STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. _____

Tariff filing of Green Mountain Power requesting an	)
increase in its base rates starting January 1, 2019, to be	)
fully offset by bill credits through September 30, 2019	)

PREFILED TESTIMONY OF

JAMES M. COYNE

ON BEHALF OF GREEN MOUNTAIN POWER

April 13, 2018

<u>**SUMMARY OF TESTIMONY**</u>

Mr. Coyne's Testimony presents the market information and analyses used to estimate the required Cost of Equity for Green Mountain Power. Mr. Coyne's recommended ROE range of 9.9 to 10.4 percent incorporates a review of the Company's specific business risks and provides an assessment of the reasonableness of the Company's requested ROE of 9.3 percent on a common equity ratio of 50 percent. The requested ROE and equity ratio were previously agreed to by the Company and the DPS, and results in a lower cost of common equity than the Company would receive according to Mr. Coyne's current market analyses.

TABLE OF CONTENTS

EXHIBIT LIST

PREFILED TESTIMONY OF
JAMES M. COYNE
ON BEHALF OF GREEN MOUNTAIN POWER

I. INTRODUCTION

1 **Q1. Please state your name, affiliation, and business address.**

2 A1. My name is James M. Coyne, and I am employed by Concentric Energy Advisors, Inc.

3 ("Concentric") as a Senior Vice President. Concentric is a management consulting and

4 economic advisory firm, focused on the North American energy and water industries.

5 Based in Marlborough, Massachusetts and Washington, D.C., Concentric specializes in

6 regulatory and litigation support, financial advisory services, energy market strategies,

7 market assessments, energy commodity contracting and procurement, economic

8 feasibility studies, and capital market analyses. My business address is 293 Boston Post

9 Road West, Suite 500, Marlborough, MA 01752.

10 **Q2. On whose behalf are you testifying?**

11 A2. I am submitting this testimony on behalf of Green Mountain Power ("GMP" or the

12 "Company") in this proceeding.

13 **Q3. Please describe your experience in the energy and utility industries and your**

14 **educational and professional qualifications.**

15 A3. I am among Concentric's professionals who provide expert testimony before federal,

16 state and Canadian provincial agencies on matters pertaining to economics, finance, and

1   public policy in the energy industry. I regularly advise regulatory agencies, utilities,

2   generating companies, and private equity investors on business issues pertaining to the

3   utility industry. This work includes calculating the cost of capital for the purpose of

4   ratemaking and providing expert testimony and studies on matters pertaining to rate

5   policy, valuation, capital costs, and performance-based regulation. In addition, I work for

6   regulators, utilities, and independent developers on issues pertaining to the management

7   and development of power generation, distribution, and transmission facilities. I have

8   authored numerous articles on the energy industry, lectured on utility regulation for

9   regulatory commission staff, and provided testimony before the Federal Energy

10   Regulatory Commission ("FERC") as well as state and provincial jurisdictions in the

11   U.S. and Canada. I have also testified before the Vermont Public Utilities Commission

12   (the "Commission" or "PUC"), formerly the Vermont Public Service Board, on matters

13   concerning the cost of capital and performance-based ratemaking.   I hold a B.S. in

14   Business Administration from Georgetown University and a M.S. in Resource

15   Economics from the University of New Hampshire. My educational and professional

16   background is summarized more fully in **Exhibit GMP-JMC-1**.

II.   PURPOSE AND OVERVIEW OF TESTIMONY

17   **Q4.   What is the purpose of your Direct Testimony?**

18   A4.   The purpose of my Direct Testimony is to present evidence and provide a

19   recommendation regarding the Company's Return on Equity ("ROE"). My Direct

20   Testimony also discusses the Company's capital structure in comparison to the proxy

1   group companies supporting my analysis. My analyses and recommendations are

2   supported by the data presented in **Exhibits GMP-JMC-2** through **GMP-JMC-12**,

3   which have been prepared by me or under my direction.

4   **Q5.   What is your conclusion regarding the appropriate cost of equity for the Company?**

5   A5.   My analysis supports an ROE in the range of 9.9 to 10.4 percent. The mean result of all

6   of my analyses is 9.9 percent, which I consider to be at the low end of a reasonable range

7   of ROEs for GMP, given its business risk profile and the current economic environment.

8   The upper end of 10.4 percent is the mean high result from my analyses. Based on this

9   analysis, I would recommend a 10 percent ROE as appropriate for GMP for the 2019 rate

10   period.

11   It is my understanding, however, that GMP and the Department of Public Service

12   ("DPS" or the "Department") agreed, as part of the resolution of GMP's prior rate case,

13   that an ROE at the annual rate of 9.3 percent would be appropriate in 2019, based on

14   information that was available at that time.[1] My current market analysis and the increase

15   in utility risk stemming from the Tax Cuts and Jobs Act of 2017 ("Tax Reform"),

16   support an ROE well-above 9.3 percent. Nevertheless, because GMP believes that the

17   agreed-upon ROE of 9.3 percent was an important part of the agreement reached with

18   the Department in the prior rate case, GMP has chosen to uphold its agreement to set an

19   ROE of 9.3 percent for the rate period of January 1, 2019 to September 30, 2019.

20   When an ROE of 9.3 percent is considered in combination with GMP's proposed equity

---

[1]   VT PUC, Case No. 17-3112-INV (December 21, 2017) at 5; and VT PUC Case No. 17-3112-INV, Vermont
DPS and GMP Memorandum of Understanding (November 9, 2017) at para. 21.

1   ratio of 49.8 percent, GMP's cost of capital is below the level I would ordinarily

2   recommend to satisfy the requirements of a fair return. My professional

3   recommendation of 10 percent assumes the Company will continue to operate under its

4   current Limited Interim Regulation Plan ("the Interim Plan") until a new Regulation

5   Plan ("the Plan" or "the Multi-Year Plan") is approved and adopted, which is anticipated

6   in 2019. The results of my analyses are presented in **Exhibit GMP-JMC-2**

7   accompanying this testimony.

8   **Q6.   Are GMP's current ROE of 9.1 percent, and its requested ROE of 9.3, aligned with**

9   **recently authorized equity returns for vertically integrated electric utilities?**

10 A6.   No. Both ROEs are at the absolute lower end of allowed ROEs for vertically integrated

11   electric utilities. In fact, its current ROE of 9.1 percent is the lowest authorized return for

12   any vertically integrated electric utility authorized in the U.S. in recent history and is the

13   second lowest going back as far as 1980[2] (as far back as SNL publishes historical

14   regulatory data). Notwithstanding, as discussed in the testimony of GMP witness

15   Costello, the Company continues to deliver strong outcomes for customers—high

16   reliability, high customer satisfaction, and is at the forefront of innovation in the

17   regulated electric utility sector.

---

[2]   Data from SNL RRA database. The lowest ROE was issued to Maui Electric Company at 9.0% on 56.86% equity in Decision D-2011-092, dated May 31, 2013. Though the authorized ROE is lower, the Maui Electric ROE and equity ratio produces a higher total cost of equity (9.0% x 56.86% = 5.12%) than GMP's current combined ROE and equity ratio (9.1% x 48.6% = 4.42%).

Figure 1: Recently Authorized Vertically Integrated Electric ROEs

Authorized ROEs for Electric (Vertically Integrated) Utilities (1/1/2016 - 2/28/2018)

1
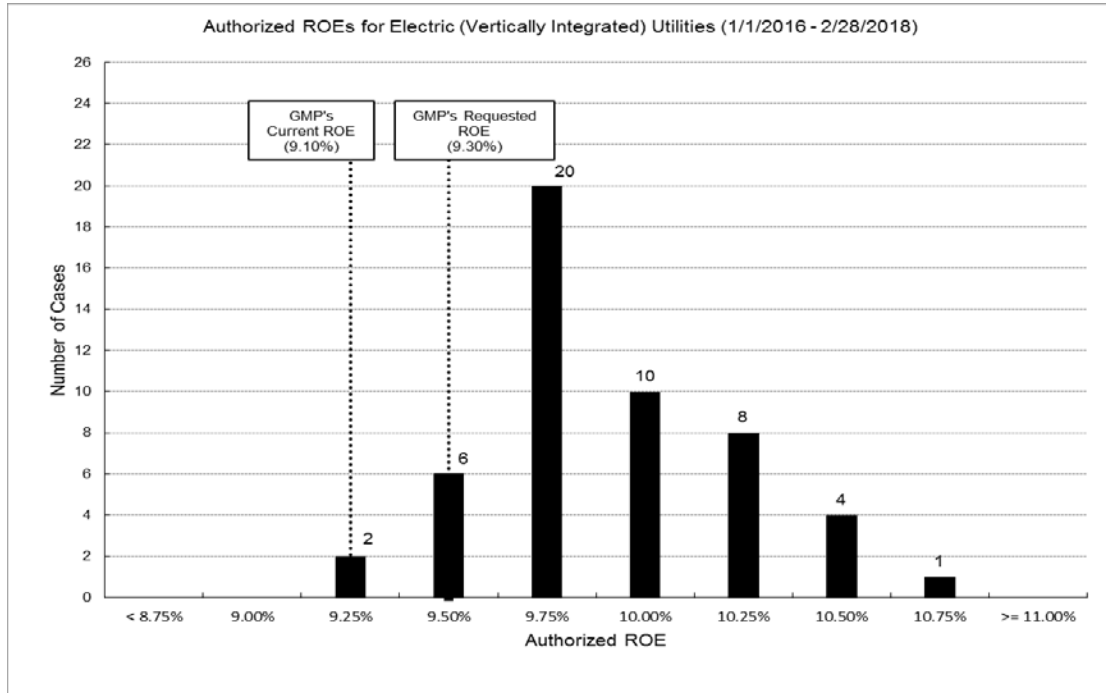
2   As Figure 1 (above) indicates, for the recent historical period from January 2016 to

3   February 2018, the average ROE for vertically integrated electric utilities was 9.78 percent,

4   and the median was 9.70 percent. The highest ROE issued during that period was 11.95

5   percent and the lowest was GMP's ROE of 9.10 percent. Figure 1 shows that an ROE of

6   9.3 percent would still be among the lowest in the U.S.; and based on my current analyses

7   as summarized in this testimony, it would be well below the low end of reasonable range

8   of recommended ROEs for 2019. My recommendation of 10 percent would fall just above

9   the average ROE for vertically integrated utilities and is justified in my opinion based on

10   the factors discussed further below.

1 **Q7.** **You claim that based on changing capital market and utility risk conditions, GMP's**

2 **ROE should be higher than in the last rate case. Can you please summarize the**

3 **primary factors that support this view?**

4 A7. Yes. Since last year, the primary factors affecting utility cost of capital are rising interest

5 rates and the passage of the Tax Cut and Jobs Act at the end of 2017, both factors

6 indicating a higher required return for investors. I will discuss each in turn. By far, the

7 most dominant factor affecting utility cost of capital determinations is the level of interest

8 rates. Because regulated utilities are capital intensive, they are highly sensitive to

9 changes in interest rates. As interest rates increase, utility valuations decrease, driving up

10 the required utility equity return and accordingly the ROE. Since the filing of my direct

11 testimony in GMP's last rate case (April 2017), the Federal Reserve Bank (the "Fed") has

12 raised the short-term borrowing rate three times in 25 basis point increments to its current

13 level of 1.50-1.75 percent as of March 2018, and is expected to hike rates twice more in

14 2018, and three more times in 2019, to bring the targeted federal funds rate to 2.75–3.00

15 percent by the end of 2019.[3] This translates to an increase in interest rates of 200 basis

16 points (or "bps") from the time I filed my direct testimony in GMP's last rate case to the

17 end of 2019 (roughly the period this ROE would remain in effect). Though increases in

18 the federal funds rate do not necessarily correspond to one-for-one changes in treasury

19 bond yields, they do significantly influence bond yields and thus directionally support a

20 higher ROE for GMP for the upcoming rate period.

---

[3] Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, March 2018. Advance release of table 1 of the Summary of Economic Projections to be released with the FOMC minutes (March 21, 2018).

1   The second major factor affecting utility cost of capital is the Tax Cuts and Jobs

2   Act of 2017, which decreased the U.S. corporate tax rate from 35 percent to 21 percent.

3   As I discuss later in my testimony, the new tax legislation reduces utility revenues and

4   accordingly negatively impacts utility cash flows and credit metrics. As a result, the risk

5   profile of U.S. utilities has increased, and accordingly, the required ROE for utility

6   investment has also increased. Utility liquidity is of critical importance, particularly

7   given GMP's role as the sole investor-owned utility relied upon to provide service and

8   storm-related recovery for the vast majority of Vermont's electric customers.

9   **Q8.   Please provide a brief overview of the analyses that you conducted to support your**

10   **ROE recommendation.**

11   A8. My ROE recommendation is based on the range of results produced from three modeling

12   methodologies, the Discounted Cash Flow ("DCF") model, the Capital Asset Pricing

13   model ("CAPM"), and the Risk Premium approach. Analysts and academics understand

14   that ROE models are tools to be used in the ROE estimation process, and that strict

15   adherence to any single approach, or the specific results of any single approach, can lead

16   to flawed conclusions. No model can exactly pinpoint the correct return on equity, but

17   rather each model brings its own perspective and set of inputs that inform the estimate of

18   ROE. Therefore, my analysis appropriately considers the range of results produced by

19   these three different models. The DCF model is based on reputable third-party growth

20   rate projections, as well as market-based information on current annualized dividends and

21   recent stock prices. The CAPM analysis is based on both current and forecasted interest

22   rates and projected market risk premiums. The Risk Premium approach calculates the

1   risk premium as the spread between authorized ROEs for electric distribution companies

2   and Treasury bond yields to estimate the ROE.

3   My recommendation also considers the general economic and capital market

4   environment and the influence capital market conditions exert over the results of the

5   DCF and CAPM models. In addition, I also consider the Company's business and

6   regulatory risks in relation to a set of proxy companies to assist in the determination of

7   the appropriate ROE from the range of my analytical results.

8   Similar to when I filed my direct testimony in the 2018 rate case in April 2017, I

9   continue to have concerns about the ability of the DCF methodology to produce reliable

10   results under existing market conditions due to elevated utility stock valuations and

11   correspondingly low dividend yields. Although I have considered and incorporated the

12   results of differing DCF methodologies into my recommendation, I have also equally

13   weighted the results of my CAPM and Bond Yield Risk Premium analyses. My

14   recommendation is based on an averaging of the results of these three methodologies.

15   **Q9.   How is the remainder of your Direct Testimony organized?**

16   A9.   The remainder of my Direct Testimony is organized as follows. Section III provides

17   background on the regulatory principles that guide the determination of ROE. Section IV

18   presents a review of current and projected economic and capital market conditions and

19   their impacts on utility cost of capital. Section V describes the criteria and approach for

20   the selection of a proxy group of comparable companies. Section VI provides a

21   description of the data and methodologies used to estimate the cost of equity, as well as

22   the results of the DCF, CAPM, and Risk Premium analyses. Section VII provides an

1   assessment of the business risk factors I have considered in arriving at an appropriate

2   ROE for Green Mountain Power. Section VIII reviews Green Mountain Power's capital

3   structure in the context of the proxy group. Section IX summarizes my results,

4   conclusions, and recommendation.

