market-to-book

4 **Q. Please summarize Dr. Woolridge's and Dr. Chattopadhyay's claims regarding**
5 **market-to-book ratios for utilities.**

6 A. Dr. Woolridge and Dr. Chattopadhyay both claim that the fact that natural gas utility
7 market-to-book ratios having exceeded unity indicates that the expected ROE by
8 investors exceeds the true cost of equity.⁹

9 **Q. Do you agree with the claim that market-to-book ratios in excess of unity reflect an**
10 **overstated ROE?**

11 A. No, I do not. Market-to-book value is equal to the price per share divided by the book
12 value per share. Several factors can cause the market-to-book ratio to deviate from unity
13 without resulting in an overstated cost of equity, such as "diversification into
14 nonregulated fields...even though the profitability of the regulated portion is
15 restricted."¹⁰ Additionally, "even if all the firm's activities are regulated, if assets are
16 excluded from rate base, or if Construction Work in Progress (CWIP) does not appear in

⁸ New Hampshire Public Utilities Commission, Docket No. DG 20-105, Direct Testimony of John Cochrane, July 31, 2020 ("Cochrane Testimony") at pages 33–34.

⁹ Chattopadhyay Testimony at page 13 and Woolridge Testimony at page 26.

¹⁰ Dr. Roger Morin, *New Regulatory Finance*, Public Utilities Reports, Inc., 2006 ("Morin 2006") at page 362.

1 rate base and no Allowance for Funds Used During Construction (AFUDC) is allowed on
2 CWIP, rate base will not equal net book value, and the M/B will not equal 1.0.”¹¹

3 Morin notes in *New Regulatory Finance* that:

4 “Historically, it has been highly unusual for utility stock prices to equal
5 book value. Stock prices above book value are common for utility stocks,
6 and indeed for all of the major market indexes. It is obvious that
7 regulators, through their rate case decisions, and investors do not subscribe
8 to the notion that utilities that have market prices above book value are
9 over-earning. Otherwise, regulators would not grant rate increases for any
10 utility whose stock price was above book value, and investors would never
11 bid up the price of stock above book value. It is very difficult to accept the
12 notion that, in a free-market economy with rampant competition, the vast
13 majority of all publicly traded stocks are earning well in excess of their
14 cost of capital.”¹²

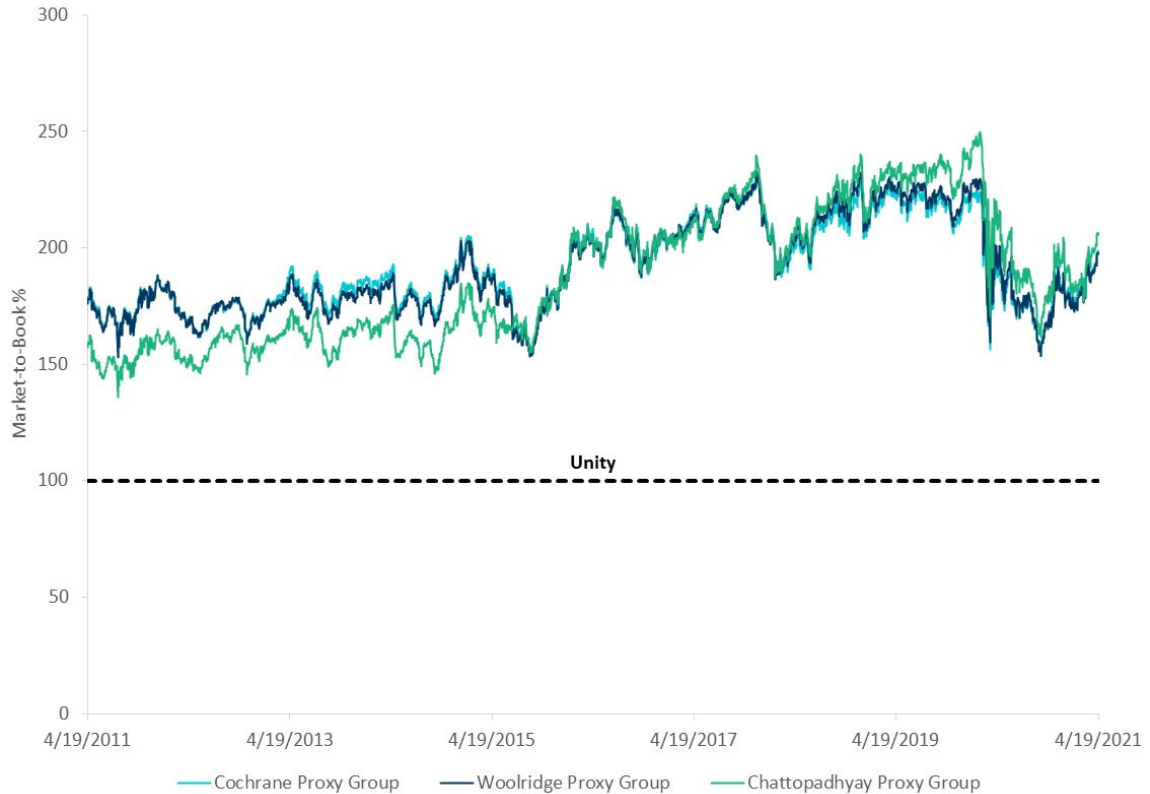
15 **Q. Have market-to-book ratios for natural gas utilities exceeded unity in the past?**

16 A. Yes, and consistently so. Figure 2 below shows that the average market-to-book ratios
17 for my proxy group, Dr. Chattopadhyay’s proxy group, and Dr. Woolridge’s proxy group
18 have all traded above unity over the last decade.

