Liberty Utilities

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DG 14-180

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

DIRECT TESTIMONY

OF

ROBERT B. HEVERT

August 1, 2014

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1   **I.**   **INTRODUCTION**

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

3   A.   My name is Robert B. Hevert. I am Managing Partner of Sussex Economic

4   Advisors, LLC ("Sussex"). My business address is 161 Worcester Road, Suite 503,

5   Framingham, Massachusetts 01701.

6

7   **Q.**   **On whose behalf are you submitting this testimony?**

8   A.   I am submitting this testimony before the New Hampshire Public Utilities

9   Commission ("Commission") on behalf of Liberty Utilities (EnergyNorth Natural

10   Gas) Corp. d/b/a Liberty Utilities) ("EnergyNorth" or the "Company").

11

12   **Q.**   **Please describe your educational background.**

13   A.   I hold a Bachelor's degree in Business and Economics from the University of

14   Delaware, and an MBA with a concentration in Finance from the University of

15   Massachusetts. I also hold the Chartered Financial Analyst designation.

16

17   **Q.**   **Please describe your experience in the energy and utility industries.**

18   A.   I have worked in regulated industries for over twenty-five years, having served as

19   an executive and manager with consulting firms, a financial officer of a publicly-

20   traded natural gas utility (at the time, Bay State Gas Company), and an analyst at a

21   telecommunications utility. In my role as a consultant, I have advised numerous

22   energy and utility clients on a wide range of financial and economic issues,

1 including corporate and asset-based transactions, asset and enterprise valuation,

2 transaction due diligence, and strategic matters. As an expert witness, I have

3 provided testimony in approximately 100 proceedings regarding various financial

4 and regulatory matters before numerous state utility regulatory agencies and the

5 Federal Energy Regulatory Commission. A summary of my professional and

6 educational background, including a list of my testimony in prior proceedings, is

7 included in Attachment RBH-1 to my testimony.

8

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

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

11 A. The purpose of my testimony is to present evidence and provide a recommendation

12 regarding the Company's Cost of Equity (sometimes referred to as the "Return on

13 Equity" or "ROE") and to provide an assessment of the capital structure and cost of

14 debt to be used for ratemaking purposes, as proposed in the testimony of Howard

15 Gorman and Steven Mullen. My analyses and conclusions are supported by the

16 data presented in Attachment RBH-2 through Attachment RBH-14, which have

17 been prepared by me or under my direction.

18

19 **Q.** **What are your conclusions regarding the appropriate Cost of Equity and**

20 **capital structure for the Company?**

21 A. My analyses indicate that the Company's Cost of Equity currently is in the range of

22 10.00 percent to 10.50 percent. Based on the quantitative and qualitative analyses

1   discussed throughout my testimony, I conclude that an ROE of 10.25 percent is

2   reasonable and appropriate. That ROE, together with the Company's proposed

3   capital structure and cost of debt, produces an overall Rate of Return of 7.63

4   percent. As to its proposed capital structure, which includes 55.00 percent common

5   equity and 45.00 percent long-term debt as agreed to in the Settlement Agreement

6   in Docket No. DG 11-040, I conclude that the Company's proposal is consistent

7   with the capital structures that have been in place over several fiscal quarters at

8   comparable operating utility companies. Given the consistency of its proposal with

9   similarly-situated utility companies, I conclude that the Company's proposed

10   capital structure is reasonable and appropriate. Regarding the cost of debt, it is my

11   understanding that Company's current weighted average cost of long-term debt is

12   4.43 percent, which I believe is reasonable and appropriate.

13

14   **Q.**   **Please provide a brief overview of the analyses that leads to your ROE**

15   **recommendation.**

16   **A.**   Equity analysts and investors use multiple methods to develop their return

17   requirements for investments. In order to develop my ROE recommendation, I

18   relied on three widely-accepted approaches: the Constant Growth and Multi-Stage

19   forms of the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing

20   Model ("CAPM"); and the Bond Yield Plus Risk Premium approach.

21

22   My recommendations and conclusions consider the risks associated with (1) the

1 Company's comparatively small size; (2) the Company's proposed decoupling

2 mechanism; and (3) flotation costs associated with equity issuances. While I did

3 not make any explicit adjustments to my ROE estimates for those factors, I did take

4 them into consideration in determining the range in which the Company's Cost of

5 Equity likely falls.

6

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

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

9   • Section III – Provides a summary of my conclusions and recommendations;

10   • Section IV – Discusses the regulatory guidelines and financial

11   considerations pertinent to the development of the cost of capital;

12   • Section V – Explains my selection of the proxy group used to develop my

13   analytical results;

14   • Section VI – Explains my analyses and the analytical bases for my ROE

15   recommendation;

16   • Section VII – Provides a discussion of specific business risks that have a

17   direct bearing on the Company's Cost of Equity;

18   • Section VIII – Highlights the current capital market conditions and their

19   effect on the Company's Cost of Equity;

20   • Section IX – Addresses the reasonableness of the Company's proposed

21   capital structure;

1   • Section X – Addresses the reasonableness of the Company's proposed Cost

2   of Debt; and

3   • Section XI – Summarizes my conclusions and recommendations.

4

5   III.   **SUMMARY OF CONCLUSIONS**

6   Q.   **What are the key factors considered in your analyses and upon which you base**

7   **your recommended ROE?**

8   A.   My analyses and recommendations considered the following:

9   • The *Hope* and *Bluefield* decisions[1] that established the standards for

10   determining a fair and reasonable allowed return on equity including:

11   consistency of the allowed return with other businesses having similar risk;

12   adequacy of the return to provide access to capital and support credit

13   quality; and that the end result must lead to just and reasonable rates.

14   • The Company's business risks relative to the proxy group of comparable

15   companies and the implications of those risks in arriving at the appropriate

16   ROE.

17   • The effect of the current capital market conditions on investors' return

18   requirements.

19

---

[1]   *Bluefield Waterworks & Improvement Co. v. Public Service Comm'n of West Virginia*, 262 U.S. 679 (1923); *Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).

1 **Q.   What are the results of your analyses?**

2 A.   The results of my analyses are summarized in Table 1.

3   **Table 1: Summary of Analytical Results**

Discounted Cash Flow	Mean Low	Mean	Mean High
30-Day Constant Growth DCF	7.37%	8.79%	10.50%
90-Day Constant Growth DCF	7.49%	8.90%	10.62%
180-Day Constant Growth DCF	7.53%	8.95%	10.66%
30-Day Multi-Stage DCF	9.20%	9.54%	10.00%
90-Day Multi-Stage DCF	9.30%	9.66%	10.13%
180-Day Multi-Stage DCF	9.35%	9.70%	10.18%
Supporting Methodologies			
CAPM Results		Bloomberg Derived Market Risk Premium	Value Line Derived Market Risk Premium
Average Bloomberg Beta Coefficient			
Current 30-Year Treasury (3.42%)		11.48%	10.88%
Near-Term Projected 30-Year Treasury (4.07%)		12.13%	11.53%
Average Value Line Beta Coefficient			
Current 30-Year Treasury (3.42%)		11.12%	10.55%
Near Term Projected 30-Year Treasury (4.07%)		11.77%	11.20%
	Low	Mid	High
Bond Yield Risk Premium	10.08%	10.23%	10.67%
Flotation Costs		0.14%	

4

5   Based on the analytical results presented in Table 1, and in light of the

6   considerations discussed throughout the balance of my testimony regarding the

1   Company's business and regulatory risks relative to the proxy group, it is my view

2   that an ROE of 10.25 percent is reasonable and appropriate.

3

4   **IV.   REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS**

5   **Q.   Please provide a brief summary of the guidelines established by the United**

6   **States Supreme Court (the "Court") for the purpose of determining a utility's**

7   **ROE.**

8   A.   The Court established the guiding principles for establishing a fair return for capital

9   in two cases: (1) Bluefield Water Works and Improvement Co. v. Public Service

10   Comm'n of West Virginia ("Bluefield"); and (2) Federal Power Comm'n v. Hope

11   Natural Gas Co. ("Hope").[2] In those cases, the Court recognized that the fair rate of

12   return on equity should be (1) comparable to returns investors expect to earn on

13   other investments of similar risk, (2) sufficient to assure confidence in the

14   company's financial integrity, and (3) adequate to maintain and support the

15   company's credit and to attract capital.

16

17   **Q.   Does New Hampshire precedent provide similar guidance?**

18   A.   Yes.   The Commission's decision in Order No. 24,972 indicates that the

19   Commission adheres to the capital attraction standard articulated in the *Hope* and

---

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

1   *Bluefield* decisions.[3] That Order also states that the Commission is:

2   [B]ound to set a rate of return that falls within a zone of
3   reasonableness, neither so low to result in a confiscation of
4   company property, nor so high as to result in extortionate
5   charges to customers. A rate falling within the zone should, at a
6   minimum, be sufficient to yield the cost of debt and equity
7   capital necessary to provide the assets required for the discharge
8   of the company's responsibility.[4]

9   Based on those standards, the authorized ROE should provide the Company with

10   the opportunity to earn a fair and reasonable return, and should enable efficient

11   access to external capital under a variety of market conditions.

12

13   **V.**   **PROXY GROUP SELECTION**

14   **Q.**   **As a preliminary matter, why is it necessary to select a group of proxy**

15   **companies to determine the Cost of Equity for EnergyNorth?**

16   **A.**   Since the ROE is a market-based concept, and EnergyNorth is not a publicly traded

17   entity, it is necessary to establish a group of comparable publicly-traded companies

18   to serve as its "proxy." Even if EnergyNorth were a publicly traded entity, short-

19   term events could bias its market value during a given period of time. A significant

20   benefit of using a proxy group is that it serves to moderate the effects of anomalous,

21   temporary events associated with any one company.

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3   *See, EnergyNorth Natural Gas, Inc. d/b/a National Grid NH,* Docket DG 08-009, Order No. 24,972 at 54-55 (May 29, 2009).

4   *Ibid.,* at 54. *See also, Appeal of Conservation Law Foundation,* 127 N.H. 606, 635 (1986).