III.   REGULATORY PRINCIPLES

5   **Q10. Please describe the guiding principles used in establishing the cost of capital for a**

6   **regulated utility.**

7   A10. The foundations of public utility regulation require that utilities receive a fair rate of

8   return sufficient to attract needed capital to maintain important infrastructure for

9   customers at reasonable rates. The basic tenets of this regulatory doctrine originate from

10   several bellwether decisions by the United States Supreme Court, notably *Bluefield*

11   *Waterworks and Improvement Company v. Public Service Commission of West Virginia*,

12   262 U.S. 679 (1923) ("*Bluefield*"), and *Federal Power Commission v. Hope Natural Gas*

13   *Company,* 320 U.S. 591 (1944) ("*Hope*"). In *Bluefield*, the Court stated:

14   A public utility is entitled to such rates as will permit it to earn a return
15   on the value of the property which it employs for the convenience of the
16   public equal to that generally being made at the same time and in the
17   same general part of the country on investments in other business
18   undertakings which are attended by corresponding risks and
19   uncertainties…

20   The return should be reasonably sufficient to assure investor confidence
21   in the financial soundness of the utility and should be adequate, under
22   efficient and economical management, to maintain and support its credit
23   and enable it to raise the money necessary for the proper discharge of its
24   public duties.

1   Later, in *Hope*, the Court established a standard for the ROE that remains the guiding

2   principle for ratemaking regulatory proceedings to this day:

> 3   [T]he return to the equity owner should be commensurate with returns on
> 4   investments in other enterprises having corresponding risks. That return,
> 5   moreover, should be sufficient to assure confidence in the financial
> 6   integrity of the enterprise, so as to maintain its credit and to attract
> 7   capital.

8   **Q11. Please briefly discuss how these principles apply in the context of the regulated rate**

9   **of return.**

10   A11. Regulated utilities rely primarily on common stock and long-term debt to finance

11   permanent property, plant, and equipment, and short-term debt to finance working capital

12   requirements for expenditures such as power purchases. The allowed rate of return for a

13   regulated utility is based on its weighted average cost of capital, where the costs of the

14   individual sources of capital (i.e., debt and equity) are weighted by their respective book

15   values. The ROE represents the cost of raising and retaining equity capital and is

16   estimated by using one or more analytical techniques that use market data to quantify

17   investor requirements for equity returns.

18   However, the ROE cannot be derived through quantitative metrics and models

19   alone. To properly estimate the ROE, the financial, regulatory, and economic context in

20   which the analysis takes place must also be considered. As the Commission has noted:

> 21   Neither the law nor regulatory precepts prescribe a specific methodology
> 22   for setting the appropriate return on equity. Instead, the [Commission]
> 23   has substantial discretion to weigh factors so as to achieve the
> 24   overarching goal of authorizing a return on equity that is fair and

1   reasonable to all stakeholders. The critical element is the reasonableness

2   of the result, not necessarily the methodology used to achieve it.[4]

3   The DCF, CAPM and Risk Premium approaches, while fundamental to the ROE

4   determination, are still only models; one should not assume that the results of these

5   models can be mechanistically applied without also using informed judgment to

6   consider economic and capital market conditions and the relative risk of Green

7   Mountain Power as compared to the proxy group companies.

8   Based on these widely recognized standards, the Commission's order in this case

9   should provide Green Mountain Power with the opportunity to earn a return on equity

10   that is:

11   • Commensurate with returns on investments in enterprises having comparable

12   risks;

13   • Adequate to attract capital on reasonable terms, thereby enabling Green Mountain

14   Power to provide safe, reliable service; and

15   • Sufficient to ensure the financial soundness of Green Mountain Power's

16   operations for customers.

17   Importantly, a fair return must satisfy all three of these standards. The allowed

18   ROE should enable Green Mountain Power to finance capital expenditures on

19   reasonable terms and provide the Company with the ability to raise capital under a full

20   range of capital market circumstances. This ability was particularly evident during the

---

[4]   Case No. 17-3112-INV, Investigation into Green Mountain Power Corporation's tariff filing requesting an overall rate increase in the amount of 4.98%, to take effect January 1, 2018. Order entered December 21, 2017, at 15.

1   financial crisis of 2008-09 when lesser rated companies, including utilities, struggled to

2   raise capital and/or paid substantial premiums for access to capital.

3   **Q12. What are your conclusions regarding regulatory principles?**

4   A12. The ratemaking process is premised on the principle that, in order for investors and

5   companies to commit the capital needed to provide safe and reliable utility services, the

6   utility must have the opportunity to recover the return of invested capital, and the market-

7   required return on that capital. Because utility operations are capital intensive, regulatory

8   decisions should enable the utility to attract capital on favorable terms. The financial

9   community carefully monitors the current and expected financial condition of utility

10   companies, as well as the regulatory environment in which they operate. In that respect,

11   the regulatory environment is one of the most important factors considered by both debt

12   and equity investors in their assessments of risk. It is therefore essential that the ROE

13   authorized in this proceeding take into consideration the current and expected capital

14   market conditions that Green Mountain Power faces, as well as investors' expectations

15   and requirements regarding both risks and returns. A reasonable ROE is both required

16   for continued investment and to maintain the confidence of credit rating agencies in

17   Vermont's regulatory environment. These returns typically are set without regard to the

18   parent company's ownership, so that returns are set on a stand-alone basis.[5]

---

[5]   The Commission has an established history of setting return on equity based on the analytical results of a proxy group analysis of comparable-risk, investor-owned utilities, as was done in several of the most recent Green Mountain Power rate proceedings, *Investigation into Green Mountain Power Corporation's tariff filing, etc.*, Docket Nos. 8190, 8191 (Vt. Pub. Serv. Bd. Aug. 25, 2014) at 21-22; and more recently, Case No. 17-3112-INV, *Investigation into Green Mountain Power Corporation's tariff filing requesting an overall rate increase in the amount of 4.98%, to take effect January 1, 2018,* (Vt. Pub. Utilities Comm. December 21, 2017) at 15.

IV. ECONOMIC AND CAPITAL MARKET CONDITIONS

1 **Q13. What are the key factors affecting the Cost of Equity for regulated utilities in the**

2 **current and prospective capital markets?**

3 A13. The cost of equity for regulated utility companies is being affected by several key factors

4 in the current and prospective capital markets, including: (1) the prevailing economic

5 conditions, including the still relatively low interest rate environment and the

6 corresponding effect on valuations and dividend yields of utility stocks relative to

7 historical levels; (2) the market's expectation for higher interest rates; and (3) recent

8 federal tax reform. In this section, I discuss each of these factors and how it affects the

9 models used to estimate the cost of equity for regulated utilities.

10 **Q14. Why is it important to consider the effects of prevailing economic conditions when**

11 **setting the appropriate ROE?**

12 A14. It is important to consider prevailing and expected conditions in the general economy and

13 financial markets because the authorized ROE for a public utility should allow the utility

14 to attract investor capital at a reasonable cost under a variety of economic and financial

15 market conditions, as underscored by the *Hope* and *Bluefield* decisions. The standard

16 ROE estimation tools, such as the DCF, CAPM, and Risk Premium models, each reflect

17 the state of the general economy and financial markets by incorporating specific

18 economic and financial data. These inputs are, however, only samples of the various

19 economic and market forces that determine a utility's required return. Consideration

20 must be given to whether the assumptions relied on in the current or projected data are

1 appropriate. If investors do not expect current market conditions to be sustained in the

2 future, it is possible that the ROE estimation models will not provide an accurate estimate

3 of investors' forward-looking required return. Therefore, an assessment of fluctuating

4 market conditions is integral to any ROE recommendation.

5 **Q15. How do market conditions affect the traditional ROE estimation models?**

6 A15. Each of the ROE estimation models is affected by market conditions. The historically

7 low bond yields prevailing over the last several years have caused a shift in investments

8 away from low-return Treasury bonds into lower-risk equities, such as utility stocks. As

9 prices for utility stocks have increased, the dividend yield (calculated as the dividend

10 divided by price) has decreased, resulting in a lower ROE using the DCF model than

11 would occur during more normal economic conditions.

12 With respect to the CAPM and Risk Premium models, yields on Treasury bonds

13 directly affect the calculation of the ROE under both models. Treasury bond yields are

14 used as inputs for the risk-free rate in the CAPM, and similarly, corporate bond yields

15 are priced off Treasury bonds and generally move in tandem. Accordingly, Risk

16 Premium models that use either Treasury or corporate utility bond yields are also

17 directly impacted by the level of interest rates. Generally, low Treasury bond yields

18 result in low estimates of ROE in the CAPM and Risk Premium models, unless there has

19 been an offsetting increase in the risk premium.

1 **Q16. You have outlined the relevant conditions impacting the required return on equity**

2 **for U.S. electric utilities. Can you provide your observations based upon these**

3 **conditions?**

4 A16. The U.S. economy has transitioned from the protracted slowdown that followed the 2008

5 financial crisis and the ensuing severe economic recession to a period of sustained

6 economic growth. As indicated previously in my testimony, we continue to be in a

7 relatively low interest rate environment, though rates for all maturities have increased

8 over the past two years and all indications are that interest rates will continue to rise over

9 the next several years.   As the economy continues to expand, the Federal Reserve is

10 expected to continue gradually increasing short-term interest rates in order to sustain the

11 desired balance between unemployment and consumer price inflation at 2 percent.[6]

12 Though bond yields have not yet fully responded to the Fed's tightening of monetary

13 policy, Federal policy has clearly entered a new period of transition towards

14 normalization.

15 In 2017, GDP grew at a nominal year-over-year rate of 4.1 percent[7] and a real

16 rate of 2.3 percent.[8] Real GDP is projected to increase at an annual rate of 2.8 percent

17 for 2018 and 2.5 percent for 2019,[9] indicating a steady progression of real economic

18 growth. The U.S. unemployment rate stands at 4.1 percent as of February 2018, down

---

[6] FOMC, Federal Reserve press release, March 15, 2017.
[7] Bureau of Economic Analysis, Table 1.1.5. Gross Domestic Product, February 28, 2018 (calculated).
[8] Bureau of Economic Analysis, Table 1.1.6. Real Gross Domestic Product, Chained Dollars, February 28, 2018 (calculated).
[9] Blue Chip Economic Indicators, Volume 43, No. 3, March 10, 2018, at 3-4.

1   sharply from its peak of 10.0 percent set in October 2009.[10]   The unemployment rate is

2   projected to decline to 3.9 percent in 2018, and 3.6 percent in 2019,[11] while the inflation

3   rate (measured by the Consumer Price Index "CPI") is projected to rise above the

4   Federal Reserve target of 2.0 percent to 2.4 percent in 2018, and 2.2 percent in 2019.[12]

5   The U.S. economy has moderated from a brief period of rapid expansion in the last

6   quarter of 2017, but continues to show growth and positive indications for employment

7   rates and price levels.

8   *A.   Prevailing Economic Conditions—Including the Low Interest Rate Environment*

9   *and Effect on Utility Dividend Yields*

10   **Q17.   Please discuss how the Federal Reserve's monetary policy has caused interest rates**

11   **to be anomalously low.**

12   A17. Extraordinary and persistent federal intervention in capital markets artificially lowered

13   government bond yields after the Great Recession of 2008-09, as the Federal Open

14   Market Committee ("FOMC") used monetary policy (both reductions in short-term

15   interest rates and purchases of Treasury bonds and mortgage-backed securities) to

16   stimulate the U.S. economy. As a result of very low returns on short-term government

17   bonds, yield-seeking investors have been forced into longer-term instruments, bidding up

18   prices and reducing yields on those investments. As investors moved along the risk

---

[10]   Bureau of Labor Statistics, Table A-10. Selected unemployment indicators, seasonally adjusted, extracted March 22, 2018.

[11]   Blue Chip Economic Indicators, Volume 43, No. 3, March 10, 2018, at 3–4.

[12]   Ibid.

1   spectrum in search of yields that met their return requirements, there has been increased

2   demand for dividend-paying equities, such as utility stocks.

3 **Q18. How has the period of abnormally low interest rates affected the valuations and**

4   **dividend yields of utilities?**

5 A18. The Federal Reserve's accommodative monetary policy resulted in higher asset prices for

6   many common stocks, including shares of public utility companies, as investors sought

7   higher returns and more attractive yields than were being offered by bonds.

8   Consequently, the share prices for many common stocks, especially dividend-paying

9   stocks such as utilities, were driven higher while the dividend yields (which are

10   computed by dividing the dividend payment by the stock price) decreased to levels well

11   below the historical average. As shown in Figure 2, yields on 30-year Treasury bonds

12   have declined by 108 basis points since 2009, when the Federal Reserve began to actively

13   manage interest rates as a result of the Great Recession, while dividend yields on electric

14   utilities have declined by 204 basis points over this period. These trends have, however,

15   reversed in recent months as bond yields are transitioning to higher levels.

1   **Figure 2: Dividend Yields for Electric Utility Stocks**

2
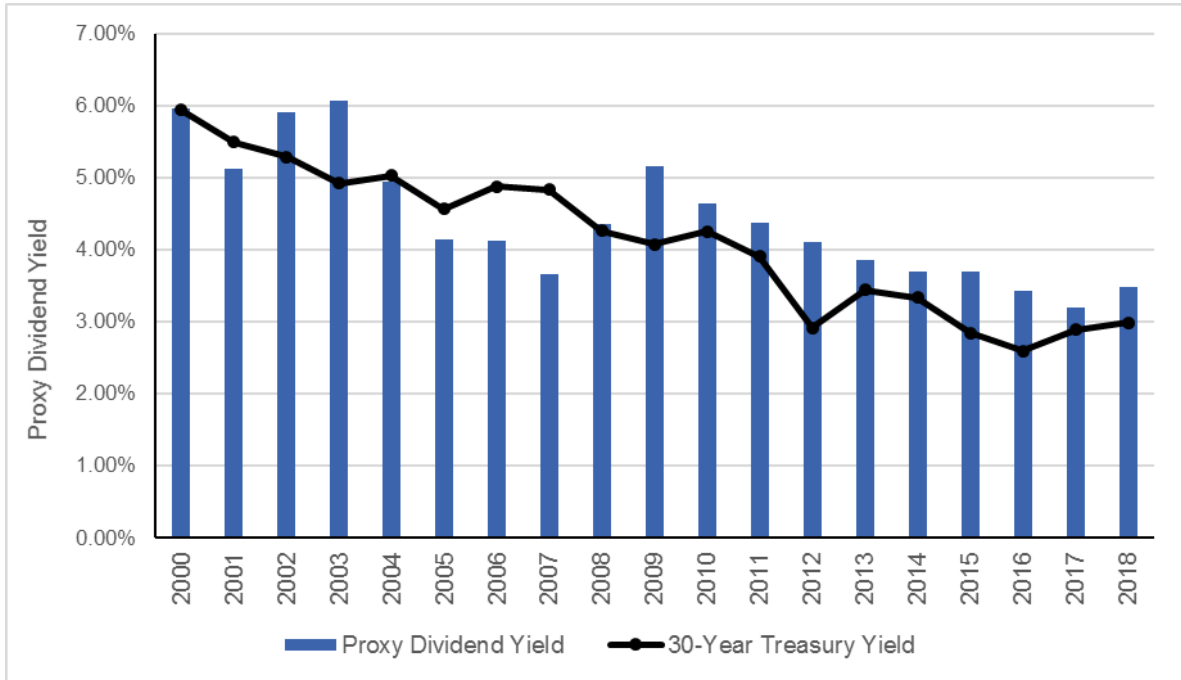
3   *Source: Bloomberg*

4   **Q19. How has the Standard & Poor's ("S&P") Utilities Index responded to recent**

5   **changes in market conditions?**

6   A19. Figure 3, below, compares the S&P Utilities index to the yield on the 30-year Treasury

7   bond from 2007 through February 2018. As shown in the chart, the S&P Utilities index

8   increased steadily from the beginning of 2009 through early November 2017 as yields on

9   30-year Treasury bonds declined in response to federal monetary policy.