¹¹ *Ibid.* Dr. Morin also notes that market-to-book ratios are functions of several other variables such as the expected return on book equity, expected dividend growth, dividend yield, standard deviation, proxies for earnings quality, regulatory climate, accounting convention, and risk measures such as the equity ratio, beta, CWIP treatment, regulatory climate ranking, and the relative importance of construction expenditure (see Morin 2006 at page 366).

¹² Morin 2006 at page 378.

Figure 2. Proxy Group Market-to-Book %, 2011 – Present



If one were to accept Dr. Chattopadhyay's and Dr. Woolridge's claims that companies with market-to-book ratios in excess of unity are overearning on their true cost of capital, then one would also have to believe that the functioning, competitive market in which these publicly-traded firms compete for capital has allowed these companies to earn well in excess of their cost of capital for at least the last decade. I do not believe that, nor do Dr. Chattopadhyay or Dr. Woolridge suggest how that could be possible. Moreover, neither have provided any rationale or evidence as to why the current market-to-book ratios warrant a downward adjustment from EnergyNorth's ROE now, when the same condition held at the time of the Company's last rate case, at which time the Commission

1 authorized an ROE more than 75–90 basis points over Staff’s and OCA’s
2 recommendations.

3 **Q. In his testimony, Dr. Woolridge discusses a study he conducted comparing the**
4 **estimated ROE and market-to-book ratios. Please explain this analysis.**

5 A. Dr. Woolridge performs a simple regression analysis where the dependent variable is the
6 market-to-book ratio and the independent variable is the estimated return on
7 shareholders’ equity. His dataset for this analysis contains all natural gas distribution and
8 electric utility companies covered by Value Line.

9 **Q. Do you have concerns regarding the conclusions of that analysis?**

10 A. Yes. Dr. Woolridge claims that the R^2 of .5 demonstrates “a statistically-significant
11 positive relationship between ROEs and market-to-book ratios.”¹³ First, an R^2 of .5 is
12 widely considered a weak/moderate positive relationship at best and does not provide a
13 basis for his claim of a statistically-significant relationship.¹⁴ Second, as he caveats with
14 a footnote, this statistic only measures how much variation in one variable (in this case,
15 market-to-book ratio) is explained by the other variable (in this case, ROE) and *vice*
16 *versa*. Therefore, the only conclusion that can be drawn from this analysis, as it was
17 designed, is that market-to-book ratios and ROEs tend to move together, directionally.
18 Specifically, only 50% of the variation in market-to-book ratios can be explained by

¹³ Woolridge Testimony at page 26.

¹⁴ Moore, D. S., Notz, W. I., & Flinger, M. A. (2018). *The Basic Practice of Statistics* (8th ed.). New York, NY: W. H. Freeman and Company. Page (236).

1 estimated ROE. Nothing can be said about causation between these variables nor in
2 which direction that causality may occur.

3 Flotation costs

4 **Q. Please summarize Dr. Woolridge's and Dr. Chattopadhyay's positions regarding the**
5 **flotation cost adjustment that you incorporated into your calculations in your direct**
6 **testimony?**

7 A. Dr. Woolridge asserts that a flotation cost adjustment is unnecessary because: (1) there
8 have been no equity infusions into EnergyNorth in the past five years; and (2)
9 EnergyNorth has not paid any flotation costs in the past five years.¹⁵ Dr. Chattopadhyay
10 argues that flotation costs are small enough that his recommended ROE adequately
11 accounts for them.¹⁶

12 **Q. Could you please address the concerns raised by Dr. Chattopadhyay?**

13 A. As discussed earlier in my rebuttal testimony, market-to-book ratios greater than one are
14 a normal market condition. There is not a distortion in ROEs and therefore the Company
15 is not compensated for flotation costs through its ROE. For the reasons discussed above
16 in my testimony, Dr. Chattopadhyay's recommended ROE does not reflect the true cost
17 of capital. Without an appropriate adjustment for flotation costs, the Company would
18 under-earn, all other things the same as stated in my direct testimony.¹⁷

¹⁵ Woolridge Testimony at page 88.

¹⁶ Chattopadhyay Testimony at page 40.

¹⁷ Cochrane Testimony at page 28.

1 **Q. Does Dr. Chattopadhyay assert that companies like EnergyNorth do not incur**
2 **flotation costs?**

3 A. He does not. In fact, in his discussion of his ROE calculations in his direct testimony, he
4 notes that flotation costs are legitimately incurred.¹⁸

5 **Q. Please address the concerns raised by Dr. Woolridge.**

6 A. I disagree with the notion that a flotation cost adjustment is unnecessary simply because
7 EnergyNorth has not received any equity infusion nor paid any flotation costs in the last
8 five years. A flotation cost adjustment is required “even if no further stock issues are
9 contemplated, the flotation adjustment is still permanently required to keep shareholders
10 whole and...flotation costs are only recovered if the rate of return is applied to total
11 equity, including retained earnings, in all future years, even if no future financing is
12 completed.”¹⁹ Furthermore, EnergyNorth receives equity capital from its parent and thus
13 provides capital returns that roll up to the parent company level. Parent companies attract
14 capital based on the returns of their subsidiaries and denying the recovery of flotation
15 costs incurred in the course of providing equity to subsidiaries will only penalize existing
16 utility investors. Therefore, I do not agree that there should be no adjustment to account
17 for flotation costs.