1   Q.   **Does the selection of a proxy group suggest that analytical results will be**

2   **tightly clustered around average (i.e., mean) results?**

3   A.   No. The DCF approach, for example, defines the Cost of Equity as the sum of the

4   expected dividend yield and projected long-term growth. Despite the care taken to

5   ensure risk comparability, market expectations with respect to future risks and

6   growth opportunities will vary from company to company. Therefore, even within

7   a group of similarly situated companies, it is common for analytical results to

8   reflect a seemingly wide range. At issue, then, is how to estimate the Cost of

9   Equity from within that range. That determination necessarily must consider a

10   wide range of both empirical and qualitative information.

11

12   Q.   **Please provide a summary profile of EnergyNorth.**

13   A.   EnergyNorth provides gas distribution service to approximately 86,000 residential,

14   commercial, and industrial customers in 30 municipalities in New Hampshire.[5]

15

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

17   A.   I began with the group of 11 companies that Value Line classifies as Natural Gas

18   Utilities: AGL Resources, Atmos Energy, Laclede Group, New Jersey Resources,

19   NiSource Inc., Northwest Natural Gas, Piedmont Natural Gas, South Jersey

20   Industries, Southwest Gas, UGI Corp., and WGL Holdings. I then applied the

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[5]   Annual Report of Liberty Utilities (EnergyNorth Natural Gas) Corp. to the Public Utilities Commission
of the State of New Hampshire for the Year Ended December 31, 2013, at 2.

1   following screening criteria:

2   • Because certain of the models used in my analyses assumes that earnings

3   and dividends grow over time, I excluded companies that do not

4   consistently pay quarterly cash dividends;

5   • In order to ensure that the growth rates used in my analyses are not biased

6   by a single analyst, all of the companies in my proxy group have been

7   covered by at least two utility industry equity analysts;

8   • All of the companies in my proxy group have investment grade senior

9   unsecured bond and/or corporate credit ratings from S&P;

10   • To incorporate companies that are primarily regulated gas distribution

11   utilities, I have only included companies with at least 60 percent of

12   operating income derived from regulated natural gas utility operations; and

13   • I eliminated companies that are currently known to be party to a merger, or

14   other significant transaction.

15

16   **Q.   Based on those criteria, what is the composition of your proxy group?**

17   A.   The criteria discussed above results in a proxy group of the following eight

18   companies provided in Table 2:

1   **Table 2: Proxy Group**

Company	Ticker
AGL Resources Inc.	GAS
Atmos Energy Corporation	ATO
New Jersey Resources Corporation	NJR
Northwest Natural Gas Company	NWN
Piedmont Natural Gas Company, Inc.	PNY
South Jersey Industries, Inc.	SJI
Southwest Gas Corporation	SWX
WGL Holdings, Inc.	WGL

2

3   Q.   **Do you believe your proxy group appropriately represents EnergyNorth's risk**

4   **profile?**

5   A.   Yes, I do. In Granite State Electric's last rate case, Docket No. DE 13-063, I began

6   with a universe of 49 electric utilities, many of which had both natural gas and

7   electric utility operations. One important difference in this proceeding is that the

8   universe of potential proxies includes only 11 companies, all of which Value Line

9   considers to be primarily natural gas utilities. By applying the screening criteria

10   discussed above, I ensured that the proxy group excludes companies with regulated

11   electric operations, or significant unregulated activities. Consequently, the proxy

12   group contained in Table 2 contains only companies that, like EnergyNorth, are

13   focused on the regulated distribution of natural gas. Because all eight proxy

14   companies are primarily natural gas distribution utilities they are reasonable proxies

15   for EnergyNorth.

1   **Q.**   **Do you believe that eight companies constitute a sufficiently large proxy group**

2   **for the purpose of determining the Cost of Equity for a utility?**

3   **A.**   Yes, I do. The analyses performed in estimating the ROE are more likely to be

4   representative of the subject utility's Cost of Equity to the extent that the chosen

5   proxy companies are fundamentally comparable to the subject utility. Because all

6   analysts use some form of screening process to arrive at a proxy group, the group,

7   by definition, is not randomly drawn from a larger population. Consequently, there

8   is no reason to place more reliance on the quantitative results of a larger proxy

9   group simply by virtue of the resulting larger number of observations. Moreover,

10   because I am using market-based data, my analytical results will not necessarily be

11   tightly clustered around a central point. Results that may be somewhat dispersed,

12   however, do not suggest that the screening approach is inappropriate or the results

13   less meaningful. Further, including companies whose fundamental comparability is

14   tenuous at best, simply for the purpose of expanding the number of observations,

15   does not add relevant information to the analysis. To that point, in 2004, the

16   Commission recognized that comparability is more important than the size of the

17   proxy group:

18   [T]he DCF is an economic theory for which a more comparable
19   sample, rather than a larger sample, produces results that are
20   more likely to be representative of the subject utility. The size of
21   the sample is irrelevant when, as here, the sample is not
22   random.[6]

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[6]   *Re: Verizon New Hampshire*, 232 P.U.R. 4th 24 (N.H. P.U.C., 2004)

1 **VI.   COST OF EQUITY ESTIMATION**

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

3 A.   Regulated utilities primarily use common stock and long-term debt to finance their

4   capital investments. The overall rate of return ("ROR") weighs the costs of the

5   individual sources of capital by their respective book values. While the cost of debt

6   and cost of preferred stock can be directly observed, the Cost of Equity is market-

7   based and, therefore, must be estimated based on observable market information.

8

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

10 A.   I estimated the ROE using analyses based on market data to quantify a range of

11   investor expectations of required equity returns. By their very nature, quantitative

12   models produce a range of results from which the market required ROE must be

13   estimated. As discussed throughout my testimony, that estimation must be based

14   on a comprehensive review of relevant data and information, and does not

15   necessarily lend itself to a strict mathematical solution. Consequently, the key

16   consideration in determining the ROE is to ensure that the overall analysis

17   reasonably reflects investors' view of the financial markets in general and the

18   subject company (in the context of the proxy companies) in particular.

19

20   Because the Cost of Equity is not directly observable, it must be estimated based on

21   both quantitative and qualitative information. Although a number of empirical

22   models have been developed for that purpose, all are subject to limiting

1   assumptions or other constraints. Consequently, many finance texts recommend

2   using multiple approaches to estimate the Cost of Equity.[7] When faced with the

3   task of estimating the Cost of Equity, analysts and investors are inclined to gather

4   and evaluate as much relevant data as reasonably can be analyzed and, therefore,

5   rely on multiple analytical approaches.

6

7   I also note that as a practical matter, no individual model is more reliable than all

8   others under all market conditions. Therefore, it is both prudent and appropriate to

9   use multiple methodologies in order to mitigate the effects of assumptions and

10   inputs associated with any single approach.

11

12   Q.   **Are you aware that the New Hampshire Commission has relied primarily on**

13   **the DCF approach in establishing the ROE for regulated utilities?**

14   A.   Yes, I am aware that the Commission has expressed its preference for the DCF

15   approach as the primary method in determining the ROE. However, the

16   Commission also has encouraged the use of other methods as a test of the

17   reasonableness of the DCF results. In prior proceedings, for example, both Staff

18   and the Commission supported the use of a three-stage DCF model. As the

19   Commission noted:

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[7]   *See*, for example, Eugene Brigham, Louis Gapenski, <u>Financial Management: Theory and Practice</u>, 7th
       Ed., 1994, at 341; and Tom Copeland, Tim Koller and Jack Murrin, <u>Valuation: Measuring and Managing
       the Value of Companies</u>, 3rd ed., 2000, at 214.

1   Staff testimony supports the view that a three-stage version of
2   the DCF represents a valuable refinement to the DCF model of
3   estimating the cost of capital looking forward over the long term.
4   We agree. Given the computing power available to analysts
5   today, it is possible to more closely match growth rate estimates
6   to varying growth expectations over longer time horizons.[8]

7 As such, I have relied on two forms of the DCF model (the Constant Growth and

8 Multi-Stage forms) as my primary approaches, and the CAPM and Risk Premium

9 models to assess my DCF results.

10

11 **A. Constant Growth DCF Model**

12 **Q.**   **Are DCF models widely used in regulatory proceedings?**

13 A.   Yes. In my experience, the Constant Growth DCF model is widely recognized in

14 regulatory proceedings, as well as in financial literature. Nonetheless, neither the

15 DCF nor any other model should be applied without considerable judgment in the

16 selection of data and the interpretation of results.

17

18 **Q.**   **Please describe the DCF approach.**

19 A.   The DCF approach is based on the theory that a stock's current price represents the

20 present value of all expected future cash flows. In its simplest form, the DCF

21 model expresses the Cost of Equity as the sum of the expected dividend yield and

22 long-term growth rate, and is expressed as follows:

---

[8]   *Re: Verizon New Hampshire*, 232 P.U.R. 4th 24 (N.H. P.UC., 2004).

$$P = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_\infty}{(1+k)^\infty}$$ Equation [1]

where P represents the current stock price, D1 ... D∞ represent expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the familiar form:

$$k = \frac{D_0\,(1+g)}{P} + g$$ Equation [2]

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

In essence, the Constant Growth DCF model assumes that the total return received by investors includes the dividend yield, and the rate of growth. As explained below, under the model's assumptions, the rate of growth equals the rate of capital appreciation. That is, the model assumes that the investor's return is the sum of the dividend yield and the increase in the stock price.

Q. **What assumptions are required for the Constant Growth DCF model?**

A. The Constant Growth DCF model assumes: (1) a constant average annual growth

1 rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a constant

2 price-to-earnings ("P/E") multiple, and; (4) a discount rate greater than the expected

3 growth rate. Under those assumptions, dividends, earnings, book value, and the

4 stock price all grow at the same, constant rate.

5

6 **Q.** **What market data did you use to calculate the dividend yield component of**

7 **your DCF model?**

8 A. The dividend yield is based on the proxy companies' current annualized dividend,

9 and average closing stock prices over the 30-, 90-, and 180-trading day periods as

10 of May 30, 2014.

11

12 **Q.** **Why did you use three averaging periods to calculate an average stock price?**

13 A. I did so to ensure that the model's results are not skewed by anomalous events that

14 may affect stock prices on any given trading day. At the same time, the averaging

15 period should be reasonably representative of expected capital market conditions

16 over the long term. In my view, using 30-, 90-, and 180-day averaging periods

17 reasonably balances those concerns.