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

2

3   *Source: Bloomberg*

4
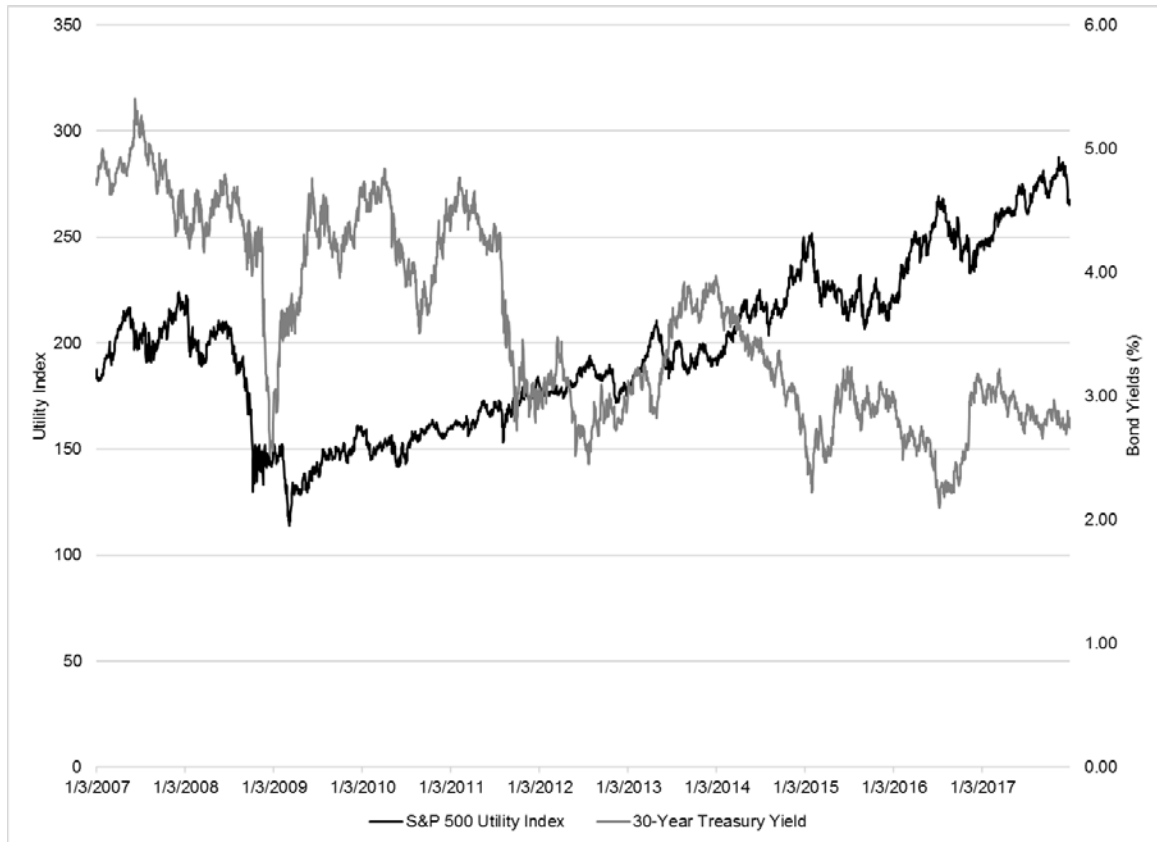
5   As shown in Figure 4, below, recent market conditions, however, have seen some

6   reversal in these trends. Responding to changes in interest rates and Federal tax reform,

7   since the House of Representatives approved the initial version of the tax reform

8   legislation on November 16, 2017 (the dotted vertical line on Figure 4), the S&P Utilities

9   Index has declined by approximately 12 percent, as yields on 30-year Treasury bonds

10   have increased from 2.81 percent to 3.12 percent.[13] While these concurrent changes in

11   stock valuations and bond yields will have some modest effect on the dividend yield in

12   the DCF model and interest rates in my CAPM and Risk Premium models, they have not

---

[13]   Comparison as of February 28, 2018.

1   fully reversed the trend of abnormally high utility stock prices and low interest rates and

2   are still understating the forward-looking cost of equity for utility companies. Because of

3   this, I equally weigh my DCF results with my CAPM and Risk Premium models, which

4   rely on forward-looking bond yield projections. The effect of Tax Reform in determining

5   the cost of equity for GMP is discussed in more detail later in my testimony.

6   **Figure 4: S&P Utilities Index and U.S. Treasury Bond Yields – 06/2017 – 02/2018**

7
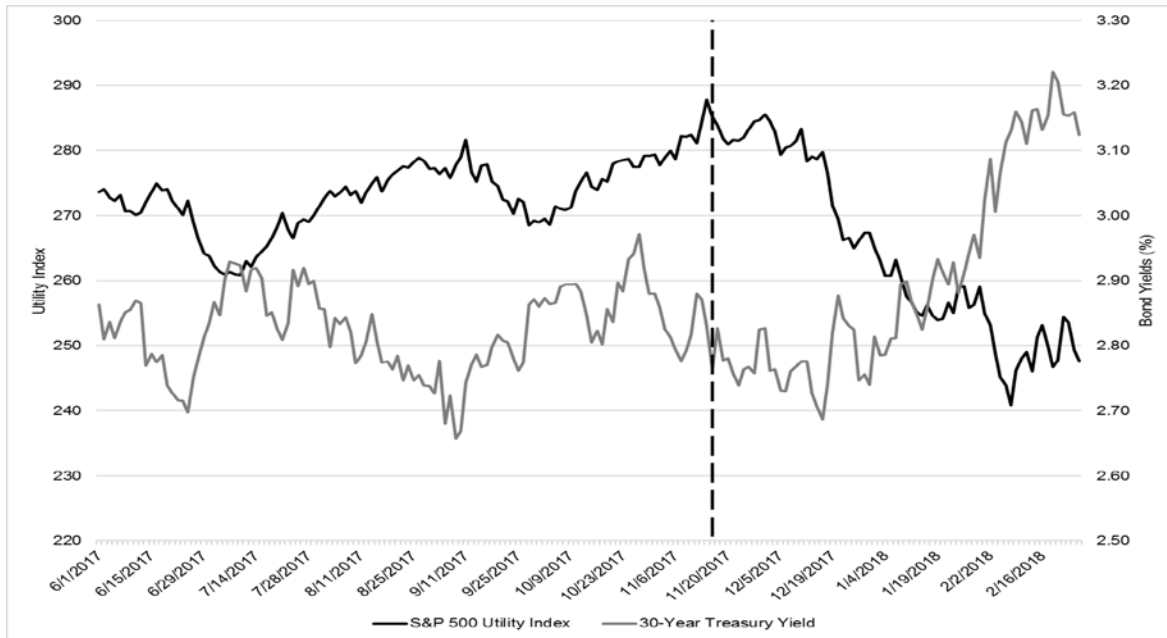
8   *Source: Bloomberg*

9   ***B. Expectations for Higher Interest Rates***

10   **Q20. Are low interest rates expected to prevail in the long term?**

11   A20. No. As much as the economy and borrowers (including utility customers) have benefited

12   from a period of historic lows in interest rates, a combination of economic growth (and

13   corresponding demand for capital) and gradual easing of accommodative monetary

14   policy are expected to place upward pressure on interest rates as the economic cycle

1   progresses over the next several years. For the month of February 2018, the average

2   daily yield on the 30-year U.S. Treasury bond has increased slightly from where it was at

3   this time last year (3.13 percent vs. 3.04 percent). In contrast, the consensus among

4   leading economists and market participants is for the average yield on the 30-year U.S.

5   Treasury bond to be 3.80 percent by the end of 2019 and 4.10 percent in the period from

6   2019 through 2023,[14] representing a projected increase of nearly a full percentage point in

7   U.S. Treasury bond yields over the next several years.

8   **Q21. What evidence is there that the interest rate environment is shifting?**

9   A21. Based on the strengthening economic outlook in the U.S. stemming from strong gains in

10   job growth and low unemployment, a relatively stable inflation rate, and steady economic

11   growth, the Federal Reserve is expected to continue raising short-term interest rates to

12   sustain the desired balance between maximum employment and price stability.[15] The

13   Federal Reserve has indicated that it intends to raise short-term rates to a targeted range

14   of 2.10 to 2.40 percent by the end of year, implying two or three additional Fed rate hikes

15   by the end of 2018.[16] Furthermore, in October 2017, the FOMC started reducing the size

16   of the Fed's $4.5 trillion bond portfolio by no longer reinvesting the proceeds of the

17   bonds it holds. In response to the Great Recession, the Fed pursued a policy known as

18   "Quantitative Easing," in which it systematically purchased mortgage-backed securities

19   and long-term Treasury bonds to provide liquidity in financial markets and drive down

---

[14]   Blue Chip Financial Forecasts, Volume 36, No. 12, December 1, 2017, at 14.
[15]   FOMC, Federal Reserve press release, March 21, 2018.
[16]   Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, March 2018.

1 yields on long-term government bonds. Although the Federal Reserve discontinued the

2 Quantitative Easing program in October 2014, it continued to reinvest the proceeds from

3 the bonds that it held. Under the normalization policy, the FOMC intends to gradually

4 reduce the Federal Reserve's securities holdings by $10 billion per month, initially,

5 ramping up to $50 billion per month by the end of the first twelve months.[17]

6 **Figure 5: Fed Normalization Policy Relative to Cumulative Caps (2018)**
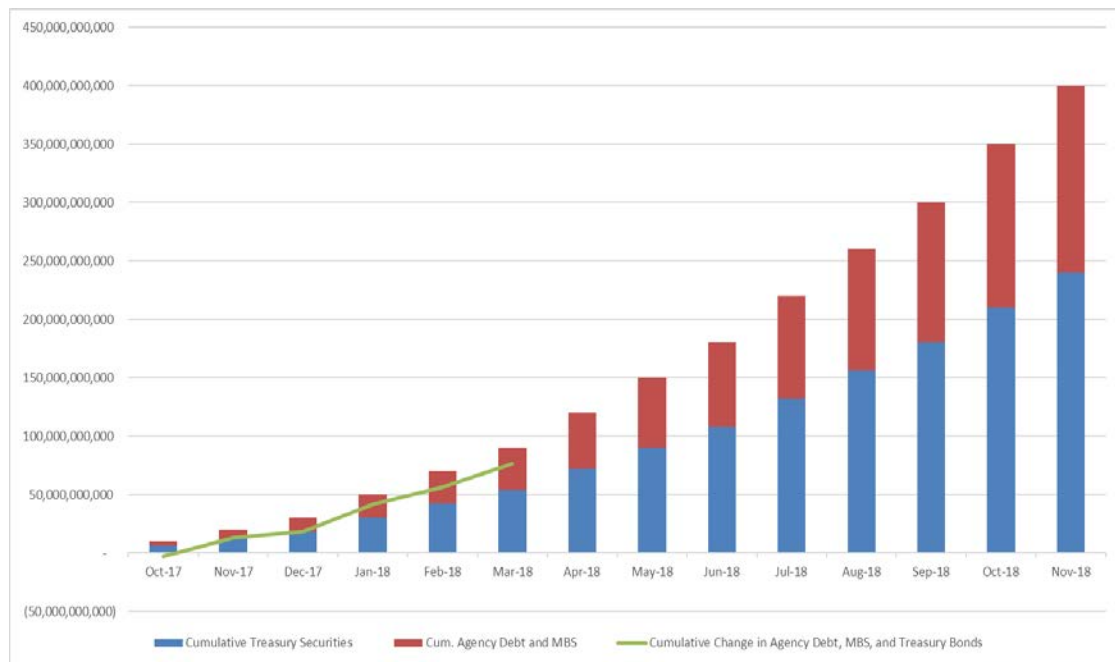
7

8 *Source: Federal Reserve Bank of New York, System Open Market Account Holdings as of March 28,*
9 *2018*
10

11 As Figure 5 (above) shows, the Fed has been slowly unwinding the effects of

12 Quantitative Easing, though at a slower rate than the maximum capped levels reflected

13 in the vertical bars. The Federal Reserve's announced unwinding plan informs

14 investors' view that long-term interest rates will increase as the Federal Reserve

---

[17] Federal Reserve press release, Addendum to the Policy Normalization Principles and Plans, as adopted effective June 13, 2017.

1   gradually reverses the Quantitative Easing program that reduced those long-term rates.

2   Furthermore, several analysts have suggested that the Federal Reserve's plan could

3   cause sector rotation, as investors shift from utilities and telecom stocks to shares of

4   banks and other sectors that benefit from rising interest rates.[18] This would tend to

5   increase the cost of utility equity.

6   **Q22. What is the financial market's perspective on the future path of interest rates?**

7   A22. According to the March 2018 issue of Blue Chip Financial Forecasts, 100 percent of

8   those surveyed expected that the Federal Reserve would raise short-term interest rates at

9   the March 2018 meeting,[19] which has been validated by this action. In response to the

10   question regarding the amount of the increase in short-term interest rates by the Federal

11   Reserve for 2018, 45.8 percent of those surveyed expected a total increase of 75 basis

12   points, 41.7 percent expected a total increase of 100 basis points, 8.3 percent expected a

13   total increase of 50 basis points, and 4.2 percent expected a total increase of 25 basis

14   points.[20]

15   Data compiled by CME Group corroborates these views and shows that investors

16   expect the federal funds rate to increase a total of between 75 and 100 basis points

17   during 2018. The current target federal funds rate is 175 bps after the rate increase set at

18   the March 2018 meeting. Figure 6 summarizes the federal funds probabilities developed

19   by CME group. The probability of a rate hike is calculated by adding the probabilities

---

[18]   Reuters Business News, "Fed meeting could trigger stock sector rotation," September 15, 2017.
[19]   Blue Chip Financial Forecasts, Vol. 37, Issue No. 3, March 1, 2018, at 14.
[20]   *Id.*

1   of all target rate levels above the current target rate for a given meeting date, e.g., the

2   table indicates a 78.8 percent probability that the federal funds rate will reach a target

3   rate of 175 to 200 basis points by the June 2018 meeting, and a 1.7 percent chance it will

4   increase to between 200 and 225 basis points by June 2018, thus the probability of a rate

5   hike above the current level of 150-175 at the June meeting is 80.5 percent. The market

6   expects further rate increases in 2018, shown by high expectations for target federal

7   funds rates above the 150-175 bps range beginning in May 2018 through December

8   2018, with the greatest concentration of investors expecting two further 25 bps rate

9   increases by the end of the year.