¹⁸ *Ibid.*

¹⁹ Morin 2006 at page 329.

1 Small Size Premium

2 **Q. Could you please summarize Dr. Woolridge's and Dr. Chattopadhyay's position**
3 **regarding the small-size premium?**

4 A. Both Drs. Woolridge and Chattopadhyay assert that there is evidence that no such size
5 premium exists for regulated utilities²⁰ and Dr. Chattopadhyay argues that the small-firm
6 effect is dependent upon the time period chosen.²¹ Both state that the Commission
7 should not allow an adjustment for a small-size premium.

8 **Q. Do you agree that the small-size premium does not apply to regulated utility**
9 **companies?**

10 A. I do not. As described in my testimony, there is a large body of literature to support the
11 consideration of a premium to account for EnergyNorth's size.²² Analysis of the
12 Company's market capitalization and trading volume compared to the utilities in the
13 proxy group clearly indicates that EnergyNorth meets the criteria for a small-size
14 premium adjustment.

²⁰ Woolridge Testimony at page 95 and Chattopadhyay Testimony at page 40.

²¹ Chattopadhyay Testimony at page 40.

²² Cochrane Testimony at page 36.

1 **Q. What is your response to the evidence provided by Dr. Woolridge and Dr.**
2 **Chattopadhyay in support of their shared assertion that a small size premium does**
3 **not apply to regulated utility companies?**

4 A. They both cite an article written by Professor Annie Wong, in which she concludes that
5 utility stocks do not exhibit a significant size premium.²³ However, an article published
6 by Thomas M. Zepp specifically rebuts Professor Wong's article and provides evidence
7 that supports a small-size effect in the utility sector.²⁴ Furthermore, another study
8 undertaken by Michael Annin at Ibbotson Associates provides additional support for the
9 use of a small-size premium for regulated utility companies.²⁵

10 **Q. Can you provide additional support for the consideration of a small-size premium**
11 **for EnergyNorth?**

12 A. Yes. Another risk factor related to firm size is that of liquidity risk. Dr. Morin writes:

13 "Investment risk increases as company size diminishes, all else remaining
14 constant. The size phenomenon is well-documented in the finance
15 literature. The size effect is likely the result of lack of marketability,
16 whereby investors in small stocks demand greater returns as compensation
17 for the lack of marketability and liquidity. Investors prefer high to low
18 liquidity and demand higher returns from less liquid investments, holding
19 other factors constant."

20 As shown in Attachment JC-11 to my direct testimony, EnergyNorth is significantly
21 smaller than the proxy group companies when comparing market capitalization. Using

²³ Woolridge Testimony at page 91 and Chattopadhyay Testimony at page 40.

²⁴ Thomas Zepp, "Utility stocks and the size effect - revisited," *The Quarterly Review of Economics and Finance*, August 29, 2002, pages 578–582.

²⁵ Michael Annin, "Equity and Small Stock Effect," *Public Utilities Fortnightly*, October 15, 1995, pages 42–43.

data obtained from Value Line, Table 1 below shows the average market capitalization of the companies contained in my proxy group (the same as Dr. Woolridge's proxy group) and in Dr. Chattopadhyay's proxy group, compared to EnergyNorth's market capitalization. EnergyNorth is approximately 6% of the size of the average of both proxy groups based on market capitalization. Therefore, as I discussed in my direct testimony, it is appropriate to consider the effects of EnergyNorth's size when determining where the authorized return should fall within in the calculated range of reasonable ROEs.

Table 1. Market Capitalization

	Market Capitalization (\$ Millions)	%
ENNG	\$307	
Cochrane Proxy Group	\$5,378	5.7%
Woolridge Proxy Group	\$4,966	6.2%
Chattopadhyay Proxy Group	\$4,911	6.3%

IV. RESPONSE TO STAFF ROE TESTIMONY

Q. Please summarize Dr. Woolridge's testimony and ROE recommendation.

A. Dr. Woolridge recommends an ROE of 9.00% within a range of 7.60% to 9.00%, based primarily on the results of his Constant Growth DCF model.²⁶ In addition, Dr. Woolridge recommends a capital structure that consists of 49.21% common equity and 50.79% debt.

Q. What are the main areas of disagreement between you and Dr. Woolridge?

A. In addition to the aforementioned areas of disagreement common to both witnesses, I disagree with Dr. Woolridge in the following areas: (1) the appropriate growth rate for

²⁶ Woolridge Testimony at page 4.

1 the Constant Growth DCF model; (2) the long-term growth rate used in the Multi-stage
2 DCF model; (3) the Market Risk Premium (“MRP”) used in the CAPM model; and (4)
3 the appropriate capital structure for the Company.