18

19 **Q.** **Did you make any adjustments to the dividend yield to account for periodic**

20 **growth in dividends?**

21 A. Yes. Since utilities increase their quarterly dividends at different times throughout

22 the year, it is reasonable to assume that dividend increases will be evenly

1   distributed over calendar quarters.   Given that assumption, it is appropriate to

2   calculate the expected dividend yield by applying one-half of the long-term growth

3   rate to the current dividend yield.   See Attachment RBH-2.   That adjustment

4   ensures that the expected dividend yield is representative of the coming twelve-

5   month period, and does not overstate the dividends to be paid during that time.

6

7   Q.   **Is it important to select appropriate measures of long-term growth in applying**

8   **the DCF model?**

9   A.   Yes. In its Constant Growth form, the DCF model (i.e., as presented in Equation

10   [2] above) assumes a single growth estimate in perpetuity.   This assumption

11   requires a fixed payout ratio, and the same constant growth rate for earnings per

12   share ("EPS"), dividends per share, and book value per share.   Since dividend

13   growth can only be sustained by earnings growth, the model should incorporate a

14   variety of measures of long-term earnings growth.

15

16   Q.   **Please summarize your inputs to the Constant Growth DCF model.**

17   A.   I used the following inputs for the price and dividend terms:

18   i)   The average daily closing prices for the 30-, 90-, and 180-trading days

19   ended May 30, 2014, for the term P0; and

20   ii)   The annualized dividend per share as of May 30, 2014, for the term D0.

21

22   I then calculated my DCF results using each of the following growth terms:

1   i)   The Zack's consensus long-term earnings growth estimates;

2   ii)   The First Call consensus long-term earnings growth estimates;

3   iii)   The Value Line long-term earnings growth estimates; and

4   iv)   An estimate of Retention Growth.

5

6   **Q.**   **How did you calculate the high and low DCF results?**

7   A.   I calculated the proxy group mean high DCF results by using the maximum EPS growth rate as reported by Value Line, Zack's, First Call, and the Retention Growth estimate for each proxy group company in combination with the dividend yield for each of the proxy group companies. The proxy group mean high results then reflect the average of the maximum DCF results for the proxy group as a whole. I used a similar approach to calculate the proxy group mean low results using instead the minimum of the Value Line, Zack's, First Call, and Retention Growth estimate for each proxy group company.

15

16 **Q.**   **Are you aware that the Commission has indicated that it favors use of growth forecasts aside from expected earnings per share growth?**

18 A.   Yes, I am aware that the Commission has accepted the use of different estimates of growth, including dividends per share, and book value per share. In support of that approach, the Commission observed that stock price appreciation is not the sole determinant of investors' returns, and that dividends represent an important element of the return from utility stocks. The Commission further stated that sole reliance

1   on earnings growth is not appropriate since the Constant Growth DCF model

2   assumes a constant P/E ratio.[9]

3

4   Q.   **In light of the Commission's concerns, have you included measures of expected**

5   **growth aside from earnings growth projections?**

6   A.   Yes, I have included a measure of Retention Growth in my DCF analysis. As

7   discussed in more detail below, the Retention Growth estimate models expected

8   growth as a function of the proportion of earnings that are reinvested back into the

9   firm, the returns earned on invested equity (that is, internally funded growth) and

10   the expected issuance of common stock (externally funded growth).

11

12   Q.   **Please describe the Retention Growth model.**

13   A.   The Retention Growth model, which is a generally recognized and widely taught

14   method of estimating long-term growth, is an alternative approach to the use of

15   analysts' earnings growth estimates.   In essence, the model is premised on the

16   proposition that a firm's growth is a function of its expected earnings, and the

17   extent to which it retains earnings to invest in the enterprise. In its simplest form,

18   the model represents long-term growth as the product of the retention ratio (i.e., the

19   percentage of earnings not paid out as dividends, referred to below as ("b") and the

20   expected return on book equity (referred to below as "r")). Thus, the simple "b x r"

---

[9]   *Energy North Natural Gas, Inc. d/b/a National Grid NH*, Docket DG 08-009, Order No. 24,972 at 63 (May 29, 2009).

1   form of the model projects growth as a function of internally generated funds. That

2   form of the model is limiting, however, in that it does not provide for growth

3   funded from external equity.

4

5   The "br + sv" form of the Retention Growth estimate used in my DCF analysis is

6   meant to reflect growth from both internally generated funds (i.e., the "br" term)

7   and from issuances of equity (i.e., the "sv" term). The first term, which is the

8   product of the retention ratio (i.e., "b", or the portion of net income not paid in

9   dividends) and the expected Return on Equity (i.e., "r") represents the portion of net

10 income that is "plowed back" into the Company as a means of funding growth. The

11 "sv" term is represented as:

12 $$\left(\frac{m}{b} - 1\right) \; x \; Growth \; rate \; in \; Common \; Shares \qquad \text{Equation [3]}$$

13 where $\frac{m}{b}$ is the Market-to-Book ratio.

14

15 In this form, the "sv" term reflects an element of growth as the product of (a) the

16 growth in shares outstanding, and (b) that portion of the market-to-book ratio that

17 exceeds unity. As shown in Attachment RBH-4, all of the components of the

18 Retention Growth Model can be derived from data provided by Value Line.

1   Q.   **Are you aware that Staff has rejected the "Retention Growth" model in prior**

2   **proceedings?**

3   A.   Yes, I am aware that Staff elected not to use the Retention Growth model in Granite

4   State Electric's last rate case, Docket No. DE 13-063. In my testimony in that

5   proceeding, I stated that the "fundamental elements of the 'r' component of the

6   retention growth model are likely to be unstable over the near term," and therefore,

7   "the 'retention growth' model should be viewed with caution."[10] My position in

8   that case, as in this proceeding, is that if the Retention Growth model is used, the

9   determinants of the expected earned Return on Common Equity, including the

10   projected level of sales efficiency, profitability, and capitalization ratios, should

11   remain reasonably constant over the projection period, and that changes from

12   historical levels are consistent with other observable data.

13

14   Q.   **Do you believe that the "Retention Growth" model is appropriate in this**

15   **proceeding?**

16   A.   Yes, I do. As noted earlier, the Retention Growth model fundamentally reflects the

17   subject company's expected Return on Common Equity, and the extent to which

18   that return is retained, rather than paid out in dividends. That is, expected growth is

19   positively related to the retention ratio: the greater the rate of earnings retention, the

20   greater the expected growth rate. One method of examining whether that

---

[10]   State of New Hampshire Before the Public Utilities Commission Docket No. DE 13-063, Direct
        Testimony of Robert B. Hevert, March 29, 2013, at 21.

1   assumption holds is to analyze the historical relationship between retention ratios

2   and subsequent earnings growth rates. Given the relatively small number of proxy

3   companies, I considered the other fundamental variable in the Retention Growth

4   equation (that is, the projected return on common equity, or "r") to determine

5   whether it is likely to remain constant over the forecast period. In particular, I

6   considered the Retention Growth model's assumption that the components of "r"

7   remain reasonably stable over time.

8

9   To perform that analysis, I used the "DuPont" formula, which decomposes the

10   Return on Common Equity into three components: the Profit Margin (net

11   income/revenues), Asset Turnover (revenues/net plant), and the Equity Multiplier

12   (net plant/equity).

13

14   $ROCE = Net\ Profit\ Margin \times Asset\ Turnover \times Equity\ Multiplier$ Equation

15   [4]

16   $ROCE = \frac{Net\ Profit}{Revenue} \times \frac{Revenue}{Assets} \times \frac{Assets}{Equity}$ Equation [5]

17

18   As demonstrated in Attachment RBH-5, the product of those three measures is

19   approximately equal (but for rounding) to Value Line's reported return on common

20   equity, on both a historical and projected basis. And, as shown in Table 3 (below),

21   the three components of the "r" are expected to remain relatively stable over time.

1   That is, the earnings are not expected to be materially affected by either the method

2   of capitalization (the ratio of assets to equity), or the projected asset efficiency (that

3   is, the revenue produced per dollar of assets), although profit margins do reflect

4   somewhat of an improvement over recent levels.

5   **Table 3: DuPont Analysis of Proxy Group Return on Common Equity**

Year	Profit Margin	Asset Turnover	Equity Multiplier	Return on Equity
2008	4.91%	134.01%	219.97%	11.38%
2009	6.23%	100.45%	221.50%	11.60%
2010	6.59%	93.28%	227.03%	11.42%
2011	6.45%	84.51%	231.06%	10.10%
2012	7.78%	65.97%	238.87%	10.44%
5-Year Projection	8.51%	72.60%	231.95%	11.25%

6

7   Q.   **Why have you not relied on projected dividend growth and book value growth**

8   **rates in your Constant Growth DCF analysis?**

9   A.   I disagree with the use of dividend and book value growth rates for several reasons.

10   First, earnings are the fundamental determinant of a company's ability to pay

11   dividends. Management decisions to conserve cash for capital investments, to

12   manage the dividend payout for the purpose of minimizing future dividend

13   reductions, or to finance future earnings prospects can influence dividend growth

14   rates in near-term periods. Since dividends are discretionary, in the short run,

15   dividend growth may deviate significantly from earnings growth. Over the long

16   run, however, dividends are dependent on earnings.

1   Similarly, the book value of equity can increase only through increases to retained

2   earnings, or through the issuance of new equity. Both of those factors are derived

3   from earnings: retained earnings increase with the amount of earnings not

4   distributed as dividends; and the price at which new equity is issued is a function of

5   the earnings per share and the then-current P/E ratio. In addition, academic

6   research has clearly indicated that measures of earnings and cash flow are strongly

7   related to returns.

8

9   Lastly, while Zack's and First Call are consensus growth estimates, Value Line is

10   the sole provider of dividend and book value growth estimates. Putting aside the

11   observations that if investor services such as Zack's and First Call felt that

12   projected dividend and book value growth rates were important to investors, they

13   likely would provide them, the fact that Value Line growth rates are developed by a

14   single analyst introduces a potential element of bias. In fact, it is for that reason

15   that one of my screening criteria is that comparable companies must be followed by

16   multiple analysts.