10   **Figure 6: Investor Expectations of Future Federal Funds Rate Increases[21]**

MEETING PROBABILITIES																		
MEETING DATE	0-25	25-50	50-75	75-100	100-125	125-150	150-175	175-200	200-225	225-250	250-275	275-300	300-325	325-350	350-375	375-400	400-425	425-450	450-475
5/2/2018					0.0%	0.0%	97.9%	2.1%	0.0%										
6/13/2018			0.0%	0.0%	0.0%	0.0%	19.6%	78.8%	1.7%	0.0%	0.0%								
8/1/2018	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.8%	76.4%	4.7%	0.1%	0.0%	0.0%	0.0%						
9/26/2018	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%	39.8%	50.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
11/8/2018	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	35.9%	49.1%	8.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
12/19/2018	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	22.0%	42.9%	27.4%	4.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

12   **Q23. What do recent increases in market volatility convey about the cost of equity?**

13   A23. Though investor confidence remains relatively high,[22] market volatility (as measured by

14   the CBOE Volatility Index, or "VIX index") has ticked upward in the last several

15   months. The VIX index measures the implied volatility of the S&P 500 index option

16   over the next 30 days (annualized for the upcoming 12 months) and is understood to be a

---

21   CME Group, FedWatch as of March 22, 2018.
22   The State Street Investor Confidence Index (accessed through Bloomberg) averaged 102.97 from January 2005
       to April 2, 2018. In April 2017 (when Mr. Coyne last filed evidence on behalf of GMP) the confidence metric
       was 96.9. As of April 2, 2018, the State Street confidence metric has risen to 111.9.

1 leading indicator of market stress. As shown in Figure 7 (below), the market volatility

2 index was 23.62 on April 2, 2018, compared to 13.28 in April 2017 (when I last prepared

3 my evidence for GMP). The average over the period January 2005 to April 2, 2018 is

4 18.75. Generally, increased volatility implies greater investment risk and increasing cost

5 of equity.

6 **Figure 7: VIX Index (Monthly Averages - 2005 to present)**

7
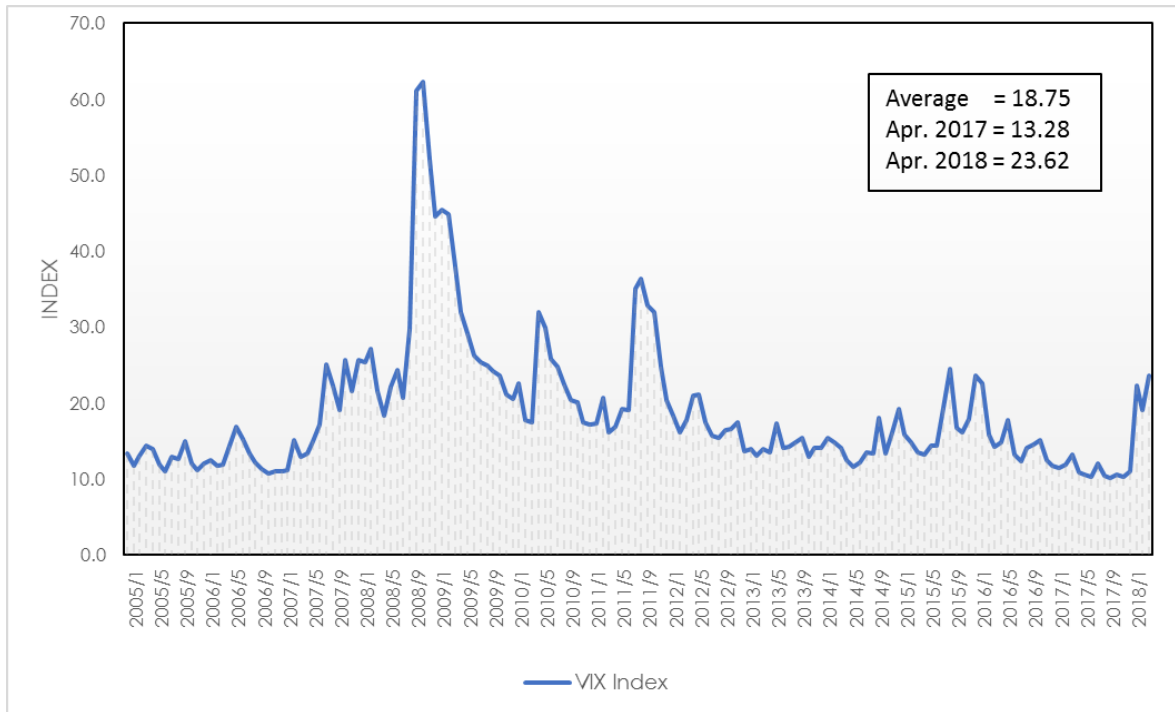
8 *Source: Bloomberg*

9 **Q24. What effect will rising interest rates have on the cost of equity?**

10 A24. As interest rates increase, the cost of equity for the proxy companies will increase.

1 **Q25. How do you account for market expectations of higher interest rates in your**

2 **recommended cost of equity?**

3 A25. I have attempted to capture the effects of forward-looking market indicators in two of my

4 ROE estimation models. I have used a forecasted 30-year Treasury bond yield in both

5 the CAPM and Risk Premium analyses in order to take into consideration the market's

6 expectation for higher interest rates. As the DCF model relies on historical dividend

7 yield inputs that do not fully reflect these expectations, I place equal weight on the DCF

8 results as I do the results of the CAPM and Risk Premium methodologies in my ROE

9 recommendation. If one were to rely solely on the DCF results in the current market

10 environment, the resulting ROE estimates would understate the investors' required return

11 on equity.

12 *C. Impact of Tax Reform on the Cost of Equity*

13 **Q26. Have you also reviewed the Impact of the Tax Reform and Jobs Act in determining**

14 **the cost of equity for GMP?**

15 A26. Yes. The effect of the recently passed Tax Reform on regulated utilities has drawn the

16 attention of the credit rating agencies. Tax Reform is expected to reduce utility revenues

17 due to the lower federal income taxes and the return of excess accumulated deferred

18 income taxes ("ADIT"). This change in revenue is expected to reduce funds from

19 operations ("FFO") metrics across the sector, and absent regulatory mitigation strategies,

1   is expected to lead to weaker credit metrics and negative ratings actions for some

2   utilities.[23]

3   Moody's Investors Services ("Moody's") provided a summary of the

4   implications of Tax Reform for investor-owned utilities. In that summary, Moody's

5   indicated that while Tax Reform was credit positive for many sectors, it has an overall

6   negative credit impact on regulated utility operating companies and their holding

7   companies. This occurs for three primary reasons:

8   1) Utilities will collect less tax at the lower rate, reducing revenue. While the taxes

9   are ultimately paid out as an expense, under the new law, utilities lose the timing

10   benefit, reducing cash that may have been carried over a number of years.

11   2) Lowering taxes also creates an overcollection to be refunded to customers.

12   3) The loss of bonus depreciation means that utilities will be paying taxes starting

13   in 2019 and 2020, earlier than under the prior tax law. This increases the taxable

14   income of the utility.[24]

15   Moody's expects that the effect of these changes will be a decline in key financial cash

16   flow to debt metrics for utilities, and recently issued a report changing the ratings outlook

17   for several regulated utilities from stable to negative. Moody's noted that the rating

18   change affected companies with a limited cushion for moderating deteriorating financial

19   performance. Moody's expects that Tax Reform will lower key credit metrics for

---

[23] FitchRatings, Special Report, What Investors Want to Know, "Tax Reform Impact on the U.S. Utilities, Power & Gas Sector", January 24, 2018.

[24] Moody's Investors Services, "Tax Reform-US: Corporate tax cut is credit positive, while effects of other provisions vary by sector", December 21, 2017, at 6-7.

1   regulated utilities for some time, and it will be necessary for utilities to work with

2   regulators to mitigate its impact.[25]

3   **Q27. Have other rating agencies commented on the effect of Tax Reform on credit**

4   **ratings?**

5   A27. Yes. FitchRatings ("Fitch") has indicated that any ratings actions will be guided by the

6   response of regulators and the management of the utilities. Fitch notes that the solution

7   will depend on the ability to manage the cash flow implications of Tax Reform, and that

8   seeking an immediate return of tax savings to customers creates a decline in cash flow.

9   Fitch states,

10   The Tax Cuts and Jobs Act has negative credit implications for the
11   regulated utilities and several utility holding companies over the short to
12   medium term. A reduction in customer bills to reflect lower federal income
13   taxes and return of excess ADIT to customers is expected to lower
14   revenues and FFO across the sector. Absent mitigating strategies on the
15   regulatory front, this is expected to lead to weaker credit metrics and
16   negative rating actions for those issuers that have limited headroom to
17   absorb the leverage creep.[26]

18   Fitch notes that strategies such as return of excess unprotected ADIT over a longer-term

19   horizon, accelerated depreciation on some assets (to avoid potential stranded costs), and

20   lower overall capital spending and/or higher authorized equity ratios or returns, could be

21   employed to moderate impacts on credit metrics from passing on the entirety of excess

22   unprotected ADIT immediately.[27]

---

[25] Moody's Investor Services, Global Credit Research, Rating Action: Moody's changes outlooks on 25 US
      regulated utilities primarily impacted by tax reform, January 19, 2018.
[26] FitchRatings, Special Report, What Investors Want to Know, "Tax Reform Impact on the U.S. Utilities, Power
      & Gas Sector", January 24, 2018.
[27] Ibid.

1   **Q28. Has GMP proposed a program to refund tax savings to customers?**

2   A28. Yes, it has. As discussed further in the Direct Testimony of Company witness Ryan,

3   GMP has established an aggressive plan to refund the significant portion of ADIT it

4   carries on its books that is not "protected" by the IRS rules allowing for straight-line

5   recovery of excess ADIT over the life of the asset. GMP is moving aggressively to

6   refund those amounts to customers as quickly as possible without running afoul of cash

7   flow and debt constraints.   GMP has already refunded $6 million to customers for rate

8   year 2018 and plans to refund an additional $27.4 million over the course of 2019. This

9   will impact cash flows and will increase borrowing requirements as excess ADIT is

10   refunded to customers. Tax Reform has significantly and negatively impacted the utility

11   risk profile, especially for utilities such as GMP that have taken an aggressive stance to

12   refund ADIT excesses to customers as soon as practicably possible.

13   **Q29. What conclusions do you draw from your analysis of capital market conditions?**

14   A29. My primary conclusion is that it is necessary to consider the effects of capital market

15   conditions on the inputs and assumptions used in the ROE estimation models and to

16   consider whether current market conditions are sustainable on a forward-looking basis.

17   The Federal Reserve's accommodative monetary policy has resulted in high utility

18   valuations and low dividend yields that are not expected to continue. This violates one of

19   the fundamental assumptions underlying the DCF model (i.e., a constant P/E ratio) and

20   suggests that the DCF results are understating the forward-looking equity return

1   requirements under current market conditions.[28] As discussed previously, the market

2   expects increases in interest rates that will be realized by the economy slowly as the Fed

3   balances its plans to move the economy towards normalization with policies that are

4   supportive of future economic growth. Higher interest rates indicate that the cost of

5   equity based on historic or current market data is likely to lag investors' required returns.

6   Since interest rates are projected to increase above current levels, this expectation should

7   be reflected in the Risk Premium model and the CAPM by using a risk-free rate that is

8   consistent with forward-looking expectations for Treasury yields.

V.   PROXY GROUP SELECTION

9   **Q30. Please provide a summary profile of Green Mountain Power.**

10   A30. Green Mountain Power is an investment holding of Énergir, formerly Gaz Métro Limited

11   Partnership, serving more than 265,000 electric residential and business customers in

12   Vermont. The Company self-generates approximately 15 to 20 percent of its energy

13   requirements, primarily with hydro, renewable, and nuclear power, and a small amount of

14   fossil-fuel-fired peaking facilities. The remainder of the Company's energy requirements

15   are supplied through contracted power purchase agreements and state-mandated energy

16   programs. The company is credited with being at the forefront of electric utility

17   innovation, ranked as the #1 Most Innovative Companies in Energy by *Fast Company* on

18   February 20, 2018, for partnering with its customers to use solar and battery storage to

---

[28]   As the FOMC tightens monetary policy and increases interest rates, it is likely utility dividend yields will increase.

1   drive down electricity costs. By encouraging distributed generation and energy storage,

2   GMP has been able to avoid expensive demand peaks and reduce the need for additional

3   investment.[29] The Company recently launched an innovative Bring Your Own Device

4   ("BYOD") program, which partners with customers to provide customer-owned storage

5   to the grid during high-energy-use times.[30] Green Mountain Power currently has a Long-

6   Term Issuer credit rating from S&P of A- (Outlook: Stable).[31]

7   **Q31. Why is it necessary to select a proxy group to estimate the cost of equity for Green**

8   **Mountain Power?**

9   A31. Since the ROE is a market-based concept and Green Mountain Power is not publicly

10   traded, it is necessary to establish a group of companies that is both publicly traded and

11   comparable to Green Mountain Power. Even if Green Mountain Power was a publicly

12   traded entity, it is possible that transitory events could bias the Company's market value

13   in one way or another in a given period of time. A significant benefit of using a proxy

14   group is the ability to mitigate the effects of anomalous events that may be associated

15   with any one company. The proxy companies used in my ROE analyses possess a set of

16   business and operating characteristics similar to Green Mountain Power's vertically

17   integrated electric distribution operations, and thus provide a reasonable basis for the

18   estimates of ROE.

---

[29]   Ben Schiller, *Fast Company, In Vermont, A Forward-Thinking Utility Is Helping Customers Share Solar Power* (Sept. 21, 2015).

[30]   Vermontbiz, *Home battery storage owners can reduce energy costs through GMP's 'BYOD' program* (March 22, 2018).

[31]   S&P Global Ratings, Research Update: Green Mountain Power Corp. Ratings Affirmed; Outlook Stable, December 2017.