4 ROE

5 **Q. In support of his recommended return on equity of 9.00%, Dr. Woolridge cites and**
6 **discusses a publication by Moody’s. Do you believe that this article is misplaced in**
7 **the current financial environment?**

8 A. Yes. Dr. Woolridge asserts that Moody’s recognizes that authorized ROEs for (electric
9 and) gas companies are declining due to lower interest rates. I believe that this is
10 misplaced as this article is six years old (March 2015) and Dr. Woolridge provides this as
11 support for his current recommendation for EnergyNorth’s ROE. This is not reflective of
12 recent events and does not refer to or reflect the current expected near-term conditions of
13 the regulated gas utilities sector.

14 Constant Growth DCF Model

15 **Q. Please summarize Dr. Woolridge’s ROE calculation using the Constant Growth**
16 **DCF model.**

17 A. Dr. Woolridge calculates a single point estimate of 9.00% using the Constant Growth
18 DCF approach. He arrives at this estimate by calculating the average dividend yield of
19 his proxy group of 3.25%, applying a growth adjustment to the dividend yield of 1.02625,
20 and adding his DCF growth rate of 5.25%.²⁷

²⁷ Woolridge Testimony at page 42 and Attachment JRW-7 at page 1.

1 **Q. Please summarize the growth rates considered in Dr. Woolridge’s Constant Growth**
2 **DCF analysis.**

3 A. Dr. Woolridge considers a number of different growth rates, including historical and
4 projected dividends per share (“DPS”), book value per share (“BVPS”), and earnings per
5 share (“EPS”) growth rates reported by Value Line, projected EPS growth rates reported
6 by Yahoo! Finance, Zacks, and Reuters, and a measure of sustainable growth calculated
7 from Value Line data.²⁸ Table 2 below summarizes Dr. Woolridge’s growth rate
8 measures.

9 **Table 2. Woolridge DCF Growth Rate Indicators**

Growth Rate Indicator	Woolridge Proxy Group
Historic Value Line Growth in EPS, DPS, and BVPS	5.4%
Projected Value Line Growth in EPS, DPS, and BVPS	6.2%
Sustainable Growth ROE * Retention Rate	3.9%
Projected EPS Growth from Yahoo, Zacks, and Reuters – Median	5.3%

10
11 It is unclear how Dr. Woolridge arrives at his final estimate of 5.25%. He claims that he
12 gives “primary weight to the projected EPS growth rate of Wall Street analysts” to arrive
13 at his estimate but provides no other support for his chosen growth rate.²⁹

²⁸ Woolridge Testimony at pages 40–42 and Attachment JRW-7 at pages 1–6.

²⁹ Woolridge Testimony at page 42.

1 **Q. Do you agree with the use of historic growth rates in the Constant Growth DCF**
2 **model?**

3 A. No, I do not. The Constant Growth DCF is intended to be forward-looking, and historic
4 growth going back five and ten years is unlikely to be indicative of the long-term future
5 growth of any particular investment. Historic growth rates may reflect changes that will
6 not reasonably continue in the future and will not capture any known future changes.
7 Additionally, historic growth will have been accounted for in analyst growth projections.
8 As such, I do not find it appropriate to use historic growth rates in the Constant Growth
9 DCF model. It is also worth noting that Dr. Woolridge himself may not agree with the
10 use of historic growth rates. In his criticism of the historical approach to estimating
11 market risk premia, Dr. Woolridge asserts that “market conditions can change such that
12 ex post historical returns are poor estimates of ex ante expectation,”³⁰ an argument that
13 can easily be extended to his use of historical EPS, DPS, and BVPS growth rates in the
14 Constant Growth DCF model.

15 **Q. Do you agree with the use of Dr. Woolridge’s sustainable growth rate?**

16 A. I do not. Dr. Woolridge’s sustainable growth rate is calculated using the following
17 formula:

$$g = b * r$$

19 Where g is the sustainable growth rate, b is earnings expected to be retained by the
20 company, and r is an estimate of ROE. The Constant Growth DCF model implies that the

³⁰ Woolridge Testimony at page 51.

1 chosen b and r will continue in perpetuity. Importantly, Dr. Woolridge's sustainable
2 growth calculation assumes an expected ROE, r. Using data from Value Line, Dr.
3 Woolridge uses a median ROE estimate of 9.50% as his value, yet he recommends an
4 ROE of 9.00%. Essentially, his ROE recommendation is inconsistent with the expected
5 ROE used as an input in his model.

6 **Q. Does Dr. Woolridge explain this inconsistency?**

7 A. No, he does not.

8 **Q. Do you agree with the use of DPS and BVPS growth rates in the Constant Growth**
9 **DCF model?**

10 A. No, I do not. Projections of DPS and BVPS growth rates are only reported by Value
11 Line, which increases the risk of these projections being skewed either high or low as
12 there is no consensus among various analysts. As noted by Dr. Morin:

13 "Casual inspection of the Zacks Investment Research, First Call
14 Thompson, and Multex Web sites reveals that earnings per share forecasts
15 dominate the information provided. There are few, if any, dividend growth
16 forecasts. Only Value Line provides comprehensive long-term dividend
17 growth forecasts. The wide availability of earnings forecasts is not
18 surprising. There is an abundance of evidence attesting to the importance
19 of earnings in assessing investors' expectations. The sheer volume of
20 earnings forecasts available from the investment community relative to the
21 scarcity of dividend forecasts attests to their importance. The fact that
22 these investment information providers focus on growth in earnings rather
23 than growth in dividends indicates that the investment community regards
24 earnings growth as a superior indicator of future long-term growth.
25 Surveys of analytical techniques actually used by analysts reveal the
26 dominance of earnings and conclude that earnings are considered far more
27 important than dividends."³¹

³¹ Morin 2006 at pages 302–303.