17

18 Q.   **Do you have any other comments regarding the use of dividend or book value**

19   **growth rates in the Constant Growth DCF model?**

20 A.   Yes. As noted earlier, the Constant Growth DCF model assumes that earnings,

21   dividends and book value all grow at the same constant rate, and that the P/E ratio

22   remains constant in perpetuity. Under those strict assumptions, the DCF result does

1   not vary if the stock is held in perpetuity, or if it is held for only 2, 5, or 10 years, or

2   any other period and sold at the market price at the end of that period. However,

3   those assumptions rarely, if ever, hold in practice. Because investors are not likely

4   to hold stock in perpetuity, they expect a substantial portion of the return in the

5   form of capital appreciation. Since stock valuation levels are statistically related to

6   earnings growth (but not dividend or book value growth) earnings growth is the

7   appropriate growth rate to use in the DCF analysis.

8

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

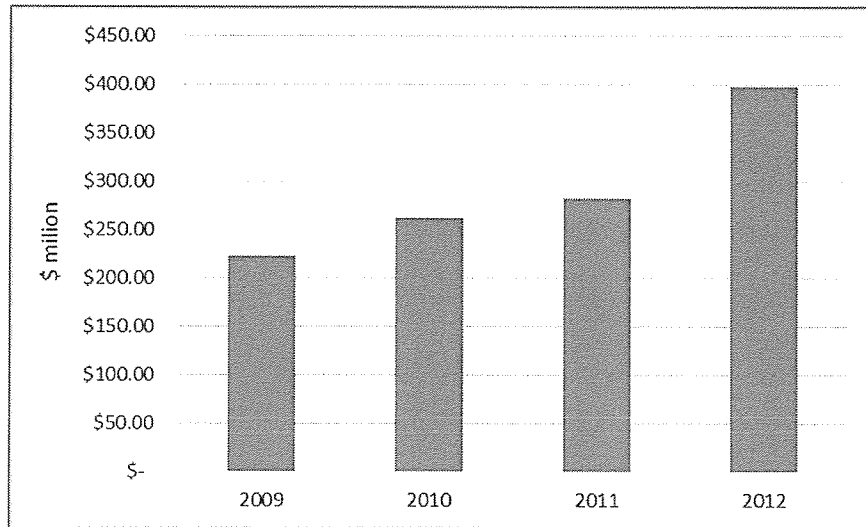10   Q.   **What other forms of the DCF model have you considered?**

11   A.   In order to address some of the limiting assumptions underlying the Constant

12   Growth form of the DCF model, I also considered the results of a Multi-Stage

13   (three-stage) DCF Model. The Multi-Stage model, which is an extension of the

14   Constant Growth form, enables the analyst to specify growth rates over three

15   discreet stages. As with the Constant Growth form of the DCF model, the Multi-

16   Stage form defines the Cost of Equity as the discount rate that sets the current price

17   equal to the discounted value of future cash flows. Unlike the Constant Growth

18   form, however, the Multi-Stage model must be solved in an iterative fashion.

1   **Q.**   **Are you aware Staff recommended discarding the Multi-Stage DCF method in**

2   **Granite State Electric's last rate case, Docket No. DE 13-063?**

3   A.   Yes, I am. In Docket No. DE 13-063, Staff argued that Granite State "was a well-

4   established electric distribution company", characterized the company as "in the

5   maturity stage of its life cycle", and therefore argued the constant growth DCF

6   model was most appropriate.[11]

7   Investors' expectations of growth rates, however, may not remain constant over

8   time, even for well-established companies, and the Multi-Stage DCF model allows

9   for changes in expected growth rates. As noted in Table 3 (above), the ratio of

10   revenue to net plant had fallen from 2009 through 2012; that decline was coincident

11   with increases in capital spending during that period (see Chart 1).

---

[11]   See, DE 13-063 *Granite State Electric Company d/b/a Liberty Utilities* Rate Case, Testimony of Leszek Stachow, at 15.

1   **Chart 1: Proxy Group Average Capital Expenditures 2009 – 2012[12]**

2

3   Those findings are consistent with observations made by Regulatory Research

4   Associates ("RRA"), which noted:

5   ...the shake-up in capital markets in late-2008 and an extended
6   period of recessionary pressures took a toll on spending in 2009
7   and 2010. With financial measures more stable, many companies
8   felt compelled to return to a more aggressive spending posture
9   during 2011, as work was initiated on many new and/or
10   postponed projects.[13]

11   Looking forward, RRA notes that natural gas utility capital expenditures are

12   expected to somewhat decline in 2015.[14] The Multi-Stage DCF model provides the

13   flexibility to reflect the prospect of changes in payout ratios in connection with

14   changes in capital investments, and to capture differences in future growth rates

---

[12]   Source: Value Line.
[13]   SNL Energy, *Financial Focus Special Report, Capital Expenditure Update*, November 1, 2011, at 1.
[14]   *See* SNL Energy, *Financial Focus Special Report, Capital Expenditure Update*, May 16, 2014, Table 2.

1   owing to current investments.

2

3   Lastly, I note that both the Commission and Staff noted the beneficial aspects of the

4   model in DT 02-110 (Order No. 24,265).   Similarly, in Order No 24,552 the

5   Commission noted that in a prior order (Order No. 24,473) it "reaffirmed the use of

6   the Three Stage DCF model..."[15]

7

8 Q.   **Please now summarize why you have included the Multi-Stage DCF method in**

9   **your Cost of Equity estimation.**

10 A.   First, as noted earlier, it is both prudent and appropriate to use multiple

11   methodologies in order to mitigate the effects of assumptions and inputs associated

12   with any single approach. Second, the Constant Growth DCF model assumes that

13   earnings, dividends and book value will grow at the same, constant rate in

14   perpetuity; that the payout ratio will remain constant in perpetuity; and that the

15   Price/Earnings ratio will remain constant. In addition, the model assumes that the

16   return required today will be the same return required every year in the future. As

17   discussed above, those assumptions are not likely to hold. In particular, it is likely

18   that over time, payout ratios will increase from their current levels. In addition, to

19   the extent that long-term interest rates increase over the next few years, it is likely

20   that the Cost of Equity also will increase. In my view, the Multi-Stage DCF model

---

[15]   *Public Service Company of New Hampshire*, DE 04-177, Order No. 24,552 (December 2005), at 13.

1   enables analysts to consider those issues, and to address the limiting, but likely

2   unrealistic assumptions underlying the Constant Growth form of the model.

3

4   Q.   **Please describe the structure of your Multi-Stage DCF model.**

5   A.   As noted above, the Multi-Stage DCF model sets the subject company's stock price

6   equal to the present value of future cash flows received over three "stages." In the

7   first two stages, "cash flows" are defined as projected dividends. In the third stage,

8   "cash flows" equal both dividends and the expected price at which the stock will be

9   sold at the end of the period (i.e., the "terminal price"). The terminal price is

10   calculated based on the Gordon model, which defines the price as the expected

11   dividend divided by the difference between the Cost of Equity (i.e., the discount

12   rate) and the long-term expected growth rate. In essence, the terminal price is

13   defined by the present value of the remaining "cash flows" in perpetuity. In each of

14   the three stages, the dividend is the product of the projected earnings per share and

15   the expected dividend payout ratio. A summary description of the model is

16   provided in Table 4.

1

Table 4: Multi-Stage DCF Structure

Component	Stage			
	0	**First**	**Second**	**Terminal**
Cash Flow	Initial Stock Price	Expected Dividend	Expected Dividend	Expected Dividend + Terminal Value
Inputs	• Stock Price • Earnings Per Share ("EPS") • Dividends Per Share ("DPS")	• Expected EPS • Expected DPS	• Expected EPS • Expected DPS	• Expected EPS • Expected DPS • Terminal Value
Assumptions	• 30-, 90-, and 180-day average stock price	• EPS Growth Rate • Payout Ratio	• Growth Rate Change • Payout Ratio Change	• Long-term Growth Rate • Long-term Payout Ratio

2

3   Q.   **What are the analytical benefits of your three-stage model?**

4   A.   The primary benefits relate to the flexibility provided by the model's formulation.

5   Since the model provides the ability to specify near, intermediate and long-term

6   growth rates, for example, it avoids the sometimes-limiting assumption that the

7   subject company will grow at the same, constant rate in perpetuity. In addition, by

8   calculating the dividend as the product of earnings and the payout ratio, the model

9   accommodates assumptions regarding the timing and extent of changes in the

10   payout ratio to reflect, for example, increases or decreases in expected capital

11   spending, or transition from current payout levels to long-term expected levels. In

12   that regard, because the model relies on multiple sources of earnings growth rate

13   assumptions, it is not limited to a single source, such as Value Line, for all inputs,

14   and therefore mitigates the potential bias associated with relying on a single source

1   of growth estimates.[16]

2

3   The model also enables the analyst to assess the reasonableness of the inputs and

4   results by reference to certain market-based metrics. For example, the stock price

5   estimate can be divided by the expected earnings per share in the final year to

6   calculate the terminal P/E ratio. Similarly, the terminal P/E ratio can be divided by

7   the terminal growth rate to develop a Price to Earnings Growth ("PEG") ratio. To

8   the extent that the projected P/E or PEG ratios are inconsistent with either historical

9   or expected levels, it may indicate incorrect or inconsistent assumptions within the

10   balance of the model.

11

12   **Q.   Please summarize your inputs to the Multi-Stage DCF model.**

13   A.   I applied the Multi-Stage model to the proxy group described earlier in my

14   testimony. My assumptions with respect to the various model inputs are described

15   in Table 5.

---

[16]   *See*, for example, Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, 21 (Summer 1992).