1   **Q32. Please describe the specific screening criteria you have utilized.**

2   A32. I began with the 40 investor-owned electric utilities covered by Value Line and then

3   screened companies according to the following criteria:

4   1.   Consistently pays quarterly cash dividends;

5   2.   Maintains an investment grade long-term issuer rating (BBB- or higher) from

6   S&P;

7   3.   Is covered by more than one equity analyst;

8   4.   Has positive earnings growth rates published by at least two of the following

9   sources: Value Line, Thomson First Call (as reported by Yahoo! Finance), and

10   Zack's Investment Research ("Zacks");

11   5.   The majority of electric generation produced by the Company is regulated by

12   the Commission (based on a 3-year average);

13   6.   Self-generates at least 20 percent of its utility electricity sales to customers

14   (based on a 3-year average);

15   7.   Regulated revenues make up more than 60 percent of the consolidated

16   company's total revenues (based on a 3-year average);

17   8.   Regulated net operating income makes up more than 60 percent of the

18   consolidated company's net operating income (based on a 3-year average);

19   9.   Regulated electric revenues make up more than 80 percent of the consolidated

20   company's total revenues (based on a 3-year average);

1   10.   Regulated net operating income from regulated electric operations makes up

2   more than 80 percent of the consolidated company's regulated operating

3   income (based on a 3-year average); and

4   11.   Is not involved in a merger or other transformative transaction for an

5   approximate six-month period prior to my analysis.

6   **Q33. What is the composition of your resulting proxy group?**

7   A33. Based on the screening criteria discussed above, and financial information through fiscal

8   year 2016, I arrived at a proxy group consisting of the companies shown in Figure 8. The

9   results of my screening process are shown in **Exhibit GMP-JMC-3**.

10   **Figure 8: Proxy Group**

ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Ameren Corporation	AEE
American Electric Power Company, Inc.	AEP
Duke Energy Corp	DUK
El Paso Electric Company	EE
Hawaiian Electric Industries, Inc.	HE
IDACORP, Inc.	IDA
NextEra Energy, Inc.	NEE
OGE Energy Corporation	OGE
Pinnacle West Capital Corporation	PNW
PNM Resources, Inc.	PNM

Portland General Electric Company	POR
PPL Corporation	PPL
Southern Company	SO
Xcel Energy Inc.	XEL

1   **Q34. Do your screening criteria result in a group of companies that investors would view**

2   **as comparable to Green Mountain Power?**

3   A34. Yes. I have selected this group of electric utilities to best align with the financial and

4   operational characteristics of Green Mountain Power. The proxy group screening

5   criterion requiring an investment grade credit rating ensures that the proxy group

6   companies, like Green Mountain Power, are generally in sound financial condition.

7   Because credit ratings take into account business and financial risks, the ratings provide a

8   broad measure of investment risk for investors. I have only accepted proxy companies

9   that self-generate at least 20 percent of their retail electric requirements to adequately

10   represent the operating characteristics and unique set of risks of a vertically integrated

11   electric utility with electric generation in rate base. Such risks include unplanned outages

12   and/or maintenance, changing environmental regulations applicable to the generation

13   portfolio, delays or overages in plant construction costs, etc. These unique risks are not

14   shared by pure T&D utilities. Additionally, I have screened on the percent of revenues

15   and net operating income from regulated operations to differentiate between utilities that

16   are protected by regulation and those with substantial unregulated operations or market-

17   related risks. Also, I have screened on the percentage contribution of the electric utility

18   segment to regulated consolidated financial results to select utilities that, like Green

1   Mountain Power, derive the majority of their revenues and operating income from

2   regulated electric operations. These screens collectively reflect key risk factors that

3   investors consider in making investments in electric utilities.

4   **Q35. Your proxy group has changed since last year. Can you explain why?**

5   A35. Yes. Though I have applied the same screening criteria, I have included several

6   companies in my proxy group in this proceeding that did not meet my screening criteria

7   last year. Duke Energy Corporation, Hawaiian Electric Industries, Inc., NextEra Energy,

8   Inc., and Southern Company did not satisfy my merger screen in the prior year. Duke

9   Energy Corporation was acquiring Piedmont Natural Gas Company, Inc., NextEra

10   Energy had attempted to acquire Hawaiian Electric within the 6-month window, and

11   Southern Company acquired AGL Resources within the 6-month window. My proxy

12   group also includes OGE this year, while it did not have sufficient regulated electric

13   revenues to satisfy my screening threshold of 80 percent of total revenues last year.

14   Lastly, PG&E is excluded from the group this year because it suspended its dividend

15   payment in December 2017 as a consequence of the California wildfires and potential

16   financial exposure. I believe my group of 16 vertically integrated electric utilities

17   adequately reflects the broad set of risks that investors consider when investing in a U.S.-

18   regulated vertically integrated electric utility. Later in my testimony, I will evaluate

19   whether an adjustment should be made to the results of my analyses for differences in

20   GMP's specific risks compared to the collective proxy group.

VI.   DETERMINATION OF THE APPROPRIATE COST OF EQUITY

1   **Q36. What models did you use in your ROE analyses?**

2   A36. I have considered the results of several ROE estimation models, including the Constant

3   Growth DCF, Multi-Stage DCF, Risk Premium, and CAPM models. When faced with

4   the task of estimating the cost of equity, analysts are inclined to gather and evaluate as

5   much relevant data (both quantitative and qualitative) as can be reasonably obtained.

6   Consistent with the *Hope* finding, "[I]t is the result reached, not the method employed,

7   which is controlling."[32] I weight the results of these three primary methodologies equally

8   to arrive at my recommendation.

9   *A. Constant Growth DCF Model*

10   **Q37. Please describe the DCF approach.**

11   A37. The DCF approach, which is widely used in regulatory proceedings, is based on the

12   theory that a stock's current price represents the present value of all expected future cash

13   flows. In its simplest form, the DCF model expresses the ROE as the sum of the

14   expected dividend yield and long-term growth rate:

$$k = \frac{D(1+g)}{P_0} + g$$

15   [1]

16   Where "*k*" equals the required return, "*D*" is the current dividend, "*g*" is the

17   expected growth rate, and "*P*" represents the subject company's stock price.

---

[32]   Hope *op. cit.*

1   Assuming a constant growth rate in dividends, the model may be rearranged to

2   compute the ROE accordingly, as shown in Formula [2]:

3
$$r = \frac{D}{P} + g \qquad [2]$$

4   Stated in this manner, the cost of common equity is equal to the dividend yield

5   plus the dividend growth rate.

6   **Q38. What are the assumptions underlying the Constant Growth DCF model?**

7   A38. The Constant Growth DCF model is based on the following assumptions: (1) a constant

8   average growth rate for earnings and dividends; (2) a stable dividend payout ratio; (3) a

9   constant price-to-earnings multiple; and (4) a discount rate greater than the expected

10   growth rate.

11 **Q39. Please summarize your application of the Constant Growth DCF model.**

12 A39. I calculated DCF results for each of the proxy group companies using the following

13   inputs:

14   1.   Average stock prices for the historical period, over 30, 90, and 180 trading

15   days through February 28, 2018;

16   2.   Annualized dividend per share as of February 28, 2018; and

17   3.   Company-specific earnings growth forecasts for the term g.

18   My application of the Constant Growth DCF model is provided in **Exhibit GMP-JMC-4**.

1   **Q40. Why did you use averaging periods of 30, 90, and 180 trading days?**

2   A40. It is important to use an average of recent trading days to calculate the term P in the DCF

3   model to ensure that the calculated ROE is not skewed by anomalous events that may

4   affect stock prices on any given trading day. At the same time, it is important to reflect

5   the conditions that have defined the financial markets over the recent past. In my view,

6   consideration of those three averaging periods reasonably balances those interests.

7   **Q41. Did you adjust the dividend yield to account for periodic growth in dividends?**

8   A41. Yes, I did. Utility companies tend to increase their quarterly dividends at different times

9   throughout the year, so it is reasonable to assume that such increases will be evenly

10   distributed over calendar quarters. Given that assumption, it is reasonable to apply one-

11   half of the expected annual dividend growth for the purposes of calculating this

12   component of the DCF model. This adjustment ensures that the expected dividend yield

13   is representative of the coming 12-month period. Accordingly, the DCF estimates reflect

14   one-half of the expected growth in the dividend yield.[33]

15 **Q42. What sources of growth have you used in your DCF analysis?**

16 A42. I have used the consensus analyst five-year growth estimates in earnings per share

17   ("EPS") from Thomson First Call and Zacks, as well as EPS growth rate estimates

18   published by Value Line.

---

[33] The expected dividend yield is calculated as $d_1 = d_0 (1 + \frac{1}{2} g)$.

1   **Q43. Why did you focus on earnings per share growth?**

2   A43. The Constant Growth DCF model assumes that dividends grow at a constant rate in

3   perpetuity. Accordingly, in order to reduce the long-term growth rate to a single

4   measure, one must assume a constant payout ratio, and that earnings per share, dividends

5   per share, and book value per share all grow at the same constant rate. Over the long

6   term, however, dividend growth can only be sustained by earnings growth. As noted by

7   Brigham and Houston in their text, *Fundamentals of Financial Management*: "Growth in

8   dividends occurs primarily as a result of growth in *earnings per share* (EPS)."[34] It is

9   therefore important to focus on measures of long-term earnings growth from credible

10   sources as an appropriate measure of long-term growth in the DCF model.

11   **Q44. Are other sources of dividend growth available to investors?**

12   A44. Yes, although that does not mean that investors incorporate such estimates into their

13   investment decisions. Academic studies suggest that investors base their investment

14   decisions on analysts' expectations of growth in earnings.[35] I am not aware of any similar

15   findings regarding non-earnings-based growth estimates. In addition, the only forward-

16   looking growth rates that are available on a consensus basis are analysts' EPS growth

17   rates. The fact that earnings growth projections are the only widely accepted estimates of

---

[34] Eugene F. Brigham and Joel F. Houston, Fundamentals of Financial Management (Concise Fourth Edition, Thomson South-Western), at 317 (emphasis added).

[35] *See*, e.g., Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts Growth Forecasts,* Financial Management, Summer 1992, at 65; and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management, Spring 1988, at 81. Please note that while the original study was published in 1988, it was updated in 2004 under the direction of Dr. Vander Weide. The results of that updated study are consistent with Vander Weide and Carleton's original conclusions.

1   growth provides further support that earnings growth is the most meaningful measure of

2   growth among the investment community.

3   **Q45. Have higher stock valuations and lower dividend yields for utility companies**

4   **affected the results of the DCF model?**

5   A45. Yes. As discussed previously in my testimony, during periods of general economic and

6   capital market stability, the DCF model adequately reflects market conditions and

7   investor expectations. However, in the current market environment, the DCF model

8   results are distorted by the historically low level of interest rates and the higher valuation

9   of utility stocks. In its commentary on the electric utility industry, Value Line observes

10   that most of the stocks in the electric utility sector are expensively priced and are trading

11   within their three-to-five-year price targets. Furthermore, Value Line recently cautioned

12   investors about electric utility stock prices:

13   After the stellar performance of most stocks in the Electric Utility
14   Industry in 2017, share prices of most electric companies declined in the
15   first few weeks of 2018. In our view, this is partly due to reversion to the
16   mean, and partly due to investors' increased concern about the likelihood
17   of a few interest-rate increases by the Federal Reserve this year. The
18   average dividend yield for this industry is up to 3.6%. This is above the
19   level seen in 2017, but is still low, by historical standards. Moreover,
20   many of these equities continue to trade within their 3- to 5-year Target
21   Price Range.[36]

22   This expected increase in dividends implies that the ROE calculated using current utility

23   stock valuations and low-dividend yields underestimates the return under the DCF

24   methodology.

---

[36]   Value Line Investment Survey, Electric Utility (East) Industry, February 16, 2018, at 137.

1   This point is further emphasized by analyzing the average Price/Earnings ("P/E")

2   ratio for the proxy companies and utilities in general. As shown in Figure 9, the proxy

3   group P/E ratio has been steadily climbing since the end of the financial crisis in 2009,

4   and today is very near the highest levels since 2000. As indicated above, a constant P/E

5   ratio is one of the key assumptions of the Constant Growth DCF model. As long as P/E

6   ratios remain abnormally elevated, the DCF model will tend towards understating the

7   forward-looking cost of equity for the proxy group companies.

1   **Figure 9: Utility P/E Ratios vs. Proxy Group 2000 to Present**

2

3   *Source: Bloomberg*

4   **Q46. How have regulators responded to the historically low dividend and bond yields and**

5   **the corresponding effect on the DCF model?**

6   A46. Understanding the important role that dividend yields play in the DCF model, the Federal

7   Energy Regulatory Commission ("FERC") determined that anomalous capital market

8   conditions have caused the DCF model to understate equity costs for regulated utilities at

9   this time.

10   As is discussed, infra, the level of the dividend yield affects the reliability
11   of the DCF process when that level is lower than the level acceptable to
12   investors that value utility stocks based on their estimated long-term
13   dividend growth. The record creates cause for concern that during a
14   period including the Study Period, investors valuing utility stocks based
15   solely or primarily on their current yield bid the prices of the proxy group

1   stocks up to levels that rendered their Total Returns unacceptable to
2   investors that valued such stocks based on their estimated long-term
3   dividend growth. For reasons set out below, this record evidence creates
4   further cause for concern that placement of the MISO TOs' Base ROE at
5   the Midpoint may not meet the requirements of Hope.[37]

6   The FERC also observed that due to anomalous conditions in capital markets (i.e., low

7   Treasury bond yields) the midpoint of the DCF model is not a reasonable estimate of the

8   Cost of Equity at this time:

9   The yields of 10-year Treasury Bonds during the Study Period continue
10   to reflect economic conditions that could render inputs to the DCF
11   analysis unrepresentative. During the study period, the yields of 10-year
12   Treasury Bonds averaged 2.21 percent. That yield was 38 basis points
13   higher than the average yield of those bonds during the Opinion No. 531
14   study period, but 79 basis points below the 3.0 percent level that so
15   concerned the Commission in Opinion No. 531. If the average 10-year
16   Treasury-Bond yields for the Opinion No. 531 study period reflected
17   economic conditions that could serve to render financial inputs into the
18   DCF model unrepresentative, the average bond yields for the study
19   period in this proceeding are close enough to the earlier yields to reflect
20   the same conditions. Accordingly, the level of 10-year Treasury Bond
21   yields during the Study Period create sufficient doubt regarding the
22   representativeness of DCF inputs to warrant an examination of alternative
23   metrics prior to making a final determination as to the level of the MISO
24   TOs' Base ROE.[38]

25   Following the FERC's logic, yields on 10-year Treasury bonds remain well

26   below 3.0 percent,[39] which is the level that the FERC determined represents

27   "anomalous" capital market conditions. In summary, the results of the DCF models are

28   understating the cost of equity under current market conditions due to the low-interest-

29   rate environment that has reduced dividend yields and raised valuations on utility shares

30   to unsustainable levels. Consequently, it is necessary to consider the results of Risk

---

[37]   155 FERC ¶ 63,030 (June 30, 2016) at para. 128.
[38]   Ibid, at paragraph 126.
[39]   2.73% on April 2, 2018.

1   Premium models, such as the CAPM and Bond Yield Risk Premium analysis, in order to

2   assess the reasonableness of the DCF results and ultimately determine where to set the

3   appropriate return.