1 Additionally, earnings growth drives dividend growth. Dr. Morin further notes that:

2 “[S]ince the ability to pay dividends stems from a company’s ability to
3 generate earnings, growth in earnings per share can be expected to
4 strongly influence the market’s dividend growth expectations. After all,
5 dividend growth can only be sustained if there is growth in earnings. It is
6 the expectation of earnings growth that is the principal driver of stock
7 prices.”³²

8 **Q. What do you conclude from this information?**

9 A. I conclude that projected earnings growth is the appropriate growth rate measure to use in
10 the Constant Growth DCF model.

11 **Q. Do you agree with Dr. Woolridge’s assertion that analyst earnings growth rate
12 forecasts are “overly optimistic and upwardly biased”?³³**

13 A. I do not. Dr. Woolridge provides several references to studies that evaluate the accuracy
14 of forecasted EPS growth rates to support his claim that analyst earnings growth forecasts
15 are upwardly biased. However, as explained by Dr. Morin, this concern is largely
16 irrelevant:

17 “Because of the dominance of institutional investors and their influence on
18 individual investors, analysts’ forecasts of long-run growth rates provide a
19 sound basis for estimating required returns. Financial analysts exert a
20 strong influence on the expectations of many investors who do not possess
21 the resources to make their own forecasts, that is, they are a cause of g.
22 The accuracy of these forecasts in the sense of whether they turn out to be
23 correct is not at issue here, as long as they reflect widely held
24 expectations. As long as the forecasts are typical and/or influential in that
25 they are consistent with current stock price levels, they are relevant. The
26 use of analysts’ forecasts in the DCF model is sometimes denounced on
27 the grounds that it is difficult to forecast earnings and dividends for only

³² Morin 2006 at page 284.

³³ Woolridge Testimony at page 63.

1 one year, let alone for longer time periods. This objection is unfounded,
2 however, because it is present investor expectations that are being priced;
3 it is the consensus forecast that is embedded in price and therefore in
4 required return, and not the future as it will turn out to be.”³⁴

5 **Q. In other words, research indicates that the forecasts do, in fact, reflect widely held**
6 **expectations of investors?**

7 A. Yes.

8 **Q. Does Dr. Woolridge use these forecasts in his own calculations?**

9 A. He does. Dr. Woolridge still gives primary weight to these very forecasts when arriving
10 at his 5.25% growth rate for the Constant Growth DCF analysis.³⁵

11 **Q. Does Dr. Woolridge reconcile his objection to your use of purportedly flawed**
12 **forecasts with his own use of the same forecasts?**

13 A. No, he does not.

14 **Q. Is there support for the use of analyst earnings growth projections in regulatory**
15 **proceedings in other jurisdictions?**

16 A. Yes. The Federal Energy Regulatory Commission (“FERC”) has long relied on analyst
17 earnings growth estimates at appropriate growth rates for DCF analysis in estimating
18 ROE.³⁶ Additionally, other Commissions in the Northeast have also approved the use of
19 analyst earnings growth estimates. In Docket No. 2017-00198, the witness for the Maine

³⁴ Morin 2006 at page 298.

³⁵ Woolridge Testimony at page 42.

³⁶ See, e.g., Opinion No. 531, 147 FERC ¶ 61,234; Opinion No. 531-B, 150 FERC ¶ 61,165; Opinion No. 569, 169 FERC ¶ 61,129.

1 Public Utilities Commission estimated Emera Maine's ROE using Yahoo! Finance
2 analyst earnings growth rates.³⁷ In Case No. 18-0974-TF, the witness testifying on behalf
3 of the Vermont Public Service Commission used analyst earnings growth forecasts from
4 Value Line, Zacks, and Yahoo! Finance, consistent with my approach.³⁸

5 Multi-Stage DCF Model

6 **Q. Please summarize Dr. Woolridge's concern with your Multi-stage DCF model.**

7 A. Dr. Woolridge takes issue with my use of projected analyst earnings growth rates as the
8 first stage growth rate in the Multi-stage DCF model and claims that my long-term
9 growth rate based on historical GDP growth and a measure of inflation is without any
10 theoretical or empirical support.³⁹

11 **Q. Can you provide any support for the use of historic GDP growth as your chosen**
12 **long-term growth rate?**

13 A. Yes. Duff & Phelps writes that:

14 "A long view of capital market history...provide[s] a period long enough
15 to include most or all of the major types of events that investors have
16 experienced and may experience in the future. Such events include war
17 and peace, growth and decline, bull and bear markets, inflation and
18 deflation, and other less dramatic events that affect asset returns. By
19 studying the past, one can make inferences about the future. While the
20 actual events that occurred during 1926 – 2018 will not be repeated, the
21 event-types of that period can be expected to recur...To the degree that
22 historical event-types tend to repeat themselves, the examination of past

³⁷ Maine Public Utilities Commission, Docket No. 2017-00198, "Bench Analysis," December 21, 2017, at page 67.