1

Table 5: Multi-Stage DCF Model Assumptions

Component	Stage			
	Initial	First	Transition	Terminal
Stock Price	30-, 90-, and 180-day average stock price as of May 30, 2014			
Earnings Growth	2012 actual EPS escalated by Period 1 growth rate	EPS growth as average of (1) Value Line; (2) Zack's; (3) First Call; and (4) Retention Growth rates	Transition to Long-term GDP growth	Long-term GDP growth
Payout Ratio		Value Line company-specific	Transition to long-term industry payout ratio	Long-term industry average
Terminal Value				Expected dividend in final year divided by solved Cost of Equity less long-term growth rate

2

3 **Q.** **How did you calculate the long-term Gross Domestic Product ("GDP") growth**

4 **rate?**

5 A. The long-term growth rate of 5.71 percent is based on the real GDP growth rate of

6 3.27 percent from 1929 through 2013,[17] and an inflation rate of 2.37 percent.[18] The

7 GDP growth rate is calculated as the compound growth rate in the chain-weighted

8 GDP for the period from 1929 through 2013. The rate of inflation of 2.37 percent

---

[17] *See* Bureau of Economic Analysis, May 29, 2014 update.
[18] *See* Board of Governors of the Federal Reserve System, Table H.15 Selected Interest Rates.

1   is a compound annual forward rate starting in ten years (i.e., 2023, which is the

2   beginning of the terminal period) and is based on the 30-day average projected

3   inflation based on the spread between yields on long-term nominal Treasury

4   Securities and long-term Treasury Inflation Protected Securities, known as the

5   "TIPS spread."

6

7   In essence, the real GDP growth rate projection is based on the assumption that

8   absent specific knowledge to the contrary, it is reasonable to assume that over time,

9   real GDP growth will revert to its long-term mean. In addition, since estimating the

10   Cost of Equity is a market-based exercise, it is important to reflect the sentiments

11   and expectations of investors to the extent possible. In that important respect, the

12   TIPS spread represents the collective views of investors regarding long-term

13   inflation expectations. Equally important, by using forward yields, we are able to

14   infer the level of long-term inflation expected by investors as of the terminal period

15   of the Multi-Stage model (that is, ten years in the future).

16

17   **Q.**   **What were your specific assumptions with respect to the payout ratio?**

18   A.   As noted in Table 5, the first two periods rely on the first year and long-term

19   projected payout ratios reported by Value Line for each of the proxy group

20   companies.[19] Then by the end of the second period (i.e., the end of year 10), it is

---

[19]   As reported in the Value Line Investment Survey as "All Div'ds to Net Prof."

1   assumed that the payout ratio will converge to the long-term industry average of

2   68.85 percent.[20]

3

4 Q.   **What are the results of your DCF analysis?**

5 A.   My Constant Growth and Multi-Stage DCF results are summarized in Table 6,

6   below (see also Attachment RBH-2 and Attachment RBH-3).

Table 6: DCF Results[21]

	Mean Low	*Mean*	*Mean High*
Constant Growth DCF Results			
30-Day Average	7.37%	8.79%	10.50%
90-Day Average	7.49%	8.90%	10.62%
180-Day Average	7.53%	8.95%	10.66%
Multi-Stage DCF Results			
	Low	Mean	High
30-Day Average	9.20%	9.54%	10.00%
90-Day Average	9.30%	9.66%	10.13%
180-Day Average	9.35%	9.70%	10.18%

8

9 Q.   **Did you give any weight to the Mean Low Constant Growth DCF results in**

10   **developing your ROE range and recommendation?**

11 A.   No, I have not. In my view, the mean low results of my Constant Growth DCF

12   models are below a reasonable estimation of the Company's ROE. Of the 997

13   natural gas rate cases since 1980 that I analyzed that disclosed the awarded ROE,

---

[20]   Source: Bloomberg Professional

[21]   DCF results presented in Table 6 are unadjusted (*i.e.*, prior to any adjustment for flotation costs).

1 only one included an authorized ROE of 9.00 percent or lower.[22] As a practical

2 matter, the Constant Growth and Multi-Stage DCF models both are subject to

3 certain assumptions, one of which is that the calculated Cost of Equity will remain

4 constant in perpetuity. Given that over the past thirty years there have been no

5 authorized ROEs as low as the mean low constant growth DCF results, and that

6 market data suggests the potential for increases in interest rates in the future, I

7 believe that it is unreasonable to assume that the mean low results are meaningful

8 estimates of the Company's forward-looking Cost of Equity. As such, I did not

9 give those estimates any weight in arriving at my ROE range and recommendation.

10

11 **Q.** **If you do not believe the mean low results of your DCF models are reasonable,**

12 **why have you provided them throughout your testimony?**

13 A. While I do not believe any weight should be given to the mean low DCF results, I

14 believe it is important to provide transparency in the presentation of analyses. As

15 such, I have presented the mean low results, which reflect the converse calculation

16 of the mean high results. However, it is important to assess the reasonableness of

17 any financial model's results in the context of multiple analytical approaches.

18

19 To be clear, the mean low DCF results are based entirely on the lowest growth

20 rates. The mean results, for both the Constant Growth and Multi-Stage DCF

---

[22] Source: Regulatory Research Associates. See also Attachment RBH-9.

1   models are based on the average growth rate, including the lowest estimates.

2   Consequently, I have not entirely excluded the low growth rate estimates from my

3   analyses.

4

5   **Q.**   **Did you undertake any additional analyses to support your ROE**

6   **recommendation?**

7   A.   Yes. As noted earlier, I also applied the CAPM and Risk Premium analyses in

8   estimating the Company's Cost of Equity.

9

10   **C. CAPM Analysis**

11   **Q.**   **Please briefly describe the general form of the CAPM analysis.**

12   A.   The CAPM analysis is a risk premium approach that estimates the Cost of Equity

13   for a given security as a function of a risk-free return plus a risk premium (to

14   compensate investors for the non-diversifiable or "systematic" risk of that security).

15   As shown in Equation [6], the CAPM is defined by four components, each of which

16   theoretically must be a forward-looking estimate:

$$k = r_f + \beta(r_m - r_f) \quad \text{Equation [6]}$$

18   where:

19   k = the required market ROE for a security;

20   β = the Beta coefficient of that security;

21   r_f = the risk-free rate of return; and

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

2

3   In Equation [6], the term (rm – rf) represents the Market Risk Premium.[23]

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

5   diversified away by adding securities to their investment portfolio, investors should

6   be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk

7   is measured by the Beta coefficient, which is defined as:

$$\beta_j = \frac{\sigma_j}{\sigma_m} \times \rho_{j,m} \qquad \text{Equation [7]}$$

8

9

10   Where σ_j is the standard deviation of returns for company "j," σ_m is the standard

11   deviation of returns for the broad market (as measured, for example, by the S&P

12   500 Index), and $\rho_{j,m}$ is the correlation of returns in between company j and the

13   broad market. The Beta coefficient therefore represents both relative volatility (i.e.,

14   the standard deviation) of returns, and the correlation in returns between the subject

15   company and the overall market.

16

17   Intuitively, higher Beta coefficients indicate that the subject company's returns

18   have been relatively volatile, and have moved in tandem with the overall market.

19   Consequently, if a company has a Beta coefficient of 1.00, it is as risky as the

---

[23]   The Market Risk Premium is defined as the incremental return of the market over the risk-free rate.

1   market and does not provide any diversification benefit.

2

3   Q.   **What assumptions regarding the risk-free rate did you include in your CAPM**

4   **analysis?**

5   A.   Since utility assets represent long-term investments, I used two different estimates

6   of the risk-free rate: (1) the current 30-day average yield on 30-year Treasury bonds

7   (i.e., 3.42 percent); and (2) the near-term projected 30-year Treasury yield (i.e.,

8   4.07 percent). [24]

9

10 Q.   **Please describe your ex-ante approach to estimating the Market Risk**

11   **Premium.**

12 A.   The ex-ante Market Risk Premium reflects the expected market required return, less

13   the current 30-year Treasury yield.   To estimate the expected market return, I

14   calculated the average ROE based on the Constant Growth DCF model. To do so, I

15   relied on data from two sources: (1) Bloomberg, and (2) Value Line. For both

16   sources, I calculated the average expected dividend yield (using the same one-half

17   growth rate assumption described earlier) and combined that amount with the

18   average projected earnings growth rate to arrive at the average DCF result. I then

19   subtracted the current 30-year Treasury yield from that amount to arrive at the

20   market DCF-derived ex-ante Market Risk Premium estimate. The results of those

---

[24]   *See*, Blue Chip Financial Forecasts, Vol. 32, No. 5, May 1, 2014, at 2. Consensus projections of the 30-year Treasury yield for the six quarters ending September 2015.

1   two calculations are provided in Attachment RBH-6.

2

3   Q. **What Beta coefficients did you use in your CAPM analysis?**

4   A. My approach includes the average reported Beta coefficient from Bloomberg and

5   Value Line for each of the proxy companies. While both of those services adjust

6   their calculated (or raw) Beta coefficients to reflect the tendency of the Beta

7   coefficient to regress to the market mean of 1.00, Value Line calculates the Beta

8   coefficient over a five-year period, while Bloomberg's calculation is based on two

9   years of data.

10

11 Q. **What are the results of your CAPM analysis?**

12 A. The results of my CAPM analysis are summarized in Table 7, below (see also

13   Attachment RBH-8).

14   **Table 7: Summary of CAPM Results**

	Bloomberg Derived Market Risk Premium	*Value Line Derived Market Risk Premium*
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.42%)	11.48%	10.88%
Near Term Projected 30-Year Treasury (4.07%)	12.13%	11.53%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.42%)	11.12%	10.55%
Near Term Projected 30-Year Treasury (4.07%)	11.77%	11.20%

15

1   D. <u>Bond Yield Plus Risk Premium Approach</u>

2 Q.   **Please generally describe the Bond Yield Plus Risk Premium approach.**

3 A.   This approach is based on the basic financial tenet that, since equity investors bear

4   the residual risk of ownership, their returns are subject to more risk than are the

5   returns to bondholders. As such, equity holders require a premium over the returns

6   available to debt holders. Risk premium approaches, therefore, estimate the Cost of

7   Equity as the sum of an Equity Risk Premium[25] and a bond yield. The Equity Risk

8   Premium is the difference between the historical Cost of Equity and long-term

9   Treasury yields.   Since we are calculating the risk premium for gas utilities, a

10   reasonable approach is to use actual authorized returns for gas utilities as the

11   historical measure of the Cost of Equity.