4   **Q47. Have state regulatory commissions also responded to the effect of recent market**

5   **conditions on the results of the DCF model?**

6   A47. Yes, the Pennsylvania Public Utility Commission ("PPUC") in a 2012 decision on a rate

7   case for PPL Electric Utilities, recognized that market conditions were causing the DCF

8   model to produce results that were much lower than other models such as the CAPM and

9   Bond Yield Plus Risk Premium. While noting that the PPUC has traditionally relied

10   primarily on the DCF method to estimate the cost of equity for regulated utilities, the

11   PPUC's Order nevertheless explained:

12   Sole reliance on one methodology without checking the validity of the
13   results of that methodology with other cost of equity analyses does not
14   always lend itself to responsible ratemaking. We conclude that
15   methodologies other than the DCF can be used as a check upon the
16   reasonableness of the DCF derived equity return calculation.[40]

17   The PPUC ultimately concluded:

18   As such, where evidence based on the CAPM and RP methods suggest
19   that the DCF-only results may understate the utility's current cost of
20   equity capital, we will give consideration to those other methods, to some
21   degree, in determining the appropriate range of reasonableness for our
22   equity return determination.[41]

23   Similarly, in a recent Massachusetts decision, the Massachusetts Department of Public

24   Utilities (or "MDPU") noted in Docket DPU 17-05 that current Federal monetary policy

---

[40]   Pennsylvania Public Utility Commission, PPL Electric Utilities, R-2012-2290597, meeting held December 5,
        2012, at 80.
[41]   *Id.*, at 81.

1   has pushed Treasury yields to near historic lows. As a result, the MDPU found that it is

2   appropriate to use prospective interest rate expectations in the CAPM.[42]

3   Current federal monetary policy that is intended to stimulate the economy
4   has pushed treasury yields to near historic lows. Consequently, the
5   Department has found that a CAPM analysis based on current treasury
6   yields may tend to underestimate the risk-free rate over the long term
7   and, thereby, understate the required ROE. The CAPM is based on
8   investor expectations and, therefore, it is appropriate to use a prospective
9   measure for the risk-free rate component. The Department has found that
10   Blue Chip Financial Forecasts is widely relied on by investors and
11   provides a useful proxy for investor expectations for the risk-free rate.[43]

12   As these Commissions have determined, the DCF model has been understating the

13   investor-required return for regulated utilities for several years. Though economic

14   conditions are beginning to moderate, utility valuations are still abnormally high and

15   interest rates abnormally low. As such, it is important to moderate the effect of

16   abnormal economic conditions on both the DCF model and the CAPM as I have done,

17   by both shifting weight to alternative analytical methods for determining ROE, and by

18   normalizing inputs where possible, *e.g.,* using a prospective measure of the risk-free

19   rate, as I have done in my CAPM and Risk Premium analyses, discussed later in this

20   testimony.

21   **Q48. What are the results of your Constant Growth DCF analysis?**

22   A48. The results of my Constant Growth DCF analysis are provided in **Exhibit GMP-JMC-4**

23   and summarized in Figure 10.

---

[42] D.P.U. 17-05, at 693.
[43] D.P.U. 17-05 Petition of NSTAR Electric Company and Western Massachusetts Electric Company, each doing business as Eversource Energy, Pursuant to G.L. c. 164, § 94 and 220 CMR 5.00 et seq., for Approval of General Increases in Base Distribution Rates for Electric Service and a Performance Based Ratemaking Mechanism, November 30, 2017, at 693.

1

Figure 10: Constant Growth DCF Results

	Mean Low	**Mean**	**Mean High**
30-day average	7.93%	8.91%	9.89%
90-day average	7.67%	8.65%	9.62%
180-day average	7.65%	8.62%	9.60%

2

3 **Q49. How did you calculate the Mean High, Mean Low, and Overall Mean DCF results?**

4 A49. I calculated the Mean High DCF result using the maximum growth rate (i.e., the

5 maximum of the First Call, Value Line, and Zacks EPS growth rates) in combination

6 with the expected dividend yield for each of the proxy group companies. I used a similar

7 method to calculate the Mean Low DCF results, using the minimum growth rate for each

8 company. The Mean results reflect the average growth rate from each source for each

9 company in combination with the expected dividend yield.

10 **Q50. How do you explain the relatively low results from the DCF model?**

11 A50. As discussed earlier in my testimony, the accommodative monetary policy of the Federal

12 Reserve has led to historically low interest rates on government bonds over the past

13 several years. This has pushed investors into riskier asset classes such as common stock

14 and has caused investors to purchase dividend-paying stocks such as utilities in the search

15 for higher yields. As stock prices have increased for the proxy group companies, the

16 average dividend yield for the proxy group has decreased. In turn, this has reduced the

17 DCF results because the dividend yield is an important component of that model. It is

1   not reasonable to conclude that current stock valuations and dividend yields are

2   sustainable, especially in the face of higher interest rates. Though the 30-day average

3   dividend yield provides some evidence that capital market conditions may be beginning

4   to moderate, utility valuations remain significantly above normal levels as evidenced by

5   the low dividend yields and high P/E ratios. As such, the Constant Growth DCF model

6   does not produce reliable results because one of the fundamental assumptions of the

7   Constant Growth DCF method is that the P/E ratio will remain constant.

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

9   **Q51. Have you considered any other forms of the DCF model?**

10   A51. Yes, in order to address some of the limiting assumptions underlying the constant growth

11   form of the DCF model, I also considered the results of a multi-period (three-stage) DCF

12   model (the "Multi-Stage DCF" model). The Multi-Stage DCF model tempers the

13   assumption of constant growth in perpetuity in the constant growth DCF model with a

14   three-stage approach: near-term, transitional, and long-term growth.

15   **Q52. Please describe your Multi-Stage DCF analysis.**

16   A52. My Multi-Stage DCF analysis approaches the ROE from the perspective of an investment

17   in the stock of each of the proxy group companies. The model calculates the internal rate

18   of return of the cash flow stream such that the present value of the annual dividend cash

19   flows exactly equal the average current stock price of the proxy group companies. The

20   model assumes dividends grow according to the assumed growth rate for each stage.

1   **Q53.** **Please explain the dividend growth rates in your Multi-Stage DCF analysis.**

2   A53. I applied the Multi-Stage DCF model to the same proxy group described earlier in my

3   Direct Testimony. The near-term growth rate refers to the Value Line, Thomson First

4   Call and Zacks EPS forecasts for Years 1–5, using the mean of these rates as the Overall

5   Mean scenario and the high and low of these rates as Mean High and Mean Low

6   scenarios, respectively. I then transition to a long-term forecast of gross domestic

7   product ("GDP") growth for Years 11 forward. Years 6–10 are linear interpolations of

8   the near-term and long-term growth rates. The Multi-Stage DCF model is useful for

9   testing the assumption that dividends will grow at a constant growth rate over time.

10   **Q54.** **How did you calculate the long-term GDP growth rate?**

11   A54. The long-term GDP growth rate is based on a real (constant dollar) GDP growth rate,

12   combined with estimates for inflation. I have used two sources of real GDP growth: (1)

13   the consensus Blue Chip Financial Forecast of 2.00 percent; and (2) the historical real

14   GDP growth rate for the period from 1929-2017 of 3.21 percent, based on data from the

15   Bureau of Economic Analysis. I have applied the inflation estimate to the estimate of

16   real GDP growth to develop the nominal (i.e., post-inflation) GDP growth rate. I have

17   used two alternative estimates for inflation: (1) the Blue Chip Financial forecast for the

18   Consumer Price Index from 2024-2028 (2.20 percent); and (2) the 30-day average spread

19   between the 30-year Treasury bond and the 30-year Treasury Inflation-Protected

20   Securities ("TIPS") bond (2.13 percent), which is an inflation-indexed bond that presents

21   the broader market's view of forward-looking inflation. The results, as shown in **Exhibit**

1   **GMP-JMC-5**, are nominal GDP growth estimates of 4.21 percent (using projected real

2   GDP growth) and 5.45 percent (using historical real GDP growth).

3   **Q55. What are the results of your Multi-Stage DCF analysis?**

4   A55. The results of my Multi-Stage DCF analysis are provided in **Exhibits GMP-JMC-6.1–**

5   **GMP-JMC-6.6**, and the mean results are summarized in Figure 11.

6   **Figure 11: Multi-Stage DCF Results**

	Mean Low	**Mean**	**Mean High**
	Projected GDP Growth		
30-day average	8.08%	8.37%	8.67%
90-day average	7.80%	8.07%	8.36%
180-day average	7.78%	8.05%	8.33%
	Historical GDP Growth		
30-day average	9.08%	9.36%	9.65%
90-day average	8.81%	9.07%	9.35%
180-day average	8.79%	9.05%	9.32%

7   **Q56. What is your conclusion regarding the results of the Multi-Stage DCF model?**

8   A56. While the Multi-Stage DCF model allows for the selection of different growth rates in the

9   three stages of the model, like the Constant Growth DCF model, the Multi-Stage DCF

10   model relies on the historic dividend yield (which is quite low by historical standards) as

11   a starting point and fails to adequately account for the projected increase in interest rates.

12   As was observed with the Constant Growth model, 30-day dividend yields are reflecting

1   recent reductions in utility valuations due to in part to expected changes in interest rates

2   and to the negative effects of Tax Reform. As indicated earlier, even though some

3   moderation is evident, we continue to be in an abnormally low interest rate and utility

4   dividend yield environment. Consequently, as discussed earlier in my testimony, when

5   conditions are anomalous, as they continue to be today, the FERC and other regulators

6   have emphasized the importance of considering the results of Risk Premium models, such

7   as the CAPM and Bond Yield Risk Premium analysis in order to assess the

8   reasonableness of the DCF results and ultimately determine where to set the appropriate

9   return.

C. CAPM Analysis

11 **Q57. Please briefly describe the general form of the Capital Asset Pricing Model.**

12 A57. The CAPM is a risk premium approach that estimates the cost of equity for a given

13 security as a function of a risk-free return plus a risk premium (to compensate investors

14 for the non-diversifiable or "systematic" risk of that security).[44] As shown in Equation

15 [3], the CAPM is defined by four components, each of which must theoretically be a

16 forward-looking estimate:

17 $$K_e = r_f + \beta(r_m - r_f) \qquad [3]$$

18   where:

19   K_e = the required ROE for a given security;

---

[44] Systematic risks are fundamental market risks that reflect aggregate economic measures and therefore cannot be mitigated through diversification. Unsystematic risks reflect company-specific risks that can be mitigated and ultimately eliminated through investments in a portfolio of companies and/or market sectors.

1   r_f = the risk-free rate of return;

2   β = the Beta of an individual security; and

3   r_m = the required return for the market as a whole.

4   The term (r_m – r_f) represents the Market Risk Premium ("MRP"). According to

5   the theory underlying the CAPM, since unsystematic risk can be diversified away,

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

7   diversifiable risk is measured by Beta, which is defined as:

8
$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)} \ [4]$$

9   where:

10   r_e = the rate of return for the individual security or portfolio.

11   The variance of the market return, noted in Equation [4], is a measure of the

12   uncertainty of the general market, and the covariance between the return on a specific

13   security and the market reflects the extent to which the return on that security will

14   respond to a given change in the market return. Thus, Beta represents the risk that the

15   selected security will not be effective in diversifying systemic market risks.

16   **Q58. Have economic and financial market conditions affected the CAPM?**

17   A58. Yes. Even though the Federal Reserve discontinued its policy of Quantitative Easing in

18   October 2014 and has increased short-term interest rates since the December 2015

19   FOMC meeting, Treasury yields still remain very near all-time lows. Given the

20   extraordinarily low level of interest rates as compared to historical levels, using current

21   or even near-term projections of government bond yields would distort market

1   expectations for a reasonable risk-free rate. Using the 5-year forecast of bond yields

2   helps alleviate these short-term market factors affecting the risk-free rate, or "r_f" in the

3   CAPM formula. As discussed in Section IV, interest rates are expected to increase as the

4   economy continues to expand.

5   **Q59. What risk-free rate did you use in your CAPM analysis?**

6   A59. Since both the DCF and CAPM models assume long-term investment horizons, I used the

7   Blue Chip forecast of the yield on 30-year Treasury bonds for 2019-2023 of 4.10 percent

8   as my estimate of the risk-free rate.[45] That time period reflects a forward-looking view,

9   which is the objective of the ROE analysis.

10   **Q60. What measures of Beta did you use in your CAPM analysis?**

11   A60. As shown in **Exhibit GMP-JMC-7.1**, I considered two measures of Beta for the proxy

12   group companies: (1) the reported Beta coefficients from Bloomberg (which are

13   calculated using 24 months of weekly data); and (2) the reported Beta coefficients from

14   Value Line (which are calculated using 60 months of weekly data).

15   **Q61. What Market Risk Premium ("MRP") did you use in your CAPM analysis?**

16   A61. I conducted a Constant Growth DCF analysis on each of the S&P 500 companies and

17   calculated the expected total market return, weighted by market capitalization. This

18   market return is that implied by current stock prices and projected earnings growth for

19   each of these companies. I then used the MRP that results from subtracting the risk-free

---

[45]   Blue Chip Financial Forecasts, Volume 36, No. 12, December 1, 2017, at 14.

1   rate (based on the 5-year forecast of the 30-year Treasury bond) from the total market

2   return. My calculation as shown in **Exhibit GMP-JMC-7.2** yielded a market derived ex-

3   ante MRP of 10.62 percent.

4   The CAPM is inherently a forward-looking model since it is designed to estimate

5   investors' required equity return expectations. The MRP should, therefore, reflect

6   investors' expected equity market returns relative to expected returns on Treasury

7   securities. While these return expectations may be informed by history, they should

8   primarily reflect forward-looking return expectations. This is also consistent with the

9   approach used by the FERC in developing a forward-looking MRP in Opinion No.

10   531.[46]

11   **Q62. What are the results of your CAPM analyses?**

12   A62. As shown in **Exhibit GMP-JMC-7.3**, the CAPM results are 10.33 percent (using

13   Bloomberg Betas) and 11.60 percent (using Value Line Betas), or an average of 10.97

14   percent. These forward-looking CAPM results are somewhat higher than my Risk

15   Premium results and my Constant Growth DCF results (which continue to be depressed

16   by abnormally high utility valuations and low dividend yields).

---

[46]   FERC Opinion No. 531, at para. 147, footnote 292.

1   *D. Risk Premium Analysis*

2   **Q63. Please describe the Risk Premium approach that you used.**

3   A63. In general terms, this approach recognizes that equity is riskier than debt because equity

4   investors bear the residual risk associated with ownership. Equity investors, therefore,

5   require a greater return (i.e., a premium) than a bondholder would. The Risk Premium

6   approach estimates the cost of equity as the sum of the Equity Risk Premium and the

7   yield on a particular class of bonds.

8              $ROE = RP + Y$ [5]

9   Where:

10   RP = Risk Premium (difference between allowed ROE and the 30-Year

11   Treasury Yield) and

12   Y = Applicable bond yield.

13   Since the equity risk premium is not directly observable, it is typically estimated

14   using a variety of approaches, some of which incorporate ex-ante, or forward-looking

15   estimates of the cost of equity, and others that consider historical, or ex-post, estimates.

16   For my Risk Premium analysis, I have relied on authorized returns from a large sample

17   of electric utility companies.