³⁸ Vermont Public Service Commission, Case No. 18-0974-TF, Direct Testimony of Richard A. Baudino, August 10, 2018, at page 24.

³⁹ Woolridge Testimony at page 71.

1 capital market returns is likely informative about what may be expected in
2 the future.”⁴⁰

3 Using data going back to 1929, consistent with my methodology, Dr. Morin also notes
4 that “the growth rate in US real GDP has been reasonably stable over time. Therefore, its
5 historical performance is a reasonable estimate of expected long-term future
6 performance.”⁴¹

7 CAPM

8 **Q. Please describe Dr. Woolridge’s CAPM analysis.**

9 A. Dr. Woolridge uses a risk-free rate of 2.50%, which he takes from a range (1.3%–4.75%)
10 of 30-year US Treasury yields;⁴² a proxy group beta of .85, which he arrives at by
11 calculating the median Value Line beta of his proxy group;⁴³ and a market risk premium
12 of 6.00%, which is what he views to be a “conservatively high” estimate of the market
13 risk premium based on his review of several studies and survey of the market risk
14 premium.⁴⁴

15 **Q. Do you disagree with any aspects of Dr. Woolridge’s CAPM analysis?**

16 A. Yes. Primarily in the estimation of the market risk premium. While Dr. Woolridge has
17 consulted numerous studies to develop a market risk premium of 6.00%, I have estimated
18 the market risk premium based on the difference between the return on large company

⁴⁰ Duff & Phelps, 2019 *SBBI Yearbook* at page 2-1.

⁴¹ Morin 2006 at page 311.

⁴² Woolridge Testimony at page 45.

⁴³ Woolridge Testimony at page 50.

⁴⁴ Woolridge Testimony at page 58.

1 stocks (as measured by applying the Constant Growth DCF methodology to the S&P 500
2 companies) and the yield on the 30-year US Treasury bonds.

3 **Q. What are your criticisms of Dr. Woolridge’s market risk premium?**

4 A. I have three main concerns with Dr. Woolridge’s market risk premium estimation
5 methodology. First, Dr. Woolridge is inconsistent in his approach. He discusses the
6 issues inherent in using the historical “Ibbotson approach” to estimating a market risk
7 premium, yet still considers several studies employing the historical risk premium
8 approach when determining his own market risk premium.

9 Second, Dr. Woolridge considers several surveys in deciding his market risk premium,
10 which are subject to various shortcomings. These shortcomings include response bias,
11 such as “subjective assessments about long-term market behavior [that] may well place
12 undue weight on recent events and immediate prospects.”⁴⁵

13 My third concern with Dr. Woolridge’s market risk premium is that it results in an
14 extremely low ROE estimate of 7.60%, a result he does not attempt to explain. This ROE
15 estimate is 170 basis points below EnergyNorth’s currently authorized ROE and 110
16 basis points below any authorized ROE in the last 40 years of the natural gas industry.

⁴⁵ Morin 2006 at page 162.

1 Capital Structure

2 **Q. What is the capital structure recommended by Dr. Woolridge?**

3 A. Dr. Woolridge recommends a capital structure consisting of 49.21% common equity and
4 50.79% debt, which he claims is more reflective of the capital structures of his proxy
5 group.

6 **Q. Did Dr. Woolridge provide support for this recommendation?**

7 A. In his testimony, Dr. Woolridge notes that his recommended common equity ratio of
8 49.21% was the equity share approved in the Company's last rate case. Furthermore, his
9 proxy group sample yields a mean common equity share of 45.8%.

10 **Q. What is your response to Dr. Woolridge's recommended capital structure?**

11 A. As stated in my direct testimony, a capital structure consisting of 50.15% common equity
12 is squarely within the range of common equity ratios from my proxy group companies,
13 which ranged from approximately 38% to 67% on average over the period 2015 – 2019.
14 The capital structure of my proxy group was, on average, comprised of approximately
15 54% common equity and 46% long-term debt. As a result, I continue to find that the
16 capital structure consisting of 50.15% equity and 49.85% debt proposed by Messrs.
17 Simek and Sosnick is reasonable.

1 **V. RESPONSE TO OCA ROE TESTIMONY**

2 **Q. Please summarize Dr. Chattopadhyay's testimony and ROE recommendation.**

3 A. Dr. Chattopadhyay recommends an ROE for EnergyNorth of 8.90% with a range of
4 8.80% to 9.00%.⁴⁶ His results primarily rely on the Constant Growth DCF model, as he
5 proposes to use his CAPM analysis as a check on the reasonableness of his DCF
6 estimates.

7 **Q. What are the main areas of disagreement between you and Dr. Chattopadhyay?**

8 A. In addition to the aforementioned areas of disagreement common to both witnesses, I
9 disagree with Dr. Chattopadhyay in the following areas: (1) the composition of the proxy
10 group; (2) the appropriate growth rate for the Constant Growth DCF model; (3) the
11 expected market return used in the CAPM; and (4) the risk-free rate used in the CAPM.

12 Proxy Group

13 **Q. What are the criteria used by Dr. Chattopadhyay in selecting his proxy group?**

14 A. Dr. Chattopadhyay began with the same universe of companies identified as natural gas
15 utilities by Value Line as I did and applied similar screening criteria. However, while I
16 found that a threshold of receiving 60% of operating income or net income from
17 regulated gas operations was appropriate, Dr. Chattopadhyay used thresholds of 50%
18 regulated natural gas revenues and 75% regulated natural gas assets. In his analysis then,
19 Dr. Chattopadhyay's proxy group differs from mine with the inclusion of Northwest

⁴⁶ Chattopadhyay Testimony at page 7.