12

13 Q.   **Please explain how you performed your Bond Yield Plus Risk Premium**

14   **analysis.**

15 A.   As discussed above, I first defined the Risk Premium as the difference between

16   authorized ROEs and the then-prevailing level of long-term (i.e., 30-year) Treasury

17   yield. I then gathered data from 997 gas utility rate proceedings between January 1,

18   1980 and May 30, 2014. In addition to the authorized ROE, I also calculated the

19   average period between the filing of the case and the date of the final order (the lag

20   period). In order to reflect the prevailing level of interest rates during the pendency

---

[25]   The Equity Risk Premium is defined as the incremental return that an equity investment provides over a
       risk-free rate.

1 of the proceedings, I calculated the average 30-year Treasury yield over the average

2 lag period (approximately 186 days).

3

4 Because the data covers a number of economic cycles,[26] the analysis also may be

5 used to assess the stability of the Equity Risk Premium. As noted above, the Equity

6 Risk Premium is not constant over time; prior research has shown that it is directly

7 related to expected market volatility, and inversely related to the level of interest

8 rates.[27] That finding is particularly relevant given the historically low, but

9 increasing level of current Treasury yields.

10

11 Q. **How did you model the relationship between interest rates and the Equity Risk**

12 **Premium?**

13 A. The basic method used was regression analysis, in which the observed Equity Risk

14 Premium is the dependent variable, and the average 30-year Treasury yield is the

15 independent variable. Relative to the long-term historical average, the analytical

16 period includes interest rates and authorized ROEs that are quite high during one

17 period (i.e., the 1980s) and that are quite low during another (i.e., the post-Lehman

18 bankruptcy period). To account for that variability, I used the semi-log regression,

---

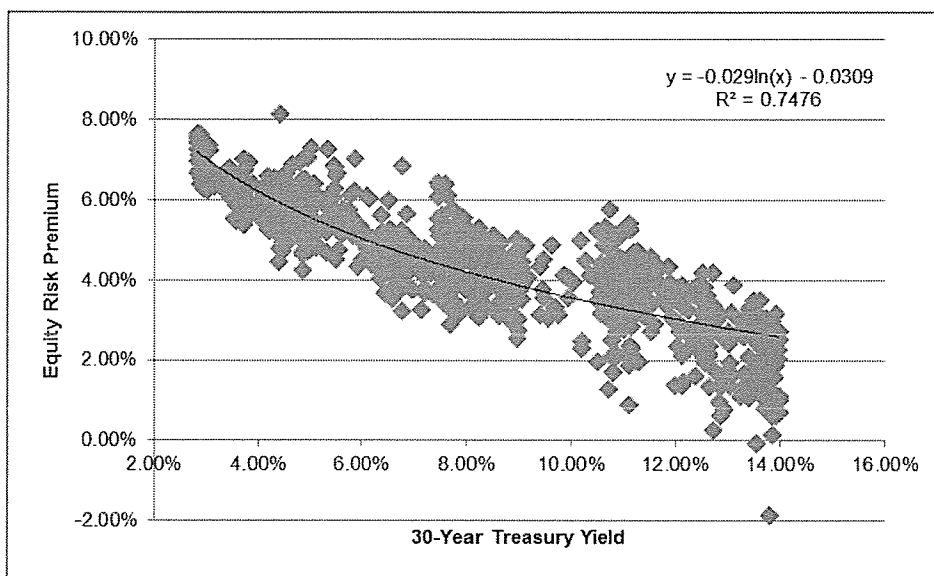[26] *See*, National Bureau of Economic Research, *U.S. Business Cycle Expansion and Contractions.*

[27] *See, e.g.*, Robert S. Harris and Felicia C. Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, Summer 1992, at 63-70; Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management, Spring 1985, at 33-45; and Farris M. Maddox, Donna T. Pippert, and Rodney N. Sullivan, *An Empirical Study of Ex Ante Risk Premiums for the Electric Utility Industry*, Financial Management, Autumn 1995, at 89-95.

1   in which the Equity Risk Premium is expressed as a function of the natural log of

2   the 30-year Treasury yield:

3      $$RP = \alpha + \beta(LN(T_{30}))$$ Equation [8]

4   As shown on Chart 2 (below), the semi-log form is useful when measuring an

5   absolute change in the dependent variable (in this case, the Risk Premium) relative

6   to a proportional change in the independent variable (the 30-year Treasury yield).

7   **Chart 2: Equity Risk Premium**

8

9   As Chart 2 illustrates, over time there has been a statistically significant, negative

10   relationship between the 30-year Treasury yield and the Equity Risk Premium.

11   Consequently, simply applying the long-term average Equity Risk Premium of 4.45

12   percent would significantly understate the Cost of Equity and produce results well

13   below any reasonable estimate. Based on the regression coefficients in Chart 1,

14   however, the implied ROE is between 10.08 percent and 10.67 percent (see,

1   Attachment RBH-9).

2

3   **VII.   BUSINESS RISKS AND OTHER CONSIDERATIONS**

4   **Q.   What additional information did you consider in assessing the analytical**

5   **results noted above?**

6   A.   Because the analytical methods discussed above provide a range of estimates, there

7   are several additional factors that should be taken into consideration when

8   establishing a reasonable range for the Company's Cost of Equity. Those factors

9   include the Company's comparatively small size, the Company's proposed

10   decoupling mechanism, and the costs associated with the flotation of common

11   stock.

12

13   **E. Small Size Premium**

14   **Q.   Please explain the risk associated with small size.**

15   A.   Both the financial and academic communities have long accepted the proposition

16   that the Cost of Equity for small firms is subject to a "size effect."[28] While

17   empirical evidence of the size effect often is based on studies of industries beyond

18   regulated utilities, utility analysts have noted the risks associated with small market

19   capitalizations. Specifically, Public Utilities Fortnightly noted that "[f]or small

20   utilities, investors face additional obstacles, such as smaller customer base, limited

---

[28]   *See*, Mario Levis, *The record on small companies: A review of the evidence*, Journal of Asset Management, March
        2002, for a review of literature relating to the size effect.

1   financial resources, and a lack of diversification across customers, energy sources,

2   and geography. These obstacles imply a higher investor return."[29]

3

4   **Q.**   **How does EnergyNorth compare in size to the proxy companies?**

5   **A.**   EnergyNorth is significantly smaller than the average for the proxy group

6   companies, both in terms of number of customers and market capitalization.

7   Because EnergyNorth is not a separately traded entity, an estimated stand-alone

8   market capitalization for EnergyNorth must be calculated. Attachment RBH-10

9   shows this calculation. The implied market capitalization is calculated by applying

10   the median market-to-book ratio for the proxy group of 1.80 to the Company's

11   implied total common stock book equity of $0.095 billion.[30] The implied market

12   capitalization based on that calculation is $0.171 billion, compared to the proxy

13   group average of $2.98 billion, which indicates EnergyNorth is significantly

14   smaller than the proxy group average on a market capitalization basis.

15

16   **Q.**   **How did you evaluate the risks associated with the Company's relatively small**

17   **size?**

18   **A.**   In its 2014 Ibbotson SBBI Market Report, Morningstar Inc. ("Morningstar")

19   calculates the size premium for deciles of market capitalizations relative to the S&P

20   500 Index. As shown on Attachment RBH-10, based on recent market data, the

---

[29]   Michael Annin, *Equity and the Small-Stock Effect*, Public Utilities Fortnightly, October 15, 1995.

[30]   Equity value of EnergyNorth estimated from proposed rate base and capital structure.

1   average market capitalization of the proxy group is approximately $2.98 billion,

2   and the median market capitalization of the proxy group is $2.31 billion, which

3   correspond to the fifth and sixth deciles, respectively, of Morningstar's market

4   capitalization data. Based on the Morningstar analysis, the proxy group has a size

5   premium of 1.72 percent to 1.75 percent. The implied market capitalization for

6   EnergyNorth is approximately $0.171 billion, which falls within the tenth decile

7   and corresponds to a size premium of 6.01 percent, suggesting that a size premium

8   as high as 429 basis points (6.01 percent − 1.72 percent) is expected for

9   EnergyNorth relative to the proxy group. However, rather than propose a specific

10   adjustment, I considered the effect of small size in determining where the

11   Company's ROE falls within the range of results.

12

13   **F. Proposed Decoupling Mechanism**

14 Q.   **Please briefly describe the Company's proposed decoupling mechanism.**

15 A.   The Company has proposed a decoupling mechanism consistent with the

16   Commission's Order No. 24,934. The Company's proposal sets an annual revenue

17   per customer target for the winter season and the summer season based on the

18   distribution revenue level approved by the Commission in this proceeding. At the

19   conclusion of each year, the Company will reconcile actual revenue per customer to

20   the approved revenue per customer; differences will be credited to or collected from

21   customers through a separate charge. Each subsequent year (that is, following the

1   initial rate year) EnergyNorth will compare its actual distribution revenue per

2   customer to the approved revenue per customer for each season. The "year two"

3   reconciliation also will reflect under or over-recoveries from the prior year's

4   decoupling charge or credit. In aggregate, the "year two" revenue per customer

5   target will equal the approved distribution revenue per customer, plus or minus the

6   prior year's decoupling reconciliation for each season.

7

8   **Q.**   **How common are decoupling mechanisms such as the Company's decoupling**

9   **proposal?**

10 **A.**   There is little question that decoupling mechanisms are becoming increasingly

11   common. The increased interest in such mechanisms has generally resulted from

12   the growing cost of maintaining system reliability, coupled with the flat or

13   declining volume brought on by energy efficiency and relatively slow economic

14   growth. A December 2013 report published by Regulatory Research Associates

15   ("RRA") indicated that some form of revenue decoupling has been implemented by

16   gas utilities in 33 jurisdictions.[31] Consequently, the implementation of alternative

17   regulation mechanisms has become an increasingly visible issue to investors.

18

19 **Q.**   **Are decoupling mechanisms common among the proxy companies?**

20 **A.**   Yes, they are. Exhibit RBH-11 provides a summary of decoupling mechanisms

---

[31]   RRA *Decoupling Mechanisms/Straight-Fixed-Variable Rate Design – A State-By-State Overview*, December 26, 2013. Includes weather normalization clauses.

1   currently in effect at each gas utility subsidiary of the proxy group companies. As

2   Exhibit RBH-11 demonstrates, each of the proxy group companies has a form of

3   decoupling in place in most, if not all, of its gas utility subsidiaries.