18   **Q64. What did your Risk Premium analysis reveal?**

19   A64. To estimate the relationship between risk premia and interest rates, I conducted a

20   regression analysis using the following equation:

21              $RP = a + (b \ x \ Y)$ [6]

1   where:

2   *RP* = Risk Premium (difference between allowed ROEs and the 30-Year

3   Treasury   Yield);

4   *a* = Intercept term;

5   *b* = Slope term; and

6   Y = 30-Year Treasury Yield.

7   Data regarding allowed ROEs were derived from 732 electric utility company

8   rate cases from 1992 through February 28, 2018, as reported by Regulatory Research

9   Associates.

10   **Figure 12: Risk Premium Results**

11

12
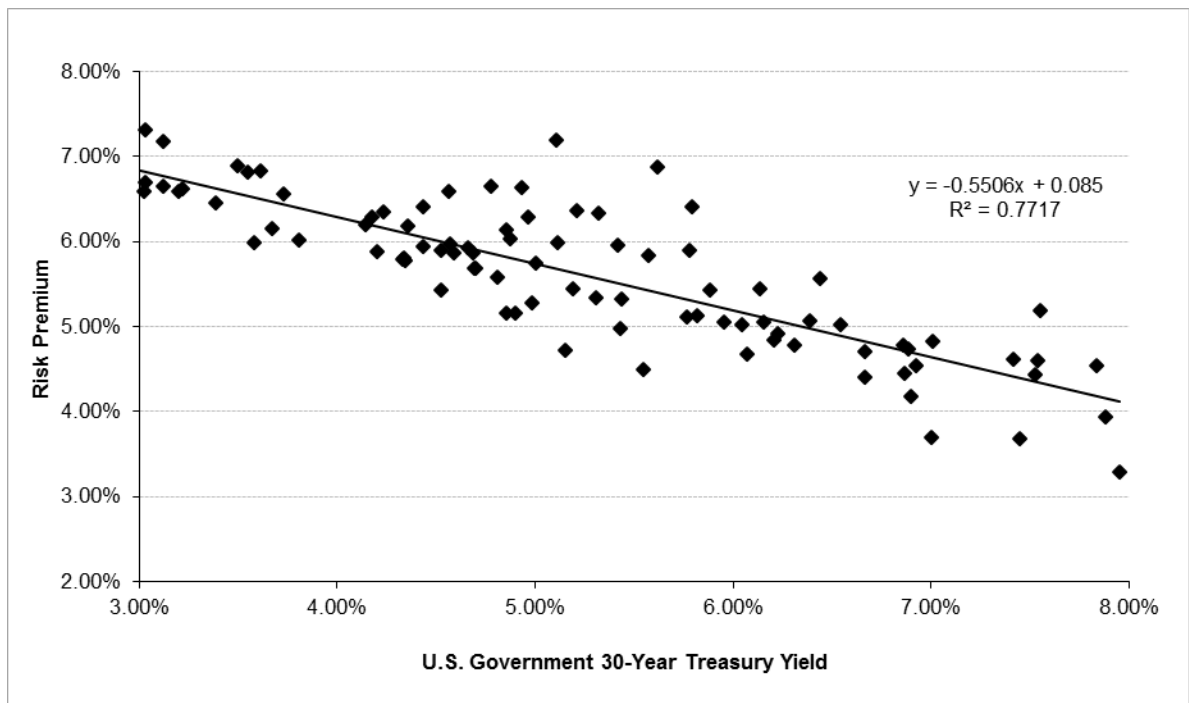
13   As illustrated by Figure 12 (above), the risk premium varies with the level of

14   bond yield, and generally increases as the bond yields decrease, and vice versa. In order

1   to apply this relationship to current and expected bond yields, I consider three estimates

2   of the 30-year Treasury yield, including the current 30-day average, a near-term Blue

3   Chip consensus forecast for Q2 2018–Q2 2019, and a BlueChip consensus forecast for

4   2019–2023. I find this 5-year result to be most applicable because investors are

5   expecting consistent increases in government bond yields and typically have a multi-

6   year view of their required returns on equity. Based on the regression coefficients in

7   **Exhibit GMP-JMC-8**, which allow for the estimation of the risk premium at varying

8   bond yields, the results of my Risk Premium analysis are shown in Figure 13.

9   **Figure 13: Risk Premium Results Using 30-Year Treasury Yield**

	Using 30-Day Average Yield on 30-Year Treasury Bond	**Using Q2 2018–Q2 2019 Forecast for Yield on 30-Year Treasury Bond[47]**	**Using 2019-2023 Forecast for Yield 30-Year Treasury Bond[48]**
Yield	3.06%	3.48%	4.10%
Risk Premium	6.81%	6.58%	6.24%
Resulting ROE	9.87%	10.06%	10.34%

10

[47]   Blue Chip Financial Forecasts, Vol. 36, No. 3, March 1, 2017, at 2
[48]   Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016, at 14.

VII. BUSINESS RISKS AND FLOTATION COSTS

1 **Q65. Are there factors specific to Green Mountain Power's operating environment that**

2 **you considered in your ROE recommendation?**

3 A65. Yes, there are several additional factors that have a direct bearing on the Company's

4 ability to earn a fair return and on the Company's riskiness relative to the proxy group.

5 Those factors include the Company's small size and the Company's regulatory risks

6 relative to the proxy group companies. Those risk factors slightly elevate Green

7 Mountain Power's risk relative to the proxy group.

8 *A. Small Size*

9 **Q66. To what extent does Green Mountain Power's relatively small size affect its risk**

10 **profile?**

11 A66. The small size of Green Mountain Power relative to the proxy group companies is an

12 important risk factor in determining the Company's cost of equity. Substantial academic

13 literature recognizes that smaller companies require higher returns than larger companies,

14 even after the relative illiquidity of smaller company stock is taken into account. Figure

15 14 (see also **Exhibit GMP-JMC-9**) shows Green Mountain Power's implied market

16 capitalization relative to the proxy group companies.

1   **Figure 14: Market Capitalization of Green Mountain Power vs. Proxy Group**
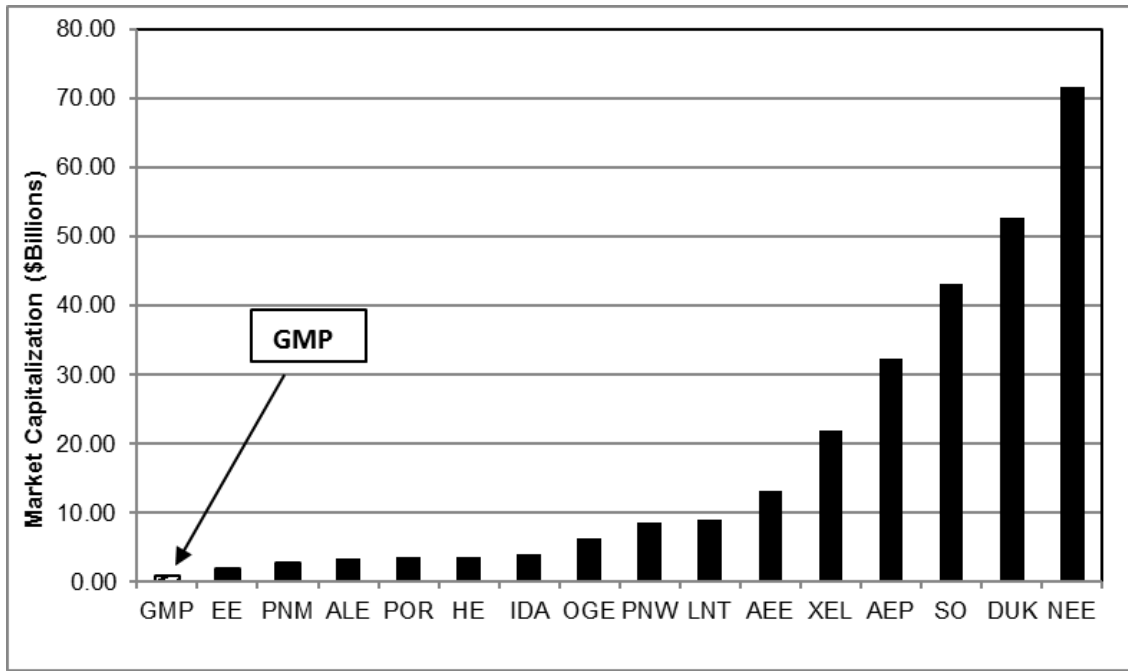
2

3   Green Mountain Power's small size relative to the proxy group companies means

4   that the Company's earnings and cash flows may be disproportionately affected by

5   declining demand, conservation measures, storm outages, and changes in weather in

6   contrast to a larger utility. Similarly, capital expenditures for non-revenue producing

7   investments such as generation outages, system maintenance, and replacements will put

8   proportionately greater pressure on customer costs. Taken together, these risks affect

9   the return required by investors for smaller companies. As the data above indicates, the

10   Company is very small compared to the proxy group companies used for the ROE

11   analysis.

12   **Q67. Is there declining demand on GMP's distribution system?**

13   A67. Most definitely. According to a recent budget forecast report issued by Itron, Inc. for

14   Green Mountain Power, residential MWh sales (comprising approximately 43 percent of

1   total sales revenues) has declined at a rate of roughly 1 percent per year since the

2   recession in 2008 and is expected to continue to decline by roughly the same amount

3   through 2028 (the end of the forecasted period). The last several years have experienced

4   a more dramatic decline of 2.2 percent per year.[49] As shown in Figure 15 (below),

5   GMP's otherwise potentially increasing sales forecast is markedly impacted by the

6   growth of clean energy initiatives on GMP's system. While some of these initiatives,

7   such as heat pumps and electric vehicles, have the potential to increase sales, those

8   increases are more than offset by decreased sales associated with energy efficiency and

9   net-metered solar penetration in GMP's service territory. Together, these two initiatives

10   (efficiency and net-metering) are expected to offset sales growth by 17,003 MWh in

11   2018, ramping up to 205,093 MWh in 2028. It will be critical for GMP to continue its

12   ability to recover its revenue requirement despite its declining sales. Historically, GMP's

13   rate plan has partially decoupled revenue and sales, and provided some protection against

14   declines in sales volume. Without a mechanism to provide this important protection

15   going forward, GMP would be more exposed to earnings volatility and less able to

16   weather unexpected cash flow pressures. This issue is discussed further below with

17   respect to the risk associated with GMP's potential future regulation plan.

[49]   Itron, Inc., *Green Mountain Power 2019 Budget Forecast Report*, (April 2, 2018), at pp. 2-6, 33.

1   **Figure 15: Disaggregated Residential Sales Forecast (MWh) 2018-2028**
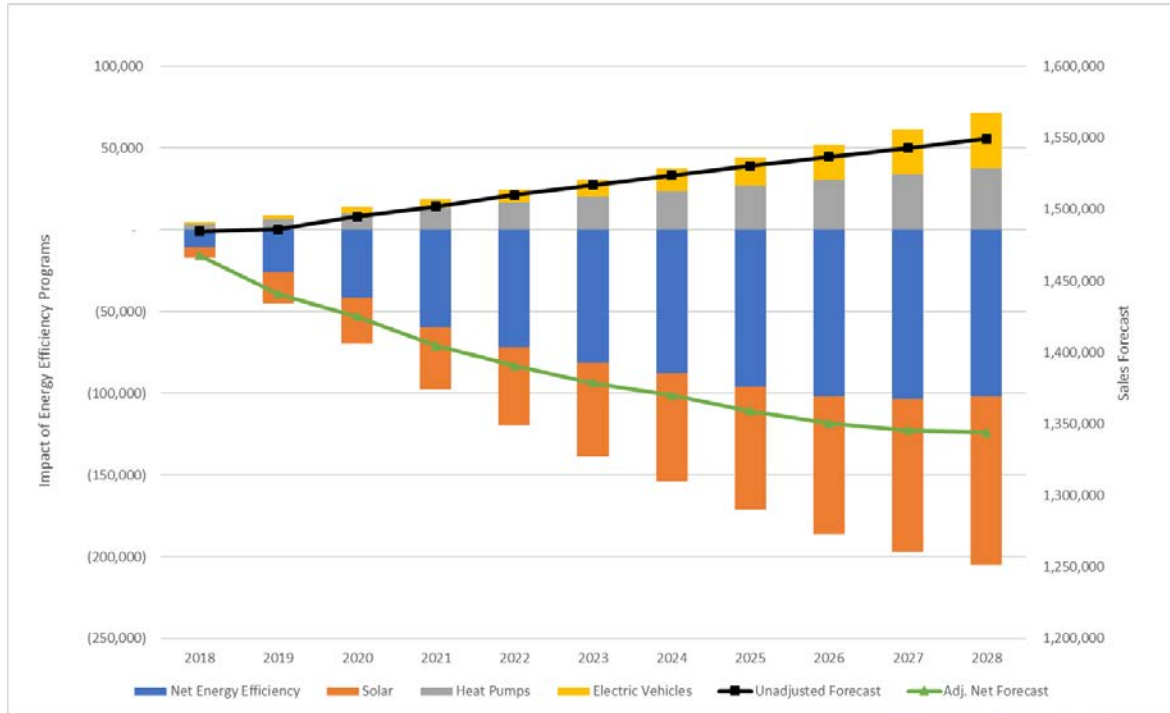
2
3   *Source: Itron, Inc. 2019 Forecast, Table 3*

4   ***B. Regulatory Risks***

5   **Q68. Do credit rating agencies consider regulatory risk in establishing a company's credit**

6   **rating?**

7   A68. Yes, absolutely, it is one of the key drivers of credit rating decisions. S&P, Moody's, and

8   Fitch all consider regulatory risk in establishing credit ratings for public utilities. In

9   particular, Moody's has published a report quantifying the importance of this metric.

10   Moody's establishes credit ratings based on four key factors: (1) regulatory framework;

11   (2) the ability to recover costs and earn returns; (3) diversification; and (4) financial

12   strength, liquidity, and key financial metrics. Of those criteria, regulatory framework and

13   the ability to recover costs and earn returns are each given a broad rating factor of

1   twenty-five percent. Therefore, Moody's assigns regulatory risk a fifty percent weighting

2   in the overall assessment of business and financial risk for regulated utilities.[50]

3   **Q69. How does the regulatory environment affect a utility's access to and cost of capital?**

4   A69. The regulatory environment affects both the access to and cost of capital in several ways.

5   First, the proportion and cost of debt capital available to utility companies are influenced

6   by the rating agencies' assessment of the regulatory environment. As noted by Moody's,

7   "[f]or rate-regulated utilities, which typically operate as a monopoly, the regulatory

8   environment and how the utility adapts to that environment are the most important credit

9   considerations."[51] Moody's further notes:

10   Utility rates are set in a political/regulatory process rather than a
11   competitive or free-market process; thus, the Regulatory Framework is a
12   key determinant of the success of the utility. The Regulatory Framework
13   has many components: the governing body and the utility legislation or
14   decrees it enacts, the manner in which regulators are appointed or elected,
15   the rules and procedures promulgated by those regulators, the judiciary
16   that interprets the laws and rules and that arbitrates disagreements, and
17   the manner in which the utility manages the political and regulatory
18   process. In many cases, utilities have experienced credit stress or default
19   primarily or at least secondarily because of a break-down or obstacle in
20   the Regulatory Framework – for instance, laws that prohibited regulators
21   from including investments in uncompleted power plants or plants not
22   deemed "used and useful" in rates, or a disagreement about rate-making
23   that could not be resolved until after the utility had defaulted on its
24   debts.[52]

25   It also is important to recognize that regulatory decisions regarding the

26   authorized ROE and capital structure have direct consequences for the utility's internal

27   cash flow generation (sometimes referred to as "Funds Flow from Operations," or

---

[50]   Moody's Investors Service, *Regulated Electric and Gas Utilities*, December 23, 2013, at 6.
[51]   Ibid, at 9.
[52]   Ibid.