1 Natural Gas Company and the exclusion of NiSource, New Jersey Resources, and
2 Southwest Gas.

3 **Q. Do you have any concerns with Dr. Chattopadhyay's screening criteria in the**
4 **selection of the proxy group?**

5 A. Yes, I do. Requiring the combination of both 50% regulated gas revenues and 75% of
6 regulated gas assets is overly restrictive; however, as stated in my direct testimony the
7 key metric for comparability is operating/net income from regulated gas operations.

8 **Q. Please explain why this screening criteria is overly restrictive.**

9 A. As Dr. Chattopadhyay admits, there are few companies in the universe of natural gas
10 utilities, making the criteria for selection necessarily less stringent than for electric
11 utilities. However, when applying the double criteria of regulated revenues and regulated
12 assets, he becomes overly restrictive with his selection criteria, excluding companies that
13 have significant natural gas operations and exhibit a similar risk profile to EnergyNorth
14 in all aspects. I believe that NiSource, which has 67% of its revenues that come from
15 regulated natural gas operations and 61% of its assets are regulated natural gas
16 operations; New Jersey Resources, which has 65% of its income that come from
17 regulated natural gas operations and 63% of its assets are regulated natural gas
18 operations; and Southwest Gas which has 68% of its income that come from regulated
19 natural gas operations and 83% of its assets are regulated natural gas operations should
20 remain included in the proxy group.⁴⁷ I would also note that Dr. Woolridge included all

⁴⁷ Percentages based on 2020 data.

1 of these companies in his proxy group, again citing concerns about the low number of
2 available natural gas companies.

3 **Q. Do you agree with Dr. Chattopadhyay's decision to exclude NiSource, New Jersey**
4 **Gas, Southwest Gas?**

5 A. No. As discussed above, I believe that Dr. Chattopadhyay's screening criteria is too
6 restrictive resulting in the removal of three entities in the proxy group that share a similar
7 risk profile to that of EnergyNorth.

8 Constant Growth DCF Model

9 **Q. Please provide a brief summary of Dr. Chattopadhyay's Constant Growth DCF**
10 **methodology and results.**

11 A. Dr. Chattopadhyay applies the same Constant Growth DCF methodology as I do, with the
12 exception of his choice of growth rate and the fact that he only uses pricing data from
13 February 1 to March 1, 2021. Dr. Chattopadhyay disagrees with my approach of using
14 analyst earnings growth projections and instead relies on an average of Value Line's
15 expected growth rates for DPS and BVPS and the average of Value Line, Zacks, and
16 SNL median long-term EPS projections.⁴⁸ Dr. Chattopadhyay also considers a second
17 growth measure similar to Dr. Woolridge's sustainable growth rate, which is comprised
18 of estimates of both internal and external growth components.⁴⁹

⁴⁸ Chattopadhyay Testimony at page 34.

⁴⁹ Ibid.

1 **Q. What are your areas of disagreement with Dr. Chattopadhyay's Constant Growth**
2 **DCF methodology?**

3 A. My disagreement with Dr. Chattopadhyay's Constant Growth DCF largely lies with his
4 choice of growth rate. As I discussed in my response to the testimony of Dr. Woolridge,
5 I do not believe that projections of DPS and BVPS nor Dr. Chattopadhyay's measure of
6 terminal growth are the appropriate growth rate measures for use in the Constant Growth
7 DCF model. Instead, for reasons discussed earlier in this Rebuttal Testimony, I reiterate
8 that projected earnings growth is the appropriate growth rate measure for the Constant
9 Growth DCF model.

10 CAPM

11 **Q. Please summarize how Dr. Chattopadhyay calculates his expected market return**
12 **estimates.**

13 A. Dr. Chattopadhyay calculates three estimates of expected market return by applying the
14 Constant Growth DCF model to the S&P 500 companies. For his first two estimates, he
15 uses only the subset of the S&P 500 companies that pay dividends and applies two
16 different measures of growth: earnings growth projections and the average of earnings,
17 dividends, and book value growth projections. For his third estimate, he uses all S&P
18 500 companies and applies only the earnings growth projections.⁵⁰

⁵⁰ Chattopadhyay Testimony at page 45.

1 **Q. Do you agree with Dr. Chattopadhyay's approach to calculating the expected**
2 **market return?**

3 A. I disagree with Dr. Chattopadhyay's first two methods of estimating the expected market
4 return – specifically, I do not agree with his choice of growth rate and with his decision to
5 remove companies that do not pay dividends from the market return calculation. First,
6 for reasons described earlier in my testimony, I do not think that the average of earnings,
7 dividend, and book value growth rate is the appropriate growth rate to use. Second,
8 excluding non-dividend paying companies from the calculation will result in an expected
9 market return that does not accurately reflect the market. Based on the data in PKC-11,
10 the companies in the S&P excluded from the analysis include 6 of the 10 largest
11 companies and represent approximately 30% of the total market capitalization of the S&P
12 500.