4

5 Q. **Would the Company's proposed revenue decoupling structure reduce**

6   **EnergyNorth's Cost of Equity?**

7 A. No, it would not. The principal analytical issue is whether the Company would be

8   so less risky than its peers as a direct result of the proposed decoupling structure

9   that investors would specifically and measurably reduce their return requirements.

10   The fact that the proposed decoupling structure may stabilize the Company's

11   revenues would not affect its Cost of Equity unless it can be demonstrated that (1)

12   the Company would be materially less risky than the proxy group by virtue of the

13   decoupling mechanism; and (2) investors are likely to react to the incremental

14   effect of the mechanism. Because revenue stabilization and cost recovery

15   mechanisms are common among the proxy companies, there is no reason to assume

16   that EnergyNorth would be materially less risky, and that its Cost of Equity would

17   be lower than its peers' as a result of the proposed decoupling mechanism.

18

19 Q. **Have regulatory commissions recognized the prevalence of decoupling**

20   **mechanisms?**

21 A. Yes, for example, in its most recent order regarding Baltimore Gas and Electric, for

22   example, the Public Service Commission of Maryland, stated that:

1   We will not further reduce that return as a result of BGE's
2   decoupling mechanism. No party argued that the Company
3   should have a reduced ROE for its natural gas operations
4   because of decoupling. Instead, as the parties testified,
5   decoupling provisions are common among natural gas
6   distribution companies.[32]

7 Similarly, in its recent order regarding Southwest Gas, the Public Utilities

8 Commission of Nevada also noted that decoupling mechanisms have become

9 common:

10   The Commission further finds that an adjustment for SWG's
11   revenue decoupling mechanism is unnecessary as all of the
12   companies in the Proxy Group have some form of a rate
13   stabilization mechanism in place.[33]

14 Given that decoupling mechanisms are viewed as the "norm", it is appropriate to

15 consider the effect that a lack of such mechanisms has on the relative risk of the

16 Company.

17

18 **Q.** **Have you considered the potential effect on the Company's Cost of Equity if**

19 **the proposed decoupling mechanism is denied?**

20 A. Yes, I have. If the decoupling mechanism is denied, the Company could be at a

21 disadvantage relative to the proxy group. To be sure, it is difficult to estimate the

22 effect on the Company's ROE if the decoupling mechanism is not implemented. In

23 large part, that difficulty arises from the fact that, while there are numerous

---

[32]   Baltimore Gas & Electric, Public Service Commission of Maryland, Case No. 9299, Order No. 85374,
February 22, 2013, at 78.
[33]   Southwest Gas Corporation, Public Utilities Commission of Nevada, Docket No. 12-04005, Modified
Final Order, December 14, 2012, at 28

1   circumstances in which a decoupling mechanism specifically has been approved,

2   there are few occasions in which a proposed structure was not approved, at least in

3   part. As a consequence, data regarding the financial community's reaction to the

4   denial of a mechanism is quite limited. However, utilities across the country have

5   implemented various forms of revenue decoupling mechanisms, fixed monthly

6   charges, rate adjustment mechanisms, and return stabilization structures as means

7   of addressing the financial implications of the continued declining use per

8   customer. In light of their prevalence, gas distribution utilities lacking such

9   structures may well be considered to be exposed to a comparatively higher level of

10   risk.

11

12   Q.   **What is your conclusion regarding the effect of the Company's proposed**

13   **decoupling structure on its Cost of Equity?**

14   A.   As noted above, decoupling mechanisms have become increasingly common for

15   gas utility companies.   Consequently, the Company's proposed decoupling

16   structure would not fundamentally alter its risk profile relative to its peers.

17   Furthermore, there is little question that regulatory commissions continue to

18   recognize that revenue stabilization and cost recovery mechanisms are increasingly

19   common and, therefore, already are reflected in current market valuations.   On

20   balance, both quantitative and qualitative data suggest that it would inappropriate to

21   reduce the Company's ROE in connection with its proposed decoupling structure.

22

1   G. **Flotation Costs**

2   Q.   **What are flotation costs?**

3   A.   Flotation costs are the costs associated with the sale of new issues of common

4   stock.   These include out-of-pocket expenditures for preparation, filing,

5   underwriting, and other costs of issuance.

6

7   Q.   **Are flotation costs part of the utility's invested costs or part of the utility's**

8   **expenses?**

9   A.   Flotation costs are part of capital costs, which are properly reflected on the balance

10   sheet under "paid in capital" rather than current expenses on the income statement.

11   Flotation costs are incurred over time, just as investments in rate base or debt

12   issuance costs. As a result, the great majority of flotation costs is incurred prior to

13   the test year, but remains part of the cost structure during the test year and beyond.

14

15   Q.   **How did you calculate the flotation cost recovery adjustment?**

16   A.   I modified the DCF calculation to provide a dividend yield that would reimburse

17   investors for issuance costs. My flotation cost adjustment recognizes the costs of

18   issuing equity that were incurred by the Company and the proxy group companies

19   in their most recent two issuances.   As shown in Attachment RBH-12, an

20   adjustment of 0.14 percent (i.e., 14 basis points) reasonably represents flotation

21   costs for the Company

22

1 Q.   **Are you proposing to adjust your recommended ROE by 14 basis points to**

2   **reflect the effect of flotation costs on EnergyNorth's ROE?**

3 A.   No, I am not. Rather, I have considered the effect of flotation costs, in addition to

4   the Company's other business risks, in determining where the Company's ROE

5   falls within the range of results.

6

7 **VIII. CAPITAL MARKET ENVIRONMENT**

8 Q.   **Do economic conditions influence the required cost of capital and required**

9   **return on common equity?**

10 A.   Yes. As discussed in Section VI, the models used to estimate the Cost of Equity

11   are meant to reflect, and therefore are influenced by, current and expected capital

12   market conditions. Therefore, it is important to assess the reasonableness of any

13   financial model's results in the context of observable market data. To the extent

14   that certain ROE estimates are incompatible with such data or inconsistent with

15   basic financial principles, it is appropriate to consider whether alternative

16   estimation techniques are likely to provide more meaningful and reliable results.

17

18 Q.   **Do you have any general observations regarding the relationship between**

19   **current capital market conditions and the Company's Cost of Equity?**

20 A.   Yes, I do. Much has been reported about the Federal Reserve's Quantitative Easing

21   policy, and its effect on interest rates. The issue as to how those policies, and the

22   continuing level of interest rates, affects utility stock prices is less clear. As

1 discussed below, for example, while Federal Reserve policy has affected interest

2 rates, it also correlates to lower levels of market volatility. Generally speaking,

3 when volatility is low investors are willing to take on more risk, and allocate capital

4 to less defensive stocks. In essence, they are more willing to take on additional risk

5 in expectation of realizing higher returns. Recently, however, the market appears to

6 be providing conflicting signals: low volatility and low interest rates have resulted

7 in defensive stocks somewhat outperforming other sectors.

8

9 A relevant question, then, is how investors will react when the Federal Reserve

10 completes its market intervention. A viable outcome is that investors will perceive

11 greater chances for economic growth, which will increase the growth rates included

12 in the Constant Growth DCF model. At the same time, higher growth and the

13 absence of Federal market intervention could provide the opportunity for interest

14 rates to increase, thereby increasing the dividend yield portion of the DCF model.

15 In that case, both terms of the Constant Growth DCF model would increase,

16 producing increased ROE estimates.

17

18 At this time, however, market data is somewhat disjointed. As a consequence, it is

19 difficult to rely on a single model to estimate the Company's Cost of Equity. A

20 more reasoned approach is to understand the relationships among Federal Reserve

21 policies, interest rates and risk, and assess how those factors may affect different

22 models. For the reasons discussed below, the current market is one in which it is

1   very important to consider a broad range of data and models when determining the

2   Cost of Equity.

3

4 **Q.**   **Please summarize the effect of recent Federal Reserve policies on interest rates**

5   **and the cost of capital.**

6 **A.**   Beginning in 2008, the Federal Reserve proceeded on a steady path of initiatives

7   intended to lower long-term Treasury yields.[34] The Federal Reserve policy actions

8   "were designed to put downward pressure on longer-term interest rates by having

9   the Federal Reserve take onto its balance sheet some of the duration and

10   prepayment risks that would otherwise have been borne by private investors."[35]

11   Under that policy, "Securities held outright" on the Federal Reserve's balance sheet

12   increased from approximately $489 billion at the beginning of October 2008 to

13    $4.07 trillion by May 30, 2014.[36] To put that increase in context, the securities held

14   by the Federal Reserve represented approximately 3.29 percent of Gross Domestic

15   Product ("GDP") at the end of September 2008, and had risen to approximately

16   23.78 percent of GDP in May 2014.

17

18 **Q.**   **Is the Federal Reserve expected to maintain these policies?**

19 **A.**   Although the Federal Reserve began "tapering" its asset purchases in December

---

[34]   *See* Federal Reserve Press Release dated June 19, 2013.

[35]   Federal Reserve Bank of New York, *Domestic Open Market Operations During 2012*, April 2013, page 29.
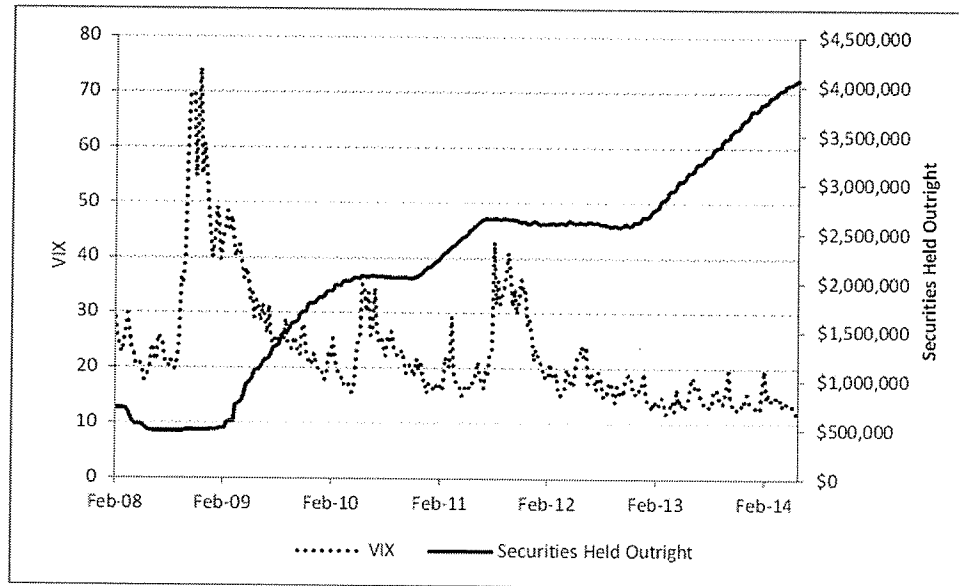
[36]   Federal Reserve Statistical Release H.4.1, Factors Affecting Reserve Balances.