1   "FFO"). Since credit ratings are intended to reflect a company's ability to fund financial

2   obligations, the ability to internally generate the cash flows required to meet those

3   obligations (and to provide an additional amount for unexpected events) is of critical

4   importance to debt investors. Two of the most important metrics used to assess that

5   ability are the ratios of FFO to debt and FFO to interest expense, both of which are

6   directly affected by regulatory decisions regarding the appropriate rate of return and

7   capital structure. Rating agencies could become concerned about the adequacy of a

8   utility's funds from operations in light of the combined effect of Tax Reform and

9   interest rate movements in the broader economy, particularly where the utility has an

10   ROE at the low end of the industry.

11 **Q70. How does Green Mountain Power's regulatory jurisdiction compare to that of the**

12   **proxy companies?**

13 A70. I understand that the environment has been generally constructive, allowing the Company

14   to maintain a healthy financial profile and to pursue innovative electric initiatives for

15   customers. The Company has in recent years utilized an annual refresh of each element

16   of its cost of service under its previous regulation plan, which has provided GMP the

17   possibility to earn its allowed return. I have performed an analysis that compares RRA's

18   ranking of the regulatory commissions for each proxy group to the Vermont PUC. RRA

19   performs this ranking based on its assessment of how investors perceive the regulatory

20   risk associated with ownership of utility securities in that jurisdiction, specifically

21   reflecting its assessment of the probable level and quality of earnings to be realized by

22   the State of Vermont's ("State") utilities as a result of regulatory, legislative, and court

1   actions. As shown in **Exhibit GMP-JMC-10**, the relative perception of regulatory risk

2   for Green Mountain Power is very similar to the jurisdictions for the proxy group

3   companies. The Vermont regulatory environment is currently ranked "Average", while

4   the proxy group is also ranked as "Average." Maintaining a fair and reasonable ROE in

5   relation to other jurisdictions will be a key factor in keeping this ranking.

6   **Q71. Is Green Mountain Power operating under a Regulation Plan that provides for**

7   **incremental capital recovery and revenue decoupling?**

8   A71. The Company is currently operating under a limited extension of certain elements of its

9   previous Plan with adjustors for power costs, exogenous charges, and innovation charges

10   during the rate period. This Interim Plan has allowed continuation of the critical

11   elements of the Company's prior Plan and has essentially resulted in the continuation of

12   GMP's existing risk profile. Though the annual refresh of utility cost of service and the

13   associated true-up were important elements of GMP's former Plan, they are not present

14   in the Interim Plan, primarily due to the limited term of the Interim Plan. Instead, GMP

15   has filed traditional rate cases to adjust base rates, first for the 2018 rate period, and now

16   in this proceeding for the 2019 rate period. I understand that GMP will be seeking a

17   further extension of this Interim Plan to cover any period before the Commission

18   considers a new Multi-Year Plan in 2019.

19   Green Mountain Power is in the process of preparing a new Multi-Year Plan

20   with performance-based features. The Multi-Year Plan has not yet been finalized or

1   filed with the Commission, which is also considering regulation plans more generally[53]

2   and, as a result, there is some uncertainty as to how regulation plans in general will be

3   evaluated, what the final Plan, if any, will look like, and whether it will provide a

4   comparable level of regulatory support to GMP's former Plan. The exclusion of

5   critically supportive elements, such as regular base rate adjustments, allowing recovery

6   of incremental capital and certain elements of the power cost adjustor (i.e. the dead

7   band, eligible costs, etc.) could significantly impact the Company's risk profile. The

8   current uncertainty, if prolonged, could also impact the Company's risk profile.

9   **Q72. Do you anticipate that GMP's risk profile will be impacted by the transition to a**

10   **new regulatory plan?**

11 A72. It could be. Given the generally constructive regulatory environment, I would not expect

12   this transition, if managed with expediency, to materially impact the Company's risk

13   profile. As I stated earlier in my testimony, my recommendations are based on the

14   assumption that GMP will have the same level of regulatory and credit support during the

15   rate period as it does currently. Accordingly, at this time, I have not considered any

16   changes in regulatory risk associated with the transition to a new regulatory plan in my

17   recommendation. For purposes of my analysis for the 2019 rate year, I assume that such

18   a transition will maintain the Company's risk profile near its current level.

---

[53]   VT PUC, Case No. 17-3142-PET.

1   **Q73. Are there other regulatory risks that distinguish the Company relative to its proxy**

2   **group?**

3   A73. Yes. Green Mountain Power has been at the forefront of innovation, providing its

4   customers with the means to self-generate their own electricity and sell back to the grid.

5   The Company is driving change and operates in among the top ten states for solar electric

6   generation per capita driven by solar-friendly net-metering policies, and according to a

7   study performed by IHS Market, GMP's service territory alone ranks 2nd in the country

8   (just behind Hawaii) for estimated distributed solar capacity as a percent of peak load.[54]

9   The State has targeted fulfilling ten percent of its electric requirements with distributed

10   generation by 2032.[55] Vermont is ranked No. 2 for States leading the way in clean

11   energy, just behind California, and leads the nation in clean energy jobs per capital.[56]

12   Additionally, as discussed previously in my testimony, aggressive efficiency measures

13   have contributed and are forecast to continue to contribute to declining loads. To achieve

14   this objective, the utility will be required to recover its largely fixed cost of service on

15   declining electric sales. This has led to and will continue to cause upward rate pressure

16   that could render GMP's rates uncompetitive with alternative energy sources and run the

17   risk of stranded system assets. The Company must develop alternative revenue sources

18   to offset its declining customer load, presenting unique risks for Green Mountain Power,

19   particularly when considering its size relative to the proxy group. Further exacerbating

---

[54] Green Mountain Power Comments, Biennial Update of Net-Metering Program, Case No. 18-0086-INV (March 15, 2018) at 3.

[55] Gideon Weissman, Frontier Group and Bret Fanshaw and Rob Sargent, Environment America Research & Policy Center, *Lighting the Way 4: The Top States that Helped Drive America's Solar Energy Boom in 2015* (July 2016) at 22.

[56] Union of Concerned Scientists, *Clean Energy Momentum, Ranking State Progress* (April 2017) at 2-3.

1   these risks are the cash flow management challenges presented by the 2017 Tax Reform

2   and GMP's immediate return of customer-funded excess ADIT balances, discussed

3   earlier in this testimony. These risks are important as GMP expands distributed

4   generation in its service territory and could become significant if GMP's new Multi-Year

5   Plan does not provide for recovery of GMP's full cost of service.

6   **Q74. What do you conclude with respect to Green Mountain Power's regulatory risk**

7   **relative to the proxy group?**

8   A74. In the areas I evaluated, Green Mountain Power has greater business risk than the proxy

9   group, due primarily to its small size, the potential loss of load from behind-the-meter

10   generation and efficiency measures, and the uncertainty around the supportive elements

11   of its new Multi-Year Plan. Though I do not make a specific risk adjustment for these

12   risks, I recommend an ROE that is just above the mean result of my ROE analyses. If the

13   transition to a new Multi-Year Plan brings unexpected risks, this ROE recommendation

14   would need to be re-evaluated in the context of the new Plan.

15   *C. Flotation Costs*

16 **Q75. What are flotation costs and how do they affect the cost of capital?**

17 A75. Flotation costs are the costs associated with the sale of new issues of common stock.

18   These costs include out-of-pocket expenditures for preparation, filing, underwriting, and

19   other costs of issuance of common stock. To the extent that a company is denied the

20   opportunity to recover prudently incurred flotation costs, actual returns will fall short of

21   expected (or required) returns, thereby diminishing the utility's ability to attract adequate

1   capital on reasonable terms. To appropriately reflect flotation costs, the DCF calculation

2   should be modified to provide a dividend yield that would reimburse investors for

3   issuance costs. Based on the proxy group issuance costs shown in **Exhibit GMP-JMC-**

4   **11.1**, I conclude that flotation costs for the proxy companies have equaled roughly 3.31

5   percent of gross equity raised; and to properly reflect these issuance costs in my cost of

6   capital estimates, it would be appropriate to increase ROE by 12 basis points for Green

7   Mountain Power, as shown on **Exhibit GMP-JMC-11.2**.

8   **Q76. Do your final results include an adjustment for flotation cost recovery?**

9   A76. No. I did not make an explicit adjustment for flotation costs to any of my quantitative

10   analyses. Rather, I provide the above result for consideration in my recommended ROE,

11   which reflects the range of results from my DCF, CAPM, and Risk Premium analyses.

12

VIII.   CAPITAL STRUCTURE

13   **Q77. What is Green Mountain Power's historical and proposed capital structure?**

14   A77. The Company is currently authorized a common equity ratio of 48.60 percent and is

15   proposing in this proceeding that its regulatory capital structure allow 49.8 percent

16   equity.

17   **Q78. How does the capital structure affect the cost of equity?**

18   A78. The capital structure relates to a company's financial risk, which represents the risk that a

19   company may not have adequate cash flows to meet its financial obligations and is a

20   function of the percentage of debt (or financial leverage) in its capital structure. In that

1   regard, as the percentage of debt in the capital structure increases, so do the fixed

2   obligations for the repayment of that debt. Consequently, as the degree of financial

3   leverage increases, the risk of financial distress (i.e., financial risk) also increases.[57]

4   Since the capital structure can affect a company's overall level of risk, it is an important

5   consideration in establishing the rate of return.

6 **Q79. How did you assess the reasonableness of Green Mountain Power's capital structure**

7   **with respect to the proxy group?**

8 A79. The proxy group has been selected to reflect comparable companies in terms of business

9   and financial risks. Therefore, it is appropriate to compare the capital structures of the

10   proxy group companies to that of Green Mountain Power in order to assess whether the

11   Company's capital structure is reasonable and consistent with industry standards for

12   companies with commensurate risk. I calculated the weighted average capital structures

13   for each of the proxy group operating companies on a quarterly basis for the four quarters

14   through Q3 2017. As shown in **Exhibit GMP-JMC-12**, the Company's historical

15   common equity ratio of approximately 50 percent is slightly below the mean common

16   equity ratio for the proxy group operating companies over this period.

17 **Q80. What is your conclusion regarding the appropriateness of Green Mountain Power's**

18   **capital structure in this proceeding?**

19 A80. Based on the analysis presented in **Exhibit GMP-JMC-12**, my conclusion is that a

20   capital structure for Green Mountain Power of 53.0 to 54.0 percent would be appropriate.

---

[57]   *See* Roger A. Morin, <u>New Regulatory Finance</u>, Public Utility Reports, Inc., 2006, at 45-46.

1   However, in an effort to lessen the rate impact of its filing, the Company has proposed a

2   lower equity ratio of 49.8 percent in addition to accepting a lower ROE of 9.3 percent

3   annualized. This equity ratio is below the mean and median of the proxy group

4   companies but is within the range of proxy group equity ratios. Sufficient equity in the

5   capital structure is an important factor for maintaining the Company's financial integrity

6   and an investment grade credit rating. The Company's proposed equity ratio is

7   reasonable but conservative, given the additional risk borne by the Company relative to

8   the proxy group—i.e. the small size of Green Mountain Power—its approach to

9   addressing Tax Reform, and its customer self-generation initiative.

IX.   CONCLUSIONS AND RECOMMENDATION

10   **Q81. What is your conclusion regarding a fair ROE for Green Mountain Power?**

11   A81. Based on the quantitative analyses provided in my Direct Testimony, I have established a

12   range of ROE results shown in Figure 16 (below). I consider a reasonable range of ROE

13   for GMP to be between the mean of all methods on the lower end, and the mean high

14   result on the upper end. In creating this range, I average the Multi-Stage and Constant

15   Growth DCF approaches to obtain a single average DCF result that is averaged with the

16   results of my CAPM and Bond Yield Risk Premium Methodologies. I believe this

17   provides an appropriate weighting of my DCF results in today's economic conditions,

18   when utility valuations are unusually high and results from the DCF model understate

19   investor required returns for regulated utilities. The resulting reasonable range is 9.9 to

20   10.4 percent. I would recommend a rate of 10 percent based on this analysis. GMP is

21   proposing an ROE of 9.3 percent annualized based on its prior agreement with DPS,

1   which is well below the low end of the reasonable range supported by my analysis, for

2   the rate period January 1, 2019 to September 30, 2019. When considered in combination

3   with GMP's proposed equity ratio of 49.8 percent, GMP's requested cost of capital is

4   below the level I would recommend, given GMP's relative risk profile, absent a

5   regulatory agreement to ensure GMP's recovery of its cost of service.

1   **Figure 16[58]: Summary of ROE Analyses Results**

Constant Growth DCF			
	Mean Low	Mean	Mean High
30-Day Average	7.93%	8.91%	9.89%
90-Day Average	7.67%	8.65%	9.62%
180-Day Average	7.65%	8.62%	9.60%
Multi-Stage DCF - Forecasted GDP Growth			
	Mean Low	Mean	Mean High
30-Day Average	8.08%	8.37%	8.67%
90-Day Average	7.80%	8.07%	8.36%
180-Day Average	7.78%	8.05%	8.33%
Multi-Stage DCF - Historical GDP Growth			
	Mean Low	Mean	Mean High
30-Day Average	9.08%	9.36%	9.65%
90-Day Average	8.81%	9.07%	9.35%
180-Day Average	8.79%	9.05%	9.32%
Overall DCF Average Result	**8.18%**	**8.68%**	**9.20%**
Capital Asset Pricing Model			
	Bloomberg Beta		Value Line Beta
CAPM	10.33%		11.60%
Overall CAPM Average Result	**10.97%**		
Treasury Yield Plus Risk Premium			
	Current 30-day Average Treasury Bond Yield	Near-Term Blue Chip Forecast Yield	Long-Term Blue Chip Forecast Yield
Risk Premium Analysis	9.87%	10.06%	10.34%
Overall RP Average Result	**10.09%**		
Average of Results			
	Mean Low	**Mean**	**Mean High**
All Methods	**9.46%**	**9.91%**	**10.38%**

2

3 **Q82. Does this conclude your pre-filed Direct Testimony?**

4 A82. Yes, it does.

---

[58]   A similar summary is also provided in **Exhibit GMP-JMC-2**.