13 To exclude these companies would not only result in a distorted market risk premium but
14 would also divorce the calculation from the market as viewed by investors. The expected
15 market return is intended to estimate the total return investors would require for an
16 investment in the broader market represented by the S&P 500 Index. An investment that
17 tracks this index includes the returns of both dividend paying and non-dividend paying
18 companies. Therefore, I believe it is inappropriate and not representative of the market to
19 exclude non-dividend paying companies from the expected market return calculation.

1 **Q. What is the risk-free rate used by Dr. Chattopadhyay in his CAPM model?**

2 A. Dr. Chattopadhyay uses the yield on 10-year US Treasury bonds as his risk-free rate.⁵¹
3 He claims that this measure “strikes a reasonable balance between choosing a truly
4 interest rate risk-free instrument (like the shortest of short term Treasury bills) and a
5 consideration that investors have relatively long investment horizons and that regulated
6 utility rates are usually set for longer terms than just a few months.”⁵²

7 **Q. Do you agree with Dr. Chattopadhyay’s chosen risk-free rate?**

8 A. No. The use of historical 30-year US Treasury bond rates is widely accepted as a proxy
9 for the risk-free rate, including by the FERC.⁵³ Dr. Woolridge also uses 30-year US
10 Treasury yields as his risk-free rate in his CAPM analysis.

11 **Q. Do you have any other concerns regarding Dr. Chattopadhyay’s use of the CAPM**
12 **model?**

13 A. Yes. Primarily, I have concerns with the methodology used by Dr. Chattopadhyay
14 whereby he employs the use of the CAPM framework in developing estimates then pivots
15 to say that he does not recommend relying on the CAPM approach in setting the allowed
16 ROE adding the qualifier that “the analyses are still useful as checks.”⁵⁴ Therefore, Dr.
17 Chattopadhyay is able to dismiss the estimates, developed using a FERC-approved
18 methodology, that lie above his recommended range.

⁵¹ Chattopadhyay Testimony at page 41.

⁵² Chattopadhyay Testimony at pages 41–42.

⁵³ Opinion 569, 169 FERC ¶ 61,129.

⁵⁴ Chattopadhyay Testimony at page 49.

1 **VI. CONCLUSIONS AND RECOMMENDATIONS**

2 **Q. Please summarize your conclusions.**

3 A. I have four primary conclusions. *First*, I conclude that the recommendations of Drs.
4 Woolridge and Chattopadhyay are completely inconsistent with industry standards and
5 would results in one of the lowest ROEs in the last 40 years. *Second*, I conclude that the
6 inconsistency derives, in part, from methodological flaws in their calculation of
7 EnergyNorth's ROE. *Third*, I conclude that my recommended ROE and reasonable range
8 in my direct testimony continue to be appropriate. *Fourth*, I conclude that the
9 Company's proposed capital structure also continues to be appropriate.

10 **Q. Please explain your first conclusion regarding the inconsistency of the ROEs**
11 **recommended by Drs. Woolridge and Chattopadhyay to industry standards.**

12 A. The analyses contained in Section III of this testimony show that the ROEs recommended
13 by Dr. Woolridge and Dr. Chattopadhyay are significantly below recent and historic
14 industry standards. Not only do they recommend ROEs that would place EnergyNorth in
15 the bottom one percentile of authorized ROEs for natural gas utilities since 1979, they do
16 not provide evidence of a change in capital market conditions such that a downward
17 adjustment of 30–40 basis points to EnergyNorth's current authorized ROE is warranted.
18 I also find that their argument that market-to-book ratios in excess of unity indicate that
19 natural gas utilities have been over-earning on their true cost of capital to be erroneous
20 and not supportive of such a low range of recommended ROEs.

1 **Q. Please explain your second conclusion regarding the methodological flaws in the**
2 **ROE calculations undertaken by Dr. Woolridge and Chattopadhyay.**

3 A. As discussed in Sections III–V of my testimony, I find several methodological flaws in
4 their ROE calculations. These flaws include their use of DPS and BVPS growth rates
5 and the circular and inconsistent sustainable growth rates for their implementation of the
6 Constant Growth DCF model, their chosen market risk premiums in the CAPM model,
7 and in the case of Dr. Chattopadhyay, his proxy group screening criteria.

8 **Q. Please explain your third conclusion regarding the reasonableness of your**
9 **recommended ROE and reasonable range.**

10 A. Based on the first two conclusions and my analyses contained herein, I find no
11 compelling reason to adjust my original recommended ROE and reasonable range. I
12 conclude that my recommended ROE range of 9.94% to 11.20% for EnergyNorth is
13 reasonable as is my point estimate of 10.51%.

14 **Q. Please explain your fourth conclusion regarding the reasonableness of the**
15 **Company's proposed capital structure.**

16 A. I continue to find the Company's proposed capital structure consisting of 50.15%
17 common equity to be reasonable. Based on an analysis of the capital structure of proxy
18 group companies, that proposed structure is reflective of and within the range of common
19 equity ratios.

1 **Q. Please summarize your recommendations.**

2 A. My recommendations are unchanged from those provided in my direct testimony.

3 Specifically, I recommend that the Commission authorize an ROE for EnergyNorth of
4 10.51%, that it accept the Company's proposed capital structure of 50.15% common
5 equity and 49.85% debt as well as debt costs, and that it authorize a total ROR of 7.47%.

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

7 A. Yes.