1   2013, the future pace of such reductions is not on a "preset course".[37] Nonetheless,

2   the increase in interest rates since May 2013 suggests that investors have continued

3   to focus on the timing and extent of further reductions in monthly asset purchases

4   by the Federal Reserve. As such, significant uncertainties remain in the market

5   today and going forward. The uncertainty surrounding the timing of the Federal

6   Reserve's future policy decisions, including the unwinding of stimulus programs,

7   represents a risk to investors that, in my view, should be reflected in the Company's

8   authorized ROE.

9

10   Just as market intervention by the Federal Reserve has reduced interest rates, it also

11   has had the effect of reducing market volatility. As shown in Chart 3 below, each

12   time the Federal Reserve began to purchase bonds (as evidenced by the increase in

13   "Securities Held Outright" on its balance sheet), volatility subsequently declined.

14   In fact, in September 2012, when the Federal Reserve began to purchase long-term

15   securities at a pace of $85 billion per month, volatility (as measured by the CBOE

16   Volatility Index, known as the "VIX") fell, and has since remained in a relatively

17   narrow range. The reason is quite straight-forward: Investors became confident that

18   the Federal Reserve would intervene if markets were to become unstable.

---

[37]   Minutes of the Federal Open Market Committee December 17–18, 2013, page 10; Minutes of the
       Federal Open Market Committee April 29 - 30, 2014, page 8.

1   **Chart 3: VIX and Federal Reserve Asset Purchases**[38]

2

3   The important analytical issue is whether we can infer that risk aversion among

4   investors is at a historically low level, implying a Cost of Equity that is well below

5   recently authorized returns. Given the negative correlation between the expansion

6   of the Federal Reserve's balance sheet and the VIX, it is difficult to conclude that

7   fundamental risk aversion and investor return requirements have fallen. If it were

8   the case that investors believe that volatility will remain at low levels (that is, that

9   market risk and uncertainty will remain low), it is not clear why they would

10   decrease their return requirements for defensive sectors such as utilities. In that

11   respect, it appears that the Constant Growth DCF results are at odds with market

12   conditions. As such (and as discussed earlier in my testimony), I believe that it is

---

[38]   Source: Federal Reserve Economic Data (FRED), Federal Reserve Bank of St. Louis; Federal Reserve
Statistical Release H.4.1, Factors Affecting Reserve Balances.

1   appropriate to consider multiple methods at the current time.

2

3 Q. **What conclusions do you draw from your analyses of capital market**

4   **conditions?**

5 A. From an analytical perspective, it is important that the inputs and assumptions used

6   to arrive at an ROE recommendation, including assessments of capital market

7   conditions, are consistent with the recommendation itself. While I appreciate that

8   all analyses require an element of judgment, the application of that judgment must

9   be made in the context of the quantitative and qualitative information available to

10   the analyst and the capital market environment in which the analyses were

11   undertaken. Because the application of financial models and interpretation of their

12   results often is the subject of differences among analysts in regulatory proceedings,

13   I believe that it is important to review and consider a variety of data points; doing

14   so enables us to put in context both quantitative analyses and the associated

15   recommendations.

16

17 IX. **CAPITAL STRUCTURE**

18 Q. **What is the Company's proposed capital structure?**

19 A. The Company has proposed a capital structure comprised of 55.00 percent common

20   equity and 45.00 percent long-term debt. This is the capital structure agreed to in

21   the Settlement Agreement in Docket DG 11-040.

1 Q.   **Is there a generally accepted approach to developing the appropriate capital**

2   **structure for a regulated gas utility?**

3 A.   Yes, there are a number of generally accepted approaches to developing the

4   appropriate capital structure. The reasonableness of the approach depends on the

5   nature and circumstances of the subject company. In cases where the subject

6   company does not issue its own securities, it may be reasonable to look to the

7   parent's capital structure or to develop a "hypothetical" capital structure based on

8   the proxy group companies or other industry data. Regardless of the approach

9   taken, however, it is important to consider the resulting capital structure in light of

10   industry norms and investor requirements. That is, the capital structure should

11   enable the subject company to maintain its financial integrity, thereby enabling

12   access to capital at competitive rates under a variety of economic and financial

13   market conditions.

14

15 Q.   **How does the capital structure affect the Cost of Equity?**

16 A.   The capital structure relates to a company's financial risk, which represents the risk

17   that a company may not have adequate cash flows to meet its financial obligations,

18   and is a function of the percentage of debt (or financial leverage) in its capital

19   structure. In that regard, as the percentage of debt in the capital structure increases,

20   so do the fixed obligations for the repayment of that debt. Consequently, as the

21   degree of financial leverage increases, the risk of financial distress (i.e., financial

22   risk) also increases. Since the capital structure can affect the subject company's

1   overall level of risk,[39] it is an important consideration in establishing a just and

2   reasonable rate of return.

3

4 **Q.   Please discuss your analysis of the capital structures of the proxy group**

5   **companies.**

6 A.   I calculated the average capital structure for each of the proxy group companies

7   over the last eight quarters. As shown in RBH-13, the mean of the proxy group

8   actual capital structures is 55.24 percent common equity and 44.76 percent long-

9   term debt. The common equity ratios range from 48.02 percent to 69.90 percent.

10   Based on that review, it is apparent that the Company's proposed capital structure is

11   generally consistent with the capital structures of the proxy group companies.

12

13 **Q.   What is the basis for using average capital components rather than a point-in-**

14   **time measurement?**

15 A.   Measuring the capital components at a particular point in time can skew the capital

16   structure by the specific circumstances of a particular period. Therefore, it is more

17   appropriate to normalize the relative relationship between the capital components

18   over a period of time.

---

[39]   *See*, Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 45-46.

1   **Q.**   **What is your conclusion regarding an appropriate capital structure for**

2   **EnergyNorth?**

3   **A.**   Considering the average actual equity ratio of 55.24 percent for the proxy group

4   companies, I believe that EnergyNorth's proposed common equity ratio of 55.00

5   percent is appropriate as it is consistent with the proxy group companies.

6

7   **X.**   **COST OF DEBT**

8   **Q.**   **What cost of debt has the company requested in this proceeding?**

9   **A.**   The Company has proposed a cost of debt of 4.43 percent, which is the Company's

10   actual weighted average cost of debt, as shown in Table 8 below.

11

Table 8: Weighted Cost of Debt

Face Amount	Term	Rate	Weighted Average
$18,181,818.18	5.00	3.51%	0.71%
$41,818,181.82	10.00	4.49%	2.09%
$21,818,181.82	15.00	4.89%	1.19%
$8,181,818.18	15.00	4.89%	0.44%
Total: **$90,000,000.00**			**4.43%**

12

13   **Q.**   Please discuss your analysis of the Company's cost of debt.

14   **A.**   I calculated the embedded cost of debt for all authorized gas utility returns over the

15   January 1, 2013 to May 30, 2014 period (See Attachment RBH-14). The mean of

16   the embedded cost of debt authorized is 5.33 percent and the median is 5.52

17   percent. The embedded cost of debt authorized range from 2.78 percent to 6.97

1   percent. Therefore, I believe the Company's proposed cost of debt of 4.43 percent

2   is reasonable and appropriate.

3

4   **XI.   CONCLUSIONS AND RECOMMENDATION**

5   **Q.   What is your conclusion regarding the Company's Cost of Equity?**

6   A.   I believe that a rate of return on common equity in the range of 10.00 percent to

7   10.50 percent represents the range of equity investors' required rate of return for

8   investment in gas utilities similar to EnergyNorth in today's capital markets.

9   Within that range, it is my view that an ROE of 10.25 percent is reasonable and

10   appropriate. A summary of the results of my analyses is shown in Table 9.

1   **Table 9: Summary of Analytical Results**

Discounted Cash Flow	*Mean Low*	*Mean*	*Mean High*
30-Day Constant Growth DCF	7.37%	8.79%	10.50%
90-Day Constant Growth DCF	7.49%	8.90%	10.62%
180-Day Constant Growth DCF	7.53%	8.95%	10.66%
30-Day Multi-Stage DCF	9.20%	9.54%	10.00%
90-Day Multi-Stage DCF	9.30%	9.66%	10.13%
180-Day Multi-Stage DCF	9.35%	9.70%	10.18%
Supporting Methodologies			
CAPM Results		*Bloomberg Derived Market Risk Premium*	*Value Line Derived Market Risk Premium*
Average Bloomberg Beta Coefficient			
Current 30-Year Treasury (3.42%)		11.48%	10.88%
Near-Term Projected 30-Year Treasury (4.07%)		12.13%	11.53%
Average Value Line Beta Coefficient			
Current 30-Year Treasury (3.42%)		11.12%	10.55%
Near Term Projected 30-Year Treasury (4.07%)		11.77%	11.20%
	Low	*Mid*	*High*
Bond Yield Risk Premium	10.08%	10.23%	10.67%
Flotation Costs		0.14%	

2

3   Based on the proposed capital structure of 45.00 percent long-term debt and 55.00

4   percent equity, the Company's proposed cost of debt of 4.43 percent, and my

5   recommended 10.25 percent Return on Equity, the Company's proposed overall

6   Rate of Return is 7.63 percent (see Table 10).

1   **Table 10: Proposed Overall Rate of Return**

Component	Percent of Total	Cost Rate	Weighted Cost Rate
Common Equity	55.00%	10.25%	5.64%
Long-term Debt	45.00%	4.43%	1.99%
Total	100.00%		7.63%

2

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

4   A.   Yes, it does.

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